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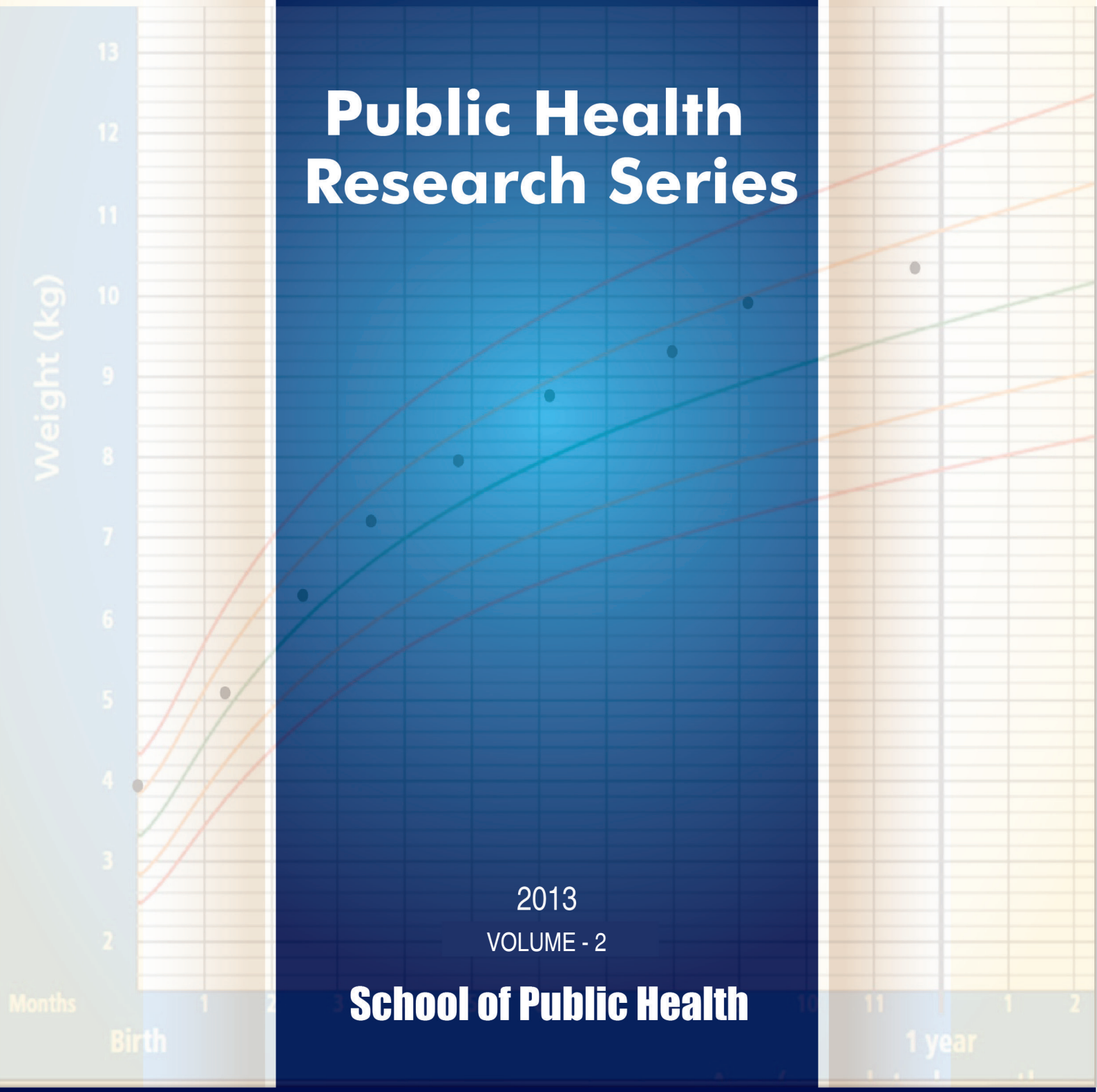

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School of Public Health

FOREWORD

Toni Morrison the contemporary bestselling American author writes “If there’s a book that you want to read, but it hasn’t been written yet, then you must write it.” This second volume of the Public Health Research Series is a continuation of the writing venture started by the first volume roughly a year ago in pursuit of expanding the academic research base in public health. In keeping with what Toni Morrison said we have attempted to bridge the huge gap of literature from India in the public health research arena.

This edition has expanded compared to the previous one in that it has 30 full text research articles, one review paper and four abstracts. These are the fruits of the efforts of the students and faculty who designed the studies, collected data in the field, managed the data, analyzed it and written the manuscript.
There have been significant advances in quality of the manuscript compared to the previous edition. This was due to the special manuscript preparation workshop that was organized for the students during which they were given specific training on scientific manuscript writing. This change can be discerned by readers of the previous edition and this edition of the series.

As in the previous volume, the main objective of this series to bring to the public domains the various small research projects done by students in the School of Public Health. These are small pilot projects on various areas of public health interest spanning the length and breadth of the country and also from foreign countries such as Nepal, Nigeria and Democratic Republic of Congo. The projects are subject to constraints of resources and time as is typical of any student project. But they serve as interesting pilots which can be expanded on a larger scale.

Very soon, we hope to improve the quality of the manuscripts and introduce peer review process and upgrade to a public health research journal. In this regard we invite comments, criticism and pointers for improvement of quality of the series as well as the individual articles in the series. We thank the readers for the patronage and wish them a fulfilling and enriching reading experience!

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Brief Reports / Abstracts

Reproductive health status and life skills of adolescent girls dwelling in Chennai slums

Sharanya Thanapathy[1], Geetha Veliah[2].

Abstract

Background: Slums are artefacts of poverty and inequality. Adolescent girls dwelling in slums are vulnerable for poor reproductive health due to lack of awareness about reproductive health and low life skills. These girls are in a crucial stage of their life cycle which can determine the health of future generations. Despite adolescents constitute 22% of Indian population they are ill served in terms of reproductive health. **Objectives**: The primary objective was to assess the reproductive health status and life skills of adolescent girls dwelling in Chennai Slums. **Methods:** A cross sectional study was done among 130 slum dwelling adolescent girls, aged 13-19 years, using multistage sampling method from 5 slums in Chennai. **Results**: About 73% (95%CI:66.23-81.36)reported menstrual morbidity and 51% (95%CI:50.74-52.25) hadsymptoms suggestive of RTI/UTI. Of the girls surveyed 42% were married. Nearly 25% (95%CI:23.07-26.92) of the married girls had history of abortion and 18% (95%CI:11.32-25.07) were self treated for the same. Contraceptive usage among ever married was 22.7% (95%CI:20.83-24.56). Eventhough awareness about HIV/AIDS was 75%, it was not matching with the knowledge regarding modes of transmission and prevention, which was 39% and 19% respectively. Almost 39% of the respondents felt shame or insecurity as the key barrier for not seeking reproductive health. About 52% had low life skill levels. The risk factors were analysed using logistic regression and found that menstrual morbidity were high among those with low life skills, symptoms suggestive of RTI/UTI were high among those who were married before14 years of age and life skills were high among those belonged to scheduled caste community. **Conclusion**: This study found a high level of menstrual/reproductive morbidity, self treated abortion and least knowledge about modes of HIV transmission and prevention, usage of contraceptives among adolescent girls in Chennai slums. Levels of like skills were also low among them. There is a need to initiate community level life skill education, sex education and behaviour change communication for slum dwelling adolescents as apart of Adolescent Reproductive and Sexual Health Program.

Key Words: Reproductive Health, Adolescent Girls, Slums, Life Skills.

Introduction:

Adolescent period is the evolution from girlhood to womanhood. It is a crucial phase in reproductive cycle of women(1). Their health also determines the health of future generation since healthy girls will make healthy women(2).

Slums are believed to be one of the focal areas for public health crisis due to urban poverty and inequality. The foremost setback of slum is not only shelter facilities but also health and hygiene. Failure of policies, improper governance and inapt regulations are the core reasons behind the poor conditions of slums. All these reasons append to the toll of people already intensely burdened with poverty.

According to 2001 census total slum population in India was 62 million, Tamil Nadu 2,838,366(20% of total population), Chennai 10,79,414(26% of total population) and it was estimated to be 8,644,892 in 2011. Adolescents comprise 22%(one quarter) of the Indian population(3). Despite this their reproductive health needs are poorly understood and ill served. It was also projected that more than half of the Indian population would live in urban areas due to rapid urbanisation by 2020 and nearly one third of the urban population would be slum dwellers which is a major concern(4).

In 2000, the National Population Policy recognised adolescents as underserved and vulnerable group with special needs. The Phase-II RCH programme was especially dedicated for health requirements of poor, specifically slum population. A special task force was framed by NRHM (2005-2012) to build strategies for urban health care. ICDS also works for adolescent health in Tamil Nadu(5). WHO-UNFPA had also published a guideline to prevent adolescent pregnancies and reproductive morbidities in low and middle income countries. UN Adolescent task force of UNFPA especially support rights of marginalised adolescent girls.

Constant disparity in antenatal coverage among slum dwellers and non slum dwellers was found in a study(6). Indian culture assumes menstruation as an unhygienic happening(7). Most of the gynaecological problems in girls happen because of deprived personal hygiene and unsanitary environment. Infections are reported chiefly due to lack of menstrual hygiene. The milieu of vaginal infection is primarily caused by reuse of unclean menstrual clothes and improper drying(1). Unknowingly menstrual problems were the highest prevalent and least addressed morbidity in a women's reproductive age. The other important issue in adolescent reproductive health is

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unsafe abortions.A study in Ghana and Burkina Faso revealed that home remedies were the most favourable alternative for abortion(4).

UNFPA found that, globally in a year 70,000 deaths were due to pregnancy and child birth among 15 to 19 year girls(8).About 14 million adolescents bearing children yearly India has 47%. In developing countries 2.2 to 4 million had unsafe abortion yearly(9).

WHO stated "life skills are abilities for adaptive and positive behaviour that enables an individual to deal effectively with the demand and challenges of everyday life." It also trim down the high risk behaviour and enhance the problemsolving ability to decide their well being. Life skills are cluster of psychosocial competencies and interpersonal skills to facilitate people to formulate informed decisions, resolve problem, reflect critically and creatively, communicate effectively, build healthy relationships, empathies with others, cope and manage their lives in healthy and productive manner(10).

The objectives of this study were to assess reproductive and menstrual morbidity profile, the personal and environmental menstrual hygiene, to determine the reproductive health seeking behaviour and life skills of adolescent girls living in slums in Chennai.

Methodology:

This was a community based descriptive cross sectional study among the adolescent girls of age 13 to 19 years, dwelling in Chennai Slums. The study period was June 2012 to July 2012. The sample size was calculated with prevalence of menstrual abnormalities among adolescent girls in Tamil Nadu as 46% (11), confidence level of 95% and relative precision of 20% with 10% excess sampling to account for non response. The sample size derived was 125 and the research finally surveyed 130 adolescent girls.

Slum household survey data(2005) was collected from Tamil Nadu Slum Clearance Board, Chennai. The data had total families and households in 155 slums of ten zones in Chennai. Multi-Stage sampling was followed to select the adolescent girls for the study. In the first sampling stage, Chennai city was clustered into ten zones from the data obtained. Zone 3 was selected by simple random sampling from the ten clusters. In the second stage probability proportion to size technique was followed to select five slums in Zone 3. Self weighted sampling was done in third stage, to select adolescent girls from those five slums according to the number of households with adolescent girls. Maps were drawn in the fourth stage for all the five slums and households were listed. Simple random sampling with replacement was done within the selected slums to draw the adolescent girls for the study. The response rate was 95%.

An informed written consent was obtained in native language from the respondent and the mother of the respondent/guardian, after explaining the purpose of the research. The participation in the research was entirely voluntary and the participants were free to withdraw from the study at any point. The participants were assured regarding the confidentiality of the data collected from them.

Data was collected using a semi-structured and pretested questionnaire. The questionnaire collected information on demographic characteristics, menstrual/reproductive profile and hygiene, reproductive health seeking behaviour and life skills. The life skills were Likert scale questionnaire adapted from NIMHANS adolescent life skill training module. It measured the life skill components like resilience, rational thinking, decision making, problem solving, coping, interpersonal relation and realising emotions. The socio-economic status was not included in the demographic domain since majority of the families dwelling in Chennai Slums belong to below poverty line. The menstrual morbidity was assessed with a series of questions concerned with menstrual symptoms in past six months. Questions regarding history of pregnancies and abortions were asked only for married respondents. Contraceptive and HIV awareness and knowledge were evaluated for all respondents.

Data were entered in Epi Info-7 and analysed in Statistical Package for the Social Sciences version-17. Chi-square analysis, odds ratio to determine the risks, logistic regression and stratified analysis were done to analyse the data. Certain scoring modes were carriedout to categorize the data during analysis. The presence of any of the symptoms of menstrual morbidity namely amenorrhea / polymenorrhea, dysmenorrhoea or menorrhagia was scored one and none as zero. The presence of any of the symptoms of reproductive morbidity specifically vaginal itching profuse foul smelling white discharge and burning micturation were scored one and none as zero. In health seeking behaviour the respondents who sought help of a doctor for their morbidity were scored two, taking self medication or home remedies were one and ignoring it were zero. The life skills were scored five-one for positive-negative response in Likert scale. The total scores were computed and the median was obtained. Those who scored more

than the median were classified as girls with high life skills and vice versa.

Results:

Most (86%) of the adolescent girls in the study were between the age group 15 to 19 years. Demographic characteristics of the study population showed 31% girls were married and 2% were young widows. The median age at menarche and marriage were 13 years and 14.5 years respectively. The literacy rate was 95% among the respondents. Majority were students and housewives. Demographic characteristics described in (Table 1)

Table 1
Demographic Characteristics of the adolescent girls

Demographic Characteristics	Frequency	Percentage
Age of the respondents (Years)		
13 – 14	18	14%
15 – 17	57	44%
18 – 19	55	42%
Marital status		
Single	86	66%
Married	42	32%
Widow	2	2%
Community		
SC	100	77%
MBC	7	5%
Others	23	18%
Religion		
Hindu	92	71%
Christian	28	21%
Muslim	10	8%
Education		
Illiterate	7	5.4%
Primary	76	58.5%
Secondary	30	23.1%
Vocational	3	2.3%
College	14	10.8%
Occupation		
Student	74	56.9%
Housewife	37	28.5%
Daily labour	4	3.1%
Skilled	9	6.9%
None	6	4.6%

Only 25% of the respondents had awareness regarding menstrual cycle before attaining menarche. Dysmenorrhea was the most common menstrual morbidity (61%, 95%CI:60.06-61.53) followed by menorrhagia (31.5%, 95%CI:30.8-32.19) and amenorrhea/polymenorrhea (20.8%, 95%CI:20.76-0.84). On the whole 74% (95%CI:66.23-81.36) of the respondents had any one of the menstrual morbidity in past 6 months. Almost 57% of the respondents were unable to perform their routine activities during menstrual cycle. There was a significant association between caste and menorrhagia (p-value:0.047, Chi-square:4.134). The respondents belonged to backward, most backward and other castesother than Scheduled Caste (SC) had four times higher odds for menorrhagia compared to scheduled caste community respondents (95%CI:5.494-1.019).

Amid the married adolescent girls who were interviewed 18% (95%CI:16.46-19.89) were currently pregnant. Of them half belonged to third trimester, followed by second trimester (37.5%) and first trimester(12.5%). There were about 84% (95%CI:82.47-85.72) of previous pregnancies among the married girls and all of them had sought institutional delivery for pregnancy. The pregnancy rate with total sample size was 35%. Still births were 16% (95%CI:14.2-18.15) among the deliveries. Abortion rate was 25% (95%CI:23.07-26.92). Nearly 82% of those who reported abortions sought abortion care from government hospital and 18% had self treated abortion.

The respondents had 52% prevalence of any one symptom suggestive of reproductive tract infection or urinary tract infection (Table-2).

Almost 63% (95%CI:62.37-63.82) were unaware about any of the methods of contraception. None of them had knowledge about fertile period of menstrual cycle. Among the currently married 24% were contraceptive users. Amid them only one respondent was using condom as the mode of contraception.

Of the respondents 75% had awareness about HIV/AIDS but 39% and 19% only had knowledge about modes of transmission and prevention of HIV infection respectively.

All the respondents had access to water and bathroom for personal use. They were bathing daily during menstruation. Nearly 32% of the respondents were dependent on public toilet facilities. 84% respondent used pad as an absorbent for menstrual bleeding and rest 16% used cloth. Among the cloth user 81% used detergent to wash and 52% dried it under sunlight.

Table 2:
Reproductive Morbidity Profile

Components assessed	Prevalence		Confidence	
	Frequency	Percent	Interval	LowerUpper
Vaginal Itching	35	26.9%	26.23	27.56
Vaginal discharge	45	34.6%	33.8	35.30
Burning micturition	28	21.5%	20.88	22.11
Total symptoms suggestive of RTI/UTI	67	51.5%	50.74	52.25
No. Of abortions (n-44)	11	25%	23.07	26.92
Abortion care (n-11)				
Government hospital	9	81.8%	74.92	88.67
Self treated	2	18.2%	11.32	25.07
Type of abortion (n-11)				
Medical	5	45.4%	36.53	54.27
Surgical	2	18.1%	11.24	24.96
Both	4	36.5%	27.93	45.07

The observed a significant association between menstrual protection used and occupation of the respondent (p-value:0.007, Chi-square:8.210). Girls who were not students had two times higher odds for using cloth as menstrual protector compared to students (95%CI:11.494-1.49).

Almost 70% respondents knew the significance of menstruation, 82% thought menstruation as a natural event and 60% had cultural restrictions during menstruation. Mothers were the main source (85%) to teach the best menstrual practises to the girls. Doctor consultation for reproductive health was felt mandatory among 72% respondents. On the other hand ignoring dysmenorrhea and menorrhagia without seeking any help was the most frequent behaviour observed. In case of polymenorrhea or amenorrhea 49% of the respondents sought doctor consultation and 45% ignored it. Nearly 39% respondents felt shame or insecurity as the barrier in seeking health care. In addition 31% thought it would heal automatically, 19% were unaware regarding the type of treatment sought and few (5.4%) felt lack of family support and lack of confidentiality (5.4%) among the health professionals as barriers for seeking health.

The mean score of life skills was computed as 34 (SD:5.951). There was a significant association between life skills and the overall menstrual morbidity (p-value:0.043, Chi-square:3.655). The respondents with low life skills had four times higher odds of reporting menstrual morbidity (95%CI:0.972 - 4.83) but it was not statistically significant. There was also an association between caste and life skills (p-value:0.037, Chi-square:4.894). The respondents of scheduled caste community had 2.6 times greater odds of having high life skills compared to other respondents (95%CI:1.098-6.303).

Logistic regression analysis was done to determine the associations after multivariate adjustment. The respondents who belonged to SC community had nearly 1.5 times higher odds of having high life skills compared to others (95%CI:1.040-2.146) (Table-3).

Girls who had low life skills had 3.6 times higher odds of reporting menstrual morbidity compared to people with high life skills, (95%CI:1.14 - 6.711) (Table-4). Respondents who were single had 7.7 times higher risk of having RTI/UTI symptoms compared to married girls, (95%CI:1.034-57.883) (Table-5) and if the respondent are married before the age of 14, they had 2.5 times higher odds of having RTI/UTI symptoms compared to those married after the age of 14 (95%CI:0.724 - 3.236).

Discussion:

This study dealt with the reproductive health status and life skills among one of the most vulnerable population belonging to the reproductive age group. It assessed wider aspects of reproductive health such as menstrual morbidity, reproductive morbidity/ profile, reproductive hygiene practises/health seeking behaviour and also Life skills. This study

Table 3:
Factors associated with Life skills

Factors	Categories	Life Skills		Regression Coefficient	Signi ficance	Adjust-ed OR	95%CI	
		High	Low					
Age (years)	13 – 14	44.4%	55.6%					
	15 – 17	43.9%	56.1%	-0.294	0.380	0.745	0.387	1.436
	18 – 19	52.7%	47.3%					
Community*	SC	53%	47%	0.401	0.030	1.494	1.040	2.146
	Others	30%	70%					
Religion	Hindu	51.1%	48.9%	-0.019	0.957	0.982	0.500	1.926
	Others	39.5%	60.5%					
Education	Illiterate	14.3%	85.7%					
	Primary	48.7%	51.3%					
	Secondary	46.7%	53.3%	-0.182	0.396	0.834	0.548	1.268
	Vocational	0	100%					
	College	71.4%	28.6%					
Occupation	Students	54.1%	45.9%	0.236	0.275	1.267	0.829	1.936
	Others	39.3%	60.7%					
Marital status	Single	48.8%	51.2%	-0.437	0.563	0.646	0.147	2.836
	Married	45.5%	54.5%					
Age at marriage (years)	<14	16.7%	83.3%					
	15 – 17	52.2%	47.8%	-0.131	0.752	0.877	0.389	1.977
	>18	66.7%	33.3%					

Cox & Snell R Square: 0.082 Nagelkerke R Square: 0.110 * Significant
Adjusted OR

found early marriages, high levels of menstrual and reproductive morbidity, pregnancy and self treated abortion. It also found least knowledge about modes of HIV transmission and prevention, usage of contraceptives among adolescent girls. The life skills levels were also low.

Almost 33% of adolescent girls in the study were married which was comparatively less in accordance to NFHS-3 which had 69.6% of adolescent girls married among15 to 19 years(12). Smaller sample size and errors in reporting of age could be a possible reason for this discrepancy. The sample included two percent of widows which was relatively high for this age group. There were high literacy rate observed compared to NFHS 3 which was 86.4%(12).

It was found that the knowledge of the asolescent girls regarding menstruation was very poor before they attained menarche. This could significantly impact on their preparedness and reaction to attaining menarche. Similar findings were observed in another study which showed the knowledge was 36%(3). Some of the girls did not receive any education or advice from their mothers regarding menstruation and this could significantly affect their life skills and preparedness.

There was a high prevalence of dysmenorrhea in the study population. Previous studies showed menstrual irregularity as the most prevalent morbidity and 53% of dysmenorrhoea (13). High prevalence of dysmenorrhoea might be due to over reporting of menstrual pain. Even though dysmenorrhea and menorrhagia were the most reported morbidity, mostly they remained silent without seeking health. Health was sought for amenorrhea or polymenorrhea compared to any other morbidity due to apprehension about menstrual irregularity and the perception that menstrual irregularity is more threatening than other menstrual morbidities. Feeling of shame and insecurity were still a concern in seeking health due

Table 4:
Risk factors for Menstrual Morbidity

Factors	Categories	Menstrual morbidity		Regression Coefficient	Signi ficance	Adjusted OR	95%Confidence Interval	
		Present	Absent					
Age (years)	13 – 14	61.1%	38.9%	-0.312	0.409	0.732	0.350	1.533
	15 – 17	73.7%	26.3%					
	18 – 19	78.2%	21.8%					
Community	SC	74%	26%	0.020	0.923	1.020	0.685	1.518
	Others	73.3%	26.7%					
Religion	Hindu	75%	25%	0.244	0.509	1.277	0.618	2.635
	Others	71.1%	28.9%					
Education	Illiterate	57.1%	42.9%	-0.276	0.290	0.759	0.456	1.265
	Primary	73.7%	26.3%					
	Secondary	70%	30%					
	Vocational	100%	0					
	College	85.7%	14.3%					
Occupation	Students	73%	27%	-0.318	0.313	0.728	0.393	1.349
	Others	75%	25%					
Marital status	Single	76.7%	23.3%	-0.088	0.917	0.916	0.176	4.771
	Married	68.2%	31.8%					
Age at marriage	<14	66.7%	33.3%	-0.571	0.211	0.565	0.231	1.383
	15 – 17	69.6%	30.4%					
	>18	66.7%	33.3%					
Life skills*	High	66.1%	33.9%	-1.017	0.024	0.362	0.149	0.877
	Low	80.9%	19.1%					

to lack of rational thinking and decision making skills. A study showed that 62% girls did not seek treatment for their menstrual morbidity since they thought it was unimportant(13). Adolescent girls should be taught the importance of health seeking when required and empowered to break their silence.

Logistic regression showed that respondents with low life skills reported more menstrual morbidity. It is like that these girls with low life skills have reduced coping mechanism, rational thinking and decision making which inturn had impact on the reporting of their menstrual problems. This study found that adolescent girls from the Scheduled Castes had lower risk of menorrhagia. This finding was supported by the study since adolescent girls belonged to SC community had higher life skills scoresand those with higher life skills had lesser menstrual morbidity. Therefore adolescent girls belonged to SC community had better life skills hence their risk of menorrhagia or the risk of reporting of menorrahgia was less compared to other communities in this study.

Higher pregnancy rate of 35% were observed in this study, due to early marriage and poor contraceptive usage. It is also due to poor education, awareness about complications and pre marital counselling. Ahead of jeopardizing her wellbeing, teenage pregnancy would hurdle her path towards development and success. NFHS-3 showed 15-19 years TFR were higher in slum community compared to non slum community(5) and pregnancy rate of 12.6% among Chennai slum dwelling adolescent girls (15-19 years)(12). NFHS-3 also showed that institutional delivery was universal in Chennai slums than others(5). WHO stated that 50% of higher still births and neonatal deaths occurred in adolescent pregnancy in contrast with other ages(9).

Despite 100% institutional delivery, self treated abortions (unsafe) were reported which mainly

Table 5:
Risk factors for symptoms suggestive of RTI / UTI

Factors	Categories	RTI / UTI Present	RTI / UTI Absent	Regresion Coeffcient	Signif-cance	Adjusted OR	95% Confidence Interval	
Age (years)	13 – 14	61.10%	38.90%	-0.108	0.745	0.898	0.469	1.719
	15 – 17	50.90%	49.10%					
	18 – 19	49.10%	50.90%					
Community	SC	50%	50%	-0.188	0.305	0.828	0.578	1.187
	Others	56.70%	43.30%					
Religion	Hindu	55.40%	44.60%	0.582	0.087	1.789	0.919	3.483
	Others	42.10%	57.90%					
Education	Illiterate	71.40%	28.60%	0.118	0.57	1.126	0.748	1.693
	Primary	51.30%	48.70%					
	Secondary	46.70%	53.30%					
	Vocational	66.70%	33.30%					
	College	50%	50%					
Occupation	Students	51.40%	48.60%	0.011	0.959	1.011	0.664	1.54
	Others	51.80%	48.20%					
Marital status*	Single	53.50%	46.50%	2.046	0.046	7.735	1.034	57.883
	Married	47.70%	52.30%					
Age at marriage (years)*	<14	58.30%	41.70%	0.907	0.05	2.477	0.973	6.306
	15 – 17	47.80%	52.20%					

indicated lack of awareness regarding complications of abortions, women empowerment in the community to reach a health set up for abortion, stigma towards abortion, unfriendly health Respondents who were single had 7.7 times higher risk of having RTI/UTI symptoms compared to married girls, (95%CI:1.034-57.883) (Table-5) services, poor contraceptive knowledge, unmet needsand deliberate suppression of abortion related facts(14,15). WHO stated that 13% of maternal mortality in developing countries is accounted mainly due to unsafe abortion related death occurring every 8 minutes. Despite all these facts unsafe abortions remains one of the most neglected public health challenges(14).14% of unsafe abortion is accounted by women less than 20 years(15). Even though abortion is legalised in India, accessibility to expert care remains restricted because of other barriers like geographical inaccessibility, shortage of trained care providers also affordability for services has impact in accessing the services(15). Lack of knowledge about the services and confusion about legality of abortion contributes to unsafe abortion practices(15).A study in Nigeria showed that 72% of girls below 19 years deaths were accounted due to unsafe abortions and those who survived had fertility problems (16). There were higher prevalence(52%) of one or the other symptoms suggestive of RTI / UTI which would predominantly caused due to unsanitary conditions and to certain extent with the use of unclean menstrual cloth. Another study had comparatively less prevalence of RTI(16%) (17), whereas one more study had 64% (18). The logistic regression showed respondents who are unmarried or married before 14 years had higher risk of RTI/UTI which is primarily due to lack of hygiene practises and reduced awareness regarding reproductive tract symptoms.

Lack of adolescent sex education was the main reason for poor contraceptive awareness. There was no knowledge on fertile period, while NFHS had 5% (12). This study showed higher awareness of HIV/AIDS than NFHS which was 66% (12). But there was very less knowledge on modes of transmission and prevention due to lack of sex education, leading to higher risk for HIV/AIDS. It could be also due to lack of communication efficiency and stigma towards HIV/

AIDS. A baseline study by United Nations to strengthen life skills for positive youth health behaviour showed high level of awareness and knowledge of HIV but not with prevention of HIV. Post life skill training the study showed significant improvement in knowledge of HIV, modes of transmission and prevention(19).

This study found an association and increased chancefor respondents belonged to SC community had higher life skills compared to others. In contrast another study done in Haryana revealed that adolescents who belonged to higher community sector had significantly higher mental health status, self control and self sufficiency(20). The possible reasons for the higher life skills observed among the girls in the SC community is because of the greater number of girls belonging to the SC community in slums and probably a greater sense of social cohesion among the SC girls compared to the non-SC girls who were the minority in the setting.

This study results recommend that there is an immediate need to initiate comprehensive community level reproductive, sex and life skill education for slum dwelling adolescents especially. Although ample strategies and programmes for maternal and child are working, it would not be relevant to the adolescent group. This study proves that there is significant need to work on strategies exclusive on the reproductive health status and life skills of these vulnerable groups to have healthy future generation. Empowering adolescents would be a key concept to achieve MDG-5 steadily.

Sampling method followed in this study is its core strength. Accuracy in sampling provides a scope to view the results of this study in larger aspects which could be applicable to most of the similar population to assess the same scenario. The findings of this study could be recommended for policy level changes to improve adolescent reproductive health. Due to resources constraints the study was limited to smaller sample size. It is also recommended to conduct a post intervention survey after effective reproductive/sex, life skill education and behaviour change programmes. There is need for an explorative study to understand the needs of adolescents and reason behind unsafe abortion practises.

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The Safe Delivery Incentive Program in Nepal: towards women's empowerment in Sankhuwasabha District

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Abstract

Introduction: The Safe Delivery Incentive Program was launched in 2005 in Nepal to promote the utilization of professional care at childbirth by addressing the financial barrier to access the services by providing cash incentive to women who deliver at health facility and also to provider for each delivery attended.This study explores the beneficiaries' perspective towards the program in terms of benefits, difficulties, pattern of use and need for modifications. **Methods** : The researcher explored the phenomena by conducting 30 in-depth interviews with beneficiaries in randomly selected three wards in Khandbari Municipality. Manual qualitative data analysis was done using open coding and axial coding techniques according to Grounded Theory approach to derive a conceptual framework eliciting the perceptions. **Results :** Beneficiaries in this study perceive this program as beneficial but not adequate to address the economic burden of childbirth to poor families and to those living distant to health facilities. They find difficulty availing the scheme in terms of delay in getting the money and lack of proper information about the program.Decision making was mainly by husband and pattern of utilization hugely deviated from the intended purpose i.e. transportation.They also suggest providing the incentive beforehand and relaxing the clause of ANC as a part of the incentive. Empowerment, both financial and awareness based, emerged as a dominant theme that the women perceived as a benefit of the program. Conclusion: The cash transfer mechanism in the program has significantly empowered women. This model for women's empowerment in developing countries should be explored in greater depth.

Key Words: Safe Delivery Incentive Program, cash incentive, institutional delivery, women's empowerment.

Introduction:

Almost 287000 women died due to pregnancy related causes in 2010 of which 99% occurred in developing countries, 30% of it being in South Asia.Less than 50% of the deliveries were attended by skilled attendants in low income countries. (1)

Nepal is also working towards achieving the MDGs related to maternal health but is still struggling with the Maternal Mortality Ratio (MMR) of 229 per 100000.Most studies have suggested that cost is amajor barrier in utilizing professional care at childbirth (almost 50% from transportation cost) and countries who have been able to reduce MMR significantly like Sri Lanka, China, Malaysia, India have provided free delivery services and transportation cost. (2)

Also studies have suggested that conditional cash transfer has been effective in increasing use of preventive services as well as encouraging healthy behaviors. (3;4)

The Safe Delivery Incentive Program (SDIP) launched by Government of Nepal in 2005 is an initiative to address the financial barrier through conditional cash transfer mechanism. It provides cash incentive to women who give birth at health facility and incentive for service provider for each delivery attended either at home or hospital.(5;6)The amount of incentive varies according to the geographical region. In Terai women get Rs 500, in Hills Rs 1000 and Rs 1500 in Himalayan region.Added in 2009-2010, women get Rs 400 extra for 4 complete antenatal check up visits, institutional delivery and first post natal check up.(7)

And the SDIP has proved to be effective as evidenced by increasing trend of delivery attended by health worker –rise of 3.2% in the first full year of implementation compared to 2% for previous 2 years. (2)

Women who were given the SDIP were 24% more likely to deliver at government health facilities, 5% less likely to deliver at home and 13% more likely to have skilled attendant during delivery. (8)

Nepal Demographic and Health Survey, 2011showed that 35% of deliveries were in hospitals and 36% deliveries were attended by skilled birth attendants. There has been substantial increase in the number of SDIP beneficiaries as well as the institutional deliveries compared to previous years.(9)

The SDIP has been taken as a well-meaning, legitimate policy by the health care providers and also overwhelmingly accepted by the community especially from rural villages and poor families.However there still are issues of delay in flow of funds, failure to pay on time, mismanagement of funds, lack of clarity about SDIP among the providers consequence of which have been reported by the beneficiaries as well. (4)

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Even providers have suggested that incentive amount should be increased and provided on time preferably beforehand so as to enable the women to come to hospital. (6)

It has been well proved that mere establishment of facilities doesnot change health seeking behavior;other factors like awareness, attitude, utilization pattern and satisfaction of beneficiaries also influence success of any program. (10)

Keeping these in mind, this exploratory study was done to assess the perspectives of the beneficiaries of the SDIP regarding benefits, difficulties, use of the incentive money and any recommended changes in the program.

Methods:

The design of the study was exploratory. Sankhuwasabha district was chosen for the study because it is in the mountainous region;the region which is performing relatively poorer in terms of institutional delivery. Khandbari municipality was purposively chosen as it covers the largest population and from the municipality three wards were chosen randomly to conduct the study.All women who had delivered within past one year from the date of interview and had received the monetary benefit from SDIP;and were permanent residents of Khandbari Municipality were eligible for the study. Convenience sampling technique was used to select samples from the list of beneficiaries obtained from the District Public Health Office A total of 30 in depth interviews were conducted till data saturation was reached. An in-depth interview guide was prepared which clearly addressed the objective of the study. The domains it addressed were felt benefits, felt difficulties, pattern of utilization, decision making patternin spending incentive money and felt needs towards modification in the program.Guidelines were first drafted in English and then translated toNepali.It was then pretested to check for appropriateness and comprehensibility of language used, ability to recall information and also the sequence and structure. Women were identified in their households with the help of Female Community Health Volunteers. The researcher took the verbal informed consent fromthem to be interviewed and the interview was audiotaped. She conducted the interviews in the houses of beneficiaries, two interviews in a day, each lasting for 30-45 minutes.The researcher explored their perceptions of the scheme probing as necessary; focusing on the felt benefits, difficulties, pattern of utilization, decision making and any suggestions for modification in the program. The study was also approved by the Institutional Review Board at the School of Public Health, SRM University.

The researcher analyzed the data thematically.The tape recorded data was transcribed in Nepali language first and then translated to English for the purpose of analysis.The responses were first categorized under the domains from the interview guide.Categories were refined based on the themes emerging from the data and open coding was done. The codes in each domain were analyzed for meaningful relationship among the themes to derive the perceptions through axial coding.Thereafter, a conceptual framework was derived as a result of the analysis arranging the themes emerged from open and axial coding.

Results:

The key finding derived from the study regarding beneficiaries' perception towards Safe Delivery Incentive Program is reported here. A total of 30 beneficiaries were interviewed; mean age was 24.03 years. Of them majority were primi mothers (63%), practicing Hindu religion(93%), Janajati in ethnicity (43%), literate (73%) and homemaker (73%) as shown in

Table 1:
Background characteristics of beneficiaries (n=30)

Characteristics	Frequency
Mean age	24.03 years
Parity:	19
Primi	11
Multi Ethnicity:	
Brahmin/Chhetri	8
Janajati	13
Newar	2
Dalit	7
Educational status:	
Illiterate	8
Primary	3
Secondary	6
SLC and above	13
Occupation:	
Homemaker	22
Business	3
Teacher	4
Government service	1
Religion:	
Hindu	28
Buddhist	2

Table 2:
Open code definitions

Domain	Codes
Felt benefits	Helps in hospital delivery
	Can buy clothes for child
	Can buy nutritious food for mother
	helps in transportation
	helps to maintain health of baby
	ensures clean delivery
	ensures safe delivery
	increases confidence of mother
	economic help to poor families
	beneficial but not adequate
	helps in emergencies
Felt difficulties	Not much difficulty
	Not given in time
	ANC card mandatory for part of the incentive
Pattern of utilization	Used for food for mother
	Paid rent of room
	Transportation
	Bought clothes for baby
	Bought ornaments for baby
	Saved in bank for child
	Household expenses
Decision maker	Husband
	Self
	Mother-in-law
	Both husband and self
Suggestions for program modification	More information needed
	Should be given before delivery
	Amount to be increased
	Amount to be decided according to economic status
	Amount to be decided according to distance to facility
	Amount to be given on time,not after discharge
	No suggestions
	Alternatives to ANC card to avail the benefit

Table 3:
Axial code definitions

Domain	Axial code definition
AX1	Beneficial but not adequate
AX2	Not given in time
AX3	ANC card mandatory for a part of incentive
AX4	No difficulties
AX5	Decision by self
AX6	Decision by husband/mother-in-law

The analysis of 30 in depth interviews and the themes emerged resulted in a conceptual framework that depicted the perception of beneficiaries towards the Safe Delivery Incentive Program shown in The perceptions that emerged can be discussed as follows:

Women find the incentive very beneficial.The most important benefit of the incentive which emerged from the interviews is that it enhances the confidence of women by giving them financial empowerment.

"This incentive money which is given by government makes women confident enough, when they have some money in hand. They can be free to spend it on themselves and the child's betterment mostly on nutritious food and baby clothes."

"It gives us the confidence to take good care of ourselves and the baby also. We do not have to be scared of asking our husband or mother-in-law for better care thinking of economic burden on them. Now we have our own money."

Also women find this incentive as a great economic help to poor families and also has influenced women to deliver at hospital.

"It is of course very beneficial. Many mothers die during delivery in the absence of medical help. One of my neighbor's wife died after delivery. There was massive bleeding after delivery and she died on the way to the hospital. Due to this incentive program most mothers go the hospital for delivery and such incidents are rare in my place now. Mothers don't have to die due to such conditions untimely. Money given after delivery is also a great help for the poor mother. She can buy clothes for her child and buy food for her."

However women have faced difficulties as well, while availing the service. In many instances women did not get the incentive money on time i.e. during

discharge from the hospital as per the guidelines; rather women were asked to collect it when they come back for immunization of the child.Women felt this is impractical in most of the cases.Some women felt that the clause of ANC card to avail the part of incentive was difficult to comply in cases of emergency. But just because they did not bring the ANC card it is assumed that they did not complete the ANC visits and some part of the incentive is withheld. This is unfair according to the women.

"I didn't get the incentive on time. They said they donot have funds right now and asked me to get it when I come back for immunization of my child. But it was not practical because I came to hospital from far place being referred from health post .I would not come to hospital again rather go to nearby health post for immunization of my child. So my husband had to come a month later so far just to get the incentive money."

Some women feel that the incentive is beneficial but the amount is not adequate. They say it is not sufficient enough to serve its purpose i.e. transportation cost, more so at such time of emergency. They also feel that the amount given is not appropriate to the economic status of the family as well as the distance from facility.

"I don't think the amount adequate for the transportation cost because in case of emergencies ambulances charge more than Rs 3000 and other vehicles more than that because the roads are not quite good. But still it's a great help in times of need."

The pattern of utilization varies a lot.Many women did not know why the incentive is given and perceived that it is given for post delivery expenses and mostly ignorant about the real purpose i.e. transportation cost. The expenses made varied from transportation to food for mother, clothes / ornaments for baby,bank saving and even payment of house rent and household consumables.At the same time some women feel that women still donot have autonomy to decide on how to spend the money, it is mostly done by husband/mother-in-law.

"My husband himself decides most of the times at home so I do not questionhim.This time also he decided how to spend it. He paid the rent of the room we rented near hospital as we live very far from the hospital"

"My mother-in-law decided how to spend it .She spent on household expenses like rice,vegetablesetc"

Women gave variety of inputs for the program to improve and better serve the women. In their perception, increasing the amount of incentive, providing it without delay on time or even before delivery by some mechanisms, increasing awareness about the incentive;would be more effective strategies.They also think that the need to submit ANC card should be relaxed.

"I don't know what to say. Whatever they are doing is also fine.But I think they should provide it at home itself before delivery so that we don't need to look for loan in emergency. Actually we are at most need of money while preparing for any complications at the time of delivery. Money only comes after the delivery. It is helpful later on but more at need is the time of delivery."

One of the strong and consistent themes that emerged during analysis was empowerment. This was not part of the original conceptual framework. From various domains such as the demand for more information about the SDIP, strong vocalization of the need for changes in the SDIP, felt autonomy and power due to cash incentive the theme of empowerment emerged in the data.

Discussion:

The government's initiative of providing cash incentive to women so as to attract them to seek professional care at childbirth has proved to be an effective strategy as established by various studies. It has increased the rate of institutional delivery in the country.It has been well received by the community as well. Women feel that this money is useful and it empowers them.

However it has not been spared from criticism.It is seen that delay in providing money to women, lack of awareness about the program, utilization of money in other purposes than transportation are some of the issues in implementation and uptake of the program in view of provider as well as beneficiaries. (7)It was shown that only 6% used the money for transportation,2/5th women spent on delivery care expense and 35% on food. (4)

Similar studies have been done in Madhya Pradesh (MP), Bihar, Uttar Pradesh (UP) and Orissa on JananiSurakshaYojna (JSY) which revealed that women beneficiaries are satisfied with the program but still decision of expenditure of the money depends upon husband in one third of the cases in MP and in 13% of the cases in Orissa.Although most of the women intend to use it for purchasing nutrients for herself

but almost two fifths end up spending on household consumables (in MP) and one fourth in Orissa. One fifth of the beneficiaries felt that the amount of incentive needs to be increased in MP and one third in UP (10-12;13).

The current study findings also correlate with the previous studies.Beneficiaries in this study also perceive this program as beneficial but not adequate in amount. They feel that the amount doesnot provide much relief from the actual expense after childbirth.They also feel that this amount should be given according to the economic status of the family as well as according to the distance from facility. Difficulty in availing the benefit in terms of delay in getting the incentive, lack of proper information about the program (especially the clause of showing the completed and filled ANC card to get a part of incentive) were perceived as regressive measures. Some women also felt that they still didnot have autonomy to spend the money on their own.

Despite these findings one strong theme that emerged during analysis was empowerment of women.Women said that the incentive money has helped them a lot in gaining self confidence and having autonomy in decision making. They reported that with the cash in hand, they can confidently ask their family for better care for themselves and their child in the postnatal period. Besides, the very fact that women were able to identify and verbalize the inadequacy of the incentive amount to address the financial barrier as well as the fact that they are providing feedback for program modification, suggest that women have become empowered to identify their need and negotiate rather than just accepting passively whatever they get.Also women have asked to be provided with more information regarding the program, which reflects the empowerment effect the program has had on them as women have now understood that being informed makes them confident and competent enough to ask for better services from the provider as well.

These findings corroborate with the qualitative and quantitative study done in Mexico on their conditional cash transfer program called Opportunidades which revealed that it might be the empowering aspect of the program that women beneficiaries have become active health consumers and have shown increased tendency towards seeking information.The beneficiaries of that study reported on personal changes including self confidence, freedom of movement and association which was perceived by the caregivers as well. (14;15) A similar trend has been observed in this qualitative exploration.

Reproductive and child health is an important aspect of women's empowerment. Various conventions on women's empowerment such as Convention Eliminating All Forms of Discrimination Against Women (CEDAW) and the International Conference on Population and Development have emphasized the importance of sexual and reproductive health and rights as an important determinant of women's empowerment. Conditional cash transfer programs address two dimensions of this empowerment. On one hand they provide health care services and make them accessible to women and on the other hand, the cash empowers women economically and on awareness.

Though there are some important findings from the study which need to be addressed with respect to improvement of the SDIP, one of the strongest points which has emerged is that SDIP is a source of women's empowerment. This theme has to be explored further by qualitative and quantitative studies and analysis of secondary data. The linkages between the SDIP, women's empowerment and other social determinants of health needs to be explored and reported.

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Community Attitudes Towards Mental Illness In Jhapa District Of Nepal

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Abstract

Background: Mental disorders have been found to be common, with over a third of people in most countries reporting sufficient criteria to be diagnosed at some point in their life. Globally 450 million people suffer from some form of mental disorder. 25-30% of Nepalese people suffer from mental illness at any point of their lifetime. Because of improper mental health legislation in Nepal which could protect, promote and improve the lives and mental wellbeing of citizens, many mentally ill persons are particularly subject to abuse and violations of human right. **Objective**: The objective of the study was to assess the attitude towards mental illness among adults residing in Jhapa district of Nepal and its association with socio demographic variables. **Methodology:** Cross sectional study of 200 adults of age 18-60 years for assessing their attitude towards mental illness using standard scale was conducted. Multi stage random sampling technique was followed for selecting the respondents. Multivariate regression model was constructedfollowed by confirmatory factor analysis of the attitude variables. **Results:** Among the respondents overall mean score for each domain of attitude scale were authoritarianism 32.92 (65.84%), benevolence 36.5(72.99%), social restrictiveness 33.14(66.28%) and community mental health ideology 34.86 (69.72%). Membership in certain ethnicities such as Brahmin/Chettri, Janjati and Dalit provided positive attitudes towards the mentally ill. Also higher levels of education led to better attitudes. Confirmatory Factor Analysis revealed that the factor structure of the survey did not fit in with the original factor model. **Conclusion:** The most dominant attitude towards the mentally ill in the survey was benevolence. There is a need for more research to be conducted in this area and to promote good attitudes towards mental illness.

Key Words: attitude, mental illness, adults

Introduction

Mental illnesses are considered among the most common conditions affecting human health today, both in developed and developing countries. (1)Across the world, people with mental health problems, mental health services, mental health professionals and even the very concept of the mental health receive negative publicity and are stigmatized in public perceptions.(2) Mental illnesses constitute 14% to the global disease burden worldwide.(3)Negative attitudes or stigmas toward those who have mental illness are real, painful and damaging and considered as some of the main obstacles to successful treatment.(4) Mental disorders have been found to be common, with over a third of people in most countries reporting sufficient criteria to be diagnosed at some point in their life.(5) WHO reported in 2001 that about 450 million people worldwide suffer from some forms of mental disorder or brain condition, and that one in four people meet criteria for mental illness at some point in their life.(6)

According to the WHO's, Mental Health Gap Action Program, over 90% of those who need mental health services have no access to treatment.There is an increased personal, social and economic burden of mental disorders all over the world.(7)There are routine and rampant cases of human rights violations of people with mental problems.(8)Mental health is overlooked and neglected in Nepal. Though Nepal has formulated National Mental Health Policy in 1996 it is not yet fully operationalized. About 25-30% of general population of Nepal suffers from mental illness at any point of their lifetime.(9)

Mental illnesses account for high proportion of all disability adjusted life years (DALYs) lost and their burden is predicted to grow significantly in the future.(6)Negative attitudes are likely to increase the stress already suffered by mentally ill and in turn reduce their quality of life.(10) Thus research on attitudes towards mentally ill is necessary to ensure quality of life for persons with mental illness.(10)

Limited studies have been done in the field of mental health and those done are mostly in the hospital settings. So this study focuses on determining the attitude regarding mental illness among the public especially in the productive age group. Attitude of people have substantial importance in treatment, compliance and quality of life of mentally ill persons. (11) This study will provide reference for further similar type of study in the future.

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Methodology

Study design

A descriptive cross sectional study was carried out in Jhapa district, Nepal during the month of June, 2011.

Study population

The study population were persons who were in the age group of 18-60 years. One respondent was interviewed in each sampled household.

Sampling

Multistage sampling method was adopted for sampling. Jhapa district has 47 Village Development Committees (VDC) and 3 municipalities. Out of 47 VDC's, 3 VDC's were selected using simple random sampling method. Sample size from each VDC was calculated using population proportion method. Each VDC has 9 wards, 2 wards from each VDC's were selected using simple random technique. From the selected wards number of samples to be taken was again calculated by population portion method. The households from those wards were selected by following systematic random sampling technique. Out of 3 Municipalities one was selected using simple random technique. It has 13 wards, out of these 5 wards were selected using simple random technique and samples to be taken from those wards were calculated using population proportion method. Households from those wards were selected following systematic random technique as in the case of VDC.
Sample size: The sample size calculated was 200by using formula (4pq/l2)and the prevalence of good attitude towards mental illness was taken as 50% with relative precision 20% and Confidence Interval 95% and a design effect of 2. The samples were selected as 100 each from VDC and Municipality.

Data collection tool: Questionnaire was designed based on the study objectives and literature review. It was divided into 2 parts, first socio demographic details of the respondents and second Community Attitude towards Mental Illness scale (CAMI) developed by Taylor and Dear in1981 which is a 40 items Likert scale for assessing the attitude. This tool has 4 domains: 1)Authoritarianism, 2) Benevolence, 3) Social restrictiveness and 4) Community Mental Health Ideology. Each domain has 10 statements and responses for these statements are categorized as Strongly disagree=1, Disagree=2, Neutral=3, Agree=4 and Strongly Agree=5.(12)

Ethical consideration

Informed verbal and written consent was taken from each of the respondents after explaining the details of the study. Respondents were provided full confidentiality & were briefed that their participation is voluntary and they can withdraw from the interview at any point of time. Institutional Review Board approval was obtained from the School of Public Health, SRM University.

Statistical Analysis

The collected data was analyzed using appropriate statistical software. Mean, standard deviation and frequencies were calculated for analysis. The overall score of the CAMI scale was calculated and it was 200, then median cut off of the score calculated for each domain. Then the score which are above median value were taken as positive attitude and below it as negative attitude for the regression. Multivariate regression analysis was done in order to find out the factors contributing to the attitude towards mental illness. Confirmatory factor analysis was done to assess the previous reported domains of the attitude scale.

Results and Analysis

The data of 200 respondents in the age group 18 to 60 years was analyzed. Out of this 49.5% were males and 50.5% were females. The demographic characteristics of the study participants are shown in the table 1.

Majority of respondents were from age group 18-25 years and the least from 50 years and above age group. Majority of the respondents were Brahmin/ Chhetri and Terai/Madheshi were least. The major religion of the respondents was Hindu. Majority of the respondents were married. Most of the households had a nuclear family structure. The major occupation of respondents was daily wage labor,followed by own business and least were job seekers. Respondents' sources of information for mental illness were audio visual (62.5%), print media (61%), human source (53%) and hospital (31.5%). Opinion of the respondents regarding cause of mental illness were brain problem (12.5%), curse of God (11%), being crazy (10.5%), result of bad incidents (10.5%), loss of mental fitness (10%), result of economic crisis (9.5%), improper thinking (9.5%), result of personal weakness (8.5%) and talkative diseased person (8%). About 18% of the respondents had family history of mental illness. The affected members were sister in 30%, 33% brother, 28% father and 8% mother. About 46.5 % of the

Table 1
Background characters of respondents

Background characters of respondents	Percentage
Age (years)	
18-25	30.50%
26-33	26%
34-41	18%
42-49	13.50%
>50	12%
Ethnicity	
Brahmin/Chhetri	35%
Janjati	24.50%
Dalit	24.50%
Terai/Madheshi	7.50%
Newar	8.50%
Religion	
Hindu	42%
Buddhist	23%
Christain	33%
Kirati	2%
Marital status	
Never married	29%
Married	56.50%
Divorced/Separated	3.50%
Widowed	11%
Educational status	
No formal education	12%
Primary level	18.50%
Secondary level	20.50%
Higher secondary and above	49%
Family type	
Nuclear	62.50%
Joint	37.50%
Occupational status	
Agriculture	8.50%
Salary wage	32%
Own business	18%
Job seeking	5%
Household chores	17.50%
Student	19%

respondent had contact with the affected person. The place of contact with the mentally ill persons were neighbourhood (36%), own house (30%), streets (15%), relatives house (10%) and hospitals (9%). Respondents recognize the mentally ill persons by their abnormal behaviour (32.5%), inability to think properly (26.5%), inappropriate dressing (20%), isolate themselves (17.5%) and talkativeness (3.5%). About 88.5% of the respondent responded positively on the need for the treatment of the mentally ill. The overall mean score for each domain of CAMI scale were authoritarianism 32.92 (65.84%), benevolence 36.5(72.99%), social restrictiveness 33.14(66.28%) and community mental health ideology 34.86 (69.72%). The highest score was in benevolence domain and the lowest in authoritarian domain.

Factors predicting attitude

Multivariate logistic regression analysis of the predictors of attitude towards mental illness was performed.Ethnicity (OR: 0 .529, CI: 0.386-0.725) and educational status (OR: 1.583, CI: 1.114-2.250) contribute towards the positive attitude towards mentalillness scale which is shown in the table 2.

Table 2:
Multivariate logistic regression analysis of demographic characteristic with attitude of mental illness.

Factors	EXP (B)	95% C.I for EXP (B)	
Sex	1.68	0.85	3.318
Ethnicity*	0.529	0.386	0.725
Religion	1.725	1.116	2.665
Marital status	0.795	0.557	1.134
Education*	1.583	1.114	2.25
Family type	1.346	0.688	2.632
Age years			
(18-25)	2.947	0.864	10.055
(26-33)	2.203	0.691	7.022
(34-41)	1.745	0.512	5.951
(42-49)	2.067	0.554	7.713
Constant	2.08E+02		

Ethnicity such as Brahmin/Chhetri, Janjati and Dalit had a positive attitude and Terai/Madheshi, Muslim, Newar had negative attitude. Those with higher educational attainment had better attitudes towards the mentally ill.

Factor analysis

Confirmatory factor analysis of the CAMI scale was doneusing Amos Software to check if the model fits as defined in the original CAMI domains. The analysis showed that the model is not fitted in the study setting as The Root Mean Square Error of Approximation (RMSEA) was greater than 0.05,theComparative Fit Index (CFI) was 0.461 and the Tucker Lewis Index (TLI) was 0.427, all three indicating a poor model fit.

Discussion

Mental health and mental illness have become key public health issue in this present world.(13) There is also significant increase in the need for mental

health services in Nepal in recent years exacerbated by the internal armed conflict.But the situation of mental health care is worse as compared to its neighbouring countries like Sri Lanka.(14,15) The multidimensional CAMI scale helped to identify both negative and positive aspects of the attitude of the adults, where the intervention, reinforcement and enhancement can be done for creation of the positive living environment for the mentally ill. Almost all the participants had heard of mental illness whereas in previous study only two- thirds (68.8%) had heard about mental illness.(10) In this study the main source for seeking mental illness information was audio visual, similar to previous studies.(16)Thus the media can play a substantial role in informing and influencing community regarding the mental illness. The policy makers should involve the media as an effective tool for imparting awareness regarding mental illness, its causes and possible treatments. The place of contact of respondents with the mentally ill persons were neighbourhood (36%) followed by own house (30%), streets (15%), relatives house (10%) and hospitals (9%) whereas in previous study it was found to be 'on road or in a bus' (83.3%) followed by media (78%).(10) About 18% of the respondents had family history with mental illness whereas the previous study quoted only 12.5%.(10)

According to this study, benevolent views (72.99%) prevail dominantly against other domains of the attitude scale. A previous study also had the similar finding.(17)The respondents if given the opportunity to have direct contact with the mentally ill, the benevolent thought could be transformed into compassion and their acceptance for mentally ill. A previous study also stated that large proportions of population hold stigmatizing attitudestowards people with mental illness.(2) This may be due to lack of awareness among the common people towards mental illnesses. To prevent the formation of negative attitudes, we should target younger people and provide them with adequate information, create opportunities for them to have good experiences with mentally ill. Ethnicity, religion, educational status of the respondents contribute more towards the positive attitude towards mentalillness scale whereas in the earlier study age, education and occupation were contributing factors for positive attitude.(11)

The failure of factor analysis to confirm the four dimensional structure of the questionnaire may be due to discrepancy in the study settings and setting in which the tool was developed. In countries like Nepal especially in rural areas there is tendency to be benevolent towards the mentally ill persons. The homeless mentally ill person is fed by the others in the village. They live and sleep in public places such as temples, bus stop, public buildings etc. Thus attitudes of people tend to be that of compassion and benevolence. Therefore it is not clear of the CAMI was able to capture the attitude properly. This was tested by assessing the responses on the CAMI using a Confirmatory Factor Analysis. This showed that the responses did not fit into the original domain pattern that is proposed in the CAMI. This is probably because there are different domains of attitudes in Nepal. Therefore there is a need to develop new tools in the Nepalese context for assessing the attitude towards the mental illness.

This study does not mention the cause for the positive and negative attitude as it is a cross sectional study so the findings revealed correlates only. This study also does not assess the effect of socioeconomic status on the attitudes of people. There was difficulty in administering Likert scale for illiterate people as the study involved both literate and illiterate people thus causing limitations to the interpretations of some of the responses in the scale.

In conclusion, in Nepal, a developing country with a huge burden of mental illness there seems to a significant trend towards benevolent attitude towards patients with mental illness. Education and belonging to certain ethnicities seems to provide positive attitudes towards mental illness. There is also a definite need to develop a good attitude assessment scale specific to the context in Nepal and do larger studies of attitudes of people about mental illness.

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A Cross-Sectional Descriptive Study On The Health Problems Among Inter-State Migrant Construction Laborers In South-India.

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Abstract

Background Migrant laborers in the construction industry have been significantly increasing in India over the past decade but studies related to their health problems are limited. According to a study conducted by Suresh joshi et al, migrant laborers are more prone to health hazards and poor health status due to communication difficulties and alsodue to their poor living and working conditions3. The objectives of this study is to identify the general health problems and occupation related injuries of migrant construction workers, to assess their treatment seeking behavior and to assess the factors associated with their health problems and treatment seeking behavior. **Methods:** A quantitative study was conducted to assess the magnitude of health problems among the migrant laborers. A total of 140 laborers were interviewed in Cochin and Chennai and their general health problems, treatment seeking behavior and their working conditions were assessed. **Results:** The study revealed that 50% suffered from body aches. Of all the respondents 31% were afflicted with some form of injury in the past 6 months of their work and 28% stated the main reason for their injury was falls from heights. Their treatment seeking behavior was very low of only 37% that sought treatment for an illness or an injury. The study also showed that being paid by the employer for treatment as well as those who were married have a greater odd of seeking treatment. **Conclusion:** Migrant laborers are subjected to various health problems and occupation related injuries. Multiple recommendations can be provided such as frequent inspections from the state as well as the health departments .NGO's can play a major role by setting up health camps as well all corporates can be part of the initiative through the corporate social responsibility act.

Key words: Inter-state migrants, construction laborers, morbidity profile, injuries, treatment seeking behavior

Introduction:

Construction is one of the oldest industries of mankind1. The construction industry constitutes a major part of the economy as it employs a large number of workers. For example in the United States, according to the census 1992 , the estimated number of construction workers was around 7.6 million people constituting about 6% of the US workforce1. India is changing and modernizing very quickly. The NSSO(1999-2000) stated that 370 million workers constituted about 92% of the total unorganized workforce in the country2.The laborers in the construction industry are a special target population as they face many health related issues such as musculoskeletal disorders, respiratory infections and traumatic injuries3. In India, the migrants from other states constitute the major labor force in the construction industry. This type of migration is basically from the relatively less developed states to the large metropolis and other large states.

Potential work related health problems faced by these migrant laborers are musculoskeletal disorders, respiratory problems, dermatitis,eye and ear problems5. Due to poor sanitation facilities they are prone to many communicable diseases,gastro-intestinal and urinary tract infections4. Low socio-economic status, poor access to health care services and language and cultural barriers also contributes to the existing health problems in this population6.

As the study on migrant laborers are limited, this study will help us to assess the magnitude of their general health problems and occupation related injuries among the migrant construction laborers and also to study their health care seeking behavior. This study also would help to scientifically access their work exposures and conditions which are necessary to characterize and reduce the occupational health risks and enable these migrant construction laborers to live in a healthy and productive life.

Objectives of the study were, to identify the general health problems and occupation related injuries of migrant construction workers, to assess their treatment seeking behavior and to assess the factors associated with their health problems and treatment seeking behavior.

Methods:

A quantitative study using a cross-sectional descriptive study designwas carried out using pre designed and pre-tested survey questionnaires.

The study was carried out in two cities of South India, Kochi and Chennai. Kochi is a major port city on the west coast of India and is a part of the district of Ernakulam in the state of Kerala. As per the census 2011 the population in Kochi is 601,574. Chennai on the other hand is the capital of the state of TamilNadu with a population of 4.68 million according to census 2011. The study was carried out from the 1st of June to the 30th of June 2012.

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The baseline study population comprised of all other state migrant construction workers, who have been working in the host state for a period of 6 months or more. Inthis study both males and females were considered as respondents.

The survey questionnaire covered general demographic details, general health problems, occupation related injuries and their working conditions. The participants were asked to recall and report instances of any form of general health problems while working on the construction sites in the past 3 months, also subjects were asked to report any form of injuries which occurred in the past six months or more of their work. The general health problems includedrespiratory morbidity which included those who have one or more symptoms(cough,breathlessness,persistent cold, sore throat or shortness of breath) which occurred 2 times or more in the past 3 months, urinary tract infections which includes those who have two or more symptoms(loin pain, burning sensation while urinating) which occurred once or more in the past 3 months, gastro-intestinal infection includes those who have one or more symptoms(loose stools, melena, gastric pain more than 6 hours) which occurred 2 times or more in the past 3 months, body aches such as back pain neck pain etc which occurred in the past 3 months ,skin infections includes those who have one or more symptoms(itching, patches, scaly skin and blisters) which occurred 2 times or more in the past 3 months, hearing difficulty included those who had difficulty in hearing during the interview, varicose veinswhich included those participants who had a protrusion in the course of their veins, and finally injury included those study participants who had any form of injury which was caused due to construction activities which afflicted them in the past 6 months of work at construction sites.

This study has considered only those injuries such as bruises, deep cuts and head injuries that occurred at the construction site. On affirmation by the migrant laborers of the occurrence of the injury at the site, further questions were asked regarding the circumstances under which such injuries occurred.

The study was passed through the Institutional Ethical Review Group of the School of Public Health, SRM University and verbal informed consent was obtained from the participants.

The sample size considered for this study is 140 samples, which is calculated using the formula (z)2pq/(m)2. The prevalence of respiratory infections of 10% is considered with an error of 5% and confidence level of 95%.

The data was analyzed using statistical packages. Frequencies and percentages were determined for analysis. Logistic regression was performed to determine associations between different variables.

Results:

A total of 140 participants were included in the study from both the cities from 5 construction sites. It took about 15 minutes to complete a single questionnaire and the questionnaires were filled out on the spot by the researcher. Out of the 140 participants totally interviewed in the two cities 98% (137) were males and only 2% (3) were females due to the fact that they work during the initial and last stages of the

Table-1
Background Characteristics Of The Study Population.

Background Characteristics	Frequency	Percentage
Gender of the participants:		
Male	137	98
Female	3	2
Age of the participants:		
<18	13	9.3
18-37	113	80.7
38-57		9.3
>57	1	0.7
Marital status:		
Currently married	96	31
Single	44	69
Educational qualification:		
Illiterate	34	24.3
Primary schooling	44	31.4
High school	44	31.4
Higher secondary	13	9.3
Graduation and above	5	3.6
State of origin of the respondents:		
West Bengal	47	34
Assam	43	31
Orissa	21	15
Other States	29	21
Type of work at the site		
Helper	53	37.9
Mason	36	25.7
Concrete worker	12	8.6
Painter	12	8.6
Others	27	19.3

construction as helpers and are very few in number in the construction industries.

shows the general characteristics of the participants. The age of the participants varied from a lower age limit of 18 years to an upper limit of 61 years. Majority of the migrant laborers were in the age group of 18-37 years of age (80.7%),an important fact that is to be noted was9.3% were in the age group of less than 18 years of age.Out of the 140 participants 69 % of the migrant laborers were never married and 31% were currently married.

A majority of 31.4% of the laborers had completed their primary schooling which included classes from 1st standard to the 7th, 31.4% completed their high school(8-10th), 24.3% were illiterate, 9.3% completed their higher secondary(11-12th) and 3.6% had completed graduation such as B.A literature.

A predominant number of the laborers hailed from the state of West Bengal(34%), 31% from Assam,15% from Orissa and the remaining 21% were from other states which included Bihar, Kerala, Tamil Nadu, Uttar Pradesh and Andhra Pradesh.

A large fraction of the laborers were employed as helpers(37.9%),25.7% were masons, 8.6% were concrete workers and painters and the remaining 19.3% were employed as carpenters, steel fitters and tile layers.

The daily wages received by the migrant laborers in the two cities varied, in Kochi the wages payed to the laborers varied from Rs 200 to Rs 499 whereas in Chennai the wages ranged from Rs 100 to Rs 550.

Table-2
Morbidity Profile Of The Study Population

Morbidity	Frequency		Percentage	
	Yes	No	Yes	No
Respiratory morbidity	59	81	42	58
Symptoms of urinary tract infections	25	115	17	83
Gastro-intestinal infections	44	96	31.4	68.6
Body aches	71	69	50.7	49.3
Skin infections	38	102	27.1	72.9
Difficulty in hearing	13	127	9.3	90.7
Injuries	43	97	31	69
Other ailments	43	97	30.7	69.3

shows the distribution of health problems or the morbidity profile among the migrant construction laborers. It shows that among the 140 participants included in the study 50% suffered from body ache,42% suffered from respiratory difficulties,17% showed symptoms of urinary tract infections, 31.4% suffered from gastrointestinal difficulties,27.1% suffered from skin infections, 9.3% from hearing difficulties,31% were afflicted with some form of injury during their work and 30.7% suffered from other ailments such as vomiting, headache,giddiness,swelling of the face, numbness and varicose veins.

Table-3
Nature Of Injuries Among The Study Population

Nature of the injury	Frequency	Percentage
Struck by an object	19	44
Fall	12	28
Falling objects	8	19
Carrying sharp or heavy objects	4	9

shows the percentage distribution of the respondents on the nature of the injuries. Out of the 43respondents that were injured 28% were injured from falls off a ladder and off rooftops, 19% due to falling objects and 9% from carrying sharp or heavy objects. Out of the 43 subjects injured in the past 6 months or more of their work, 32 subjects stated that they had been injured once during their work at the respective sites and 11 of the subjects were injured twice and more during their work.Only 5% of the laborers noted that they were provided medical support by the employer in the case of an injury or health problem.

Also out of the 140 respondents only 37% sought treatment for their recent illness.Out of the 52 respondentsthat sought treatment, majority of 42% sought treatment due to injuries,37% due to fever,8% due to itching and blisters and the remaining 13% due to other ailments such as severe vomiting, swellings,gastric pain and chest pains. The study noted that 58% of the participants sought treatment after a day or more and 42% sought treatment on the same day. The table shows the percentage distribution of the type of provider utilized by the respondents. Out of the 52 migrant laborers, 48% of the laborers visited private hospitals, 25% public hospitals, 19% relied on self medication and 8% went to the doctors residence for treatment.A large fraction of the respondents stated proximity as the reason for selecting private hospital(57%) asa source of treatment.

Table-4
Type Of Provider Utilized By The Study Population

Provider utilized	Frequency	Percentage
Private hospital	13	25
Public hospital	25	48
Doctors residence	4	8
Self medication	10	19

There were questions pertaining to the use of Personal Protective Equipments (PPE) at the construction sites, 78 of the subjects reported that the employer provided them with protective gear but only 19% of them utilized these PPE. The PPE present at the sites included safety helmets, safety belts, safety shoes, hand gloves, goggles and fall arrester.

The problems that were faced by the migrant laborers at their respective sites were assessed. A maximum of 48.6% of the respondents reported that they faced difficulties such as communication problems,7.9 % stated that they were not provided information in accessing services and 5% faced other problems such as quarrel with local workers, hostile community members and being tortured by fellow natives.

It was observed that the basic amenities provided at the sites were extremely poor. Though three of the sites provided them with sanitation facilities the toilets were clogged and unkempt. None of the sites provided safe drinking water and the accommodation provided to them was in a pitiable condition with an average of at least 11 members in a closed shed.
Logistic regression was carried out to assess which were the factors related to treatment seeking behavior and health problems. The results of the logistic regression showed that provision of medical support and marital status influenced the odds of their treatment seeking behavior. This is shown in table 5a.

When compared to self payment being paid by the employer have 10 times higher odds of seeking treatment(95% C.I- 1.155-93.189) and when compared to being never married a married individual has 0.27 timeslesser odds of seeking treatment(95% C.I - 0.113-0.658). Table 5b shows that only the city in which they worked in influenced the odds of having health problems. The results showed that when compared to the laborers working in Chennai , laborers in Cochin has a 4 times higher odds of having a health (95% C.I - 1.715-12.188)

Table-5a
Determinants of treatment seeking behavior

Factors	Odds ratio	95%CI	p-value
1. Medical support	10.374	1.155-93.189	0.037
(1=self, 2=employer)			
2. Marital status	0.272	0.113-0.658	0.004
(1=never married, 2=married)			
3. Communication difficulties	0.859	0.431-1.711	0.666
(1=yes,2=no)			
Omnibus test: model p value<0.05			
Classification accuracy>66.4			

Table-5b
Determinants of health problems faced by the migrant laborers

Factors	Odds ratio	95%CI	p-value
1.City of work	4.571	1.715-2.188	0.002
(1=Chennai,2=Kochi)			
2.Caste	0.423	0.091-1.976	0.274
(1=BC, 2=other castes)			
Omnibus test: model p value<0.05			
Classification accuracy>80.7			

Discussion:

There is a growing need of migrants as laborers in the informal or the precarious employment market. To conduct studies among them is a difficult task astheir nature of work demands frequent shifting of their places.This study is a stepping stone as it quantifies their health problems, their treatment seeking behavior and work conditions which would help to provide interventions that can substantially reduce their health problems and enable these migrant laborers to live in a more socio-economic productive life.

Health problems , treatment seeking behavior and work conditions among the migrant laborers

The study showed that male population dominated the industry (98% males). A study conducted by David Golsheyder et al also showed that males dominated the construction industry (94% males).

The study showed that half the proportion of migrant laborers suffered from body acheswhich was

consistent with other studies as a study conducted by Joshi TK et al also showed that 59.4% of industrial workers suffered from MSD. About 31% of the laborers suffered from injuries of some form in the past 6 months or more of their work which is also seen in another study conducted by Xiuwen et al which showed 23.5% of the laborers suffered from fatal injuries at the construction sites. The seeking of medical services was very low among the migrant laborers, with a very low treatment seeking behavior of 37% and majority of 42% sought treatment for injuries rather than for any other health problem. Only 5% of the laborers reported that the employer had payed for their medical expenses, this could be one of the reasons why their treatment seeking behavior is low.Of the respondents 48% stated utilizing private medical services reporting proximity as the major reason for visiting private medical services. The utilization of protective services were very low of 19% among the laborers as they stated that they found wearing gears made it difficult to work with ease at the site. Only one site out of the sites that were visited had first aid facilities available, this shows how poorly equipped the employers are in case of emergencies. Majority of the laborers stated that communication difficulties wasthe major problem they faced due to language barriers.

The multivariate logistic regression demonstrated that being payed by an employer has a 10 times higher odds of seeking treatment whereas being married has a 0.27 times lesser odds of seeking treatment which can be attributed to the fact that being married raises the responsibility hence spending for health would reduce. Also working as a laborer in Cochin has a 4 times higher odds of acquiring health problems maybe due to tropical climate and humid nature of the city.

It was also noted that the level of literacy among them is very low and also minors continue to be employed as helpers which is illegal in our country. Majority of the laborers that were interviewed were from the north east and the most common reason stated was low wages and the potential to earn better wages in the south as reported to them by their friends and relatives. Crowded living by the migrants and the restricted toilets creates an unhygienic surrounding which could be potentially harmful for their health as well as for the society.

The central as well as the state governments have passed many laws such as the industrial and labor acts, but these acts and rules seem to be only in paper and has not been effectively enforced. During the study two human rights violations were noticed which was appointment of child labors in the labor camps as well as harassment of the migrant laborers by the natives and the locals. Also they faced many health problems and were prone to injuries during their work at the sites. Their site conditions were poor, shabby and dirty. These are clear indications that violation of the inter-state migrant workmen act, 1979 which clearly states that suitable working conditions must be ensured to the laborers, to provide and maintain suitable residential accommodation to such workmen during the period of their employment and to provide the prescribed medical facilities free of charge.

Multiple approaches are suggested. One is the creation of an awareness of the migrant laborers rights under the law. Unionisation of migrant workers could help. Unionisation could prevent exploitation and help them realize their rights. There should be frequent inspections by the state government to ensure the working conditions are apt and their wages are paid according to the law. The health department should also provide regular health checkups for the migrant laborers and also should hold responsibility in providing low cost medicines as cost was one of the reasons why their treatment seeking behavior was low. Ngo's as well as community based organizations can take up initiatives such as providing health camps and also byconducting IEC to safe guard their health and lives. Finally corporate's could also play a major role through programmes according to their Corporate Social Responsibility Act.

Some of the limitations faced during the study was the accessibility to the construction site which was a great issue and a lot of effort needed to be taken to convince the builders. Gender proportionality was difficult to attain as females were very few in number at the sites, due to the fact that they work during the initial and last stages of the construction as helpers . The symptoms provided by them were self reported and lab diagnosis as well as medical examinations could not be carried out to refute the existence of the health problems. Other limitations that should be considered in the study while making the interpretations are selection, recall and participation biases which was considerably reduced by instilling a structured questionnaire and a small period of 3 months for them to recall any problem they were facing.

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GENDER DIFFERENCE IN CARE OF TYPE 2 DIABETES IN WESTERN REGION, NEPAL

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Abstract

Introduction: Biologically male and female have similar diabetes prevalence. Gender differencesin the social structure bring differences in life style modifications and all other self care behaviors in type 2 diabetes.**Objectives**: The primary purpose of this study was to assess the gender difference in care of type 2 diabetes in Western region, Nepal. **Methods**:100 menand 100 womenrespondents participated in a cross-sectional study conducted in two hospitals inPokhara, Nepal. A pre-tested questionnaire was administered to each of the respondents. **Results**:Dry mouth ($\chi 2$ = 3.977, p = 0.046) and abdominal pain ($\chi 2$ = 3.840, p = 0.050) were reported as symptoms of diabetes in 51% and 31% women compared to 37% and 19% men respectively. Women were more likely to be diagnosed with diabetes while testing for some other illness (50% Vs 37%) and men were more likely to report symptoms of diabetes which led to diagnosis (45% Vs 35%). The study revealed that women had low self-efficacy with respect to their diabetes care (35%) in comparison to men (65%).There was significant association between gender and diet practices which showed men have 0.328 (95% CI:0.184 - 0.585) times less chances of bad dietary practices compared to women. There was no significant association between gender and exercise as well as gender and foot-care. After adjusting for age, education, occupation and self-efficacy, men were less likely to have bad dietary practices(OR= 0.513, 95% CI: 0.266, 0.992).After adjusting for age, education, occupation and self-efficacy, there were no gender differences in exercise patterns.**Conclusion**:The result of this study provided evidence that there are gender differences in reporting of symptoms, mode of diagnosis and certain self-management behaviors. Therefore there is a need to design gender specific behavior change communication strategies for better management of type 2 diabetes.

Key words: Diabetes care, self-management, self-efficacy, gender.

Introduction:

Diabetes mellitus is emerging as an epidemic of the 21stcentury.About 366 million people around the world have diabetes and it is expected to increase to 552 million by 2030 in which more than 90% have type 2 diabetes.Three out of four people with diabetes live in low and middle-income countries where more than 80% of diabetes deaths occur.¬(1)South-East Asia region harbors approximately one-fifth of all adults with diabetes in the world. Current estimate indicates, 71.4 million people, have diabetes in 2011, and it is expected to increase to 120.9 million by 2030. (2)

Biologically male and female have similar diabetes prevalence.(1)Gender differences in the social structure; gender differentials in diagnosis, access to care, access to medications and follow up, adherence to medications, life style modifications and all other self care behaviors are likely to introduce a dramatic contrast in the experiences of women with diabetes.

Several studies in the developed countries have shown that women have worse survival, higher risk of cardiac, renal complications and blindness compared to men.(3)Limited studies have been conducted to explore gender differences in diabetes treatment in developing countries.

Self management for people with chronic health problems is widely recognized as a necessary part of treatment. The patient is responsible for the day-to-day management of their illness.(4)Self efficacy or confidence refers to the individual's belief in his or her capacity to perform self-management behaviors. (5) The complex nature of diabetes self-managementincluding diet, exercise, monitoring and regular drug adherence makes it difficult for patients to practice.(6)Self-management becomes more difficult for women in the developing countries (6)where the position and status of women in society is worse. (7)

The primary purpose of this study was to assess the gender differences in care, symptoms, mode of diagnosis and self-management of type2 diabetes.There is shortage of such studies in Nepal where gender differences is highly rooted in social structure. So, it is important to explore differences between men and women in diagnosis, treatment and follow up, adherence to medications, life style modifications and self-management.

Methodology:

A cross-sectional studywas conducted at two super specialty hospitals in Pokhara, Nepal between the month of June and July 2012. The respondents were the diabetic patients visiting for their routine checkup

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in the outpatient department and diabetic education program conducted by the hospital weekly. Those participants of age 20 years and above who had type 2 diabetes of at least one year history were included in the study. Patientshaving severe complications of disease and not able to speak, walk, and perform their daily routine were not included in the study.

Quota sapling techniquewas done calculating the sample size of 100 men and 100 women to detect a 10% difference in good self-management behaviors between men and women. They were administered a semi-structured questionnaire. The questionnaire was prepared in English language and Nepali language as well.It was pretested on 20 patients and necessary corrections were done.Pilot study participants were excluded from the main analysis.

The questionnaire consisted of personal information, symptoms of diabetes, mode of diagnosis followed by date of diagnosis and treatment, self-management and self-efficacy.Characteristics of the respondent were obtained such as age, gender, marital status, education and occupation.Recent fasting blood sugar and post prandial blood sugar reports were recorded.

Diabetes self-care activities questions were asked for each of the five domains diet, exercise, blood-glucose testing, foot-care, and smoking status. (8)All the eleven questions were rated on the scale of zero to seven where zero denotes not following for even a single day and 1 to7 the number of days in a week that the behavior is followed.

Diabetes Self efficacy scale was administered. (9) Responses were rated on a scale of one to ten where the increasing number denotes the maximum self-efficacy level.The scale consisted of eight items about confidence to perform diabetes selfmanagement behaviors. Both the scales were translated into Nepali. In order to validate the translation in Nepali, the recommendations of a professional English and Nepali teacher was obtained.

Data were processed using the Statistical Package for the Social Sciences (SPSS) version 17. Independent t-test was done to compare the overall self management scores between men and women. Chi square test was done to find the association between gender with diet, exercise, foot care, medication adherence and tobacco use. Multiple logistic regression analyses were performed for diet and exercise adjusting for age, education, occupation and self efficacy.

The study was clearly explained to the respondent and informed consent was taken from each of them before the personal interview. The study was also given expedited approval from the Institutional Review Board of School of Public Health, SRM University.

Results:

The average age of men and womenwere 57.76 (SD 12.24) and 55.26 (SD 11.18) years respectively. Majority of the men (91%) and women (78%) were married. The respondents were Hindu and Buddhist. They belonged to different ethnicity Brahmin, Chhettri, Janajati, Dalit, Madhesi and Newar. About 59% of the men and 27% of the women had education of 10th grade and above whereas 12% and 41% of men and women had no formal education. Nearly 70% of the women were home makers. The characteristics of the study subjects are shown in Table 1.

Table 1
Characteristics of Study Participants

Characteristics	Male (n = 100)	Female (n = 100)
Mean Age	57.76 ±12.24	55.26 ± 11.18
Marital Status %		
Never married	2	5
Married	91	78
Divorced/ Separated	3	0
Widowed	4	17
Religion %		
Hindu	80	76
Buddhist	20	24
Ethnicity %		
Brahmin/ Chhettri	31	39
Janajati	25	35
Dalit	7	5
Terai/ Madhesi	6	0
Newar	31	21
Education %		
No Education	12	41
Primary Education	26	32
Secondary Education	3	0
SLC and Above	59	27
Occupation %		
Agriculture	8	5
Salary/ Wage	16	6
Own Business	44	15
Extended Economic Work	1	0
Job Seeking	1	0
Household Course	1	71
Student	0	1
No Work	29	2

Dry mouth ($\chi 2 = 3.977$, $p = 0.046$) and abdominal pain ($\chi 2 = 3.840$, $p = 0.050$) were reported as symptoms of diabetes in 51% of women and 37% of men and

31% of women and 19% of men respectively. Other symptoms like increased thirst, decreased appetite, nausea or vomiting, frequent urination and morning headache were not significantly different between men and women. While 37% of men were diagnosed with diabetes while testing for other illnesses half of the women were diagnosed in that manner. About 45% men and 35% women were diagnosed as diabetic due to symptoms. These gender differences were also statistically significant. Only 3% men and 1% women were diagnosed as diabetic during routine test. The average fasting blood sugar of the respondent was 121.51 (SD 42.7) among men and 138.59 (SD 70.89) among women and this difference was statistically significant applying the independent t-test (t = -2.05, p = 0.042).

The average self management score of general diet among men and women were 12.12 (SD 2.71) and 10.51 (SD 3.18) respectively which was significantly different by independent t test (t = 3.850, p = < 0.05). Men and women following seven days of healthful eating plan were 67% and 40%. ($\chi2$= 14.664, p = 0.01) respectively. People having at least five servings of fruits and vegetables per day among men and women were 65% and 41% ($\chi2$ = 12.695, p = 0.002) respectively. Men (48%) were better in following the average monthly eating plan compared to women (20%) ($\chi2$ = 17.654, p = <0.05). More men (56%) were following exercise for at least five days in a weekcompared to women ($\chi2$ = 7.328, p = 0.026).

There was no significant gender difference in the findings of fat consumption, drug adherence, foot care and inspection of shoes. Tobacco consumption percentage was higher in men including both smoked and chewed. The study revealed that women had lower self-efficacy (35%) in comparison to men (65%). ($\chi2$ = 18.00 p = < 0.05).

Men have 0.328 times lesser odds of bad dietary practices compared to women (95% CI:0.184 - 0.585). Further stratifying by self efficacy, the association between gender and diet practices was observed more among those with high self efficacy (OR = 0.346, 95% CI: 0.145 - 0.826) and was not observed among those with low self efficacy (OR = 0.483, 95% CI: 0.209 - 1.118). Self-efficacy was found as a confounding factor in the association between gender and good dietary practices.

Multiple logistic regression analyses modelswere constructed to assess the association of diet and exercisewith gender the findings of which are shown in Table 2 and 3.

Table-2
Characteristics of the study respondents

Variable	B coefficient	Exp (B)	95% CI	
			Lower	Upper
Age	0.017	1.017	0.988	1.046
Gender	0.667	0.513	0.266	0.992 *
Education	0.280	1.323	0.997	1.757
Occupation	0.005	1.006	0.869	1.164
Self-efficacy	0.683	1.981	1.019	3.850 *

Model fit Omnibus test: 27.483, P – value: < 0.05
*p value < 0.05

Table-3
Logistic regression model for exercise

Variable	B coefficient	Exp (B)	95% CI	
			Lower	Upper
Age	0.047	1.048	1.017	1.080*
Gender	0.377	1.458	0.724	2.935
Education	0.271	1.311	0.978	1.757
Occupation	-0.069	0.933	0.804	1.083
Self-efficacy	1.432	4.186	2.082	8.414*

Model fit Omnibus test: 36.281, P – value: <0.05
*p value < 0.05

Gender was still associated with good dietary practices when adjusted for age, education, occupation and self-efficacy but ceased to be associated with exercise patterns.

Discussion:

This study, to our knowledge is the first one to compare the gender differences in the clinical presentation, diagnosis, treatment and self management practices of type 2 diabetes in Nepal, a developing country. Previous studies have shown that biologically there is no difference between men and women in the prevalence and characteristics of type 2 diabetes. The difference is likely to be much wider in developing countries where the position of women in the society is still poor. In this context the gender differences in the care of type 2 diabetes becomes very important. This study looked at symptoms of diabetes, mode of diagnosis, blood sugar control levels and self management behaviors.

Women compared to men reported a higher incidence of dry mouth and abdominal pain as symptoms of diabetes. Other symptoms like increased thirst, decreased appetite, nausea or vomiting, frequent urination and morning headache did not show

significant differences.It is not clear if this represents a biological phenomenon or whether it is a social phenomenon. Some studies have shown that women tend to present more with depressive somatic symptoms associated with diabetes while men were more likely to present with fatigue, muscle aches and sexual dysfunction. (10) There have also been reports of abdominal pain being one of the common somatic manifestations of depression. (11)This could be a possible explanation of abdominal pain being a common symptom in women with diabetes in this study. Studies with bigger sample sizes are required to assess the patterns of presentation of diabetes among women and men.

Men were likely to be diagnosed because of testing after onset of symptoms whereas women were more likely to be diagnosed when being tested for some other illness. This again highlights the gender differences in social structure in developing countries. Women attribute low priority to health and symptoms and present late for screening or diagnosis compared to men. (12)This gender difference becomes very important in the setting of chronic non-communicable diseases as screening of asymptomatic individuals is very important for early diagnosis. Only 3% men and 1% women were diagnosed as diabetic during routine screening test. This highlights the need for better coverage of routine diabetes screening and preventive health check up in developing countries like Nepal.

The average of fasting blood sugar of women was higher in comparison to men indicating poorer glycemic control. This is again attributable to the low emphasis placed on health of women. Previous studies have not shown major differences in the glycemic control between men and women. (13)There could be some potential reasons for this disparity between studies in developed and developing countries. The most important being the social status of women is developing countries which is still poor. The parameter used to measure glycemic status in the previous studies was glycosylated hemoglobin which is a measure of blood sugar control over 3 months and is less susceptible to day to day variability in sugar levels. Whereas in the present study the blood sugar level was assessed and is likely to reflect day to day variability. The third reason for this could be that the gender differences in care, support and self management reflects the difference in glycemic controls between men and women. In a study among Mexican Americans with type 2 diabetes it was observed that men had higher blood sugar levels compared to women.(14)This is contrary to the findings of our study. A more robust measurement of glycemic levels and adjustment for other confounders could give a better picture of the gender differences in diabetes control.

Similar to the French population based study, this study revealed that both men and women follow similar trend of drug adherence.(15)The analyses for healthful eating plan, average monthly eating plan and consumption offive servings of fruit and vegetables daily revealed that significantly lesser women were following these recommended healthy diet practices.(16)Also women were straggling behind men inthe recommended exercise for at least 5 days a week. (17)

Men were 0.328 times protected from bad dietary practices compared to women. Further stratified analysis revealed that self efficacy was an important confounder in the association between gender and dietary practices. Whereas men who had higher self efficacy had a better dietary practice, women with lower self efficacy couldn't follow good diet. The social dynamics of why women who have the control over the kitchen and food distribution in the household have poor self-efficacy when it comes to their own diabetes care is important to understand. In developing countries like Nepal women often play a dual role in the house. As much as they are home makers and intra-familiar food distributors, they are also bread winners in several families. But culturally women have a secondary position in the household where the men and children hold the primary position in terms of food distribution. This often leaves the healthy, which often is the more expensive foods, to the men and the left over less expensive foods for the women. The fatalistic attitudes attributed to women's health are another major reason for this unhealthy diet distribution in the family. This is the picture of the developing world where women neglect their own health.(18)Social roles prevent women from practicing exercise. They have no time from their work. In addition customs and values bring upon hesitation and feeling of shyness to participate in physical exercise on par with men.(19) Thus social structures and cultural beliefs play a huge role in restricting women from practicing self care behaviors.

The study shows low educational status of women;similar with the national educational status of Nepal.(20)A previous study showed that even

in the lack of formal education when women are provided with short term disease specific education it results in improvements in self-management behavior. (21)In a similar study in the Malawi where GPs' gender sensitivity was stimulated by the training program and the supporting visits definite efficacy was demonstrated. Ideally, structural attention could be realized by embedding gender issues in existing organizational structures of general practices. (22) Therefore despite these compelling social factors that can influence self-management behaviors there is scope for improving the diabetes self care situation of women through targeted health education and empowerment of women which according to the UN Secretary General; Kofi Annan is the most effective tool for development.

The results of this study urge for the need of gender sensitive health education for women. Health promotion cannot be done in a 'one size fits all' model. There need to be gender specific and gender sensitive health promotion for diabetes prevention. It is evident from this study and from the socio-cultural milieu of the developing countries that the gender sensitive health promotion strategies are all the more important. Focus should be laid on improving the self efficacy of women.

The strengths of this study are that it is the first of its kind from Nepal addressing the issue of gender differences in diabetes care. With the burgeoning problem of diabetes in developing countries like Nepal it has come at the right time. Any national program for control of diabetes should be informed by the findings of this study. Availability of more resources could ensure a larger sample size from a more varied sampling frame and performance of specific laboratory tests to measure glycemic control, complications of diabetes and other clinical outcomes. Based on these findings there is a need to design gender specific and gender sensitive diabetes health education campaigns in the study area.

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Health Status And Health Seeking Behaviour Of Rag Pickers In The Municipal Dump Yard In Chennai.

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Abstract

Background: In India about 55 million tons of municipal waste is generated every year. Municipal solid waste is residential and commercial waste generated in municipal or notified areas. People who make a living by collecting recyclable waste and selling them are called waste pickers. In India the estimated number of waste pickers is 1.5 million. Waste pickers have several health problems due to unprotected handling of wastes and are often subjected to harassments due to which they suffer low self **esteem. Methods:** A descriptive cross sectional study was conducted in a dump yard in Chennai. A total of 145 respondents were interviewed in the dump yard using a structured questionnaire collecting details on demographic profile, physical health problems, mental health problems and treatment seeking behaviour. **Results and analysis:** Analysis showed that 91.7% reported physical health problems. Minor psychiatric disorder comprised of 56.6%.The respondents who were older were more likely to report physical health problems. Men were more likely than women to suffer from body aches as well as injuries. Injuries were more common among men and those who were unmarried/single. Those who had mental health problems also reported physical health problems. Among the respondents who reported physical health problems 71.7% sought treatment. Only 70.3% of the respondents used any form of protective gear. **Conclusion:** Significant proportion of waste pickers working in dump yard in Chennai had physical health and mental health problems. The waste pickers were aware of the protection needed but lacked resources for it.

Key words: Waste pickers, Dump yard, Physical health problems, Minor Psychiatric Disorder, Treatment seeking behaviour

Introduction:

In urban India every year about 55 million tonnes of municipal solid waste is generated with an estimate of 5% increase yearly. Municipal solid waste includes commercial and residential wastes generated in municipal or notified areas in either solid or semi solid form excluding industrial hazardous waste.[1] Waste pickers all over the world make a living by collecting, recycling and selling the materials which others have cast aside as waste, they sometimes use these materials for their personal use also.[2] They are the important actors in informal economy and provide a wide range of benefits to their communities, their municipalities and their environment. In India the estimated number of waste pickers is 1.5 million. Waste picking provides opportunity to earn livelihood to those with minimal or no education qualification and it also provides bendable working hours especially for women.[2]Threats due to handling of waste without using any protection are usually from, disease causing pathogens, sharp objects, smoke from burning of garbage which causes respiratory problems, disease causing vectors like rodents and mosquitoes. Waste pickers are also prone to dog bites, associated with threat of rabies. Most of the waste pickers comprise of women and children. According to a study done in Bangalore in India on child waste pickers, it was reported that,45% of child waste pickers were suffering from worm infestation followed by 23% suffering from respiratory tract infection other being scabies(3%), dental caries(13%) and lymph node enlargement(18%). The possible reasons were stated to be ingestion of contaminated food, unhygienic home environment, overcrowding and lower immunity owing to poor nutrition.[4] The dump yard in Chennai supports approximately 200 waste picker families. It is estimated that the capital (New Delhi) alone shelters 80,000 waste pickers. In a study conducted in Delhi among 98 waste pickers and 60 controls, medical examination was conducted. Their lung function was assessed and it was reported that among the non-smokers of the study population and controls the prevalence of respiratory symptoms was 94% and 56% respectively. Unhealthy gums, frequent episodes of diarrhoea, dermatitis, cuts and pricks were predominant morbidities among the waste pickers.[3] Waste pickers are often subjected to harassments and are treated as nuisance by the authorities and the locals on account of which they frequently suffer low self esteem. [2] Children are more susceptible than adults to these harassments and as a result there is a poor personality development. Harassments are usually in the form of sexual harassment against females, being chased by the police and local residents and sometimes problems from fellow waste pickers.[4] In a study in Brazil in 2004 about 990 waste pickers were interviewed to estimate the prevalence of Minor psychiatric disorders (MPD) which was estimated to be 44.7% compared to 33.6% among non waste-pickers. It

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was also reported that being a rag picker had 20% higher prevalence of minor psychiatric disorders. Unemployment, Static posture, job satisfaction and work accidents were associated with MPD.[5]

Hence, the objective of this study was to identify the physical and the mental health problems of waste pickers working in a dump yard and also to assess their treatment seeking behaviour.

Methodology:

A descriptive cross-sectional study was done among waste pickers working in a dump yard in Chennai. The respondents were chosen on a convenient sampling frame. The sample size was calculated to be 156, but due to poor access to the respondents only 145 were interviewed. The minimum age limit of the respondent was considered as 15 years. The structured questionnaire comprised of demographic profile, physical health problems, mental health problems and treatment seeking behaviour of the respondents. For the study purpose, physical health problem was defined as presence of any of skin problems, gastro-intestinal problems, respiratory problems, body aches and injuries based on symptoms reported by the respondent. Mental health problem was defined as minor psychiatric disorders (MPD) like depression and anxiety identified using the self reporting questionnaire 20 (SRQ20). Though SRQ is self reporting it was administered to the respondent by the interviewer. Seven or more than seven positive responses in SRQ 20 were considered as positive for MPD.[6] Treatment seeking behaviour was defined as, an appropriate therapy or remedy undertaken by the respondents pertaining towhere they sought treatment, why did they not seek treatment,what sort of treatment they sought,when did they seek and how did they seek the treatment. Treatment seeking for the recent health problem in the past 3 months was considered. Treatment seeking behaviour questionnaire was adopted from the ACT Consortium guidance on collecting household costs, Example questionnaire for household costs and treatment seeking behaviour.[7] An informed consent was taken from the respondents. The respondents who were able to read and write were administered informed consent in Tamil while for those who were not able to read and write, the informed consent was read out in Tamil in the presence of a witness who knew to read and write. The Questionnaire was translated in local language (Tamil). Interviewers were trained before the Questionnaire was administered to the respondents. Measures of association, the Fisher exact test were used for analysis, p value <0.05 was considered significant.

Results

Description of the study population:

The study population consisted of 53% female and 47% male. The median age was 36 years. 91% of the population were Hindus, 3.4% were Muslims and 5.5% were Christians. Schedule caste comprised of 57.9% and the rest being schedule tribes, backward caste and other castes. Ever married (Currently married, widowed, and Divorced/Separated) were 80%. Among the study population 73.8% had no formal education. Average family size was 5. These demographic characteristics of the respondents are shown in Table 1;

Table 1:
Demographic profile of the study population.

Characteristics	Percentage	Frequency	
Age			
15-34	37.90%	55	n=145
35-54	44.10%	64	
More than 54	17.90%	26	
Gender			
Male	47%	68	
Female	53%	77	
Religion			
Hindu	91%	132	
Muslim	3.40%	5	n=145
Christian	5.50%	8	
Caste			
Schedule Cast	57.90%	84	
Schedule Tribe	21.40%	31	
Back ward class	4.80%	7	
Other castes	15.90%	23	
Education			
No formal Education	73.80%	107	
Primary schooling	11.70%	17	
Secondary feeling	7.60%	9	
Higher secondary	2.80%	12	
Marital Status			
Never married	20%	29	
Currently married	69.70%	101	
Widowed	7.60%	11	
Divorced/ separated	2.40%	4	

Work Profile

Plastic was collected by 40.7% of the study population collected and the rest collected waste in combinations that included plastic, iron, rubber, paper, wood and other metals. The average monthly income of the respondents was Rs 5,600. Protective gears was used by 70.3% while working. The protective gears used were footwear (20.7%), gloves and footwear (20%), headgear and footwear (15.2%), gloves, footwear and head gear (10.3%) face masks, gloves, headgear and footwear (4.1%). Table 2 shows the duration of time in terms of years, days per week and hours per day the waste pickers have spent working in the dump yard.

Table 2:
Duration of work of waste pickers in the dump yard

Work Duration	Percentage	Frequency	
In Years			n= 145
Less than a year	13.8%	20	
1-10 years	55.2%	80	
11-20 years	29.7%	43	
More than 20 years	1.4%	2	
In Days per week			n=145
1-3 days	16.6%	24	
4-7 days	83.4%	121	
In Hours per day			n=145
1-4 hours	28.3%	41	
5-8 hours	57.2%	83	
9-12 hours	14.5%	21	

Physical health problem

Physical health problems were reported by 91.7% (133) of the respondents. Among them 21.4% reported symptoms suggestive of skin problem, 39.3% gastro-intestinal problem, 60.4% respiratory problem, 72.4% body ache, and 38.6% injuries. Respondents less than 36 years of age had 3.5 times greater odds of developing physical health problems when compared to respondents more than 36 years. (Fisher exact value (p): 0.05, OR: 3.541, 95% CI: 0.918 – 13.665). Females had 2.5 times greater odds of developing body aches when compared to males (Fisher exact value(p): 0.02, OR: 0.416, 95% CI: 0.197 – 0.880). Males had 2 times odds of getting injured when compared to their females counterparts (Fisher exact value (p): 0.02, OR: 2.21, 95% CI: 1.120 – 4.376). Respondents who were never married had 2 times greater odds of getting injured when compared to the ever married (Fisher exact value (p): 0.05, OR: 2.33, 95% CI: 1.024 – 5.341).

Mental Health

Minor psychiatric disorders were reported by 56.6%. Respondents with minor psychiatric disorder were more likely to report physical health problems. (Fisher exact value (p) : <0.00, OR: 17.135, 95% CI: 2.148 – 136.679).

Treatment seeking behaviour

Among the respondents reporting physical health problems 71.7% had sought treatment, while for those who did not seek treatment the common reasons were, the ailment was not severe enough (10.3%), no enough money (6.9%), got better before seeking care and non availability of transport (3.5%). For body ache 23.4% sought treatment, 22.1% for respiratory problems, 17.2% for gastrointestinal problems, 4.8% for skin problems and 4.1% for injuries. Public health care providers (35.9%) were sought more commonly when compared to private providers (28.3%) and self treatment (8.3%). The services being inexpensive was the common reason for choosing public health care provider (51.9%), Distance from health facility was the common reason for respondents who preferred self treatment (41.7%) and private health care (36.6%) service providers. On the same day 41.4% sought services for their health problem first manifested, the rest being within 1 week (17.9%), within 1 month (9.7%) and more than a month (3.4%). Diagnostics tests were advised to 35.9% and 32.4% had taken the tests, while the rest 3.5% who did not take the tests for 2.4% the tests were expensive while 0.7% had no time for it. Medications were prescribed to 71.4% and 65.5% had obtained medications from the pharmacy, respondents who did not obtain the medication felt that it was expensive (5.5%) and not required (0.7%).

Unhealthy habits

Tobacco was used by 59.3% of the respondents and 38.6% consumed alcohol. Men had greater odds of consuming alcohol when compared to women (Fisher exact value (p) : <0.00, OR: 16.9, 95% CI: 7.121 – 40.156).

Discussion

This study shows that a significant proportion of the waste pickers working in the dump yard in Chennai, 91.7% have symptoms suggestive of Physical health problems, 71.7% sought treatment for their physical health problems. The study shows an association

between physical health and age, respondents less than 36 years of age had higher odds of developing physical health problems. This could be due to the duration of the stay of the waste pickers in the dump yard i.e. respondents who are young tend to spend more number of working hours in the dump yard. Females had higher odds of developing body ache compared to males which could be due to the physical stress females undergo as they not only work at their work places but also usually have considerable amount work at home. The dump yard chosen as the work area for the study has garbage piled up in the form of tall hillocks. The waste picker has to climb all the way up the pile of garbage to collect waste and climb down with the pile of garbage usually with a heavy bags of collected waste rested on either their backs, head or shoulders hence carrying of heavy weights could also be a reason for females showing higher odds of developing body ache as many women have lesser physical strength. Association of gender and injuries which showed males had higher odds of getting injured when compared to females; this could be because males engage themselves or are more willing to take risk when compared to females.[8] Respondents with mental health problems were more likely to report physical health problems; this could be psychosomatic which means a physical disease that is thought to be caused by emotional or mental factors.[9] This has to be interpreted along with the presence of mental illness in this population. The study conducted in waste pickers in Delhi or in Bangalore did not report anything about body ache of the waste picker which contributed to the maximum proportion of physical health problems among the respondents of this study; this could be because of the garbage hillocks as mentioned earlier in this paragraph. The studies in Delhi[3] and Bangalore.[4] reported significant proportion of waste pickers having respiratory problems which was the second highest contributor of physical health problems in this study; this could be due to the smoke in the dump yard as a result of burning of garbage. There were several vector breeding sites in the dump yard, but no comments regarding vector borne disease could be made as the data regarding it was not collected.

Another study reported 44.7% of MPD among waste pickers in Brazil.[5] this study reported 56.6% MPD among the waste pickers. Waste pickers have no surety regarding sustainability of their work, average family size of the respondents is 5 and average income is Rs 5000 so the income they earn may not be sufficient to support their family, these could be the reasons for their depression and anxiety (MPD). The Bangalore study reported majority of the waste pickers in Bangalore to be women and children.[4] The child labour act in India defines child as below fourteen years of age.[10] During the course of data collection in this study a child aged 12 was noted picking waste in the dump yard, it is not appropriate to state that the there were not many child waste pickers or child labourers in the area of study because during the time of study though there was only 1 child aged below fourteen, there were waste pickers who were aged below 25 working for the past 10-15 years indicating they were below the age fourteen when they joined this profession. Use of protective gear by waste pickers were 70.3%, though the numbers seem good the gears they use cannot exactly be called protective gear; as the gears were usually picked up from the garbage pile. Low usage of face masks could explain the significant proportion of respiratory problems and use of gloves picked up from the pile of garbage which results in poor hygienic conditions of the hands could possibly explain gastro intestinal problem and skin problems. The waste pickers were aware about the need of protective gear during work but did not have the appropriate resources

Results of this study cannot be generalized as this was conducted only in one dump yard, the sample size was low and a convenient sampling was done. One of the main limitations of the study was that medical examination was not done to diagnose physical health problem. Respondents of required sample size were difficult to obtain due to summer season (lean period for waste picking) and lack of permission to enter the yard. Further research should emphasis on mental health problems among waste pickers in India.

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Identification of health hazards in MMG Kinsevere Copper Mine in Katanga: a descriptive cross-sectional study.

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Abstract

Introduction: Hazardous exposures are responsible for occupational accidents. Working conditions and nature of the job predispose to health hazards. So the main purpose of this study was to identify health hazards associated with the systems of work in surface copper mines in Katanga, Congo and provide data regarding the magnitude of risk factors. **Methods**:A total of 77 workers participated in the study. The study participants were selected from different occupational groups. A semi structured questionnaire was used to identify hazards and to assess the effectiveness of the health and safety management system. Ethical considerations were addressed before collection of data. The analysis of data was done with the aid of statistical software. **Results**: Hazard analysis revealed that the frequency of any health hazards was 34.3%, with chemical and biological hazards accounting for 33.3%. Workplace inspection identified biological and ergonomic hazards significant in the study population; while job hazard analysis recognized that chemical, ergonomic, physical and psychosocial hazards are significant in the selected occupational groups. The nature of hazards varied from one occupational group to another. Occupational incidents were relatively low and increased significantly (85.6%) with time while injuries remained low (14.4%). **Conclusions**: Safety precautions are well enough implemented in this particular mine thus injurytends to be low. Occupational exposure to risk factors could only be studied. There is need to establish the health effect of these hazards.

Key words: Occupational health hazards, Control measures, Copper Mine, Katanga.

INTRODUCTION

Occupational health problems are increasing in developing countries because health and safety remain neglected, while widespread knowledge is available about the risks and effective preventive measures. (1-4) Millions of workers are injured and die each year in occupational accidents attributed to hazardous exposures or workloads.(5) The Congolese Labor Code (6) provides regulations for health and safety at work, and defines obligations for the employers. Nevertheless, the enforcement of these health and safety regulations is not yet effective on every worksite, especially artisanal and small-scale mine. So there is a need to enforce Health and Safety regulations as well as the Labor Code. The exact number of accidents or diseases in mines is unknown. With the emergence of large scale mining, there is a need to enforce effectively the health and safety regulations under the Labor Code and Mine Code. In Katanga, less than 10% of the miners have any knowledge of health and safety regulations, and safety conditions in artisanal mines are very poor. (7) Emergence of mines in Katanga (the South–East of Democratic Republic of Congo) has created employment but, at the same time, working conditions and nature of the job predispose the worker to different types of hazards. Occupational Safety and Health Administration, Institute of Occupational Safety and Health, International Council of Mining and Metals propose some methods for a systematic detection of hazards presenting a risk to health. When we consider the life cycle of mining, occupational health hazards relate to the processes, tasks and areas potentially hazardous.(8)Health hazardsare the elements of an organization's activities that present a hazard or source of risk to health or well-beingand may be an event, incident or circumstance. These are activities that can interactwith human health to represent a risk to health or well-being. Hence, the aim of our study is to identify health hazards associated with the system of work and provide data regarding the magnitude of risk factors.

Methods

Study Setting

Lubumbashi is the second largest city in the Democratic Republic of Congo. It is situated in the South East part. The eastern part of the province is a rich mining region, which supplies minerals such as cobalt, copper and diamonds. Lubumbashi is called the copper-mining city. It has a humid subtropical climate, with most rainfall occurring mainly during summer.

MMG Kinsevere Copper Mine is located at 30 km north of Lubumbashi, in the Katanga province of DRC. Copper cathode production is their main project. Overall workforce is 1514,of which 602 are MMG regular employees and 912 contractors.Their vision for safety and health is to adopt a sustainable and continuous improvement approach, which leads

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to a zero harm, incident and fatality free business environment. There is a clinic established at the mine site and curative care is provided there. The company provides workers' pre-employment screening. The company assures medical expenditure of workers and they benefit from social security through the National Institute of Social Security (NISS). Apart from doctors and nurses working at the clinic, there is an Emergency Response Team (ERT) available anytime in case of emergency. Selected workers from different occupational groups receive First Aid training on a continual basis. All workers participate in awareness program for prevention of malaria and HIV /AIDS. The HSE department is in charge of all health awareness programs, in collaboration with the clinic and other selected health organizations.

Study design

A cross sectional descriptive study was conducted from 5th June 2012 to 5th July 2012 and 77 workers participated in the study. Our sample size was 100 but only 77 were surveyed. The response rate was 77%.

Subject

The study participants were selected from different occupational groups namely process plant workers (Solvent Extraction plant and Electro winning plant), maintenance, and metallurgicallaboratory; group 5 (constructors), run of mine pad (ROM pad), civil road department (working with heavy vehicles) and warehouse. We explained the study objectives to the participants and obtained their informed consent for participation. Administrative staffs were not included in the study. Among the 77 workers, only 73 full-time were considered in our study and the remaining 4 were casual workers.

Data collection

A semi structured questionnaire based upon the suggestion of the International Council of Mining and Metals (ICMM guidance for occupational health risk assessment) was used to identify hazards by observation and work place inspection while workers doing their tasks. The person in management position filled a pre-designed questionnaire from Institute of Occupational Safety and Health (IOSH). A blank worksheet was given to workers and they had to fill in these informations: tasks performed, potential hazards, source of hazards and existing control measures. This was done to perform job hazard analysis. We collected also health data from medical reports and incident and injury data from reportable incidents and injuries report. A pre-designed checklist by Occupational Safety and Health Administration (OSHA) was used for audit of management system to give a picture of good practices.

Statistical analysis

Statistical package SPSS (version17) and MS Excel were used for the analysis. All analyses were two-tailed and P-value < 0.05 was considered statistically significant. The appropriate statistical tools suitably handle the continuous and categorical data and the results are computed as under. The Fisher exact test was used for testing statistical significance. The findings are tabulated in the form of tables and figures.

Results

Characteristics of participants

The mean age of participants was 36 years. Of the workers79.5% belonged to the age group 21-40. Male workers represented 86.3 % of participants and 90.4% of workers were married. Among the employees, 35.6% were graduated (undergraduate) and female workers represented only 1%. Female workers with no formal education accounted for 8.2% and 11% of them were cleaners. The mean daily working hour was 10. Workers who spent more than nine hours at work accounted for 49.3% of employees and 61.6% of them were having only a day shift pattern. The mean duration of service was 27 months. Workers with 1 to 5 years of working experience comprised 80.8% of participants. Process plant workers were 16.4% (Solvent extraction plant SX and Electro winning plant EW). The characteristics of the study participants are shown in Table 1. Table 2 presents the job description for each workplace unit.

Hazard Analysis

The analysis revealed that the frequency of any health hazards was 34.3%. Chemical and biological hazards account for 33.33%. The risk for injury was 8.33%. The hazard analysis is shown in Table 3 and 4.

Workplace inspection

Five types of hazards were observed. Biological hazards accounted for only 16.4% but a great number of female workers (80%) were exposed to biological hazards compared to male workers. They were all cleaners. The nature of the hazards involved is different from one department to another and table 5 below gives a summary of these hazards.

Table 1:
Demographic profile of workers

Variables		Frequency (n=73)	Percent (%)
Age	21-40	58	79.5
	41-60		
Sex	Male	63	86.3
	Female	10	13.7
Marital Status	Married	66	90.4
	Unmarried	7	9.6
Education	Primary certificate	2	2.7
	3-5 years secondary	7	9.6
	High school diploma	22	30.1
	Brevet (professional)	10	13.7
	UG	26	35.6
	No formal education	6	8.2
Shift pattern	Day shift	45	61.6
	Day and night shift	28	38.4
Department	Process Plant	12	16.4
	Others*	61	83.6
Daily working hours	9	37	50.7
	>9	36	49.3
Years of service	<1 years	10	13.7
	1-5 years	59	80.8
	>5 years	4	5.5

*Others: Mine, HSE, Metallurgical Lab, Group 5, Maintenance, Warehouse

Biological hazards were more among women (p value <0.001), those working in the mining process (p value <0.001), those working in day shift (p value <0.001) and those working for more than 9 hours a day (p value <0.001). There were also ergonomic hazards identified among those working in non-process plant working areas (p value <0.001), those working in day shift (p value <0.005), those working in non-mining process (p value <0.001) and those spending more than 9 hours per day at work (p value <0.05). Tables 6 and 7give more details on proportion in different categories of each hazard

Table 2:
Brief summary of job description for each occupational group

Rom Pad	Loading and transportation of minerals to the crusher. The ore is fed into the crusher.
Electro Winning plant	Control of electrolyze process, stripping, strapping, polish anode
Civil road	Road building and road maintenance
Solvent Extraction plant	Control of parameter of concentration
Group 5	Construction of the stage III plant, which is an extension of stage II plant (Electro Winning plant)
Maintenance	Boiler maker, mechanical fitting, electrician, painters
Warehouse	Lifting, offloading, handling chemicals and other dangerous goods, binning and issuing
Metallurgical laboratory	Correction of factors of solution, cyclone sizing test, inspection of cyclone, preparation of reagent.

Table 3:
Frequency of hazards.

Hazards	Percent
Chemical and biological	33.33%
Ergonomic	25%
Physical	8.33%
Psychological	16.66%
Accident	8.33%
Behavior	8.33%

Table 4:
Nature of hazards.

Chemical and biological	Airborne contaminants , Inflammable and explosive substances, Infectious agents or moulds ; Handle, store, use or dispose of chemicals
Ergonomic	Stoop or turn or twist backs, Bend or turn necks ;Turn, bend or carry repetitive movements or raise hands and arms
Physical	Radiation
Psychosocial	Too demanding or not demanding enough, deal with environmental stressors
Accident	Cuts, abrasions, puncture wounds or burns.

Table 5:
Hazards identified by the workplace inspection

Chemical	Welding fume, PLS solution, Organic solution, Reagent, Sulfuric acid (weak), Sulfuric acid (strong) , Ore dust, Copper dust, Cleaning agents, Copper fume, Cement, Dust from minerals
Biological	Contact with microorganisms and insects.
Ergonomic	High force action, Repetitive movements, Awkward posture, Static position for long periods , Use of heavy vehicle, Use of mobile equipment, Work at height , Use of heavy tools
Physical	Vibration, noise (handheld drill and drilling machine), Dust, Work under the sun, Noise from equipment , Noise from process
Psycho logical	Shift Work, Poor relation with supervisor , Feel undervalued, Lack of recognition for the work done, Workload

Table 6:
Ergonomic hazards

	No	Yes	Total	Percent
Gender				
Male	0	45	45	61.6
Female	13	15	28	38.4
Hours of work				
9	1	36	37	50.7
>9	12	24	36	49.3
Mining process				
MP	12	0	12	16.4
Non-MP	1	60	61	83.6
Working area				
PP	13	12	25	38.4
Non-PP	0	48	48	61.6

Table 7:
Biological hazards

Workplace inspection		Biological hazards		Total	Percent
		No	Yes		
Gender	Male	59	4	63	86.3
	Female	2	8	10	13.7
Hours of work					
	9	25	12	37	50.7
	>9	36	0	36	49.3
Mining process	MP	25	0	25	34.2
	Non-MP	36	12	48	65.8
	PP	11	0	12	16.4
	Non-PP	1	60	61	83.6

Job hazard analysis

A listing of tasks, potential hazards, their source and existing safety measures by the workers from different occupational groups revealed frequent exposure to ergonomic (94.5%), chemical (83.6%) and physical (78.1%) hazards. Table 8 below presents the nature of hazards susceptible to affect the health of workers across selected departments.

Table 8:
Hazards identified by the job hazard analysis

Rom Pad	Use of mobile equipment /heavy vehicle, ore dust, heat,noise
Electro Winning plant	Copper fume,copperdust, noise
Civil road	Use of heavy vehicle, use of earth moving machine, use of pneumatic or hydraulic machine, damage or defect of equipment, dust, Collapse of mine material, copper oxide
Solvent Extraction plant	Noise, slippery floor when overflow of organic phase, exposure to acid, inhalation of chemicals, fire
Group 5	Trip and fall; eye, hand, leg and body injuries; pinch points; falling into the excavation; cuts, abrasions and burns
Maintenance	Electric shock , metal, fall, skin lesions, wound , welding fume, noise, burn, fracture , inhalation of high gloss enamel
Warehouse	Cuts, puncture wounds; disposal of chemicals; burn, noise, dust, manual handling
Metallurgical laboratory	Slip, trip and fall; inhalation of chemicals, skin burn

Male workers, day shift workers (p value <0.001), those working more than 9 hours a day (p value <0.001) and those working in non-mining process (p value <0.05) had higher chances of physical hazards. Non-mining process workers (p value <0.001) had a higher chance of exposure to chemical hazards. Non-process plant workers (p value <0.001) had a higher chance of exposure to ergonomic risk factors. Day and night shift workers (p value <0.001), those working more than nine hours (p value <0.001) and non-process plant workers (p value <0.001) had a higher chance of exposure to psychosocial hazards. Tables9 to 12 elaborate on proportion in different categories of each hazard.

Table 9:
Chemical hazards

Job Hazard Analysis		Chemical hazards		Total	Percent
		No	Yes		
Mining process					
	MP	25	0	25	34.2
	Non-MP	36	12	48	65.8

Table 10:
Ergonomic hazards

Job Hazard Analysis		Ergonomic hazards		Total	Percent
		No	Yes		
Mining process					
	PP	25	0	25	34.2
	Non-PP	36	12	48	65.8

Table 11:
Physical hazards

Job Hazard Analysis		Physical hazards		Total	Percent
		No	Yes		
Gender					
	Male	59	4	63	86.3
	Female	2	8	10	13.7
Hours of work					
	9	16	21	37	50.7
	>9	0	36	36	49.3
Mining process					
	MP	25	0	25	34.2
	Non-MP	36	12	48	65.8
Shift					
	Day	12	0	12	16.4
	Day/Night	1	60	61	83.6

Reportable incidents and injuries

The company defines hazard, near miss, injury, equipment damage, environmental incident, safety non-compliance, production loss, security incident and community complaint as reportable. We are presenting only hazard, near misses, environmental incident, safety non-compliance and equipment damage.

we notice that cases of injuries remained low during June 2011 to June 2012. Then incidents happened to increase significantly after February 2012 with a peak in April 2012 (91) then decrease significantly in June 2012 (35). The peak in April 2012 is more than three times the peak in September 2011.

Prevalence of disease among workers

We analyzed medical records from January 2010 to December 2010 as medical reports for the years 2011 and 2012 had missing data. In this case, the report does not separate occupational diseases from non-occupational diseases. This is summarized in table 13.

Table 12:
Psychosocial hazards

Psychological hazards		Psycho-logical hazards		Total	Percent
		No	Yes		
Hours of work					
	9	35	2	37	50.7
	>9	11	25	36	49.3
Shift					
	Day	25	0	25	34.2
	Day/Night	36	12	48	65.8
Working area					
	PP	12	0	12	16.4
	Non-PP	1	60	61	83.6

Table 13:
Prevalence of diseases

Diseases	Frequency (N=2,091)	Percentage
(%)	532	25.4
Dermatitis	104	4.9
Gastrointestinal infections	422	20.2
Respiratory infections	475	23
ORL, eye, dental	267	12.7
NCD*	21	1
Stress	72	3.4
UTI,STD,GTI†	43	2
Others	155	7.4

Safety measures

Apart from inspecting the workplace for hazards, the inspection also looked at the current safety measures on site. They are called “control measures”. They are summed up in table 14.

Table 14.
Current control measures on site.

Control measures	Workplace inspection	Job Hazard Analysis
Engineering (Combat at source)	Silencers on some noisy heavy vehicles.	
Administrative (Management strategies)	Training Safe system of work • Safe work procedure • Emergency procedure • Permit-to-work systems Safety signs	Training Job hazard analysis Safe work procedure Material Safety Data Sheet Chem Alert Safety signs
Personal Protective Equipment (PPE)	Basic PPE • Safety goggle • Safety boot • Safety clothes • Safety helmet • Safety gloves • Additional PPE	BASIC PPE • Safety goggle • Safety boot • Safety clothes • Safety helmet • Safety gloves Additional PPE

Health and Safety Management System:
Best Practices
Health and safety management system

The findings and deficiencies are summarized in Table 15.

Table 15.

Best practices	Points for improvement
1. Health and safety policy in place 2. Injury Prevention Principles guide thoughts, behaviors and decisions relating to health and safety among employees. 3. Daily pre-start meeting to communicate any health and safety issues before starting work. 4. Monthly safety and health meeting involving the health and safety representative of each department, HSE staff and general manager. 5. HSE supervisor to coordinate health and safety activities. 6. Workplace inspection, accident investigation. 7. Hazard reporting system and control workplace hazards. 8. Keep employees informed of safety and health activities and conditions. 9. Plan for emergencies. 10. Task-specific training, training for managers and supervisors, specific training need, induction training.	1. Recognize employees for safe and healthful work practices. 2. Monitoring of health risks. 3. Medical surveillance of workers. 4. Record of occupational injuries and diseases; analysis of occupational injuries and illnesses; health awareness program. 5. Provide refresher training on a routine basis; action-based training techniques.

Discussion

Our study indicated a high frequency of health hazards and a frequent exposure to these hazards among the selected occupational groups. All the five types of hazards (biological, chemical, ergonomic, physical and psychological) were involved and the nature of each type of hazard differed from one occupational group to another.(9) The management has established a health and safety policy to reduce the occupational risks and exposure to hazards. Nevertheless, there is a rise of incidents and decrease of injuries. We could assume that there will be more injuries as incidents increase in that particular mine. But the control measures put in place are well enough implemented and thus we can notice a reduction in injuries. On the other hand, the rise of incidents can also be explained by other factors such as the presence of psychosocial hazards which lead to unsafe acts (behavior or condition deviate from the accepted safe procedure)

of employees and unsafe conditions (hazard or unsafe mechanical or physical environment). Heinrichhas shown that the theorems of accidentoccurrence may be explained by a personal unsafe act or exposure to an unsafe mechanical condition.(10) A psychological explanation to unsafe attitude and acts shows that accidents can be explained by unsafe behavior and unsafe system of work. Consequently changing the ways in which people behave and re-designing the systems of work can prevent accidents. (11)Safety climate is strongly related to workers' behaviors towards health and safety at work. (12)

The workplace inspection disclosed female workers and non-mining process workers are more prone to biological risk factors. Women and men have different experiences when it comes to occupational health, as they generally engage in different types of work, which also means they are exposed to different risks and work-related health problems.(13)Non-mining process workers and non-process plant workers are more prone to musculoskeletal risk factors. Employees spending more than nine hours at work are less prone to musculoskeletal risk factors. This is in harmony with the literature. There may even be advantages to 12 hour shifts in terms of lower stress levels, better physical and psychological well-being, improved durations and quality of off duty sleep as well as improvements in family relations. On the negative side, the main concerns are fatigue and safety. (14;15)

The Job Hazard Analysis revealed that male workers' day shift, non-mining process workers and workers spending 12 hours of work are more prone to physical hazards. Day/night shift workers spending 12 hours of work are more prone to psychosocial risk factors. A study to analyze the impact of overtime and extended working hours on the risk of occupational injuries and illnesses among adults' workers from the United States was done between 1987 and 2000. It revealed that working at least 12 hours per day was associated with a 37% increased hazard rate. Working at least 60 hours per week was associated with a 23% increased hazard rate.(16)The longer working day has the potential to contribute to human error and accidents at work.(17)Non-process plant workers and non-mining process workers are more prone to musculoskeletal risk factors. A prospective study to assess the prevalence and work-related risk factors in the development of musculoskeletal disorders in the South African mining industry found that back ache is by far the most common presenting musculoskeletal complaint at the gold mine (82.1%). Back complaints were followed by complaints of pain in the hip region (5.5%) and the foot region (4.6%).(18)Research also indicates a potential link between work-related stress and musculoskeletal disorders. A Korean survey revealed the most often reported work-related symptoms to be muscular pain (shoulder, neck, upper arms and lower extremities) (18.1%), followed by stress (17.9%), backache (16.8%), fatigue (16.7%) and headache (11.2%). (19) Psychological hazards have the potential to result in injuries and illness. In addition, psychological effects often lead to physical effects.

Data on health-related illnesses and disease in the mining industry are scarce and unreliable. (20) Much of the data are fragmented and when taken together, also incomplete. Reliability of the occupational health data is especially a problem in developing countries where reporting systems and reporting criteria are not well established.(21)Our study could not relate occupational risks and exposure to occupational diseases. Malaria was prevalent in that particular mine. According to one article, the risk of tropical diseases such as malaria is considerable at some remote mining locations. (9) This mine site is, not only remote, and the region is endemic for malaria. So exposure to mosquitoes could be at home as well as at work. To prevent the rise of malaria, the health and safety department in collaboration with the clinic on site, launched Malaria Awareness Program. But the effectiveness of this prevention program could be seen if the program is designed properly to address a community of people with different background. Respiratory diseases were ranked as the third most prevalent occupational disease category (after ergonomic and stress-related diseases) according to a survey of occupational diseases in the European Union. (22)In one copper mine in Mexico, a substantial percentage of miners presented adverse respiratory symptoms such as shortness of breath (46%), wheezing (12%), coughing (12%) and elevated sputum production. (23) Our study has shown that the respiratory infections are the second cause of illness among employees. But we cannot relate the incidence of respiratory diseases to chemical exposure.

Recommendations

Although safety precautions are adequately put into practice, it is essential to improve administrative and engineering controls to avoid long time exposure of workers to health hazards. This is a necessity for certain

occupational groups as they belong to high risk group. We can mention the process plant workers, especially those working at the SX and EW plant. Even though control measures are sufficiently well implemented, accumulative exposure to health hazards over a period of months or years will lead to chronic health effects. So it is imperative for the company to establish an occupational health surveillance system (for medical surveillance of workers) and occupational hygiene surveys (for monitoring of health risks) to ensure safe place or environment and safe person. It is also crucial for the company to develop an occupational health information system to guarantee systematic collection and evaluation of occupational health data. As the company desires to promote health and well being of workers, designing and implementing public health programs can contribute to the promotion of health at work.

Conclusion

The study addressed only occupational risks. Limited information could not permit us to analyze the cause/effect relationship (attributable health risk). The study is just a baseline study for identifying occupational hazards; the results showed that there is a need to expand study for analysis and management of occupational risks and exposure. Health data did not give a clear picture of existing occupational diseases among employees. It gives only a snapshot on prevalence of diseases among workers. The results of the study cannot be generalized to the other mining industries apart from the industrial mining by virtue of difference in mining operations between artisanal and industrial mines. Small scale and artisanal miners often lack business management skills, awareness of the legal requirements for mining and the means to address health and safety risks. As compared to other industrial mine, this mine site is among the best ones concerning safety precautions. The major strength of the study is that it looked upon for the first time the identification of health hazards in an industrial mine in the city of Lubumbashi. This is a good initiative in the era of emergence of large-scale mining in the copper-mining city.

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Assessment of the determinants of drug abuse among drug users in Kathmandu valley

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Abstract

Introduction: According to world drug report 2011, around 210 million people get addicted to drugs worldwide every year and around 200,000 of them die because of it. Adolescents and adults are the most vulnerable groups and it causessignificant direct and indirect morbidity and mortality. There are multiple risk factorsfor drug abuse across multiple domains.Better understanding of the pattern and determinants of drug abuse will help to have comprehensive and sustained interventionsfor effective prevention and protection. This study aims to understand the socioeconomic determinants of drug abuse andto identify other associated familial and biological factors leading todrug abuse among drug users in Kathmandu Valley, Nepal. **Methodology**: An analytical case control study was conducted among 100 cases that were all illicit drug users admitted in rehabilitation centers within the past one month. Controls were selected randomly from general OPD patients of a neighboring hospital and the community located in the same geographical place as the rehabilitation center of Kathmandu valley. **Result**:The result shows, female sex(OR: 3.312, CI: 1.014-10.812) and unemployed father(OR: 3.706, CI: 1.095-12.547) are risk factors for the substance abuse whereas education up to high school level (OR: 0.082, CI: 0.013-0.503) and those who were students (OR: 0.063, CI 0.011-0.364) were found to be a protective factor for the drug abuse. On the other hand, self efficacy score and depression score did not show any statistically significant difference between drug users and non users. **Conclusion**: Increasing prevalence of drug abuse needs early intervention addressing determining factors in the form of improving psychosocial & education atmosphere.Intervention focusing on females through education, need to be implemented.

Key words: illicit drug, drug abuse, Depression, Self-efficacy

Introduction

Administration of an illicit drug in high quantities and frequencies leading toimpairment of an individual's ability to function effectively and the resulting social, physical or emotional harm is known as drug abuse.1

Drug abuse leads to the psychological and physiological dependence with the hindrance of economic development across the world.2Around the world, about 210 million people get addicted to drug abuse every year and nearly 200, 000 of them die because of it.3 According to the WHO report on global burden of disease, it is estimated that 0.4% of mortality and 0.8% of DALYs (Disability Adjusted Life Years) were due to illicit drugs in the year 2000.4

Lack of supervision and resulting boredom of the children due to less time availability of their working parents for them, work load, family structure and societal institution like childcare, education etc may be the contributing factors for drug abuse and other psychosocial problems. On other hand, there are positive as well as negative impacts of social, economic, environmental, ethnic and cultural factors.5 Another study on substance use conducted in India reveals that breakdown of the old joint family, lack of parental love and care due to busy schedule of parents, not following old religious and moral value by the new generation are factors influencing drug abuse. To sum up, there are multiple risk factors for drug abuse across multiple domains.6

Individual who are drug users not only get affected themselves but also their families including friends and community gets affected and harmed due to drug abuse. Drug abuse not only leads an individual at greater risk but also influence their children to use drug and adopt other risky behavior.3Drug abuse can lead to crime, street violenceandother social problems including rapid spread of infectious diseases like HIV and hepatitis.3

Heroin or smack, marijuana and heroin together with other psychoactive and sedative drugs, cough syrup and other hallucinating drugs like cocaine, LSD and magi–mushroomhave become most commonly used drugs especially among youth and adults in Nepal. Majority of young people get trapped during experimenting it.Therefore, Nepal is also affected by poly drug abuse resulting a serious social threat.7

To control this rising problem of drug abuse in the Nepal, better understanding of the determinants of drug abuse is crucial. The study aims to understand the socio-economic determinants of drug abuse among the drug users and to identify other associated familial and biological factors leading to drug abuse among drug users in Kathmandu Valley, Nepal.

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Methods:

The study, which took place in June and July 2012, was based on a case control analytical design. Data was collected using face-to-face interviewswith the help of a standardized questionnaire. Sample size estimation for the study was based on the assumption of 95% confidence with 80% power on expected odds ratio of 3 and exposure of poverty (one of the determinants of drug abuse) among controls 30%, which gave a sample size of 56 cases and 56 controls. The actual sample size obtained from the field was higher than the estimation i.e. 100 cases and 100 control to increase the power of the study. As drug abuse is a socially unaccepted issue and drug addicted people do not want to be identified,therehabilitation center for drug abuse is the one place where persons who use drugs can be accessed. Therefore, all illicit drug users admitted in fourrehabilitation centers of Kathmandu Valley, for less than one month and who have given consentto involve in research were selected as cases.

Admitted drug abusers in the four selected rehabilitation centers at the time of the study were 70, 55, 45 and 35 patients, where 40, 30, 18 and 12 eligible cases were found respectively. Control group were selected using independent random sampling technique, 50 from general OPD patients of hospital and 50 from community located in the same geographical place as the rehabilitation centers so that exposure of the risk factor will be similar between the cases and controls.No specific matching process was followed as a detailed adjusted analysis was planned. Approval was obtained from the Institutional Review Board of the School of Public Health, SRM University. Prior to the interviews writteninformed consent was obtained from all participants.

The interview was based on a standardized questionnaire. The set of questionnaires was developed in English and translated in Nepali language and was back translated to standardize the quality of translation. Questionnaire was pretested and correctionswere done before collecting the information.Interviewer read the questions to the study participants and recorded responses on an answering sheet. General information for age, gender, marital status (Married, Unmarried and divorced/ separated), religion (Hindu, Muslim, Christian, Buddhist and do not follow any) and ethnicity (Brahmin/Chettri, Janajati and other minority) and socio-economic information for education (illiterate, primary level up to 5, secondary level up to 10, high school and graduation and above), occupation(paid employee, unemployed and student),family structure (joint family, nuclear family, separated/single parents and Brought up without parents), education of parents (illiterate, primary level up to 5, secondary level up to 10, high school and graduation and above) and occupational status of parents (paid employee and unemployed) were collected from both cases and controls group. In this study depression and self efficacywere also considered as exposure factors which were screened through instruments consisting of standard scales derived from the 'Centre for Epidemiological studies Depression Scale (CES-D) by Lewinsohn et al. 19978 and the 'General Self Efficacy Scale by Ralf Schwarzer& Matthias Jerusalem, 1995.9To categorize self efficacy, medianof the total self efficacy score of case and control was calculated and was categorized as high and low self efficacy above and below the median. For the Depression score, numbers of the total depression score was calculated and was categorized as 'Normal' for a score below 9 and as 'Depressed' for score above 9 .

In behavior information, types of drug used and other risk profile,like influencing factor for taking drug (peer pressure, curiosity, substance abuse habit of family members and stress or depression), age of respondent at which they tested drug for the first time (Below 15 years, 15-25 yrs and 26 yrs or older), preferred frequency of drug use (dose) (1 time per day, 2 to 6 times, More than 6 times per day and occasionally), preferred time of taking drug (morning, afternoon, evening, night and anytime), availability of drugs (buy from store, shop or street venders, give money to someone to buy, burrow from someone, An older person gave, stole it and anyway possible), preferred place (At home, at school/college, at friend's home, in public places, in private places and anywhere) and person to use drug with (Alone, with friends and both) were assessed.

Statistical analysis

Descriptive analyses were applied by using means and standard deviations.Z test for two mean was performed fortesting significance of difference between cases and controls with respect to self efficacy score and depression score.Binarylogistic regression modelwas performed for analysis.The variables included were chosen on the basis of the research questions, intending to understand socio economic determinants and other associative factors including depression scale and self efficacy scale.The

analysis was performed with Statistical Package for Social Sciences (SPSS) 17 for Windows.

Results

Baseline information of case and control

The study shows that mean age among cases was 28.95±7.40 and mean age among control was 26.12±4.957.Two samples for mean Z test shows that there is statistically significant difference in age between the cases and control (p value 0.001). The table 1 shows cross tabulation of basic characteristic of cases and control where majority of the respondents were male.

Table 1:
Characteristics of Study Participants

Variable		Cases (N=100)	Control (N=100)
Sex	Male	50.6%(83)	49.4 %(81)
	Female	47.2%(17)	52.8 %(19)
Marital Status	Married	61.5%(32)	38.5 %(20)
	Unmarried	43.8%(60)	56.2 %(77)
	Divorce/Sept	72.7 %(8)	27.3 %(3)
Religion	Hindu	47.1%(66)	52.9 %(74)
	Muslim	60.0%(6)	40.0%(4)
	Christian	75.0%(6)	25.0%(2)
	Buddhist	52.6 %(20)	47.4%(18)
	Atheist	50.0 %(2)	50.0 %(2)
Ethnicity	Bramhin/Chetri	39.5 %(32)	60.5%(49)
	Janajati	55.9%(62)	44.1%(49)
	Other minority	75.0%(6)	25.5%(2)
Education status	Primary level	88.9 %(8)	11.1%(1)
	Secondary level	90.9%(30)	9.1%(3)
	High School	48.5%(33)	51.5%(35)
	Graduate and above	32.2%(29)	67.8%(61)
Occupation of respondents	Paid employee	59.7%(77)	40.3%(52)
	Unemployed	63.3%(19)	36.7%(11)
	Student	9.8%(4)	90.2%(37)
Family Structure	Joint	60.9%(39)	39.1%(25)
	Nuclear	40.4%(46)	59.6%(68)
	Separate/Single parents	66.7%(10)	33.3%(5)
	Brought up without parents	71.4%(5)	28.6%(2)

The mean of total self efficacy score of cases was 28.73±4.68 and on control was 30.46±5.43.Two sample for mean Z test shows that total self efficacy score is statistically significantly different between the cases and control (p value 0.015). The mean of total depression scale among cases was 20.26±10.21 whereas among control was 19.35±11.658. Here, two samples mean Z test shows that cases and control are not statistically significantly different in depression score (p value 0.394).

Risk profile of cases

Majorityof drug users take marijuana either in single form or multiple useswith other type of illicit drugs (68%) followed by tablets (37%) and brown sugar intake (31%), while other drugs like heroin, cocaine, cough syrup, IV drugs, dendrites and acid papers were also used. The influencing factors for the drug abuse, were curiosity (55%), stress (31%) whereas peer pressure, substance abuse habit of family member and the need for feeling a high status in society accounted for 10%, 3% and 1% respectively. The data indicates that majority of the drug abuser are likely to start drug use at the age between 15 to 25 (76%) whereas only 18 % and 6% of respondentsstarted at less than 15 years of age and 26 or more respectively. Majority (60 %) used drug 2-6 times per day,17% used once a dayand 14% used more than 6 times a day and only 9% used occasionally. Of the drug users

40%preferred to use drug anytime, 22% at night, 19% in the evening, 10 % in the afternoon and 9 % in the morning. Majority (41%) got drugs by giving money to someone, followed by borrowing from someone (27 %) and buying from shops or street vendors (20%)whereas given by old man, getting any possible way and stolen were less preferred way of getting it with 6%,4% and 2% respectively. Usually private places(51%) were used to take drugs followed by home(17%) and friends (15%) whereas anywhere possible(9%), public place(6%) and at school/college(2%) were least used. Friends are more preferred to accompany to take drugat 67% and taking alone and both alone or with friends were in least priority with 26% and 7% respectively.

Risk factor analysis of socio-demographic characteristic with cases and controls

Table 2 shows risk factor analysis of socio-demographic characteristics with cases and control. The value of Cox and Snell's R 2 is 0.470 and Nagelkerke's R2 is .627. In Hosmer – Lemeshow test, Goodness of Fit Chi Square is 3.893 and p value is 0.867 which is more that 0.05 that means it has good model fit.

Table 2:
Risk factor analysis of socio-demographic characteristic with cases and controls

Variables	Adjusted odds ratio	95% CI of Adjusted OR	
		Lower	Upper
Sex(Female)*	3.312	1.014	10.812
Education of respondent(Secondary level up to 12) ¥	0.233	0.023	2.415
Education of respondent(High school up to 12)*	0.082	0.013	0.503
Education of respondent (Graduation and above)	1.038	0.383	2.815
Occupation of respondent(Student)*€	0.063	0.011	0.364
Occupation of Father(Unemployed)*	3.706	1.095	12.547
Occupation of Mother(Unemployed)	0.492	0.171	1.418
Self efficacy score of respondent(High)	0.453	0.17	1.205
Depression scale of respondent (Depressed)	1.288	0.383	4.338
Constant	0		

Dependent variable: Case and control of drug abuse
*OR which are statistically significant. Reference categories: ¥ Primary level upto 5, € Paid employee

The result shows,sex as female (OR: 3.312, CI: 1.014-10.812) and unemployed father(OR: 3.706, CI: 1.095-12.547) are risk factor for the substance abuse where as education up to high school level (OR: 0.082, CI: 0.013-0.503) and those who were students (OR: 0.063, CI 0.011-0.364), werefound to be a protective factor for the drug abuse.

On the other hand, after categorizing self efficacy by calculating median of the total self efficacy score of case and control and categorizing as high and low self efficacy above and below the median and for the Depression score, after calculating numbers of the total depression score and categorizing as 'Normal' for a score below 9 and as 'Depressed' for score above 9, both the self efficacy score and depression score did not show any statistically significant difference in logistic regression analysis.

Discussion

The result of this study shows, the mean age of drug abuse cases were of 29 years and the majority of respondents started taking drug as addiction at the age in between 15 to 25. This finding can predict that majority of people get into the drug abuse habit in their young age. To support this result many other studies also shows children and young people are more vulnerable to involve in risky drug abuse behavior resulting in many harmful effects. 10Early intervention in this age group with promotion of protective factor to reducing risk factor can minimize this risk behavior of drug related harm in later age.10

The findingsofrisk factor analysis showedthat the female respondents are at a higher risk of drug abuse. To support this result, one study on Prevalence of psychoactive drug use among medical students in Rio de Janeiro says that there was a slightly higher

proportion of females (53%) on drug abuse11 but in another study young males are found to be high risk group in drug abuse.10The fact that majority of the literature show that males are at higher risk of drug abuse compared to females is in contrast to this study findings. One explanation could be that the study actually assessed the risk factors for admission to rehabilitation centers rather than risk factors for drug abuse, because of the nature of selection of cases. In that case all results would represent risk factors for admission to rehabilitation centers. The result of this study also showed that the respondent whose father is unemployed are high risk to drug abuse. Low socio economic status is one of the main risk factors for the drug abuse5 and the economic status is dependent with the employment status of the parents and father is the breadwinner of the family.In contrast to given result, the study showed that higher the education of the person or their parents, lesser the chance of getting into drug abuse. Many other studies also have shown that education status is one of the major protective factors therefore higher emphasis on universal educationcan be used to control prevalence of the drug abuse.2;5;10 Among the cases there were more unemployed compared to controls, which could mean either that those who used drugs were more likely to be unemployed or those who were unemployed were more likely to use drugs. This differentiation is not possible in this case control design.

In contrast with other similar studies, this study did not show any statistically significant differences indepression score among drug abuser and non users. But many other studies reveal that drug abuse especially cannabis use is associated with later psychiatric disorders10;12 specially depression.13 Comparison of the mean self efficacy scores between cases and controls revealed statistical significance. Thus people with lower self efficacy had a higher risk of drug addiction. But there was no significance when it was entered in the logistic regression model.

Marijuana/cannabis together with other drugs was found to be used by majority in this study. According to the policy initiative for drug control in Nepal, marijuana, heroin together with other psychoactive and sedative drugs are normally used in drug addiction.7 A few studies conducted in Australia also shows that marijuana with the name of cannabis is most widely used illicit drug10 and after using cannabis for 2-3 years drug users turninto multiple drug user.14.

In risk profile, curiosity(55%), stress(31%)or depression and peer pressure (10%) were found to be major reason for initiating drug. Availability of the drug is another reason for having easy accesses to get drugs. Since drugs are illegal to sell or buy, majority of the people asked someone to get the drug and borrowed-from other users. Drug users mostly preferred to use drugs in private place but own home or friends home were also preferred. Majority of the drug users used to have drugs with friends.

Factorslike increasing social disconnection,family functioning, school performance, curiosity and peer influences, temperament and local drug availability are the major influencing on the drug abuse.10In addition lack of social bonding, quality of family management, communication and relationship between family members, and role model of parents who abuse drugs, feeling of being neglected, low emotional and psychosocial support, frustration and low self efficacy are found to be influencing factors.15 Substance abuse habit of the family member as an influencing factor is found in minimum percentage in this study but one study indicates that parental habit of drug abuse influence their children to adoptnot only a given substance but also other type of substance abuse.16Therefore, schools and the family member have a crucial role and it is essential that teachers and parents should monitor adolescents' activities and invest in the quality of their relationship with adolescent children and provide proper/adequate parenting.

In conclusion, the finding shows young age groupsare more vulnerable to get drug abuse habit with the high interest of curiosity, frustration with life and low education level. Along with this there are multiple risk and protective factors which should be addressed properly with the prevention programs targeted to all those risk factors independently identified through this study with greater attention.

Limitations

We also must account for the potential recall bias of cases and reporting errors during the original data collection.As models based on case-control data might not work perfectly as predictors in other population, this study can only be generalized to other city with similar characteristics. It needs to be validated independently in different populations. However, despite these limitations, thefindings of this study provide important informationon illicit drug use to improve thereceptiveness of substance

abuse interventions. Follow up research is needed to examine more closely the multiple risk and protective factors for drug abuse.

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Men In Nursing Pigeonholed

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Abstract

Background: Nursing is largely a female-dominated occupation but men have worked as nurses since the profession's infancy. The trend of marginalising men in nursing is observed through the literature search with statistics showing that the number of men in nursing is very low. Little research has been conducted on men in nursing, their experiences, perceptions and acceptance in society. **Objectives:** This study aimed at understanding the interests, experiences, challenges and perceptions of men in nursing with a focus on areas of career opportunities and satisfaction, challenges in performing nursing duties and responsibilities well because of being a male nurse and perceptions of their female co-workers, doctors, other hospital staff and patients about men in nursing. **Method**: Qualitative and quantitative data of 50 male and 25 female nurses, 25 doctors, 25 other hospital staffs and 25 patients and their attendees was collected by purposive sampling. An in-depth, semi-structured, face-to-face interview of 7 male nurses was also conducted. **Results**: The study showed that 92% of the participants liked to go abroad for a career and that is the main motivation for choosing nursing. A major proportion of male nurses had poor experience, acceptance and perceptions in nursing. Female nurses, patients and doctors also held negative impressions about male nurses in the profession, but the other staff had positive opinions. **Conclusion**: Men choose nursing career largely as a route to go abroad for a livelihood. They find it challenging and difficult to work in the midst of strong negative attitudes towards males in the nursing profession.

Key words: Male nurse, Career, Perception.

Introduction

Nursing is assumed to be a female dominated occupation since its history, which comprises roles inherent only to female gender. However Men have worked as nurses since long, fulfilling the caring roles in areas such as asylums, workhouse infirmaries, military services and private associations.(1) But the existence of social political and economic systems which still believe nursing as a female dominated profession.(2) Since the time of Florence Nightingale nursing has been stereotyped as a female dominated profession throughout the world.(3,4)Inequalities for men appear in specialityfields(e.g. obstetrics and gynaecology) and in society generally and these create substantial pressure on professional male nursesbut men throughout the world generally enter 'suitable' professional specializations such as emergency care, psychiatry, or surgery(5). Out of the total Indian strength of three hundred thousand nurses (actually we require nine hundred thousand to cope up with our medical needs) barely one per cent is males. Literature indicates hurdles towards acceptance of men in a female dominated profession of nursing moreover some studies indicate that female nurses and public do not accept male nurses.(2) On the contrary some literatures also suggests that the small number of men currently in the profession occupy a privileged position with regard to their female counterparts.(6) Ideally the nursing profession's caring ideology reflects feminine values of nurturing and supporting others.Men in the nursing profession also perceive that they are being marginalized by not being allowed to be in the labor room during delivery.(2) Apparently it is clear that little research has been conducted on Men in nursing, their experiences, perceptions and acceptance in society. This study assesses their experiencesroles as practising nurses, their relationships with colleagues and co-workers in the work environment and with patients.Methods:

Methodology

Participants included male nurses, female nurses, doctors, other hospital staffs and patients. A list of participants was prepared with the help of existing contacts working in hospitals.The study details were explained to those who were interested in participating and informed consent was obtained. The questionnaire was developed from an extensive literature review and five different setswere framed one each for male nurses, female nurses, doctors, patients and other hospital staff. The survey instrument used in the questionnaire included demographic information followed by standardised five pointLikert scale from '1' representing always, 2-often, 3-sometimes, 4-seldom and 5 –never respectively used for each questions in the individual domains of this study which includedexperiences, satisfaction, perception and acceptance of men in the nursing profession. The questionnaires for female nurses, doctors, other hospital staff and patients focussed on their perceptions about men in nursing.

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All the questionnaires were pre-tested. An in-depth, semi-structured, face-to-face interview of 7 male nurses was also conducted. The interviews were transcribed verbatim and analysed to identify broad themes. Participants included a convenient sample of 50 male and 25 female nurses (including graduate nurse midwives, bachelors in nursing, masters in nursing and post certificate bachelors in nursing), 25 doctors (including medical officers, post graduate students and resident doctors), 25 other hospital staff (including ward boys, cleaners, housekeeping staff and lift operators) and 25 patients and their attendees.

Results And Analysis

The analysis was divided into the first section of analysis of male nurses' interests, experiences, acceptance and perceptions. The second section comprized of perceptions of femlae nurses, doctors, other hospital staff and patients about male nurses. The characteristics of the 50 male nurses who were interviewed is shown in Table 1.

Table 1:
Demographic Information of male nurses

Demographic Variable	n=50	Frequency	Percentage
Age	20-30yrs	46	92%
	31-40yrs	3	6%
	41-50yrs	1	2%
	51-60yrs	-	-
Years of Experience	<1yr	2	4%
	1-5yrs	39	78%
	5-10yrs	9	18%
	>10yrs	-	-
Educational Qualification	GNM	18	36%
	BSc Nursing	31	62%
	Post BSc Nursing	1	2%
	MSc Nursing	-	-
Designation	Nurse	40	80%
	Shift In charge	6	12%
	Ward In charge	4	8%
	Floor In charge	-	-
	Nursing Supervisor	-	-

It shows that 92% of the respondents were within the age group of 20-30yrs and of which 78% had experiences of 1-5yrs.Male nurses comprised 62% BSc nurses followed by 36% GNMs. 80% of the participants were nurses followed by 12% Shift In charges and 8% Ward In charges. Out of the 50 respondents 56% choose nursing with motives to go abroad and 30% took it up with self interest. None of them had any service motives for choosing the profession. When asked about their interest to go abroad 92% responded that it was their main interest. About 72% of the respondents were interested in switching over to administrative jobs. Departmental choices when assessed showed that 72% preferred ICU's with another 20% preferring OT's. Experiences of the men were assessed under the following domains: Team sprit at work hours, balance between work life and personal life, peer group interaction, opportunities to learn and grow, appropriate recognition, interaction with doctors.The individual scores on each variable was computed after reverse coding for negative questions. The mean score was used to categorize the experience into good and bad. Similar method was used to categorize acceptance and perceptions into good and bad. Acceptance was captured in the following domains: familial, social, paternal acceptance and difficulty in getting married. The domains captured in perception were: optimism about future as a nurse, wrong professional choice, job security, patients comfort, patient's preference of female nurses over men, doctors' preference, reluctance in self introduction as a nurse and job satisfaction. The scoring and categorization of the male nurses based on the score are depicted in Table 2.

Table 2:
Mean scores in each domain

Score	Mean	Std. Deviation
Perception Score.	10.28	3.67
AcceptanceScore.	8.72	2.59
Perception Score	21.94	3.98 n=50

Table2.1:
Demarcation into good and bad based on mean scores in each domain

Score	(n=50)	Frequency	Percentage
Experience	Good	31	62%
	Bad	19	38%
Acceptance	Good	37	74%
	Bad	13	26%
Perception	Good	22	44%
	Bad	28	56%

Hierarchical and K means cluster analysis were done to classify the respondents into specific clusters defined by certain characteristics. Two clear clusters were formed. Out of the 50 men participated 12 of them fell into cluster 1 and the rest 38 were in cluster 2. The cluster classification and definition are shown in Table 3.

Table 3:
Defining Cluster based on experience, acceptance and perception

Score	(n=50)	Clusters	
		1	2
Experience	Good	0	31(100%)
	Bad	12(63.2%)	7(36.8%)
Acceptance	Good	2(5.4%)	35(94.6%)
	Bad	10(76.9%)	3(23.1%)
Perception	Good	4(14.3%)	24(85.7%)
	Bad	8(36.4%)	14(63.6%)

A characteristic of the men in the two clusters were analyzed and is shown in Table 4.

The perceptions of doctors, female nurses, other hospital staff and patients are shown in Table 4. It showed that only other hospital staffs perceived affinity towards men, which is believed to be the gender approachability, which make men more friendly and approachable.

Table 4:
Perceptions scores of Doctors, Nurses, Other Staffs and Patients about male nurses.

Score	(n=50)	Frequency	Percentage
Doctors	Good	12	48%
	Bad	13	52%
Female Nurses	Good	9	36%
	Bad	16	64%
Other Hospital Staff	Good	18	72%
	Bad	7	28%
Patients	Good	11	44%
	Bad	14	56%

The in depth interviews with the male nurses revealed that female catheterization, female sponge bath, breast examination, assisting deliveries, explaining breast feeding techniques, antenatal examinations and post partum care and paediatric care were the frontline hurdles for men as it is difficult for men to win the acceptance of young women and children. When asked about the challenges they face in their work environment, one respondent felt that female patient feel insecure with male nurses, another response was "We are considered aliens in labor rooms and gynaecology wards and none of us are interested in working there." Some had difficulties in handling paediatric wards as they say children get easily adapted to women rather than men. When asked about their experiences at work the main focus was on procedural and technical skills. Men felt that females are more skilled. The respondents felt that patients are more open to female nurses. One of them said, *"Patients are less expressive with us as they think we lack empathy."* One of the respondents said *"Doctors feel more comfortable with female nurses as they find females more attractive."*

Men had inconsistent perceptions about their career ahead and they came with some anxious responses. Some said it was a wrong choice and some said they are uncertain about their future as a nurse. Some of the responses were:

"Some of my friends believe that I could have found a better job than nursing."

"After working for a few years sometimes I wonder if nursing is good for me as a lifelong career."

"I wonder at times that my children may feel awkward to say that their dad is a nurse"

"Sometimes I question my decision to become a nurse."

Discussion

Little research is done about nurses in India and much lesser is known on men in nursing. Therefore this study was done to assess the interests, experience, acceptance and perceptions of men in nursing and furthermore looking upon the perception of female nurses, doctors, other hospital staff and patients about men in nursing.

A review of the international literature suggests their focus on bias and stereotyping of men in nursing but as the developing world is in huge pain strengthening their health sector much consideration is essential in addressing the key problems of eroding human resources. A similar study in Taiwan showed that high salary was the primary driving force for men choosing the profession. It also revealed that negative public perceptions, lack of self confidence and lack of adequate support from people who could help in their career were the main hurdles in the profession. (7). In our study many men choose nursing to go abroad and even those who stayed in India choose to switch to administrative positions.

Specialization is identified significant in reducing sex role conflict and dispels labels that identify men as deviant in the nursing profession. Other added benefits include increased pay and enhanced prestige. (6) This study shows that about 72% of the participants find ICU's as the department of choice with another 20% favouring OT's.

This study shows that 62% of men had bad experiences as nurses. Historical, experiential and anecdotal literature supports the existence of non acceptance of male nurses (2). An attempt to study about perceived acceptance of men on the following four variables which include familial, social, paternal and difficulty in getting married shows that 74% of the participants perceived bad acceptance. When perceptions were clubbed a few other interesting notifications were on the best suited department for men in which doctors and female nurses had their side on orthopaedics but men had no mention. Moreover study also traced out facts that perceptions of other hospital staffs were better when compared with female nurses, doctors and patient's which is due to the more approachableness with men. Study revealed that men choose nursing with a drive to move abroad in search of better living conditions and salary. Eventually concluding men find it hard and challenging to get them acclimatised to work as a nurse in an Indian setting where they feel it's more of psychological challenge than physical.

Although the study came out with significant eye opening results the sample size was too feeble to strengthen a call moreover limitations do exist in selection of participants too, but further researches remain platforms as the study area remains novel and untouched in a developing country scenario, where strengthening health systems has its root in moulding and framing its human resources in which our Country stand miles behind.

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Comparison of respiratory morbidity in a coastal and non-coastal areas in Kancheepuram district in Tamil Nadu,India

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Abstract

Background: Nursing is largely a female-dominated occupation but men have worked as nurses since the profession's infancy. The Introduction: Respiratory morbidity is more commonly seen in coastal areas. Variations in respiratory morbidity occur based on climatic conditions. International and national studies show that there is marked increase in the occurrence of respiratory morbidity (RM) in coastal areas compared to non-coastal areas. **Objectives**: This study aims at comparing the prevalence of RM in a coastal area and a non-coastal area and to analyze the association between RM and humidity, cooking fuel and smoking. **Methodology**: This is a community based comparative study. A sample of 198 people participated in this study, 94 people each from coastal area and non-coastal area. Systematic random sampling with stratification by sex was done. A pre-tested structured questionnaire was used as the study tool. Self reported respiratory morbidity and its associated factors were obtained from the respondents. Relative humidity data of both the areas were collected from the concerned authorities for analysis.Results:Thereis a statistically significantdifference in the prevalence of respiratory morbidity in the coastal and non-coastal area(z=8.2). In the coastal area prevalence of respiratory morbidity is 52.1% and in the non-coastal area, prevalence is 23.4%.The odds of respiratory morbidity among people in coastal areas is 3.56 times greater than odds of RM in a non-coastal area.(p value <0.001). Prevalence of wheezing in coastal area is 28.7% and in non-coastal area it is 7.4% and cough in coastal area is44.7% and in non-coastal area is 21.3%. There is a statistically significant difference in the relative humidity of coastal area and non- coastal area. (p value<0.001).There is no significant difference in the occurrence of respiratory morbidity among male, female and children.There was no significant association between cooking fuel and RM and smoking and RM.**Conclusion**: There is marked higher prevalence of respiratory morbidity among persons living in coastal areas compared to non-coastal area. High relative humidity could be associated with this high prevalence. Men choose nursing career largely as a route to go abroad for a livelihood. They find it challenging and difficult to work in the midst of strong negative attitudes towards males in the nursing profession.

Key words: Respiratory morbidity, Relative humidity, coastal area staff had positive opinions.

Introduction

Risk factors for Respiratory Morbidity (RM) in coastal areas have been previously studied, but there is insufficient evidence. Regional variations exist in the prevalence of asthma and other respiratory morbidities like cough and breathlessness.(1) Understanding these variations is important both for local health care endeavors and also for gaining insight into the epidemiology of RM. Geo climatic variations in the prevalence of respiratory morbidity could provide important clues to the etiology of RM.(1) Relative humidity, smoking, cooking fuel and temperature are some of the factors associated with RM.

According to national and international studies there is marked difference in the prevalence of RM among coastal and non-coastal areas.(1-3) According to WHO a combination of genetic predisposition along with other factors like indoor allergens , cold air and pollution that may irritate airways act as the risk factors for developing respiratory morbidy like asthma. (2) A study conducted in Turkey about childhood allergic disorders indicate that respiratory symptoms tended to be more prevalent in urban and coastal region. (3)

In India only a few studies have been conducted to compare the prevalence and factors affecting RM in coastal and other areas. Results of the European Community Respiratory Health Survey in Mumbai shows a 12% prevalence of asthma in coastal regions of Mumbai. The same survey conducted in the interior city Patna reports a 2.7% prevalence in asthma. (4) This clearly shows the difference in RM between coastal and non-coastal regions in India. But there is no study which has looked at coastal and non-coastal regions within the same geographical district. This is important because regional observable and non-observable factors could influence the prevalence of RM and these can be adjusted when the comparison is made within a particular district.

The objective of the study was to compare the prevalence and factors associated with RM in a coastal area and non-coastal area. Specifically the association between RM and relative humidity, use of cooking fuel, gender and smoking behavior were studied.

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Methodology:

Study population

This is a community based study conducted in June 2011.Wyalikuppam, the coastal area is close to sea. It is a fishermen community. They spend most of their time in the sea shore. The women are mostly housewives. Study group up to the age of thirteen years were considered as children and equal numbers of men, women and children were sampled for the study.Asur was the non-coastal area selected for the study. The people of this village are mainly agricultural laborers and subsistence farmers.

Sample size calculation

Sample size was calculated giving 50% chance for occurrence of RM in coastal area and 30% chance for non-coastal area with 95% confidence interval and 20% error. Calculated sample size was 94. So the total sample size was 198 (94 in each group – coastal and non-coastal).

Study design and study method

The study was done in a descriptive comparative design. Systematic random sampling was done with stratification. Stratification was done based on gender as men, women and children with equal numbers in each group. Total number of households in each locality was around 300. Every third household was selected in order to get the required sample size from a random start in the center of the village. In order to get a proportionate sample for the three categories a male from the first selected house, a female from the next third house and a child from the next third house were selected. Replacement sampling was done if the required respondent was not available in the selected household. Respondent was randomly selected from each household if more than one eligible respondent was available. Written Informed Consent was obtained from the concerned person or parent (in case of children) prior to the interview. The study protocol was approved by the Institutional Review Board of the School of Public Health , SRM University.

Study tool

A pre-designed pre-tested structured questionnaire was used for the study. The questionnaire comprised of two sections. First section was about demographic characteristics, habits, type of labour, and kind of cooking fuel used. The second section was about their respiratory morbidity, which included questions regarding the occurrence of wheezing, chest tightness, breathlessness, sleep disturbances, cough and phlegm within a period of twelve months and its variations.

Calculation of relative humidity

Recorded dataof relative humidity during the year 2011 were collected from thecoastal area by the Environmental Survey Lab and in the non-coastal area by the Public Works Department. Hourly reading was recorded for each day. From this data average relative humidity of each day was calculated for the year 2011.

Operational definition of key words

Respiratory Morbidity- The occurrence of wheezing with or without chest tightness, breathlessness or sleep disturbances, and cough with or without phlegm, within a period of twelve months was defined as RM. The occurrence of either wheezing or cough or both together had been considered as respiratory morbidity

Current smoker:- A person who had smoked at least 100 cigarettes over their life time, and continued to smoke every day or some days.

Ex-smoker:- A person who had smoked more than 100 cigarettes over their life time and who did not smoke currently.

Analysis methods

Data was entered in to the Statistical Package for Social Sciences (SPSS version 17) and coded for analysis. Simple frequencies and Chi- square test for significance were done. Odds ratios were calculated as measures of association along with confidence intervals. Stratified analysis (stratified based on coastal versus non-coastal area) was done to study the association between cooking fuel and RM. Analysis of variance (ANOVA) was used to find the variation in the symptoms between the three categories of study population. Independent sample t test was done to prove that there is statistically significant difference between the relative humidity of two areas.

Results

The study population comprised of 194 respondents with 33%, 24.3%, 37.2% and 6.4% in the age group of 0-13 years, 14-30years, 31-60 years, and more than 60 years respectively. Of the respondents 96.8% were Hindus and among them 46.3% belonged to Most Backward Communities and 50% belonged to Scheduled Castes. Among the respondents 55.9% were currently married and 9.6% were unmarried.

Regarding the distribution of labour, 11.2% were fishermen, 13.3% were manual laborers, 4.3% were doing their own business, one each was a teacher and a typist. Only 6.45% of the respondents had the habit of smoking. With respect to cooking fuel 40.45% of the respondents used wood, 4.3% kerosene and 55.3% LPG. These deta ils are shown in Table 1.

Table 1:
Characteristics Of Study Population

Score	(n=50)	Frequency	Percentage
Age	0-13	62	33%
	14-30	44	23.4%
	31-60	70	37.2%
	60+	11	6.4%
Category	Male	64	34%
	Female	62	33%
	child	33	33%
Village	Wyalikuppam	94	50%
	Asur	94	50%
Marital status	Currently married	105	55.9%
	unmarried	18	9.6%
Religion	Hindu	182	96.8%
	christian	6	3.2%
Caste	SC	94	50%
	MBC	87	46.3%
	OC	1	0.5%
Smoking	Yes	12	6.4%
	No	176	93.6%
Cooking fuel	Wood	76	40.4%
	Kerosene	8	4.3%
	LPG	104	55.3%

Prevalence of RM

As shown in Table 2, in the coastal area prevalence of respiratory morbidity was 52.1% and in the non-coastal area the prevalence was 23.4% (p value <0.01). Prevalence of wheezing in coastal area is 28.7% and in non-coastal area it is 7.4%(p value<0.01). Prevalence of cough in coastal area is 44.7% and in non-coastal area is 21.3%(p value 0.001).

Relative Humidity

Independent sample t test was done to compare the mean relative humidity of the coastal and non-coastal areas and it showed statistically significant difference(p value<0.001).

Table 2:
Prevalence Of Respiratory Morbidity

	Frequency	Percentage
TOTAL	71 (n=188)	37.8% 95%CI= (30.9% - 44.7%)
COASTAL AREA	49 (n=94)	52.1%
NON COASTAL	22 (n=94)	23.4%

Association between proximity to sea and respiratory morbidity

While finding the association between proximity to sea and RM, results shows that the odds of respiratory morbidity among those living in coastal areas is 3.56 times (95%CI=1.906-6.664)greater than odds of RM in a non-coastal area. (Chi square-16.496 ;df=1 ; p value<0.001)

Association between cooking fuel and respiratory morbidity

The people who do not use wood as cooking fuel have a 3.6 times greater odds of developing respiratory morbidity compared to people using wood as cooking fuel. (Odds ratio-0.276, 95%CI=0.142-0.537) It indicates wood is protective for respiratory morbidity which is against the scientific evidence. It was observed that people living in the coastal area were less likely to be using wood as a cooking fuel compared to people in the non-coastal area. So stratified analysis of association between cooking fuel and RM was done in each area.

Association between cooking fuel and respiratory morbidity stratified for coastal residence

Odds ratio for association between cooking fuel and RM in coastal area is 0.448 (95%CI=0.059-5.116) and for non-coastal area is 0.517 (95%CI=0.177-1.508). On stratified analysis it was found that the association lost statistical significance, thus indicating that the association between cooking fuel and RM was strongly influenced by the coastal residence and no direct influence was observed.

Association between gender (men, women and children) and respiratory morbidity

The study population was categorized into male, female, and children.Results of ANOVA shows that variance between the groups is not significant. (F=0.183 ; df1=2 ; df2= 185 p value=0.833).It indicates that there is no significant difference in the occurrence of respiratory morbidity among these three categories. This data is depicted in Table 3.

Table 3:
Comparison of RM between Men, Women and Children

RM	Sum Of Squares	df	Mean square	F	Sig
Between groups	0.087	2	0.044	0.183	0.833
Within groups	44.099	185	0.238		
Total		187			

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Physical Inactivity as a factor affecting Quality of Life in people with NCD - A descriptive cross - sectional assessment

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Abstract

Background:Physical Inactivity is one of the biggest threats to the middle and high income countries, which has increased their burden of diseases, due to demographic transition, change in life style, and change in various aspects of personal and social life. **Objective**: The research is done in the coal capital of India, Dhanbad and is focused on two objectives, first is to find out the level of physical inactivity in people of Dhanbad, and to look into various aspects of Quality of Life (QOL) of people with five Non Communicable Diseases (NCD) - (Diabetes, Hypertension, Cardiac diseases, Osteo- arthritis, Stroke). **Methodology**: The level of physical activity was assessed by (GPAQ Questionnaire) and their Quality of life was assessed using (WHO-QoLBref).Basic demographicinformation was also collected.Total sample size was 365; ofwhich 192were based on the household survey and remaining 173were based on hospital based data collection. **Results**: The results show that there is high level of physical inactivity (72%) in people with NCD in Dhanbad. The data for GPAQ and WHOQOLBref was analyzed using the standard procedure as per the guidelines.For QOL analysis the total scores were classified as Low, Moderate and High with quartiles ($q1 \leq 22$, $q3 \geq 25$); which provides that 48.2% of the study population led a good quality life. Likewise, GPAQ classification was made using the Guidelines. Imperative finding shows that 72.1% of the samples are physically inactive in the study population.The Foremost result is that the GPAQ controlling for NCD having a significant partial relationship with QOL; it indicates that the physical activity will increases the QOL of the people with NCD. Fig: 1 shows the conceptual frame of the mediation analysis which fits very perfectly. The model of the fit ($R^2 = 0.15$) is QOL = - 0.36*NCD + 0.16*GPAQ; RMSEA < 0.05 ensures the goodness of fit gives the clear evidence that the increment in the physical activity of NCD's have impact in their quality of life. **Conclusion**: Men choose nursing career largely as a route to go abroad for a livelihood. They find it challenging and difficult to work in the midst of strong negative attitudes towards males in the nursing profession. Non Communicable Disease (NCDs), Quality Of Life (QOL), Physical Inactivity, National Program for Prevention and Control of Cancer, Diabetes, Cardiovascular diseases and Stroke (NPCDCS)

Key Words: Sedentary, Physical quality of life, Non- communicable diseases

Introduction

Non communicable Diseases or NCDs are defined as diseases or conditions that occur in, or are known to affect, individuals over an extensive period of time and for which there are no known causative agents that are transmitted from one affected individual to another.[1] For the purpose of this study we are considering 5 NCDs - cardiovascular diseases, diabetes, hypertension stroke and oseto-arthritis . Commonly known risk factors for these include lack of exercise, improper diet and smoking.[2]Physical inactivity is one of the biggest threats to the middle and high income countries, which has increased their burden of diseases, due to demographic transition, change in life style, and change in various aspects of personal and social life.[3]The alarming high rise of physical inactivity has not only brought together the countries to come up for an effective solution to address this issue at the UN High level meet 2011 but has also made countries to frame suitable policies and to act on it[4]. In spite of the global alarm on the issue, the government of India has just a few programs to address the issue of decreasing physical inactivity [5,6] which makes it a severe threat to the community. India has a lot of inequities and a very small portion of the GDP is spent on health.[7,8]The cost implications of NCDs to society are enormous and run into thousands of crores of rupees that include direct costs to people with illness, their families and indirect costs to society, due to reduced productivity.[9]

Policies are driven by suitable evidence and in spite of global evidence that an investment in addressing the modifiable determinant (raised blood pressure, cholesterol, tobacco use, unhealthy diet, physical inactivity, alcohol consumption, and obesity) would be one of the most cost effective ways to address the menace due to NCDs enough emphasis is not placed on them.[10]Still for majority of the states achieving their targets of improving the basic health indicators(IMR, MMR, Immunization, family planning, water and sanitation) remains a big issue to be addressed.[11,12][Physical inactivity, has still not started to be assessed in the National Health Surveys [13,14 , 15].

Cardiovascular disease, cancer, chronic lung diseases and diabetes – are the four major NCDs that kill three in five people worldwide, and cause great

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socioeconomic harm within all countries, particularly developing nations.[16]India has over 1.2 billion population and there is high prevalence of risk factors for NCDs.[17] Physical activity is considered as an important behavior that helps to prevent millions of premature deaths and unwanted burden on the country and the family. The country is experiencing a rapid health transition with a rising burden of NCD's which are emerging as the leading cause of death in India accounting for over 42% of all deaths with considerable loss in potentially productive years (aged 35-64 years) of life.[18] According to a WHO report (2002), cardiovascular diseases (CVDs) will be the largest cause of death and disability in India by 2020. [19]

As government is least concerned about the issue of the decreasing physical inactivity and there is no information on physical inactivity in Dhanbad [20] this study focuses to find the level of physical inactivity and to develop some recommendations for promoting physical activity. This study has two objectives, first to assess the level of Physical inactivity in people with NCDs and second is to find out how does it affects their QOL.

Methodology:

Study design

Descriptive cross sectional study; The sample size calculatedusing a prevalenceof Physical inactivity amongst men in INDIA is 52 % from a previous study conducted by Nawi Ng and Mohammad Hakimi. For the 90% confidence level and allowable error of10%; derived a sample size of 406 with 10% of over sampling. Multi – Stage Systematic Random Sampling was adopted in the Sample collection.

Dhanbad is a district in Jharkhand with a population of 26, 82,662 (2011 census) and it has a literacy rate of 74.94% and the average household size is 5.57. [22] The city is known for being the coal city of India. The major economy to the city comes from Bharat cooking coal limited (BCCL) and a majority of the people in the city are employees of BCCL[23].

Health care facilities were available in both private and government sectors, and a major contributor to the healthcare was by BCCL[24]. As the first stage of the sampling plan; three hospitals and householdswere obtained by systematic random sampling from Bhuli[25]. In the second stage; systematically the samples were chosen from the both the selected hospitals and households.

The eligibility criteria included age of more than 18 years and those who had one or more of the following Non-Communicable Diseases (Diabetes, Hypertension, Cardiovascular Diseases, Osteo-Arthritis or Stroke). A total of 180 persons were interviewed from the three hospitals, who were visiting the study centers during the duration of data collection. After obtaining informed consent the recruitment of the individuals was done.The questionnaire was translated to Hindi by experts; it was back translated and field tested before implementation. Some questions where people were not comfortable or did not want to answer were omitted.

Data collection was made by two standardized tools (WHO Quality of Life (Bref) Questionnaire (WHO QoL)[26] and Global Physical Activity Questionnaire (GPAQ) [27] which have been standardized and validated in India and also a Questionnaire which was developed to capture the demographic and general activity information. The questionnaire also collected information on –type of disease, duration of illness,the person who has recommended exercise, whether they were performing exercises, whether they follow the recommendation regarding exercise, has the disease affected their activity of daily living, family or work participation, or community participation.Morning walk, yoga, exercises, jogging, sports, cycling or any other exercise activity were considered as physical activity. They were also asked if they were regularly performing exercise and the duration of exercise.

In the WHO Quality of Life (Bref) Questionnaire, there was a question about, their satisfaction from sexual life, which was not being asked to respondents who were single or above 50 years and women.Approval was obtained from the Ethical Committee, SRM School of Public Health.The data analysis was done with the help of Epi info software.

The data of 380 was entered in the software and after the data cleaning there was 365 samples left, in which 173 were from the Hospital based data and 192 were household based.

Results:

Tocertify the accumulation of the data doesn't have any contractions. For that,Mann-Whitney U statistics was tested in the Demographic profiles such as Scores obtained through GPAQ, Gender, Education, Occupation, NCD, Exercise Performance, Marital status, Duration of Illness and Income distributions don't have any considerable significance between the hospitalized sample and non – hospitalized sample in the table 1.

Table 1:
Demographic Profile (Mann-Whitney U Test)

		Hospital (n = 173)	Household (n = 192)	Sig.
GPAQ Classification	Low	71.4 % (62.5, 80.3)	72.8 % (64.1, 81.5)	P > 0.05
	Moderate	19.5 % (11.7, 27.3)	21.1 % (13.1, 29.1)	
	High	09.0 % (03.4, 14.6)	06.1 % (01.4, 10.8)	
Age*	20 – 40	06.0 % (01.3, 10.7)	23.1 % (14.8, 31.4)	P < 0.05
	40 – 60	71.4 % (62.5, 80.3)	53.1 % (43.3, 62.9)	
	60 – 80	21.8 % (13.7, 29.9)	23.1 % (14.8, 31.4)	
	Greater than 80	00.8 % (-0.9, 02.5)	00.7 % (-0.9, 02.3)	
Gender	Male	75.2 % (66.7, 83.7)	64.6 % (55.2, 74.0)	P > 0.05
	Female	24.8 % (16.3, 33.3)	35.4 % (26.0, 44.8)	
Education	School Level	46.6 % (36.8, 56.4)	51.0 % (41.2, 60.8)	P > 0.05
	Diploma	05.3 % (00.9, 09.7)	01.4 % (-0.9, 03.7)	
	UG	15.8 % (08.7, 22.9)	23.8 % (15.5, 32.1)	
	Prof. Degree	03.0 % (-0.3, 06.3)	02.0 % (-0.7, 04.7)	
	PG	00.0 % (00.0, 00.0)	00.7 % (-0.9, 02.3)	
Occupation	Illiterate	29.3 % (20.4, 38.2)	21.1 % (13.1, 29.1)	P > 0.05
	Retired	09.8 % (04.0, 15.6)	08.8 % (03.2, 14.4)	
	House-Wife	27.8 % (19.0, 36.6)	40.1 % (30.5, 49.7)	
	Private	18.8 % (11.1, 26.5)	17.0 % (09.6, 24.4)	
	Shop-Keeper	00.0 % (00.0, 00.0)	01.4 % (-0.9, 03.7)	
	BCCL	39.8 % (30.2, 49.4)	27.2 % (18.5, 35.9)	
	Govt	03.8 % (00.1, 07.5)	02.7 % (-0.5, 5.9)	
	Other	00.0 % (00.0, 00.0)	02.7 % (-0.5, 5.9)	
Currently Ill**	Yes	58.6 % (48.9, 68.3)	38.1 % (28.6, 47.6)	P < 0.01
	No	41.4 % (31.7, 51.1)	61.9 % (52.4, 71.4)	
Non Communicable Disease	Any One	66.2 % (56.9, 75.5)	66.7 % (57.5, 75.9)	P > 0.05
	Any Two	29.3 % (20.4, 38.2)	24.5 % (16.1, 32.9)	
	Any Three	03.8 % (00.1, 7.5)	06.8 % (01.9, 11.7)	
	Any Four	00.0 % (00.0, 00.0)	00.7 % (-0.9, 02.3)	
	All	00.8 % (-0.9, 02.5)	01.4 % (-0.9, 03.7)	
Performing Exercise	Yes	66.2 % (56.9, 75.5)	53.1 % (43.3, 62.9)	P > 0.05
	No	33.8 % (24.5, 43.1)	46.9 % (37.1, 56.7)	
Marital status	Single	03.0 % (-0.3, 06.3)	04.8 % (00.6, 09.0)	P > 0.05
	Married	97 % (93.7, 100.3)	95.2 % (91.0, 99.4)	
Duration of Illness	< Six Month	06.0 % (01.3, 10.7)	00.7 % (-0.9, 02.3)	P > 0.05
	Last One yr	06.8 % (01.9, 11.7)	09.5 % (03.8, 15.2)	
	One to Two yrs	03.8 % (00.1, 07.5)	08.8 % (03.2, 14.4)	
	Two to Five yrs	27.8 % (19.0, 36.6)	39.5 % (29.9, 49.1)	
	Five to Ten yrs	42.1 % (32.4, 51.8)	33.3 % (24.1, 42.5)	
	Ten to Fifteen yrs	09.0 % (03.4, 14.6)	04.1 % (00.2, 08.0)	
	> Fifteen yrs	04.5 % (00.4, 08.6)	04.1 % (00.2, 08.0)	

* Significance at the level of 0.05 **Significance at the level of 0.01

But, the age profile and Current illness has the significance which shows that the people from the hospital samples are at the range above forties. Whereas the household are have considerable numbers in the range of below forty. Evidently, in the current illness the hospitalized samples have high number of illness.

From the set of raw data, Quality of Life domains and the total scores were compiled as per instruction of WHO – QOL – Bref Guidelines. Total scores were classified as Low, Moderate and High with quartiles ($q1 \leq 22$, $q3 \geq 25$); which provides that 48.2% of the study population led a good quality life. Likewise, GPAQ classification also made using the Guidelines. Imperative finding shows that 72.1% of the samples are physically inactive in the study population.

In the table 2, Chi – Square statistics was tested to determine the association for the GPAQ classification with the socio – demographic profiles, where the aged populations are completely in the category of low level physical activity. Similarly the male, married, school level & illiterates, retired & Govt. sector people, more year of illness, non – performance of physical exercises and high earning people are more exposed to physically inactiveness. Provocatively, the Current illness doesn't have any impact on the physical activeness. There is a significant association between the Quality of Life scores and the GPAQ classification ($\chi 2 = 143.657$***). From the Table: 3, 24.7% of low physical activity population were leading a poor quality of life. But, Moderate(88%) and High (100%) active populationwere at High quality of life. For the Mediation analysis theQuality of Life is considered as a Dependent variable for the Non Communicable Diseases (Independent) with physical activity as a Mediation variable.The relationship between the QOL and NCD was highly significant ($r = -0.36$**) which indicates that the number of NCD will reduce the quality of life very considerably. Also, the relationship between the QOL and GPAQ has high significance ($r = 0.16$**) which indicates that increment in physical inactivity will increases the QOL.

The physical activity and the NCD doesn't have the significant ($r = 0.05$) relationship. The Foremost resultis that the GPAQ controlling for NCD having a significant partial relationshipwith QOL; it indicates that the physical activity will increases the QOL of the people with NCD. Fig: 1 shows the conceptual frame of the mediation analysis which fits very perfectly. The model of the fit ($R^2 = 0.15$) is QOL = - 0.36*NCD + 0.16*GPAQ; RMSEA < 0.05 ensures the goodness of fit gives the clear evidence that the increment in the physical activity of NCD's have impact in their quality of life.

Discussion: The GPAQ tells us that there is a high correlation between the level of physical activity and the age (0.001) and salary (0.001) of the person with NCD. This means that the younger the age the people are more physically active and as ageing progresses their level of activity decreases.

A difference in their perception about their health, when asked are they currently ill, is seen because of their different perception. As the perception of the individual who are ill versus who (174) are not ill (190). This is because of the fact that those who are having the new emergence of the disease did not find any difference in their health, people who had controlled NCDs also felt that they are not ill, people who were performing high level of activity also had the perception that they are not ill. Whereas those who had the chronic illness and had less physical activity perceived that they are ill. It is seen that there is a relation between the individual salary and their level of physical inactivity.

On applying the mediation model on the NCDs and QOL we see a 0.82 relation between the two, where as when it is applied to the NCDs and Physical Activity is 0.88 and when physical activity is seen in relation of QOL it is found to have a 0.79. This indicates that there exist a relation between the physical activity and QOL and increase in the physical activity would lead to better QOL of the people.

While the studies from the western world has indicated a high prevalence of physical inactivity. [28,29,30,31]This has led towards designing better policies that helps to improve physical activities. So far there are only few researches available on this topic and most of the research indicates a prevalence of more than 52 %, comparatively this study shows that there is a high level of Physical inactivity (72%) in the people of Dhanbad.

Presently, Clinical services are not adequately equipped to provide the required level of care for these NCDs in primary and secondary health-care settings.Therefore, the appropriate strategies should be devised to be implemented under NPCDCS to ensure that the NCDs can be prevented and managed in an effective manner. Policies and plans for facilitation of physical activity levels at all work environment and community settings needs to be done. There is a need for the transplantation of the policies in the community.

Table 2
Demographic Profile Vs GPAQ Classification

	Profile	Low	Moderate	High	Total	Sig
Age**	20-40	30	18	7	55	P < 0.01
	40-60	160	44	21	225	
	60-80	70	12	0	82	
	Greater than 80	3	0	0	3	
Marital Status*	Single	7	7	1	15	P < 0.05
	Married	256	68	26	350	
Gender*	Male	176	61	17	254	P < 0.05
	Female	88	13	10	111	
Education**	School level	116	51	12	179	P < 0.01
	Diploma	7	4	1	12	
	UG	54	10	9	73	
	Prof. Degree	8	1	0	9	
	PG	1	0	0	1	
	Illiterate	78	8	5	91	
Occupation	Retired	31	3	0	34	P > 0.05
	Housewife	79	34	12	125	
	Private	47	14	4	65	
	Shopkeeper	3	0	0	3	
	BCCL	89	23	9	121	
	Gvt	10	0	1	11	
	Others	4	0	2	6	
Currently ill	Yes	131	34	10	175	P > 0.05
	No	133	40	17	190	
Duration of illness**	< 6 months	6	3	3	12	P < 0.01
	Last one Year	22	7	1	30	
	One to 2 Year	11	7	5	23	
	2 to 5 Years	88	23	12	124	
	5 to 10 Years	107	25	5	137	
	10-15 Years	19	4	0	23	
	>15 Years	9	7	0	16	
Performing exercise	Yes	163	39	14	216	P > 0.05
	No	99	35	13	149	
Salary**	Less than 10000	65	33	3	101	P < 0.01
	10000-20000	47	12	13	73	
	20000-30000	73	10	7	90	
	30000-40000	59	13	4	76	
	40000-50000	14	4	1	19	
	Above 50000	5	1	0	6	
Total		263	74	28	365	

*Significance at the level of 0.05 **Significance at the level of 0.01

Table 3:
GPAQ Classification Vs Quality of Life Score

		Quality of Life Score			Total (%)
		Low	Moderate	High	
GPAQ	Low	65 (17.8%)	59 (16.2%)	139 (38.1%)	263 (72.1%)
Classification	Moderate	00 (00.0%)	65 (17.8%)	009 (02.5%)	074 (20.4%)
	High	00 (00.0%)	00 (00.0%)	028 (07.7%)	028 (07.5%)
	Total	65 (17.8%)	124 (34%)	176 (48.2%)	365 (100%)

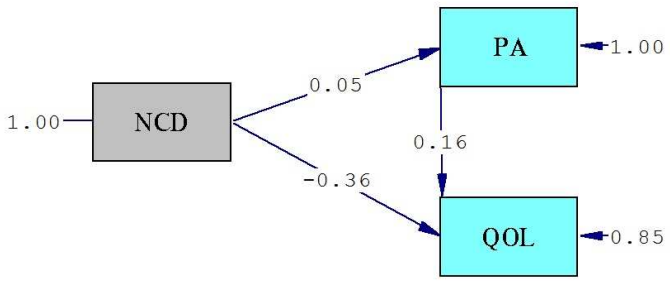
*Significance at the level of 0.05 **Significance at the level of 0.01

Table 4:
Mediation Analysis

Step		r	Std. β	R^2	Sig.
1	Regression [QOL] on [NCD]	-0.349**	-0.349	0.122	P < 0.01
2	Regression [QOL] on [PA]	0.146**	0.146	0.021	P < 0.01
3	Regression [PA] on [NCD]	0.052	0.052	0.003	P > 0.05
4	Regression [QOL] on [PA] controlling for [NCD]	0.385**	0.165	0.149	P < 0.01
	Beta for [NCD]		-0.357		

*Significance at the level of 0.05 **Significance at the level of 0.01

Fig.1 – Mediation Model



The present study highlights the high level of physical inactivity (72 %) and would be a major threat to the population in Dhanbad but it may not be the same scenario of the entire state, other states or national scenario. There may be problem in the certain methodology or tool selection. As at the time of study there was no other Indian tool to assess the physical activity level. So the author decided to go along with the GPAQ,and WHO- QoLBref as it is validated and in some of the earlier researches from India utilizes the tool.

Conclusion: Our findings suggest that the physical inactivity level is quite high in people of all age group and people with both the gender. There is a need to develop more programs with focus into the different age groups and also looking it thought the gender lens, socio cultural factors and religious believe also need to be taken into account. As this research establishes a close link between the improvement of physical activity and better QOL there is a need for the government, policy makers and other stake holders to make suitable holistic policies to improve the level of physical activity. This study also brings importance on the urgent need of a national research on the level of physical inactivity in the public health researches.

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Psychometric properties of the Trust in Physician Scale in a tertiary hospital based population in Tamil Nadu, India

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Abstract

Background: Trust in health care is of high intrinsic value. It also leads to positive outcomes such as better treatment adherence and disclosure of sensitive information. Therefore there is a need to measure trust in health care objectively. **Objectives**: To assess the psychometric properties of the Trust in physician scale in a tertiary hospital setting in Tamil Nadu, India. **Methods**: The Trust in Physician scale and general trust scale were administered to 288 participants in the waiting area of a tertiary care hospital in Tamil Nadu. **Results**: The respondents were predominantly men from rural areas, older than 35 years of age and with lesser than 8 years of schooling. The questionnaire had acceptable internal consistency with Cronbach's alpha of 0.707 (95% CI 0.654 – 0.755). Exploratory factor analysis divided the questionnaire into four domains. Seven items loaded into domain 1 which explained dependability and competence of the physician, two item loaded on factor 2 and one each in factor 3 and 4. All these four items had very low item to total correlations and hence did not contribute much to the questionnaire. **Conclusions**: The Trust in Physician questionnaire needs to be modified to accurately measure the domains of trust in the context of the study are. More qualitative studies are required to understand the domains of trust.

Key words: Trust in Physician, validity, reliability, internal consistency

Introduction

Trust in physician is an important construct which influences the dynamics of the doctor-patient relationship. Trust in the context of health care can be defined as an optimistic acceptance of the state of vulnerability of the patient in which the patient believes that the health care provider will act in his/her best interest.(1) Several researchers have studied trust in health care and have described its dimensions and determinants.(1-3)

Trust in health care has not only intrinsic value but also instrumental value. Trust leads to improved adherence to treatment, continuity of care with the provider, improved self-efficacy, better disclosure of sensitive information and better self- reported health status.(4-9) Some studies have looked at interventions to promote trust in health care. Though the evidence is not supportive of any of the interventions, there is a possibility that trust could be potentially built by behavioral interventions.(10)

For this to be possible effective tools are needed for measuring trust. Several tools have been developed for measurement of trust in health care. Some of these tools measure trust in physician, some in health system as a whole and some in health insurers. These tools have been reported to have good psychometric properties.(11) All these tools have been developed in Western countries in developed settings. The characteristic feature of these developed country settings is the availability of robust health systems, wide coverage of health insurance, low out of pocket health expenditure and high public investment in health care. Trust in health care in the developing country settings is likely to be different. Availability and accessibility of health care to all people, especially the economically and socially marginalized is still a steep task. Out of pocket expenditure is very high and public investment in health care is low. The validity and reliability of the tools to measure trust in these settings needs to be assessed.

The Trust in Physician scale by Andrerson and Dedrick is one of the oldest scales for measurement of trust. It was developed in 1990 as a tool to measure interpersonal trust between patient and physician and has eleven items. It has three dimensional structure measuring physician dependability, confidence in physician knowledge and skills, and confidentiality and reliability of information received from the physician. The tool also has excellent psychometric properties.(12) Thom et al, modified this scale in 1999 and the modified tool also has good psychometric properties.(13) The objective of the present study is to test the psychometric properties of the modified Trust in Physician scale in the tertiary hospital based setting in Tamil Nadu, India. This would give an idea of the validity and reliability of this scale in the setting of developing countries.

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Methods:

The study was done in a medical college teaching hospital in Kancheepuram district of Tamil Nadu located in the southern part of India. The hospital has multiple specialties and caters to people in and around Kancheepuram district. Patients attending the hospital come from both urban and rural settings. The data collection was done in June 2012 as part of a Masters Research project.

Two questionnaires were used for data collection. One was the Trust in Physician Scale which has items assessing the level of trust in physician and the other General Trust Scale which assesses the general trust orientation of individuals.(12,14) Both these scales have statements which the respondent is asked to rate in a Likert scale of 1 to 5 where 1 stands for "strongly disagree" and 5 stands for "strongly agree".

The study was done in two stages. In the first stage, the questionnaires were given to experts in the field of sociology, anthropology, psychology and medical practice to assess the face validity of the items in the two questionnaires. During the second stage the questionnaires were administered to patients in the tertiary hospital.

All adult patients aged 18 and above in the hospital waiting area who were waiting to see the doctors in the Internal Medicine, General Surgery, Obstetrics and Gynecology outpatient units were eligible to participate in the study. Patients who were in severe distress and in emergency situations were not included. The sample size was fixed at 310 based on previous studies on questionnaire validation and guidelines of sample size for survey research.(15)

The overall Trust in Physician score and General Trust score were computed by adding the scores for individual items. The Trust in Physician score and General Trust score were categorized using the median score. People with high and low trust were those who scored above and below the median respectively. Apart from this demographic details were also collected from each participant. The tools were translated to Tamil, the local vernacular. Then it was back translated to English by an uninvolved third person to check validity of translation.

Informed consent was obtained from the participants before the study. The respondents were provided adequate privacy for answering the questions and they were assured that their treatment in the hospital will be independent of the responses that they provide to the questionnaire. The researcher, who was not part of the hospital treatment team, administered the questionnaire in Tamil language and gave the respondents enough time to think and answer each question. After the respondent gave the answers, they were noted down by the researcher.

The collected data were entered into Epi Info version 3.5.3. Validation of the data entry was done by a random check of questionnaires and data base for 10% of the sample. The data was exported to Statistical Package for Social Sciences (SPSS) version 17 for further analysis and cleaned. Simple descriptives and frequencies were computed. Exploratory Factor Analysis was done using Principal Component Extraction and Varimax Rotation methods for the Trust in Physician Scale to study its construct validity. Cronbach's alpha was calculated for assessing internal consistency of the Trust in Physician Scale. The association between the scores in the Trust in Physician Scale and the General Trust Scale was studied to test if there is a concurrence between the two measures.

The study was approved by the Institutional Review Board of the School of Public Health, SRM University by expedited review process as the ethical risks involved were minimal.

Results:

Out of 310 patients who were approached for the study 288 responded (response rate 92.9%). Of the respondents 55.2% were below 35 years of age and the rest were 35 years or above. Only 34.4% were women. Of the respondents 39.6% had a graduate level education and the rest had only completed school. Those who had severe illnesses comprised of 49.66% of the respondents, the remaining had non-serious illnesses. Urban respondents comprised of 76.7% and the remaining were from rural areas. These basic demographic details are depicted in Table 1.

The total score of each respondent in the scale was computed by summing the individual scores in each question. The mean trust in physician score was 44.2 (SD 6.7) where the maximum possible score was 55 and minimum was 11. The scores were positively skewed and there were more in the high trust region and less respondents in the low trust region.

General Trust Scale

The general trust score was calculated in a similar manner by summing all the individual scores. The mean general trust score was 66.5(SD 12.1) where

the maximum possible score was 150 and minimum 30. The scores had a normal distribution.

Table 1:
Characteristics of the study population

Characteristic	Numbers	Percentage
Age		
<35 years	159	55.20%
35 years and above	129	44.80%
Sex		
Female	99	34.4%
Male	189	65.6%
Education		
>8 years of school	114	39.60%
8 years of lesser of school	174	60.40
Disease		
less than 3 months	145	50.34%
3 months or more	143	49.66%
Domicile		
Urban	67	23.3%
Rural	221	76.7%

Psychometric Properties of Trust in Physician Scale

The reliability of the scale was tested by computing Cronbach's alpha statistic which was 0.707 (95% CI 0.654 – 0.755). The item-to-total correlation for each of the eleven items was calculated as a representation of how much the response to each item corresponded to the overall score in the scale. The item-to-total correlation statistics are shown in Table 2.

The highest item-to-total correlation was observed for the item "I doubt that my doctor really cares about me as a person" with a correlation coefficient of 0.508 and the least was observed for the item "I sometimes worry that my doctor may not keep the information we discuss totally private" with a coefficient of 0.148.

Exploratory factor analysis for testing the construct validity was done with all the eleven items. It showed that a four factor structure explained 59.7% of the overall variance. The factor model was statistically significant as shown by the Bartlett's test of sphericity ($p< 0.001$) and the sampling was adequate as shown by the Keiser-Meyer-Oklin test value of 0.809.

The factor matrix with the loadings is shown in Table 3.

It shows that seven items loaded in factor 1, two items in factor 2 and one each in factor 3 and 4. The items which loaded on Factor 1 were, "I doubt that my doctor really cares about me as a person", "My doctor is usually considerate of my needs and puts them first", "I trust my doctor to put my medical needs above all other considerations when treating my medical problems", "I trust my doctor so much that I always try to follow his/her advice", "If my doctor tells me something is so, then it must be true", "I trust my doctor's judgments about my medical care", "My doctor is well qualified to manage (diagnose and treat or make an appropriate referral) medical problems like mine". The second factor had two items loaded on it namely "I sometimes worry that my doctor may not keep the information we discuss totally private" and "I trust my doctor to tell me if a mistake was made about my treatment". Two items loaded separately into two separate factors these were, "I sometimes distrust my doctor's opinion and would like a second one" and "I feel my doctor does not do everything he/she should about my medical care".

Association between general trust and physician trust

The association between general trust score and physician trust score was studied. It was observed that those who had high general trust had a greater chance of having higher trust in physician (OR 2.677; 95% CI - 1.660 – 4.318).

Discussion

This study was done to explore and validate the Trust in Physician Scale in the setting of a tertiary hospital in Tamil Nadu. Trust in Physician is a scarcely researched topic in the developing countries. But the rising level of distrust in the health system among people in developing countries is evident.(16) In the private sector, the unregulated, irrational practices and the potential for exploitation and in the public sector the apathy of the providers lead to significant distrust among the public. Therefore there is a need for an increased awareness and exploration of trust as an instrumental value in health care. This study is one of the first few steps in the direction of development of a tool to measure trust in physician in the Indian context.

A previous study done in a similar hospital based setting in Pune, India explored the dimensions of a good doctor-patient relationship such as concordance, trust and enablement. This study used the Trust in Physician scale. It was reported that women had lower levels of trust in physician compared to men. It was also reported that better doctor-patient concordance was associated with higher levels of trust.(17) To our knowledge there have been no other attempts at

objective assessment of trust in physician from the Indian context.

Table 2:
Item to Total correlation of the Trust in Physician Scale

	Question	Item to total correlation
1	I doubt that my doctor really cares about me as a person	0.508
2	My doctor is usually considerate of my needs and puts them first	0.460
3	I trust my doctor so much that I always try to follow his/her advice	0.431
4	If my doctor tells me something is so, then it must be true	0.447
5	I sometimes distrust my doctor's opinion and would like a second one	0.230
6	I trust my doctor's judgments about my medical care	0.491
7	I feel my doctor does not do everything he/she should about my medical care	0.377
8	I trust my doctor to put my medical needs above all other considerations when treating my medical problems	0.438
9	My doctor is well qualified to manage (diagnose and treat or make an appropriate referral) medical problems like mine	0.384
10	10. I trust my doctor to tell me if a mistake was made about my treatment	0.257
11	I sometimes worry that my doctor may not keep the information we discuss totally private	0.148

The sample of respondents was selected from patients attending a private tertiary hospital in Tamil Nadu. Since the patients were interviewed while they were in the waiting are of the respective outpatient departments, it is highly likely that the construct that was explored in the study was trust and not some other aspect of the doctor-patient relationship. Majority of the respondents were men with low levels of literacy (8 years of schooling or lesser) and from rural background. Therefore it cannot be said that the findings of this validity research is applicable to all the people of Tamil Nadu.

The questionnaire was found to have good face and content validity. The tool also had an acceptable internal consistency. The item to total correlation revealed that the item on confidentiality, second opinion and disclosure of errors by the doctor had poor correlation with the overall score. The Indian society is largely communitarian and liberalistic notions are common only in urban and modernized areas. Therefore it is possible that in the Indian setting the aspect of confidentiality is not valued as much as it is in Western societies. Moreover trust in physician in the Indian context, especially in the sample with a lower level of literary, is likely to be implicit and unquestioning. There is a need to explore the aspect of unquestioning blind trust in physicians by qualitative studies.

Factor analysis to explore the dimensional structure of the questionnaire revealed that the questionnaire is best explained by a four dimensional structure. The first dimension has seven items loaded on to it which together describe the competence and the dependability of the doctor. These two dimensions had been described separately in the original questionnaire but are clubbed together during this validation process. Two items pertaining to confidentiality and disclosure of medical errors by the doctor loaded together as one factor. It was previously described that these two items had poor correlation with the overall trust score. Therefore this factor contributes little to the construct of trust in physician. Two other items loaded separately as two factors, one of them referring to seeking second opinion and other on doubt whether the doctor is doing all appropriate things for the patient's treatment. Again it was previously noted that second opinion was poorly correlated to the overall trust score. Therefore in essence the factor structure of the questionnaire is one dimensional with the majority of the important items loading into one factor.

Most of the important items relating to the physician's competence and dependability load on to one factor. Patients in the Indian setting view trust in physician largely based on the ability and dependability of the doctor. Other factors which were identified as important in the Western setting such as confidentiality, need for second opinion, disclosure of mistakes in treatment and concern whether the doctor is doing all appropriate treatments were not identified as important in the Indian context. This could imply that the Trust in Physician Scale needs to be modified for better applicability in the Indian setting. There is a need for qualitative exploration of the dimensions and determinants of trust in the Indian setting.

The development and validation of a modified tool for measuring trust in physicians is an important first

Table 3:
Factor loading matrix for the Trust in Physician Scale

	Question	Factor 1	Factor 2	Factor 3	Factor 4
I	doubt that my doctor really cares about me as a person	0.668			
2.	My doctor is usually considerate of my needs and puts them first			0.611	
3.	I trust my doctor so much that I always try to follow his/her advice				0.607
4.	If my doctor tells me something is so, then it must be true		0.604		
5.	I sometimes distrust my doctor's opinion and would like a second one	0.626			
6.	I trust my doctor's judgments about my medical care	0.629			
7.	I feel my doctor does not do everything he/she should about my medical care	0.622			
8.	I trust my doctor to put my medical needs above all other considerations when treating my medical problems	0.688			
9.	My doctor is well qualified to manage (diagnose and treat or make an appropriate referral) medical problems like mine	0.599			
10.	I trust my doctor to tell me if a mistake was made about my treatment	0.527			
11.	I sometimes worry that my doctor may not keep the information we discuss totally private		0.571		

step in making trust measurement a part of routine evaluation of performance of health systems. This would further lead to studies on interventions to promote trust and use its instrumental values for health system improvement.

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An exploratory study on traditional practices related to pregnancy and child birth among Irula tribe in Krishnagiri district, Tamil Nadu.

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Abstract

Introduction:Traditional practices during maternity are very important in preventing both maternal and newborn deaths.Krishnagiri is one of the district of Tamil Nadu, India, where many women especially the Irula tribal community, still deliver at home, without the assistance of skilled birth attendants and following various traditional practices during pregnancy and child birth. This study aims to explore the perspectives of community members and health workers about various practices during pregnancy and child birth and use of delivery care services in five tribal villages of Krishnagiri district. **Methods**:A qualitative study using focus group discussions (FGDs) and in-depth interviews was conducted in the community settings of five tribal villages of Krishnagiridistricts in Tamil nadu. Four FGDs and 14 in-depth interviewswere conducted involving a total of 48 participants representing mothers, health care providers, traditional birth attendants and community leader of the respective villages. The FGD and in-depth interview guidelines included perception of women on various traditional practices during pregnancy and child birth; reasons for having a home or an institutional delivery; utilization of health care services. **Results**:There were traditional practices prevailing in marital rituals, confirming pregnancy, food intake, delivery procedures and new born care in the tribal villages of Krishnagiri district. The home deliveries were preferable one for Irula women despite the availability of the VHN in the village. Physical distance, lack of awareness and poor cultural acceptability were three major constraints that prevented women from the Irula community from accessing and using health facilities and institutional deliveries. A number of respondents reported that an institutional delivery is required only when there is any difficulty in delivering the baby. **Conclusion**:There are certain practices which are beneficial for the pregnant and lactating women but at the same time they also follow certain bad practices which could be harmful for the mother and the neonates. Health education is required to increase awareness about the importance of health services for the community which would increase the acceptability of the health facility. Further analytical study would bring out the contribution of these practices and beliefs to the health indicators of the district. An exploratory study on traditional pregnancy and birth practices of Irula tribe in Krishnagiri district, Tamil Nadu.

Key Words: Traditional practices, pregnancy, tribes

Introduction

Tamil Nadu stands second in the country in human development indicators. About 1.04% of the total populations of Tamil Nadu belong to the Scheduled Tribes (651,321) in 2001.(1)

These ST populations are located in 18 districts and there are 36 types of tribes. The Irula tribe is one among the six primitive tribes of our country.Though most of the tribal women of various tribes across the country enjoy equal status with men the main health indicators like Infant Mortality Rate, Maternal Mortality Rate, Neo-Natal mortality Rate and Under Five Mortality Rate have been poorer compared to the general population(2).

The Nilgiri district of Tamil nadu has the highest tribal population. Very few attempts have been made to study the maternal care practices of Irula tribes of Krishnagiri district, which has the lowest level of the health indicators, when compared with the other districts of Tamil Nadu. The tribal population of India is considered to be socially and economically vulnerable. They differ in lifestyles and food habits from their neighboring rural areas(3).

Area And People:

The Irulas are an ancient primitive tribal population who have lived in the outskirts of Indian society for the last few thousand years, and were mainly known as snake and rat catchers. In Tamil language, 'Irul' means darkness and Irular means dark skinned people. They occupy the northern districts of Tamil Nadu, a south eastern state of India. They commonly speak Irula language, which is related to Kanada and Tamil(4).

The study was done among women of reproductive age of Irula tribes of Krishnagiri district. The study area was Western Ghats ranges of DenkanikottaTaluk of Krishnagiri district. DenkanikottaTaluk consists of 2 blocks (Kelamangalam and Thally). The interviews and group discussions were done in 5 villages (Kodagarai, Bettamugilalam, Kottayurkollai, Lakshmipuram, Ayyur) out of which 2 were from Thally block (Kodagarai and Thally) and 3 were from Kelamangalam block (Bettamugilalam, KottayurKollai, Ayyur).

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Before the year 2006 these tribes were living in the forest in different hamlets. In 2006 the state government constructed pucca houses at various places in the hills for them. Now these people live in these pucca houses while they still have their cattle and cultivation lands in their own hamlets. The basic occupations of these people are collecting honey, algae, gums, rats and snakes from the forest. Males go to the forest for collecting tamarind. Few of them work in cultivation lands of the Lingayath (a vegetarian upper caste community) during the plantation and harvesting season in the millet, and other vegetable cultivation lands.

Materials And Methods:

In depth interviews were conducted among currently pregnant women (four in number), women who have recently delivered a baby (five numbers), women above 40 years of age and health workers of the village (three in numbers). These respondent groups were selected so that a complete cross section of traditional, beliefs and practices could be understood from the various groups. In addition four focus group discussions were conducted. The Focus Group Discussions were conducted in the villages. The women of the village were invited to participate in the discussions. There were around seven to twelve women in each FGD. Appropriate check lists for each group of respondents was prepared. For each of the main questions, probing questions were asked in order to make the participants clear and to make it easier for them to answer. The interviews and discussions were recorded in a digital voice recorder and later transcribed in Tamil. The transcripts were then translated into English for analysis.

After the first group discussion and interview the previously developed check list was slightly modified in their sequencing and few more questions were added accordingly. The modified checklist was used for further interviews and group discussions.

For the purposes of this study, the following definitions have been used:

Traditional practices: The long established customs or beliefs passed on from generation to generation and which are followed by the people of that community.

Maternal practices: customs and rituals practiced by the people from the day of confirmation of pregnancy to 24 days after the child birth.

Beliefs: the views or opinion or feeling of certainty that the people have on the particular issue.

Results:

Case Study -1

A lady with an 11 month old baby said, "I conducted my own delivery". It was her 5th baby. She described that she was prepared with a new blade in her house before few days. Then when she got the pain she herself kept the water in the stove. Then she leaned herself to the wall and was giving abdominal pressure without anyone knowing about it. Then within half an hour when the baby's head and then the shoulder came out, she herself took the baby in her hands. Then she waited for 10minutes for the placenta to come out. Then she took her elder daughter along with her to discard the placenta in the pit. Then she came back gave bath for her baby then she took bath. She then kept castor oil for the baby and after a day she fed the baby with breast milk. After 2 months she took the baby to the sub-center for vaccination.

Antenatal Period:

Age at marriage:

The girls get married 3 to 4 months right away after their puberty;by and large they get married within two years of puberty. The girls become pregnant immediately after marriage.

Confirming pregnancy:

The pregnancy is confirmed mainly by missing periods for three months. The other methods of identifying pregnancy are vomiting along with general tiredness, interrupted urination andslight increase in size of the breast of the mother. In Lakshmipuram they use Sevvennai to confirm their pregnancy. Sevvennai is oil extracted from the roots of trees belonging to different families (called as kembar). When a lady tastes a drop of this oil, and if she feels nauseatedshe is confirmed to be pregnant, if she does not vomit, the lady is not pregnant. Few women also keep the news of their pregnancy confidential and don't reveal it to the Village Health Nurse (VHN).

Antenatal Registration:

The pregnant women register their pregnancy when the VHN comes to the village. Some women do not reveal that they are pregnant to the outsiders and hence they end up as late registration or do not register the pregnancy.

Food habits:

The main foods of pregnant women during their pregnancy were steamed milletball with kaaram (a paste of tamarind, dry chili, cumin seeds and pepper).

Sometimes they have green leafs, pulses and rice. Fish, drumstick, egg and jack fruits are restricted during pregnancy, because of fear that it might cause abortion. Vegetables are had occasionally if the husband goes to the town and brings them home. Special dishes like kajayam (a type of health drink), adhirasam (a sweet made of rice flour and jiggery) are made and given by the family members.

Rituals:

In Kodagarai, there were no special ceremonies done to the pregnant women. But in other four villages there was a small Bangle Function done. Bangle Function is a ceremony conducted at the seventh month of pregnancy. The main event of the function is to put on bangles for the woman by her relatives and neighbors' after which she is brought from her in-laws placeto the mothers home for delivering her baby.

Case Study -2

A 25 year old lady who delivered a baby on 2nd July 2012 was feeling giddy and she fainted on the third day, she was then taken to Denkanikottai on 5th July 2012. The baby is the 3rd one for the mother and the baby was fed by her sister in-law while the mother was in hospital. She was diagnosed to have severe blood loss and was admitted in the hospital for 10 days after which she returned home safely.

Natal Period:

Place of delivery:

The tribal women most often prefer to deliver at their homes; if the delivery gets complicated then they go to a hospital. Women of Bettamugilalam had their nurse coming to their home and delivering the child. The women of the plain villages (Lakshmipuram and Ayyur) go to hospital on their own.

Person conducting delivery:

If the mother is taken to the hospital then the nurse of the hospital is the person who conducts the delivery, in case if the delivery is at home then the TBA (traditional birth atender) of the village conducts the delivery.

Delivery procedure:

As mentioned already in the case study all the TBA follows the same procedure. The TBA attends the delivery only if she is formally called by the family members. As soon as the TBA reaches the concerned house she looks at the birth canal of the woman in labor to assess whether she will be able to attend the delivery. If she feels that she can, then she starts her procedures; but on the other hand if she feels that the case is complicated for her then she asks the family members to take the woman to the hospital. Few women don't allow the TBA to conduct the delivery, but they take care of their delivery themselves. One of the women said

Case Study -3

A 20 year old lady who was pregnant gave birth to a female baby on December 29 2011. After the delivery she was taken to Denkanikottai hospital due to severe loss of blood on 31st December 2011 by the ward member of the village and her parents. The staff of the hospital never allowed the parents to see the patient. She was then referred to Hosur GH on 1st January 2012. The woman's sister complained that no doctors were available in the hospital and there was no one to take care of her sister. Again from there she was taken to Bangalore on 2nd January 2012. There in Bangalore she was declared brought dead. After the village people received the news that she was dead the village people chased the ward member out of the village. The baby died within 3 days of birth.

"I don't like anyone touching me during my delivery, I never allowed anyone to touch me for 3 of my deliveries."

Cord cutting:

When the delivery is at home the umbilical cord is cut by the TBA. The cord is tied with a knot at a distance of two inches. The material she uses is a blade or knife, kept on a stone and the cord is cut. After the cord is cut the distal end of the cord is burnt with the flame of castor lamp.

Complicated delivery:

At times when it becomes difficult for the mother to deliver, they take the mother to the hospital. But in case of Kodagarai which is located 27 kilometers from the PHC in the thick dense forest mountainous area, they cannot bring the mother in the night times because of the fear of being attacked by elephants. So they wait until the dawn to bring her down. Few women said that no delivery has gone complicated till date in their village. There was another opinion that they wait for the baby to come out, and leave the baby at home, take only the mother to the hospital.

The recent maternal death (case study 4) in Kodagarai has brought a bad opinion on the health facilities because of the feedback given by the family. In fact a woman who had delivered her baby just previous

night hadrefused to go to hospital even when the VHN came to the village with an ambulance, saying that "Is that not enough that you killed a lady before, by taking her to the hospital, Have you come once again to take my life?, I am well here, I don't want to come with you".

Case Study -4

A woman about 30 years old gave birth to her first baby before 3 years. She was diagnosed to have gestational hypertension during her first ANC. She was advised to come for a regular check up every month and she was given tablets. The woman was following her ANC regularly every month. But during her delivery, the pain started and she developed seizures, she was taken to nearby Government hospital, she was then referred to the Taluk hospital and she was taken there. On the way she became unconscious and didn't know when she gave birth to her baby. Then she was taken to Bangalore where she was unconscious for 5 days. She got well. But she didn't have any problem for her second baby which was delivered in hospital. She has undergone her family planning surgery after her second delivery. According to her opinion she had followed all the instructions given by the health provider of the PHC. Her husband said "when she went for the delivery there was no one to respond to her and the treatment was not good. If she was treated there, her delivery would not have become so complicated"

Postnatal period:

Food habits:

The main food is again steamed millet ball. Rasam (a watery soup with spices) rice is preferred by the community. There are restrictions of salt, chilly etc in the diet. Occasionally the women have vegetables.

Postnatal complication:

In recent days the tribals take the affected mother to the hospital for treatment. The postpartum hemorrhage is considered to be the purification of uterus and they let it go until it stops on its own.

Birth registration:

All the women interviewed said that they have registered the birth of their child and get vaccinated. There was also an attitude among the tribal women that only if the nurse forces to register, they register the birth of the child.

Birth control methods:

The tribal women here in these five villages were not adopting any birth control methods except the female sterilization.

Neonatal Care:

First feed:

The first feed for the baby was castor oil for one to five days, and breast milk is strictly avoided. The other supplementary fluid given to the neonates was sugar water. Breast milk might be given in case the baby is born in hospital but not routinely given to the baby till the fifth day.

Baby warmth:

The baby is kept warm by woolen sweaters and covering with a thick coat of available cloths. But few mothers don't provide such protection after 20 to 30 days. In Bettamugilalam and Kottayurkollai people use a bamboo cradle.

Disease remedy:

The tribes follow various home remedies for different symptoms of the newborn. If the baby has fever a warm water sponging is given, for vomiting they believe that tying white beads around the neck will stop vomiting, when there is stomach pain they use beetle leaf dipped in castor oil and apply it on the stomach. Cold is treated with a paste made of gulshand fruit and ash kept on the forehead and the other form of treatment is the millet flour is chewed and spit on the child's head.

Perception On Utilization Of Health Facilitiy:

Perception of the women:

Perceptions of women on health facilities were good. But they were not so in case of the service providers. The tribal women complains of disregard when they go to the hospitals, like making them wait for a long time, using harsh language, and behaving unkind towards them.

But they were well satisfied with the maternal benefit which was revised to Rs. 12,000. The Tamil Nadu government introduced the Dr. Muthulakshmi Reddy Maternal Benefit Scheme through which pregnant women are given a cash incentive if they undergo regular antenatal care, delivery in an institution and complete immunization of the child. The benefit is given to only the first two pregnancies. A woman said "I asked maternal benefit for my child to the nurse and she denied that it is not applicable to 5th child"

Perception of health worker:

The health worker advices the people at least to come to hospital after their delivery to avail new born care and post natal care but the villagers are least concerned about that. The tribal's prefer hospital

only in case of emergencies. According to the health workers the villagers do not trust the outsiders that easily.

Barriers for utilizing health facilities:

Acceptability: Because of the lack of awareness of ill effects of various traditional practices, the women of the community were refusing to have their delivery in institutions, thinking that it is unimportant to go to a hospital just to deliver a baby.

Accessibility:

The physical distance to a health facility was a problem in Kodagarai, whereit is about 25 kilometers inside a thick forest hilly region. But the other villages had a nearby sub centre.

Availability:

Access to frequent transport was not on hand for them to travel, especially during night times.

Affordability: The Tribal people were not able to spend money in case of emergencies, when they were referred to tertiary health care.

Discussions:

In many countries, TBA's still practice conducting home deliveries and they are the vital human resource in the rural areas, because of cultural beliefs, economic constraints, public health infrastructure and difficulty in posting the trained professionals to rural areas(5)(6). In India though the government has provided a Primary health center for every 20,000 population and sub-centres for every 3000 population in the tribal areas, 25% of the tribal population of the country has no access to health services(7).

The harmful traditional practices against women followed in many countries includes prenatal sex selection and female infanticide, child marriage, female genital mutilation, honour crimes, maltreatment of widows, inciting women to commit suicide, dedication of young girls to temples, restrictions on a second daughter's right to marry, dietary restrictions for pregnant women, forced feeding and nutritional taboos and witch hunts(8). In Irula tribes of Krishnagiri district all these practices don't exist but few of these harmful traditional practices like adolescent marriage, dietary restriction for pregnant women, nutritional taboos, and delayed first feed of the neonates are prevailing.

Important findings:

An alarming finding of the study is the early marriage, of the girls at the age of 11 to 13 (shortly after puberty). According to UNICEF, no girl should become pregnant before the age of 18 because she is not yet physically ready to bear children (9). As a result such mothers end up giving birth to a premature or low birth weight babies or malnourished babies; these babies tend to die in the first year of life accounting to IMR. An additional health risk to young mothers is obstructed labour, which occurs when the baby's head is too big for the orifice of the mother. This provokes vesico vaginal fistulas, especially when an untrained traditional birth attendant forces the baby's head out disproportionately. Also once the girl enters the reproductive cycle earlier she is also capable of giving birth to more number of children.(10)

A number of women did not register their pregnancy in their first trimester, to the VHN because they were unwilling to disclose it to the VHN, believing that the VHN might force the pregnant women to deliver in the hospital while they were interested in delivering at home.

Food beliefs:

Some good practices were identified such as consumption of steamed millet balls regularly. This helps the women by increasing the iron content of the diet. It helps to prevent anemia and also helps in lactating(11). A recent study done by CRY (Child Relief and You) in April 2012 in Tholluvabetta, Kottayurkollai and Kodagarai among 130 children and 20 women has reported that 80% of women and 70% of children are anemic(12). In this context, the consumption of steamed millet balls could be promoted to improve the iron content in diet.

One of the bad practices identified was avoidance of fish and drumstick leaves from the diet due to the belief that it can cause abortion.

Institutional deliveries:

The place of delivery is again a matter of concern in these villages because the women feel that it would be fine delivering her baby in home rather than hospital. They feel that delivery is a normal process. Many women had given birth normally at home, and so they think that going to a hospital is not necessary. So they are reluctant to go to the institutions for delivery perceiving that the health providers are not going to help them, and the TBA is for better for that reason.

While the women preferred to deliver at home, citing the reason that delivery is a natural phenomenon and does not need hospitalization, this is against the

institutional delivery mandate of the state government.

Cord care and new born care:

The unsterilized materials used during delivery might cause infection to the baby. The first feed of the baby was castor oil, Since the Colustrum is thick and yellow in colour it is perceived that is not good for the baby. These practices have their own negative effect. The castor oil fed to the baby may be contaminated and could lead to severe morbidity. Also refusal to feed colostrum is unhealthy practice.

Post natal care:

A woman, who is facing any complications during delivery, is taken to hospital only after delivery, leaving the baby at home. The neonates were fed with sugar water or castor oil until the mother returns home. This practice might ensure the health of the mother but eventually the baby is missing the Colustrum which is rich in immunoglobulin and growth factors. (13)

According to the interviews and a group discussions conducted the perceived barriers of utilizing a health facilities were the transport facility to the hilly villages, acceptance of the people and the ineffective public health.

The overall opinion about maternal benefit was good which makes them to register their child birth to the VHN and get the child vaccinated.

This study is an attempt to identify the certain practices related to pregnancy and child birth of the irula tribal women of Krishnagiri Dt. Tamil Nadu. There is a scope for further research to find the association of various factors relating to maternal health of these tribal women.

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Challenges faced in seeking eye care services in rural areas

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Abstract

Introduction:The problem of underutilization of eye care services exists and there is a need to address this to reduce the loss due to preventable blindness. Usually seeking treatment is affected by various economic and social factors. **Objective**: To investigate the utilization of eye care services and find out the challenges faced in accessing eye care service. **Methodology**: A cross sectional study of 135 respondents above the age of 40 years Was selected from 9 villages using purposive samplingResults:Out of 135 respondents 76.3% of the respondents reported difficulty in vision as their chief complaint. Of them 44% have visitedan eye care services of which 18% visited private clinics. Men and those who had higher educational status were more likely to seek eye care services compared to women and those with lower educational status. Fear of expenses was the leading cause for not taking treatment followed by fear of treatment and poor accessibility.**Conclusion**:Large portion of rural population are hesitant to visit eye hospitals due to lack of accessibility or awareness about the condition. There is a need to promote awareness and make good quality primary eye care services readily accessible.

Key Words: Eye care services, utilization, barriers

Introduction

Access to health care is concerned with the relationship between need, provision and utilization of health services. The five dimensions to access are acceptability (attitudes and beliefs), affordability (direct and indirect costs), availability, physical accessibility (geographical and physical) and accommodation (1).

Blindness and visual impairment are major public health problems faced worldwide and in India. According to World Health Organization (WHO), there are 285 million visually impaired worldwide of which 90 % are from developing countries. Uncorrected refractive errors (43%), Cataract (33%) and glaucoma (2%) were the major causes of visual impairment and blindness worldwide (2). Around 80% of the visual impairment is treatable which greatly reduces the burden of visual impairment (3).

In India there are 12 million visually impaired, 75 % of them reside in rural areas. With three out of every four Indians, residing in the rural areas, there is a concentration of blindness in these areas.National Program for control of Blindness (NPCB) aims at reducing the prevalence of blindness to 0.3% from 1% (2006-2007) (12). One of the main objectives of the program is to improve the quality of service delivery(12). For any such program to be effective the reasons for low utilization of services if any, need to be identified and appropriate measures should be taken.

Studies on accessibility to eye care in rural services have been done, mostly as a part of a large community based eye study like the Aravind comprehensive eye survey in Tamilnadu and Andhra Pradesh eye disease study (APEDS).It has been observed in various studies that the uptake of eye care services is not sufficient in rural population. According to the Aravind comprehensive eye survey in rural south India,utilization of eye care services is the major reason for increase in refractive error and cataract (8).In the study done in urban Andhra Pradesh population, of those who were visually impaired, 59% did not seek treatment (8).Only 18% of them received treatment for refractive errors in rural areas compared to 82 % in urban areas (6).Fear, financial constraints, family responsibilities, aging,not having time, and not having anescortwere the most important reasons for not availing eye care services (6, 7). There was a predominance of personal reasons for not utilizing the services than economic and social reasons. The studies also showed a higher percentage of men than women in seeking eye care in rural places whereas no gender difference was noticed in the urban areas. Education also plays a role in seeking eye care. Those who have finished schooling had a better awareness about their eye and availed the services. Awareness on cataract was higher (73.1%) than Diabetic retinopathy (27%) andglaucoma (2.3%) (3).

Reasons for low utilization of eye care services need to be assessed to know the effectiveness of National program for control of blindness. Even though NPCB focuses exclusively for cataract but still 80% of

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blindness in India is due to cataract. Very few studies have been done to assess the challenges faced in seeking eye care services. If the reasons are found it will be a valuable tool for implementation of future projects.

Since there is wide spread underutilization of eye care services as per previous studies, this study is intended to identify the factor influence seeking of eye care services.

Methods:

The Community based study used Cross Sectional Descriptive study design;data collection was carried out between May 2012 and July 2012. The investigator obtained permission from village president to conduct the survey. Surveywas conducted inThirukazhukundram block of Kancheepuram district in Tamil Nadu. There were 9block and110 villages (13). A purposive sampling was employed to select participants in each village. All consecutive houses were visited until 15individuals above 40 years of age were interviewed with eye complaints regardless of their gender and who may or may not be suffering from any other illness during the time of study.

On reaching the house purpose and nature of the study was explained in detail and each respondent was assured of strict confidentiality. After this informed consent was obtained from the participants. .

Information about demographic profile, challenges faced in seeking eye care were obtained from a pre designed questionnaire. Details about ocular complaints in past 6 months to avoid potential recall bias, previous history of treatment, in case of not undergoing treatment then the reasons for not undergoing were asked. The most important reason as perceived by the respondents for not visiting eye care services was enquiredusing a structured question as well as an open ended question which allows the respondent to reply in their words .

Findings were documented in hardcopy and later transformed to Statistical Package for Social Sciences (SPSS) data file for analysis. Chi-square analysis was performed to understand the association with various factors.

Results:

The study involved 135 respondents from 9 villages of which 66 (48.9%) were male and 69 (51.1%) were female. Table -1 shows the demographic profile of the study population.

Table – 1
Demographic profile

Demographic profile		Frequency	Percentage
Age	40 - 49	62	45.9
	50 - 59	43	31.9
	60 - 69	19	14.1
	70 - 79	6	4.4
	80+	5	3.7
Gender	Male	66	48.9
	Female	69	51.1
Educational Status	No primary schooling	50	37
	Primary school	30	22.2
	High school	40	29.6
	Graduate	15	11.1
Marital Status	Married	128	94.8
	Unmarried	3	2.2
	Separated	4	3
Occupation	Daily labour	36	26.7
	Private firm	30	22.2
	Public sector	3	2.2
	House wife	41	30.4
	Unemployed	9	6.7
	Others	16	11.9
Monthly Income	Less than 5000	82	60.7
	More than 5000	53	39.3

The age of the respondents varied between 40 to 85 years of age, 45.9% of the respondents were in the age group of 40-49 followed by 31.9% of the respondents in the age group of 50-59,14.1% in 60-69 group, 4.4% in 70-79 group and 3.7% were of 80+ age group.Educational status of the respondents was such that 37% had no formal schooling and 63% were literate.

About 95% of the respondents were married and remaining 5% were either unmarried or separated. Of the respondents 30.4% were housewives, followed by 26.7% daily laborers. Of the respondents 60.7%'s monthly income was less than Rs.5000 and 39.3% had more than Rs.5000.

70% of the respondents had health problem of which 88% had sought medical treatment. Of them 65.4% visited government hospital and 28.5% visited private clinics.

From table-2, of the 84 respondents who had both eye problem as well as health problem 50% of them had sought treatment for the both whereas remaining

50% had sought only for their health problem and not for eye problem.

Table-2:
Respondents hospital visit

		Eye check up		Total
		Yes	No	
Health check up	Yes	42 (50.0%)	42 (50.0%)	84 (100.0%)
	No	2 (18.2%)	9 (81.8%)	11 (100.0%)
Total		44 (46.3%)	51 (53.7%)	95 (100.0%)

Table – 3
Shows the reasons for not visiting eye care hospital

Reason	Count	Percentage
Money	34	45.3%
Losing pay	24	32%
No nearby services	24	32%
No public transport	20	26.6%
Afraid	16	21.3%
Felt work is important	16	21.3%
Did not believe Treatment	6	8%

*includes multiple responses.

Figure – 1 shows the characteristics of ocular complaints in which 76.3% had decrease in vision as their chief ocular complaint, followed by eye pain (15.6%), redness(10%), watering(12.5%), others (10%), the complaints includes multiple responses.

Of the 135 respondents who had ocular complaints 60 (44.4%) of them visited eye hospital of which 41.6% visited government hospital and 28.3% visited private clinics, remaining 30.1% visited either eye camps or optical shops.

Of the 66.6% of the respondent who had ocular complaints but did not visit hospital, shortage of money (45.3%) was the important reason, 32% of the respondents told fear of losing day`s pay and no nearby service available as the reason for not visiting hospital, 26.6% told no transportation facilities available to visit hospital, 21.3% were afraid to visit hospital and felt work is more important than visiting hospital, 8% of them told they did not believe in treatment.

An open ended question which asked for the reasons for not visiting hospital had 46.7% responded that they are waiting for the condition to get severe, 25.3% told that the problem was not important and 17.3% quoted that old age is the reason, and 13.3% told there is nobody to accompany them to the hospital as noted in table-3.

95 of the respondents who had eye problem also had health problem, of which 42 (50%) respondents had sought treatment for both eye and health problem whereas other 42 (50%) respondents who had health problem had sought treatment for health but not for the eye problem with odd ratio of 4.5 (95% CI: 1.225 – 8.445).

Pearson`s Chi-square was performed to find the association between visit to eye hospital with Gender and the educational status of the respondent. Males were more likely to visit eye hospital compared to females (x2=5.339 with p-value=0.025)with an odds ratio of 2.250 (95% CI: 1.125-4.449) andthose who had higher education were more likely to attend eye hospital(Pearson`s x2 = 5.340 with p-value=0.021) with an Odds ratio of 2.272 (95% CI: 1.126-2.547).

Association between various factors and reasons for not visiting eye care services were analyzed with Pearson`s chi-square. It was found that females were more afraid to visit eye care hospitals compared to males with chi square value of 9.653 with p-value =0.002 and odds ratio was 5.459 (95% CI: 2.664-14.487).

Discussion:

This is a cross sectional study conducted in which details of use of eye care services, utilization pattern and reasons for not using services were collected from the respondents. This helps us to comment on the challenges in utilization of eye care services and factors for not utilizing services for various eye diseases. The most frequent ocular complaint being decrease in vision since majority of eye diseases exhibits this symptom. 65.4% of them who had health problem and 45% of them who had eye problem had visited government hospital probable reason being the availability of the services as there was only one private practitioner available during the data collection time that too with a cost of treatment in the rural setting.

Males have 2.2 times the chance of visiting hospital compared to female possibly due to the awareness of various issues and procedure in visiting hospital as well. And looking at educational status, literates have 2.27 times higher chance of visiting eye care hospitals than the illiterates for similar reasons of awareness and exposure to the outside world.

50% of the respondents who had both eye problem

and health problem have not sought treatment for eye problem and the respondent who sought treatment for health problem were 4.5 times more likely to seek treatment for eye problem too. Thiscould possibly be because various factors are eliminated like fear of visiting hospital, negligence and concern about money as well as the severity of the condition and level of priority to the conditions.

Among the respondents who have not visited the eye hospital, concern about money was the most frequent reason for not visiting eye hospital 45.3%, fear of losing pay came up to 31.2% as 60% of the total respondents monthly income were less than Rs.5000, this could be attributed to the results but house wives might not be concerned about it.

Compared to males, females responded 5.45 times for fear of visiting eye hospital this could be because as per gender norms maleshesitate to declare that they are afraid of something.

There are some unavoidable reasons for not seeking treatment like old age or other health problem which prevents them from visiting a hospital. As we can see from the findings that various factors influence the patient to visit the eye care services and the problem here can be explained in simple words like patients are willing to seek treatment but unable to access it or patients areunwilling to seek treatment due to negligence which is in turn a result of lack of awareness were educational status, gender plays a lead role. People are either afraid of cost incurred for the treatment or for any other invasive procedures.

Therefore simply improving the accessibility to the services and creating awareness and emphasizing the importance seeking treatment will greatly improve the utilization of the services as well as the eye health of the community.

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Prevalence of musculoskeletal disorder and associated factors among dental professionals -South Chennai, 2012.

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Abstract

Background:Musculo-skeletal disorder (MSD) is an important occupational health problem in dentistry and has become a major issue of concern because the afflictions can be severe enough to disable professional careers. The **objective** of our study was to estimate the prevalence of Musculoskeletal disorders (MSD) and its association with working postures among dental professionals in South Chennai. **Methods**: We didacross sectional survey among dentists in South Chennai using apre-tested questionnaire. After obtaining informed consent we interviewed and collected data about Musculo-skeletal disorder and their working postures. **Results**: We found that the prevalence of at least one musculo-skeletal symptom/disorder in the past three months was 76.92%. The order of prevalence of musculo-skeletal disorders was low-back pain (45%), followed by neck (42%), shoulder (25%), and wrist pain (22%).The Odds of developing MSD was 5.789 times (95% CI 1.614-21.78) higher among dentists who were >35 years of age compared to those who were <35 years of age. The Odds of developing MSD was 4.084 times higher (95%CI 1.069-20.1) among dentists who were Overweight/ Obese compare to those who were Healthy. The Odds of developing MSD was 5.155 times higher (95%CI 1.499-18.88) among dentists who had>10 years of Experience, compare to those who had< 10 years of experience. Neutral Sitting Posture seems to be protective as O.R. is <1 (OR -0.387, 95%CI 0.1184-1.266) compare to other Sitting Posture. 12 O'clock position seems to be protective as O.R. is <1 (OR-0.135, 95%CI 0.01137-1.613) compare to other Clock related positions. **Conclusion**: Awareness about MSD and its consequent disability needs to be addressed and communicated to the dentists.

Keywords :Prevalence, Musculoskeletal disorder.

Introduction

The term musculoskeletal disorder denotes "health problems of the locomotor apparatus, ie. muscles, tendons, skeletons, cartilage, ligaments and nerves. Musculoskeletal disorders include all forms of ill health ranging from transitory disorders to irreversible disabling injuries" (1).Musculoskeletal disorders (MSD) are an important occupational hazard among dental professionals and have become a major issue of concern as they are severe enough to disable professional careers. Dentistry is a specialized field where the dentists work long hours in a seated, static position. The practice of dentistry requires repetitive motions of the fingers and wrists as well as prolonged awkward postures. The physical load among dentists seems to put them at a higher risk for occurrence of musculoskeletal disorders (2). The prevalence of musculo skeletal disorders among dentists ranges between 64% and93 %(3). Although clinical dentistry is a field with immense potential for musculo-skeletal disorders, only few studies have investigated the association of Musculo-skeletal disorders and working postures.

To effectively prevent Musculo-skeletal disorders in dentistry, prevention strategies and ergonomic techniques must address the postural and positioning difficulties as well as physiological changes. Many studies have noted the prevalence and distribution of pain in neck19.8-85%, back 36.3-60.1%, shoulder 53.3% among dentists(3). Kanteshwariet. al, reported that only few studies have noted the prevalence of musculoskeletal disorders (MSDs) in dentistry. Moreover there are no reports which address the interrelationship between working postures with the presence of pain in different body parts. The objective of our study was to estimate the prevalence of musculoskeletal disorders (MSD) and its association with working postures among dental professionals in South Chennai.

Research methodology:

Study design and Study population:

Across-sectionalsurveywasconductedamongdentists in private dental clinics in south Chennai region which includes the area of Tambaram,Chrompet,Pallavaram, Selaiyur,Medavakkam, Velachery,Perungalathur. We included dentist with a minimum of 2 years experience and dentist with any history of injury or surgery in bones or joints, deformities of the spinal cord or other bones were excluded from the study.

Sample size and sampling technique:

Based on the previously reported prevalence 60% and by adding 10% of non-response and 95

% confidence interval [C.I.], our sample size came to 73 dentist. We selected 73 cases from line list using Simple random sampling technique. Addition of 10% sample size to the required sample was used

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to reduce the non-respondent bias and Short recall period to avoid respondent bias.

Study period:

The study was conducted during the period of June to July 2012.

The operational definition for Musculoskeletal Disorder was defined as having had a pain, ache or discomfort in the past 3 months among the dentist of South Chennai region.

Data collection:

Data on working postures and musculoskeletal disorders was collected using pretested questionnaire. Modified Nordic questionnaire and modified questionnaire used in Kanteshwari k et al was used for data collection. Demographic and occupational characteristics included questions on age, BMI and work experience.

Data analysis:

Data was entered and analyzed using SPSS software (Version 17)For the purpose of analysis we considered working postures, individual factors as exposure variable and presence of pain or discomfort during last three months in neck / shoulder / elbow / wrist / back / hip / knee /ankle among currently practicing dentists as outcome variables. Weanalyzed the overall prevalence of musculoskeletal disorders among dentists and prevalence by different body parts among dentists. We also did a Univariate and multivariate analysis of various work related postures and its association with musculoskeletal disorder among dentists.

Results:

The response rate in the study was 93.15 %(68/73 respondents). The principle reasons for non-participation were refusals and closedclinics. A total of 65 dentists were interviewed after satisfying the criteria's for the study.

Demographic and Occupational characteristics:

Table 1, shows the basic demographic characteristics of the dentists.There were 39 male and 26 female dentists. The mean age of the dentists was 31.97 years and the median workexperience of the dentist was 8 years. Majority of them (n=24) were among 31-35 years of age group. The mean BMI was 25.17. 47.7% (n=31) were among overweight category.The mean distance travelled per day was 24.94 km. 47.6 %(n=31) of the dentists travel about 0-10km per day and 46.9% (n=30) were travelling by two-wheeler. About 66.2 %(n=43) had B.D.S qualification and 33.8 %(n= 22) had post-graduate qualification. 78.5% (n=51) were practicing single handed dentistry. 61.5% (n=40) had no previous training in correct operating posture. Nearly 89.2 % (n=58) were using flat operator stool and 6.2% (n=4) were using saddle operator stool.

Table 1:
Demographic characteristics

Characteristics	Male (n=39)	Female (n=26)
	Mean (S.D.)	Mean (S.D.)
Age(yrs)	32.56 (5.78)	31.08 (4.41)
BMI(kg/m2)	25.23 (3.56)	25.08 (3.05)
Work experience(yrs)	8.76 (5.07)	7.42 (3.74)

Occurrence of musculoskeletalsymptoms:

We found that the prevalence of at least one musculo-skeletal symptom/disorder in past three months was 76.92%. The highest prevalence of musculo-skeletal disorder was in Low-back (45%), followed by Neck (42%), shoulder (25%), andWrist (22%).

Association between risk factors and musculoskeletal complaints:

Table 2:
Association between personal characteristics and MSD

Characteristics	Odds Ratio	95% Confidence Interval	
		Lower	Upper
Age >35 years	5.789	1.614	21.78
Body Mass Index (Over-weight/Obese)	4.084	1.069	20.1
Years in Profession >10 years	5.155	1.499	18.88

Table 2, shows the association between personal characteristics and MSD among dentists. The Odds of developing MSD was 5.789 times (95% CI 1.614-21.78) higher among dentists who were >35 years of age compared to those who were <35 years of age. The Odds of developing MSD was 4.084 times higher (95%CI 1.069-20.1) among dentists who were Overweight/ Obese compare to those who were Healthy. The Odds of developing MSD was 5.155 times higher (95%CI 1.499-18.88) among dentists who had >10 years of experience, compare to those who had < 10 years of experience. Table 3 shows the association between clock related working position and MSD among dentists. The Neutral Sitting Posture

seems to be protective as O.R. is <1 (OR -0.387, 95%CI 0.1184-1.266) compare to other Sitting Posture. 12 O'clock position seems to be protective as O.R. is <1 (OR-0.135, 95%CI 0.01137-1.613) compare to other Clock related positions.

Discussion:

This study was to determine rate musculoskeletal disorders among dentists and the role of risk factors causing musculoskeletal disorders. The primary aim of the study was to estimate the prevalence of musculoskeletal disorder and its associating factors determining the musculoskeletal disorder among dentists in Chennai region. Prevalence of at least any one MSD among dentist in the past 3 months was high. We found that the prevalence of atleast one musculo-skeletal symptom/disorder in past three months was 76.92%. The highest prevalence of musculo-skeletal disorder was in Low-back (45%), followed by Neck (42%), shoulder(25%),and Wrist(22%). The Odds of developing MSD was 5.789 times (95% CI 1.614-21.78) higher among dentists who were >35 years of age compared to those who were <35 years of age. The Odds of developing MSD was 4.084 times higher (95%CI 1.069-20.1) among dentists who were Overweight/ Obese compare to those who were Healthy. The Odds of developing MSD was 5.155 times higher (95%CI 1.499-18.88) among dentists who had >10 years of experience, compare to those who had < 10 years of experience. Neutral Sitting Posture seems to be protective as O.R. is <1 (OR -0.387, 95%CI 0.1184-1.266) compare to other Sitting Posture. 12 O'clock position seems to be protective as O.R. is <1 (OR-0.135, 95%CI 0.01137-1.613) compare to other Clock related positions.

In our study the prevalence of back pain was 57% in comparison to Chopra et.al, who had reported 70.6%. We found 45% prevalence of lower back pain among dentist in Chennai in comparison to who had reported 46% among dentist in Greece(2). The prevalence of back pain could be low because of the 3 months reference period in comparison to other studies which has used 6 months or 1 year of reference period and also by the preventive measures adopted by some of the dentists.

The prevalence of atleast one MSD among dentist in Chennai was 76.92% which is lesser than the prevalence among dentists in queensland(4) and in Madhyapradesh(5).Our study had a limitation of recall bias among the respondents which might have led to underestimate of the study results. Our study did not have enough power to predict the measures of association based on this cross-sectional study design. So future studies based on Case-control study design needs to be done for assessing the risk factors for MSD among dentists. To effectively prevent MSD in dentistry,awareness about MSD and its consequent disability needs to be addressed and communicated to the dentists.

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Effectiveness of MTP training programme in providing abortion services in rural hospitals of Maharashtra

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Abstract

Introduction: Unsafe abortions are a major public health problem of the developing world which contributes to maternal mortality and morbidity. So to achieve the Millennium Development Goal 5, Abortion services have to be provided at grass root levels through training of available health staff. The Medical Termination of Pregnancy (MTP) training for medical officers (MO)and support staff has helped in providing abortion services at rural level in Maharashtra. The purpose of the study was to find out if MTP training programme has contributed to increasing the availability of abortion services in Rural hospitals of Maharashtra. This study also aimed to find the individual level factors which contributed to the utilization of abortion services in rural areas fromboth beneficiaryand service provider perspectives. **Methods:** From January 2005 to December 2011, secondary data was collected from Health Management Information System (HMIS) of Maharashtra to show year wise changes in number of abortions in rural Hospitals, Medical Officers (MO) trained, rural hospitals having MTP facilities, number of complications andand number of maternal deaths.From 1 June 2012 through 20 July 2012100 users of abortion servicesand the correspondingand 100 MO were interviewed in hospitals. andandand. **Results:**Out of a total 1830MOs working in rural area 68.33% have been trained up to December 2011 in providing MTP services. From January 2005 to December 2011, percentage of MTP performed in rural hospitals increased from 13% to 28.83% while rural hospitals having MTP facilities increased from 8.41% to 56.53%. From January 2005 to December 2011, number of complications and maternal deaths were decreased. Of the women interviewed who had undergone abortion 34% had one child and remaining had two or more children. 62% of women aborted due to spacing being less andand 36% aborted because they did not want more children. About 79% women adopted contraceptive method after abortion out of which 48% went for permanent sterilization. About 26% women had only female child out of which 73.1% aborted during 9-12 weeks of gestation. Of the doctors interviewed 93% were working in hospitals where MTP facilities were available. Complication happened in 9% of abortions in which 44% was hemorrhage. Out of this 7% occurred with MO having less than 1 year time passed since training and 2% with 1-2 years since training. **Conclusion:** This study shows that after training programme there is increase in availability of abortion services in rural Maharashtraand. There is huge unmet need of contraception as more women aborted due to mainly spacing being less andand not wanting more children. Complications are more when the MO had less than 1 year of experience in performing abortions.

Key Words: Medical termination of pregnancy, rural hospital, training.

Introduction

Even when contraceptive services are available, unintended pregnancies occur due to unmet need of contraception andfailure of contraception. In these cases abortion remains the only one way out for women. In 2003, 42 million abortions were induced(1), while in 2008 43.8% abortions happened worldwide 86% of which were in developed world(2). 13% of total maternal deaths are due to unsafe abortions which accounts for 400 deaths per 100000 abortions in developing countries(1). 5.7 per 1000women are admitted for complications due to abortions in developing countries(3).

Abortion has been legalized in India with the passing of Medical Termination of Pregnancy (MTP) act of 1971. Though it is one of the few countries which have legalized abortion it has failed to provide competent abortion services due to social stigmatization of abortion andand less acceptance of society to view it as a woman's right. Also as per the act, MTP can only be performed by obstetrics and gynecology specialist.andSince India has shortage of specialists the availability of abortion service was the biggest problem. So in 2003 an amendment was done to allow MBBS graduates with appropriate training to perform MTP so as to make service available at the grass root level.

The Indian survey of death reports that nearly 12-18 % of maternal death occurs due to abortions(RGI 2000) (4). In Maharashtra as per a study done by Centre for Enquiry Into Health and Allied Themes (CEHAT) the induced abortion rate is 45.4 per 1000 women out of which only 30% are legal(5). Government facility provided care to just 17% of total abortions and 64% of these abortions developed some kind of health problem5. To address this problem IPAS andFederation of Obstetrics and Gynecology Societies of India (FOGSI) developed a training programme which was incorporated in the National Rural Health Mission (NRHM) for selected states, Maharashtra being one of them. The training is of 21 days duration for Medical officers (MO) and 7 days duration for support staff from same institute. The MOhas to see 5 cases, assist 5 cases and perform 15 cases of

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MTP. Eighteen training centre were identified and accredited in Maharashtra.

Unsafe abortions are a major health risk for women in reproductive age group. Also enhancing abortion quality care will help in reducing Maternal Mortality Ratio (MMR) which is important 5th goal of the Millennium Development Goals (MDG). This study intended to find if MTP training has caused increase in availability of abortion services in rural Maharashtra hospitals. It was also the aim to study the individual level factors of beneficiariesandand service providers which contribute to the abortion services in rural area hospitals. The objectives of the study are to study the changes in provision of abortion services in rural hospitals of Maharashtra during 2005 to 2011 and also to study the individual factors of beneficiaries and MO conducting MTP.

Methodology

The secondary data was collected from HMIS, monthly reports, yearly reports of Maharashtra public health department for the period of January2005 till December 2011. This data was cross checked with data from IPAS to authenticate its reliability and validity. andandFrom 1st June to 20th July 100 users of abortion services were interviewed. Maharashtra is divided into eight regions by health department for administrative purpose. Initially Akola region was selected by simple random sampling. Then the women on whom MTP was done during the study period in separate rural hospitals of Akola region was the inclusion criteria for interviews. The interview was in the form of hospital exit interviewandand sample selection was purposive. Sample size 100 was decided on the number of cases of abortion likely to be found during the study period in the rural hospitals of the selected region. The 100 MO who performed the MTP on the women interviewed was the inclusion criterion for MO. Interview was conducted 6 hours after MTP was done till discharge of patient at the time interviewer reached the concerned site. Data was collected in form of a 20 minute interview each for beneficiary andand service provider which was conducted by the researcher. A checklist was designed that included general questions about demographic characteristics (age, literacy, job, husband characteristics, place of residence, no of living children) and specific questions about abortion, period of gestation, sex of living children and contraception adopted after abortion. The MO checklist included question about training, period since training, performance andand complications. The checklist was modified after being piloted with 10 women andand 5 MO.

MTP is defined as medical termination of pregnancy performed by an accredited medical professional at an accredited hospital before 20 weeks of pregnancy are completed. The rural hospitals are the Primary Health Centers (PHC) and Rural Hospitals (RH) in Maharashtra.

For this study induced abortion is defined as successful termination of pregnancy by Manual Vacuum Aspiration (MVA)andMifepristone Medical Abortion (MMA) up to 12 weeks of pregnancy.

WHO defines unsafe abortion as a procedure for terminating an unintended pregnancy by individuals without the necessary skills or in an environment that does not confirm to minimum medical standards or both1.

The women were divided into three groups by gender of living children: only males, only females and both male and female. The groups were formed to find association and correlation with other determinants of abortion. The MO's was divided into two groups by complications occurring after MTP: yes and no. The groups were formed to compare them with other determinants related to performance. The correlation andFisher's exact test were used for the analysis.

For the secondary data linear regression modelwas used. Thedoctors trainedwastheindependent variable andand all covariates of secondary data were selected as dependent variables for inclusion in the model. The level used to determine significance was $P < 0.05$.

Results

The secondary data shows that the total training load of doctors to be trained from rural area was 1830 .From 2005 when the percentage of total doctors trained was just 11.30% has risen to 68.33% in 2011. Also among the total number of MTP performed in Maharashtra the percentage of MTP in rural hospitals has increased from 13% in 2005 to 28.33% in 2011. The rural hospitals having MTP facilities have also increased from 8.41% to 56.53% in 2011. The total no of complications among the total MTP done in rural area has decreased from205 in 2005 to 79 in 2011. Also the maternal deaths have decreased from 17 in 2005 to 1 in 2010 andand 2 in 2011. In linear regression model, Regression Coefficientvalues for number of MTP performed, facilities for MTP in rural

hospitals, complications and maternal deaths due to abortion is 0.863, 0.983, 0.915 and 0.769 respectively. The Correlation Coefficient values were 0.929, 0.992, -0.957 and -0.877 for number of MTP performed, facilities for MTP in rural hospitals, complications and maternal deaths respectively. and

In the primary data analysis for beneficiaries, women aged < 20, 20-25, 26-30 and> 30 years composed 6%, 52%, 39% and 3% of all participants among whom 89% came from rural area and 11% came from urban area. In the study women giving 1 and 2 children were more constituting 88%. The women having only male child were 21%, only female children were 26% and both male and female children were 53%. The beneficiaries predominantly underwent abortion at the gestational age of 5-8 weeks (68%) Those who underwent MTP, in 9-12 weeks were 26% while only 6% of them aborted in 1-4 weeks. The most common cause of abortion among the women was inadequate spacing (62%)andnot wanting more children(36%). Among these women 79% adopted a contraceptive method after getting abortion done while 21% denied contraception. Among women who adopted contraception, women adopting permanent sterilization were predominant in this study. The most common reasons for not adapting contraception after abortion wereunwillingness by self (38%)andunwillingness of family members(38%). It was seen that 90.5 % women having only males or both male and female living children aborted up to 8 weeks of gestation while 73.1% women who had only female children went for abortion during 9-12 weeks.A cross-tabulation between genders of living children with contraception adopted post abortion shows that 95.2% women having only males and 86% having both male and female adopted contraception, while 50 % of women having only female did not adopt any contraception. The Fisher's exact test showed significant association between the two.

In the study 93% of facilities where MO worked were having facilities for MTP (all required instruments, equipments, medicine, and biomedicalwaste disposal facility). About 70% among these facilities provided abortion service weekly, 12% provided biweekly, 10% provided fortnightly and 2% provided monthly service while only 6% provided daily service. Trained support staff was available with 73% ofMOs. Complication occurred in 9 cases among which dominant 44% were with haemorrhage, 33% with fever and pain while 11% each were with sepsis and perforation.

Discussion

Our results suggest that the training programme has increased the trained manpower for providing MTP services. The main aim of training was to make abortion services more accessible, available and acceptable to the rural women population. As can be demonstrated from the data the increase in the MO's trained has increased the hospitals in which facilities for MTP are available. This is due to the process adapted by the programme. After training two MVA syringes are given to MO. MO has to return to their respective rural hospitals and start upgrading the institute so as to provide MTP services. So after the training of 68.33% of the total training load there is increase of 48.12% in institutes having MTP facilities in 6 years. Also there is increase in number of MTP in rural hospitals. Though the increase looks to be less but even then it is significant because as studies have shown only 17% of women are availing abortion services in government hospital(5). Also a study by CEHAT has shown that for every 1 million abortions by registered practitioners there are 5-6 million abortions were done by unregistered ones(4). These are the unsafe abortions which cause maternal morbidity and mortality. So as there will be increase in facilities and trained manpower there will be higher availability of services which in turn will certainly lead to higher utilization of these services as is shown from the data. Also a close monitoring and evaluation by an INGO IPAS which is involved in capacity building and to provide logistics in form of medicines and MVA syringes has helped in giving a momentum to the training and also has impacted the performance of trained MO. The study shows that even while there is increase in beneficiaries taking advantage of the services confirmed by the figures of MTP in rural hospitals there is decrease in number of complications and number of maternal deaths. This confirms with the study results of various studies showing less than 1% complication rate of MVA/MMA and no maternal deaths and also less complication if the abortion are done in safe environment (6) (7) (8). In rural areas of Maharashtra as there was dearth of abortion services women had to resort to poisonous plants, unsafe procedures, quack treatment, TBA, ANMand other dangerous measures to end the unwanted pregnancies (6) (9). So by having this training programme government of Maharashtra has indeed put an intervention to stop complications and death due to unsafe abortions. Also with involvement of IPAS the objective of community participation has been realized. This is the right step in the right direction to achieve the MDG 5. Now the

need is to create awareness about the availability of service and to give quality service which will increase the utilization of abortion services in government set up.

If we look into the profile of beneficiaries it can be seen that majority are in age group 20-30 years.Also both husband and wife are mostly high school drop outs. Mostly the age profile relates to the stigma attached to the abortion. A study by CEHAT shows that due to stigma and veil of secrecy the cost of abortion increases as per the status of marriages. Where as a married women abortions costs on average Rs 1250/- an abortion outside marriage goes to about Rs 5000/-(9)Also there are more chances of these unwanted pregnancies going to outside unregulated abortion services where there are more chances of deaths and complications. The 11% beneficiaries were from urban area. This is a positive precedence that service given in that particular facility has been advertised by people who have availed the service to an extent that people from urban area are also comfortable using the service. This awareness will cause increase utilization of services in government set up. Most abortions in the study are after 1 and 2 living children. Also dominant reasons for having abortions were having less spacing and couples not wanting more children. This certainly points to an unmet need of contraception which coincides with unmet need of Maharashtra which is 53.6% (NFHS 2006). But the rate of abortion has not always declined as contraceptive use has increased around the world. In US a research by Alan Guttmacher Institute showed that more than one third of women will have an abortion by the age of forty five and of these abortions 52% will be under age of 25 (10). So even if there is decrease in unmet need of contraception there will be a static or growing need of abortion services. The gender of living children of women undergoing abortion in the study shows that 21% women having one male or 26% having one female child are also opting for abortion because they understand the importance of spacing and advantages of having a small family. But in Maharashtra where child sex ratio in the last decade has skewed a great deal from 943 in 2001 to 883 in 2011 (Census 2001and 2011) sex selective abortion is a dark reality. So it is of utmost importance that while giving these services it should be monitored that the abortion services in government rural hospitals are not used for sex selective abortions. In this study it can be seen that maximum women having only female child are getting aborted between 9-12 weeks. As a study in UK shows that the accuracy for sex determination is 70.3% at 11 weeks and 98.7% at 12 weeks (12).Also in the study it is seen that most women who have female children refused to use contraception post abortion. There is a significant relationship between gender of living children to gestational age at abortion and refusal to contraceptive use after abortion. The gender of living children is a hidden indicator which can be useful in finding the sex selective abortions and thus monitor the service for preventing these things from happening.

If we look in the profile of MO maximum were having an experience of more than one year in providing these services. Also most had done more than 50 MTP by themselves at rural hospitals. The facilities where these MO were working 93% had all facilities for MTP and most of these facilities were giving regular and confirmed day service. Most MO even after having other responsibilities were interested in providing abortion services at least weekly while other majority did it biweekly or fortnightly. The regularity of service influences the utilization of service (8). About 73% MO had trained support staff for assisting. This is an important element which needs to be taken care of. It is necessary that the training of MO and their support staff go hand in hand to develop coordination and prevent complication. The complications which occurred were very minor and taken care of at the institution itself. But it is a limitation of this study that we can't measure the complication rate as sampling was not done. In the study there was found a significant association between complication and time passed since training. It shows that newly trained MO i.e within one year will be more prone to complications. Also the less no of cases aborted by MO is a confounding factor with time. The explanation is that less number of cases will be aborted by MO if less time has passed. Also a significant association is there between complication and period of stay at hospital. There is high chance that a person will stay more days in hospital if complications occur.

The study shows that abortions in rural government hospitals have increased and there is decrease in number of complication and maternal death due to introduction of MTP training programme. Due to the training there is increase of institution having facilities for MTP. Due to strict supervision and monitoring the quality of service is maintained. Also the need of monitoring gender of child has become necessity in Maharashtra due to its dismissal sex ratio. In rural

area the abortion service should be provided so as to achieve the MDG goal. Women in all societies need access to quality abortion services. This will reduce cost and burden of abortion from the minds of women.

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E-waste: A study on perceptions of recyclers and households

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Abstract

Introduction: Background: Growth of information and communication technology resulted in enhanced use of electronic equipments, with quick product obsolesce ensued in discarded electronic items into the waste stream. Lack of policy regulation on informal recycling activities further leads to various negative environmental and biological consequences. Limited studies have been done on perception of recyclers and households highlighting health hazards. **Objectives**: The study explores various electronic waste management practices and perception of recyclers and household about E-waste. **Method**:In-depth interviews using unstructured and structured questionnaires were used to collect data from E-waste recyclers and household respondents. Convenience sampling was used to include individuals in the study. A total of 15 interviews among recyclers and 10 interviews among household respondents are reported in narrative form. **Results**: The study depicts that E-waste management practices in Kerala involves collection, transport storage and extraction of components like plastics, iron, copper and other valuable materials. The main sources of scraps are exchangedgoods from electronic showrooms, batteries and hospital equipments. Recyclers employ unsafe recycling procedures concomitant in serious health and environmental issues. Household and recyclers perceive the harms of recycling activities. Household respondents perceive scraps contain valuable materials, so they keep E-waste until bought by scrap dealers. They are also not aware of the best practices to dispose E-waste. **Conclusion**: There is an urgent need to quantify the current scenario of electronic waste and various practices possessing severe health and environmental hazards. The existing guidelines and policies should be reformed to ensure safe work place and living condition.

Key Words: Electronic waste, Management Practicies, recyclers, perception

Introduction

Electronic waste or E-waste is the term used to describe old end of life electronic appliances such as computers, laptops, mobiles, DVD players, TV's, which has been disposed by the original users.Growth of information and communication technology has exponentially enhanced the usage of electronic equipment. The number of mobile users in India has reached 854 million (TRAI, 2011).Rapid growth combined with rapid product obsolescence ensued in discarded electronics which is now thefastest growing waste stream in the industrializedworld. Thus E-waste is generated from various household, telecommunications and business sector.Every year 20 to 50 million tonnes of Electronic waste is generated worldwide. Around 50,000 tonnes of E-waste are exported from US to India, China and Pakistan.1 Studies suggest that total E-waste generation in India is approximately 3,80,000 tonnes per year.(MAIT,2007) The top states in the contribution of electronic waste are Maharashtra, Andhra Pradesh, Tamil Nadu, Delhi and Karnataka. The city wise contributors include Mumbai, Delhi, Bangalore and Chennai.2The key players of waste management and recycling are associated with the informal sector. Over 1 million poor people in India are involved in manual recycling operations. (Toxic link) Majority of them have a low socio-economic status and awareness regarding health hazards of E-waste recycling. It has been estimated that 95 percent of E-waste is recycled through informal sector.3 Most of the illegal recycling process causes emission of dangerous toxins such lead, dioxin, cadmium, mercury,PolybrominatedDiphenyl Ether's (PBDEs) and Polychlorinated biphenyls(PCB's). This may further lead to various occupational health and safety concerns as well as environmental hazards. Exposure to lead fumes may cause multiple disorders like neurological, cardiovascular and gastrointestinal diseases.4 Exposure to cadmium fumes leads to kidney malfunctioning and respiratory diseases as well as lung cancer. Exposure to PBDEs causes endocrine disruptive properties and neurobehavioral disturbances.5The study discusses an In-depth analysis of recycling practices and perception of recyclers. Lack of policy on regulation of E-waste recyclers will contrive human health and environment under stake.The primary objective is to explore various Electronic Waste (E-waste) Management practices and perception of recyclers and household in Adikattukulangara (AK) village, Kerala.

Methodology

Twenty five In-depth interviews were conducted with respondents selected randomly of age above 18 from E-waste recycling unit and households. An unstructured open ended questionnaire in local

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language (Malayalam) was administered to the recyclers for understanding waste management practices and perception of recyclers. A structured closed ended questionnaire was used to understand the household perceptions. Convenience sampling was used to include individuals in the study. In-depth interview were discontinued when data saturation point was reached. The qualitative study is reported in narrative form. The analysis includes the recurring themes; conflicting information, unexpected findings andcompliment text with salient quotations.

Results

E-Waste Management Practices

The E-waste management practices involve collection, storage and processing. The primary source of electronic waste in the recycling unit is from electronic showrooms spread across various districts of Kerala. The inputs are those goods where customers exchange their old or end of life electronic items exchanged for new electronic items at a relatively cheap price. The types of electronic goods recyclers handle are household electronic goods and others. The household items consists of TV, Refrigerator, Microwave oven, Air Conditioner, Cooler, Music players, computers etc. Others include batteries from inverters and vehicles, wires, cables and circuits from various automobiles, end of life diagnostic equipments from hospitals and laboratories.

Thus the components collected are stored in a closed space with no proper ventilation and lighting, and are transported with no proper safety measures. The dismantling of electronic components is crude, which employs hammering to extract valuable materials like copper, iron, plastics etc. All the components are processed manually with no protective gears. Scraps with defective parts are repaired by a mechanic and are then sold to a second hand market. Components of printed circuit boards are removed by heating in open fire grill.

Battery wires are the other types of E-waste handled by recyclers. The main sources of batteries are from battery showrooms,inverters and from an unorganised automobile dismantling sector. The acid inside is discharged to surrounding water bodies. Electrodes are crushed into a fine powder and the left out case as well as powder is sold into market. Wires are stripped using a metal stripper and are burned in an open area to recover copper.

"Diagnostic and treatment equipments from hospitals are purchased through illegal contracts and transported in containers. Radiation equipments from the cancer institutes are the mainly traded equipments. This is dismantled by a skilled worker and by the use of High-end dismantling equipments bought from Mumbai." Old end of life VCR adds to major junk of E-waste.

Perception Of Recyclers And Community Members

a. Health Implications among workers

The work environments of E-waste recyclers are improper and crude. Recyclers do not adhere to any of the guidelines produced by Central Pollution Control Board. The techniques used for the recovery of components are unsafe and risky. Open incineration of wires, foams and plastics possess serious threats to health of workers. Headaches are common problem especially felt while wastes cauterize. In-depth interview of E-Waste recyclers reveals that they suffer from respiratory ailments. Shortness of birth, chest painis commonly observed when they cut open compressors; dismantle television and printed circuit boards. Injuries from cuts, burns are common, since recyclers do not use any protective measures. Use of bare hands, screw driversand hammers results in direct inhalation of toxic substances present within components. Eye injuries, burning of skin in contact with the acids of batteries are observed in many recyclers. Several gastro intestinal symptoms like nausea, weight loss, constipation, vomiting are also reported. The mechanical nature of work like heavy lifting and pulling leads to spinal injuries and back pains. Several health issues like itching, blisters, lesions on scalp and face are also reported among the recyclers

b. General business information

First the electronic shop provides exchange offers, with discounted price on products. This amount is equated by adding up this sum in the maximum retail price, and those goods exchanged are purchased by scrap deaers. Thus both shop owners and scrap dealers are benefitted. Scraps with defective parts are refurbished and are sold in second hand market, which is the key profit in this trade. Those components which cannot be repaired are disassembled and sold to respective dealers.*"The perceived average monthly income after all expenses like transportation, repair and sale amounts five thousand to eight thousand , and this may go up to ~10000 to 15000 during festive season when people exchange their obsolete goods. Recyclers recycling medical scanners may profitup to one lakh."*

c. Self Perceived Risk

Recyclers are aware of threats of recycling electronic components. Regardless of the perceived risk they were not satisfied with the job, and continue because of the income they generate from this business. However recyclers too believe that recycling do not possess any threats to health and environment. *"smoking causes cancer, but all smoker's do not have cancer. So it is not necessary that all recyclers possess hazards of recycling."* They also wanted to give up recycling activity due to mental stress and health implications as well as the complaints from local authorities. They seek treatments every month nearby private clinics and are advised to take tetanus toxoid injection.

Safe and Healthy living conditions

General observation and in-depthinterview of community members indicates the presence of unsafe and unhealthy living conditions in this village. The geographic location is spread in such a way that E-waste recyclers are scattered within densely populated villagers in the low and high lying regions. Dangerous activities like burning of wires, printed circuit boards and foams in low lying regions resulted in accumulation of toxic fumes in soil and tree's of high lying regions. Likewise battery water and toxic dust from high areas leaches into the wells of low areas. Skin irritation and respiratory disorders occur frequently to the villagers once recycling operations are carried out. School children nearby the recycling unit are worst affected with skin allergies and also have symptoms of asthma. Acid water from batteries is left open, or they discard in a well dug for disposing. This causes leaching to the well used for drinking purpose. A white foamy layer is observed in potable water. Acid water of batteries is also left in carriage space of unused carrier vehicles which causes further environmental threats. Other unusable waste which has no value is dumped into a pit, canals and surrounding water bodies. CRT monitors, picture tubes and other E-waste are piled up in an open pit possessing serious threats to the environment. *"E-waste recyclers purchase surrounding paddy fields for recycling operation and people nearby are left no option other than leaving those villages. There were about 200 cases of cancer in last 5 years and death of 24 persons due to cancer in last two years."* One of the local authorities explains,"the highest no of cancer cases in Kerala is reported from AK village.

e. Community Engagement and Human rights

The harm to safety and health of recyclers and community are violations of human rights. Community members are aware of the environmental consequences as well as health hazards of those dangerous recycling activities.

Villagers have formed "AK Youth Shakti movement" against E-waste recycling activities. A complaint has been lodged to chief minister, district collector, local MLA's and MP.In response to the complaints lodged, authorities often visit. *"They advise the recyclers not to leave the rectangular foam of refrigerator open; this may lead to mosquito breeding. Rather than burning it in open, we are asked to dump in a pit or burn not in a place where people are round the corner.''* The livelihood of this particular community is solely on E-waste recycling and other scrap management activities. The income they generate from recycling activities perceived that there are no other employment opportunities. Analysis also wraps up that religion and politics plays a major role in recycling activities.There is an immense backup from the community members rather than protests from activists.

PERCEPTIONS AMONG HOUSEHOLDS

In-depth interview of household respondents reveals, the respondents are aware that the end of life electronic items contains toxic components. The main source of information is the warning symbol and messages *" Warranty void if seal broken",* labelled in electronic items.Respondents perceive those components inside electronic goods are potential for scrap dealers and have values. These ideas make them retain scrap electronic products for a long time. There is no organised sector to collect E-waste from households, and the perception of getting paid handsome by unorganised scrap collector's or resale from electronic showrooms left a propensity to store, until they are preferred to bought by scrap dealers for a good pay. Respondents are not aware of the best practices to dispose E-waste, and end up in burning of batteries, circuit boards and CFL lamps.

Discussion

Unorganised recycling is vital for E-waste management because unless there is no stringent rules and regulations, there will be an exponential rise in recycling activities, which may lead to negative biological and environmental consequences. There is an imperative exigency to quantify and appraisal of current scenario of waste management practices

like storage, collection, disposal, transportation, recovery, processing, for an environmentally sound management of E-waste. Most of the recycling activities carried out in this village is of small scale and to a greater extent is not systematic. Scraps collected from electronic shops are pared down with no safety. Many of the workers show signs and symptoms of various toxic health hazards. So the existing guidelines should be reformed to ensure a safe work place. Exposure of neighbouring population to hazardous substances is observed. Interview of community members reveals the number of cancer cases has aggrandized over years. However household analysis reveals that respondents are aware of the social and environmental consequences of E-waste recycling. Even though, the public awareness regarding disposal practices are subaltern. The value of these materials conduced them to hoard scraps in their home. Several community activities are in place against recycling. The authorities should come into play for increasing awareness and promote safe recycling activities. People involved in recycling activities are cautious about various processes, so data pertaining to those activities are difficult to attain. Permission to recycling unit was other study limitations. More sample data and scientific estimation is required to quantify E-waste and its environmental effects. So the study will open insights in developing a model in future for better understanding of recycling activities and its effects.Thus there should be a holistic approach to tackle unorganised recycling ensuring a safer living condition.

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Voice of expectant mothers: an exploratory study on expectations and barriers in antenatal information flow

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Abstract

Introduction: A changeover from a state of being an adolescent to a mother is a crucial phase in the life cycle of a woman. Information provided to the mothers during pregnancy is very vital for good pregnancy outcomes. **Objectives**:This study aimed at exploring the expectations of mothers in their first pregnancy with respect to information and the barriers to the flow of information. **Methods**:This study was done in an exploratory fashion using qualitative research methods in five villages of Bhadravati Taluk in Karnataka. A total of 15 women were interviewed, five of them in the second trimester of pregnancy, four in the third and six in the post natal period. In-depth interviews was conducted in the local language Kannada at their residence and audio recorded with consent. The interviewsweretranscribed in Kannada and later translated to English for analysis. Grounded theorymethodology was followed to form open and axial codes of the themes in the interviews. A conceptual framework was formed signifying the women's expectations from antenatal information and factors that acted as a barriers for antenatal information flow. **Results**: The mothers expected information about breastfeeding and maternal incentives provided by the government. They expected that the information should be provided in schools and colleges before marriage. The various routes of information flow that were identified were antenatal education from schools and colleges, from friends, family and health care personnel.Respondents identified factors like early age at marriage, educational status, exposure to information, frequent travel between in-law's home to mother's home, attitude of health care personnel and traditional beliefs in the family as barriers to information flow. The women reported that information flow from external sources such as health care personnel were limited because of the lack of accountability of the system. Information flow from internal sources such as friends and family was limited because of low educational status of women, early age at marriage, distance from health centre and frequent travel to and from maternal to in-laws place.Conclusion:It is important to identify the barriers that prevent the antenatal information flow from different sources including health care personnel and family members. Minimizing the barriers and meeting up the expectations will increase maternal service utilization and also provide better maternal health services.

Keywords: Pregnancy, Information, Flow of information, Barriers, Expectations

Introduction

Improving maternal services has been primary concern of every developing nation.The Millennium Development Goals also aim at improving maternal health and to empower women. The more mothers are empowered to seek care higher the utilization of antenatal services which in turn will improve maternal health. This empowerment of the mother happens through proper provision of information. Previous studies have also shown that such information on delivery, baby care and parenting are expected by the parents-to-be.(1)

The aim of National Rural Health Mission in framing Information Education and Communication was to spread awareness mainly on preventive measures undertaken in healthcare. This consisted in providing information to the vulnerable section who are poor, women and children about the availability and accessibility of quality services in health care.(2)

The first pregnancy is as much stressful as it is a happy period because it is wrought with confusions and doubts for the mother about pregnancy, childbirth and parenting. Therefore proper flow of information from various channels to the expectant mother is of utmost importance. It has been previously reported that the content of the childbirth education program for pregnant mothers should include; care during pregnancy, danger signs duringpregnancy, labor and after birth, the labor process and the postnatal care for the mother and the baby.(3)

In Karnataka State, India only 66.5% of the women received family life education before marriage. Only 51.1% of the pregnant women received full antenatal check up and only 14.4% of the women who delivered received the maternal cash incentive for institutional deliveries. Only about 43% of the women were aware about the danger signs of acute respiratory infection of children.(4) This gives a picture of the status of antenatal information flow in Karnataka.

A study conducted inEthiopia on the factors influencing antenatal care services utilization revealed that maternal education did increase utilization of antenatal care services (5)

Some authors conclude that there should be some

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serious orientation change both for the pregnant women and educators to cover maternal literacy classes in time of pregnancy(6)

In this background this study was done to explore the expectations and barriers to antenatal information among women during their first pregnancy in the Bhadravati Taluk in Karnataka.

Methods:

The study used an exploratory design and data was collected through in depth interviews. The study participants were first time mothers including second trimester, third trimester, and postnatal mothers who had given birth to a child within the past one year. The entire interview was audio recorded with the consent of the participants. The interviews were transcribed verbatim in Kannada and then translated in English language for analysis.The transcripts were analyzed using grounded theory methodology. Open coding was done to identify themes. Axial coding was done to identify inter-relationship between themes. The emerging themes were then built into a conceptual framework.

Study participants were pregnant and post natal women who volunteered to share their experiences, selected from 5 villages of Bhadravathi Taluk of Karnataka. The interviews were conducted at the homes of the women. Reasonable privacy was provided during the interview. The interviews were conducted after obtaining fully informed consent for the interview as well as for audio recording of the interview. The study was approved by the Institutional Review Board of the School of Public Health, SRM University after expedited review.

Results:

A total of 15 in-depth interviews were conducted, five of them in the second trimester of pregnancy, four in the third trimester and six in the post natal period. Of the respondents only three had attended college, the remaining 12 had high school and lesser levels of education.

1. Expectations of the pregnant women about antenatal information

- Sources from which information is expected:

a. Information about pregnancy from friends:

Antenatal and postnatal mothers expect to talk to friends who are married as they are experienced and they feel that they can share anything with friends that they cannot with family members.

"If we ask about pregnancy and related matters to our mother, they'll hit us (sic). We can't discuss such things with anyone. So we always share such things with our friends. They give us information based on their experiences. Whatever we've been taught by our friends, we experience it. I feel it is good if friends share information."

"If she's a close friend, you can discuss such thingslike pregnancy with her. All thing that we can't share with the doctors, can be shared with friends. So, they talk to friends and get their doubts sorted out."

b. Information from schools and college

Antenatal and postnatal mothers want information from medical personnel in schools and colleges. They suggested the age period from the time of puberty till the time before their marriage for getting this information. Topics that were expected to be discussed in the classes were behavior during adolescent ageby which they can avoid bad practices, on what to eat during their pregnancy andof the dos and do nots during pregnancy.

"One of my relative was pregnant and she was not aware of it as the doctor said that there was a cyst and fluid in the womb. After 6 months when she went to hospital with stomach pain, she was admitted and she gave birth to a baby boy. She used to have irregular periods before this incident. So, she got confused with the dates. This is important for women like her. So, this antenatal education is a must for everyone."

"In this adolescent age, girls tend to make mistake unknowingly, so, it will be a bad name in the society. If we are not careful, then they've to undergo abortion and activities like throwing babies in dump pots. Yes, we've to guide them through education"

c. Information from family members:

Antenatal and postnatal mothers want very good support and information from family members as they think that it would be helpful at the time of delivery, during emergency, they expect the environment within the family to be peaceful and happy as it is good for the mother and child.

"This is my first pregnancy, so we won't know how to behave and how should we take care of ourselves. We should not do heavy work, we should take rest. You need family's support. We'll be happy that we are going to become mothers. They should give us information, they should tell us to eat this and not to eat that. They should give us information on such things."

"It is very important, or else she will become mentally weak, and she will not have peace of mind. Hence, her husband and her family should be very supportive towards her. Even if they cannot feed her more food, if they give her the love, happiness is more than enough for the mother. It is very useful, since we will be happy, we will not feel the pain. Otherwise, one would become mentally weak due to depression."

d. Information from health care personnel:

The mothers expected the health care personnel, especially those health workers working at the grass roots level to be communicative and tell them as much information as they can.

"When Anganwadi people come and give us some information, we are very happy. Anganwadi workers should tell us everything. If they don't tell us, we won't know what is happening. We did not know that there's something like Bhagyalaxmi Yojana, they didn't tell us anything about it. If we had known we would have utilized it"

- Types of information expected

a. Information about government antenatal incentives:

Antenatal and postnatal mothers want Anganwadi workers to inform them about these programs as it is very useful and helpful to the poor in times of emergencies. They found it useful if government used media to announce the incentives provided to the antenatal and postnatal mothers. Postnatal mothers also questioned about if they can avail the benefits now as they were not informed during their antenatal period.

"I'm not getting information about the government given benefit schemes as there is no one who can guide me with this. Of course, the rich will manage. But ours is a poor country. What will poor people do? Many have lost their children without having money to treat them. At my vicinity, many children died of bird flu. I've experienced the pain of a barren woman. It is very painful to see a mother lose her child after its birth. It is very good if the government comes up with such cash incentive and support programs."

"The government should take the initiative in informing about the incentives to us. Will they pay for my delivery now? Will they give me the antenatal kit now? As I have already delivered my baby, I did not know about these incentives when I was pregnant"

b. Information about diet:

The women seemed to be confused about the foods that were allowed and not allowed during pregnancy. There were a lot of existing myths and beliefs about foods and therefore there was no clarity. They expected proper information on what to eat and what not to eat during pregnancy.

"I would like to know of how I can nourish the baby inside the womb"

"What food is good for the baby and what is not, we have to confirm that and we should eat food that does not harm the baby. But in our times, we might face problems if we eat certain things like pesticide mixed foods. That will lead to problems further to the baby. So, before having anything, we have to consult them whether this food will be good for us not, and then we have to eat that. I want some more guidance as this is my first pregnancy. I don't have much knowledge about it. It will be great if they guide us more about it."

c. Other information related to child care:

Antenatal and postnatal mothers are mainly concerned about protecting their child. They expect to know about child's growth during pregnancy, post-delivery care and child care.

"I want to know about post delivery, about child care. I had never asked anyone, but now I want to know. I don't know about it, but I want to have more knowledge about health care."

"I have a little confusion on child's health"

"Is my baby growing normally inside my womb, is it having any problems inside. Actually, people say that some babies are born abnormal. To confirm that we will surely go to the doctor, because they say that the child should be like this, you shouldn't be like that, the child will have some problems then, and it won't grow properly inside. So we should know which is a healthy behavior that could allow the baby to grow normally"

2. Barriers to flow of information

a. External

i. Attitudes of health care personnel:

Antenatal and postnatal mothers feel that there is no effective monitoring and supervision by senior officers on the functioning of antenatal services. They complain that some of the health care workers at the grass roots level do not work adequately. The women

also perceived high levels of corruption and malpractices in the system because of which they were not getting the required antenatal services.

"They just say that they will give us lot of incentives, but they don't do it. Even if they get something from Government, they distribute just half of it and keep the rest for themselves. If they have to give us 500 grams of pulses, they give 400 grams and keep the 100 grams for themselves."

b. Internal

i. Education status:

Since many women are not allowed to complete schooling before marriage, they perceive that this lack of education is a major barrier in flow of antenatal information.

"I wanted to do my second year pre-university studies, when I came home for holidays they got me married so I did not get an opportunity to speak to my friends or anyone about pregnancy"

ii. Age at marriage

Since many of the women were married at a young age, they did not have the mental maturity or the time to think about pregnancy in detail before the marriage. So they perceived that young age at marriage is a barrier.

"I was married at a younger age; so I came to know about pregnancy only after marriage"

iii. Family beliefs:

Family beliefs and perceptions were a great barrier in flow of information. Even if the information was provided to the women, the family beliefs and perceptions had a strong influence on what information they took and what they did not.

"I did get red color tablets (Iron and Folic Acid) from the sister to eat during pregnancy. They told me to eat it daily. But during pregnancy my family members used to tell me not to take too much tablets, later they did not allow me to take that tablets at all, so I couldn't consume it"

"Family members did not allow me to have plenty of bananas as they believed that there will no hair growth for the baby. They used to say not to have eggs; the baby will have problems in the head. They've even restricted me from eating drumsticks. They restrict me from drinking tender coconut and papaya"

iv. Distance from health care facility played an important role as a barrier in flow of information. In the areas where the village was far away from the health facility women perceived that since the health facility is far away the workers do not come to the village regularly and hence do not give information.

v. Frequent travel from mother's house to in-law's house. In India, it is customary for women to have their first delivery in the mother's house. So she registers her pregnancy in her in-law's house and then goes away to the mother's house for delivery and then in the post-natal period comes back to the in-law's house. This frequent travel between mother's and in-law's house leads to a major barrier in information flow.

Discussion:

This study has emergedwith a conceptual understanding of the dimensions of expectations and barriersto antenatal information flow.Being the first pregnancy it is customary for pregnant women to turn mainly to their mothers for support (1)and denying care at maternal residence may be a problemA study conducted in Malawi suggested incorporating adolescent issues in childbirth education program as teenage pregnancies was a prominent health problem at Malawi.(3)The study has also importantly classified the barriers as external and internal.It would be very useful if this issue is addressed because the mothers who had antenatal check-up in first trimester were reported to be 68.2% (4) but the mothers who had full antenatal check-up was just 48.7% (4)and mothers who received financial assistance for delivery under the JananiSurakshaYojna (JSY), was only 16.0%(4)in the rural settings of Karnataka.

Previous studies only found that it was difficult to provide complete antenatal education by the educators because of time constraints(6). This study has come out with women's perceived attitudes of health care workers and corruption as a major barrier. Adolescence was also viewed by mothers as a vulnerable period to get into sexual activities leading to teenage pregnancy and abortions. Data from the NFHS 3shows a total 17% of women are pregnant in their teenage in Karnataka(7). This study clearly points out important negative effects of teenage pregnancy apart from direct health impacts. It highlights the fact that early age at marriage and consequent interruption of education leads to poor flow of antenatal information and hence poor preparedness of the young mothers for pregnancy and motherhood.

Antenatal care in Karnataka reported by NFHS 3shows that 79.1% of antenatal care is provided by doctors and this shows that mothers visited private practionersmore than the public health system. Only 9.6% of mothers received antenatal care from ANM/ nurse/ midwife(7). Mothers complained of denial in antenatal care services at their maternal residence as all the maternal services targeted daughter-in-laws of the village. Another important barrier identified for flow of antenatal information was the social custom of travel to mother's house for the first delivery..

On the other hand expectations on antenatal information of the antenatal and postnatal mothers were mainly from their married friends as they felt embarrassed to talk to friends about pregnancy related issues before marriage , same themes were identified in a study which says that women welcomed support and guidance from friends who have given birth to a child lately.(1). Conducting adolescent school and college camps addressing the issues of pregnancy was a need to the mothers as they felt that such classes would prevent girls from falling into practices that would lead into teenage pregnancy and abortions.

Government antenatal services that were formed to improve maternal health may stay unused without providing information of the same. None of the mothers enrolled in this study were enrolled in any of the incentive programs and the main expectations of these mothers were to know about the incentives that the Government was giving them. Postnatal and third trimester mothers were much more anxious about child health and growth. As they had no antenatal house visits by health care personnel to discuss about this issue and they had to consult a private doctor every time for check up.

These identified barriers and expectations of antenatal information can be addressed effectively if proper planning is done. If the expectations and barriers are adequately addressed it would lead to effective antenatal care. The achievement of the Millennium Development Goal 5 would depend on empowered mothers. For empowerment of mothers information is crucial.

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Prevalence and factors associated with musculoskeletal disorders among long distance government bus drivers.

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Abstract

Introduction: Majority of people in India depend on public transit system for their transportation. Every year state transport corporations are introducing more number of buses to meet the increasing demand of the public. **Objectives**:To assess the prevalence and factors associated with Musculoskeletal Disorders (MSD) among government bus drivers. **Methods**: A cross sectional descriptive study was done among 158 permanent long distance bus drivers in Kerala State Road Transport Corporation (KSRTC) Central Depot at Trivandrum. A pre-tested structured questionnaire was used to interview the participants. **Results**: Over all prevalence of MSD in this study was 68.4%. A statistically significant association was shown between cabin ergonomics, job designs, work experiences&other physical ailments with various MSD. **Conclusions**: This study clearly points out the necessity to regulate the cabin ergonomics and shift & rest breaks of KSRTC drivers. A periodic physical examination should be done to prevent the MSD and to treat existing MSD.

Key Words: Musculo-skeleton disorders, bus drivers, Prevalance

Introduction

Musculoskeletal disorders among transit drivers are one of the major public health issues which are not given much attention in India. And few research studies had come out with transit driver's physical ailments in Indian scenario. Continuous duty without adequate rest & breaks and ergonomic factors leads to the development musculoskeletal ailments among transit drivers.(1) According to World Health Organization,17% of world's total occupational non-fatal injuries and 45% of world's total deaths due to occupational injurieswere occurred each year in India.(2)

The term musculoskeletal disorder (MSD) denotes health problems of the loco-motor apparatus, i.e. of muscles, tendons, the skeleton, cartilage, ligaments and nerves. (3)Occupational diseases and injuries are public health problems which not only affects the worker but also the family &other members of the society.(4)When a worker is disabled from work, the family is impacted by loss of income household services and a fully functioning family member.(4) Hence the workers who are at risk should be identified earlier and the measures to prevent and control the disease should be applied in the workplace and thereby save the public.(4)

It was established through many studies that stressors like poor cabin ergonomics, job design and organizational issues can cause physiological as well as psychological illnesses in transit drivers.(5) A cross sectional study conducted in Israel shows a prevalence rate of 45.4% low back pain from the total cohort of 165 bus drivers. Psychosocial stress factors also can contribute MSD.(1) An odds ratio of 1.6 is calculated in an association between limited rest period during working day and low back pain (LBP) in a study conducted in Israel.(1)Due to the prolonged sitting position and lack of rest breaks chance of getting neck pain (NP), shoulder pain (SP) and knee joint pain (KJP) is more.(6) A study shows 35-60% risk of getting neck, shoulder and knee pain. (7) Ergonomic factors like uncomfortable seat and improper alignment of steering wheel, seat and pedal can also leads to musculoskeletal problems.(1)

The objective of this study was to assess the prevalence and factors associated with MSD among professional bus drivers.

Methodology:

Study design and study setting: A descriptive cross sectional study was carried out among long distance government bus drivers in Central depot at Trivandrum, Kerala.

Eligibility criteria: The study populations were permanentgovernment bus drivers with minimum one year experience in driving long distance buses in Kerala State Road Transport Corporation (KSRTC).

Method of selection and sample size: Approval to conduct the study was obtained from Chairman Managing Director, KSRTC, Trivandrum. The samples were selected from the permanent drivers list issued by the office. Totally 185 drivers were there in the list. The list includes the names of retired staffs, transferred staffs and of those who are not working

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currently, so out of 160 currently working drivers, 158 were willing to participate. Therefore 158 questionnaires were administered.

Informed consent document was signed by participants prior to the interview and assurance was given that personal details will be kept confidential. Questionnaire was developed on the basis of study objectives and with the help of ergonomic hazard assessment tool.(8)The questionnaires were self-explanatory and comprises of questions regarding general information, morbidity, job design and cabin ergonomics. The respondents took nearly 15 to 20 minutes to complete the questionnaire.

The Institutional Review Board of School of Public Health, SRM University approved the protocol by expedited review.

Analysis methods: Data analysis was done by using Statistical Package for Social Sciences (SPSS). Chi-square and Fisher's exact test was used to test association between variables. The test was considered statistically significant if the p value was less than or equal to 0.05 for a 95% confidence interval.

Results:

Characteristics of the study participants:

The data of 158 respondents were analyzed and out of this 25.9% were from the age group of 45-49 years. 75.9% of participants had completed their high school education and 17.1% has completed their higher secondary education. The study showed that 27.8% of respondents have work experience of 10-14 years in KSRTC.

Also 34.8 % of drivers were alcohol users, 27.2 % were smokers and 11.4 % of them used other recreational substances. Total prevalence of substance abuse among participants was 46.8%.

Table 1 shows the other physical illnesses that the respondents had apart from MSD. Most prevalent among other physical illnesses was hemorrhoids which was reported by 9.5%. The next prevalent disorders were hypertension and hypertension which was reported by 8.9% and 8.2% respectively. Prevalence rate of hypercholesterolemia & vision problem was 3.2%, gastrointestinal disorders (GI Disorders) 2.5%, coronary artery disease (CAD) 1.3% and that of lumbar disc herniation was 0.6%.

Table 1:
Prevalence of diseases other than musculoskeletal disorders (n= 158)

DISEASES	PREVALENCE (%)
Hemorrhoids	9.5
Hypertension	8.9
Diabetes mellitus	8.2
Coronary artery disease	1.3
Hypercholesterolemia	3.2
Vision problem	3.2
Lumbar disc herniation	0.6
Gastro intestinal Disorders	2.5

Among the participants 55.1 % of drivers were doing triple duty. About 24% were doing double duty and 19% were doing quadruple duty.About 0.6% of drivers were doing single and quintuple duty. Here single duty means the driver will be doing one duty in a shift. Likewise double, triple, quadruple and quintuple duty means the drivers will be doing two, three, four and five duty in a shift respectively.

Prevalence of musculoskeletal disorders:

Table 2summarizes that 68.4% of long distance government bus drivers have MSD. Most prevalent form of MSD among participants was low back pain which was reported by 34.2% drivers. The next prevalent form of MSD was Knee Joint Pain (KJP) 25.3%, Neck Pain (NP) 24%, shoulder Pain (SP) 21%, above knee lower limb pain (AK-LLP) 11% and below knee lower limb pain (BK-LLP) 8.2%. Back pain (BP) and elbow pain (EP) was reported by 8% of respondents and 7% of participants had interphalangeal pain (IPP) and wrist pain (WP). Least reported pain was ankle pain (AP) 5.1%.

Table 2:
Prevalence of various musculoskeletal disorders

TYPE OF PAIN	PREVALENCE (n=158)
Neck pain	24%
Shoulder pain	21%
Wrist pain	7%
Elbow pain	8%
Interphalangeal pain	7%
Back pain	8%
Low back pain	34.2%
Above knee lower limb pain	11%
Below knee lower limb pain	8.2%
Knee joint pain	25.3%
Ankle pain	5.1%
Prevalence of Musculoskeletal disorders	68.4%

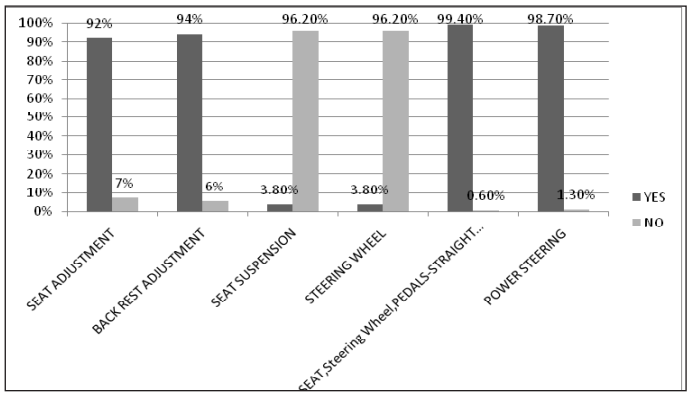
As seen in table 3, about intensity of pain, most of the drivers had complained about moderate type of pain. Regarding treatment seeking behavior about 36% of participants with wrist pain had ayurvedic treatment, 27.3% of participants with IPP had allopathic treatment. And 54.5% of drivers with IPP had self medication.

Table 3:
Prevalence of various musculoskeletal disorders

Types Of Pain	Allopathy (%)	Ayurveda (%)	Homeopathy (%)	Self Medication (%)	No Treatment (%)
Neck	21.1	15.8		13.2	50
Shoulder	20.6	11.8	2.9	11.8	
Elbow	24.1	6.9		3.4	65.5
Wrist	18.2	36.4		18.2	27.3
IPP	27.3	18.2		54.5	
Back	33.3	16.7			50
LBP	18.5	14.8		14.8	51.9
AK-LLP	23.5	23.5		5.9	47.1
BK-LLP	23.1	15.4		23.1	38.5
Knee Joint	12.5	12.5		25	50
Ankle	50	12.5			37.5

Cabin ergonomics: Table 4 shows that more than 90% of drivers are driving buses with seat height adjustment, backrest adjustment and power steering. 99.4% of drivers have confirmed that seat, steering wheel and pedals are in straight line for their buses. 96.2% of drivers are driving buses without seat suspension and steering wheel adjustment. And only Volvo buses have the facility of seat suspension and steering wheel adjustment.

Figure 1:
Cabin ergonomics



Job design: About 72% of participants were satisfied with their shift pattern because after a long shift they get continuous leave for 2 or 3 days. But regarding rest breaks during duty time, about 75% were not satisfied.

Association between variables:

A statistically significant association was found between neck pain and dissatisfaction with shift pattern (odds ratio 2.39, 95% confidence interval 1.10 – 5.15), diabetes mellitus (4.29, 1.34 – 13.69), other physical illnesses (2.79, 1.18 - 6.57); shoulder pain was associated with dissatisfaction with shift pattern (2.58, 1.16 - 5.71), dissatisfaction with rest breaks (2.94, 0.96 - 9.00), seats without height adjustment (4.219, 1.26 - 14.08), seats without back rest angle adjustment (8.62, 2.03 - 37.03), hemorrhoids (5.15, 1.71 - 15.38), DM (5.01, 1.58 - 16.39), hypercholesterolemia (16.39, 1.76 - 142.85); wrist pain was associated with DM (5.12, 1.17 - 22.22). An association was found between interphalangeal pain and DM (8.77, 2.15 - 35.71), hypercholesterolemia (10.63, 1.57 - 71.42); back pain and other physical illness (3.631, 1.063 - 12.401).

A significant association was seen between low back pain and seats without back rest angle adjustment (4.20, 1.0 - 17.54), DM (7.63, 2.0 - 29.41), substance abuse (2.33, 1.17 - 4.62); knee joint pain and seats without back rest angle adjustment (4.06, 1.03 – 15.87); ankle pain&drivers who were not satisfied with shift pattern (4.73, 1.08 - 20.83), DM (8.40, 1.75 - 40), hypercholesterolemia (16.39, 2.28 - 111.11), other physical illnesses (8.75, 1.95 - 39.07). An association was shown with MSD and dissatisfaction

with shift pattern (2.18, 0.95 - 5.0) and more years of work experiences (P= 0.03).

Discussion:

The aim of the study was to assess the prevalence and factors associated with MSD among long distance government bus drivers. It is observed that 68.4% of participants have musculoskeletal ailments.

Drivers with minimum one year experience up to their retirement age i.e. 56 years of age were selected. According to the new amendment, the retirement age of KSRTC drivers have been enhanced to 56 years.(9) Participants who were had pain while driving for the past six months was noted down. Pain due to road traffic accidents and other pre-existing pain due to chronic illnesses were excluded, because study is focused on occupational health disorder.

This study adds evidence to the study conducted in Israeland Iran that cabin ergonomics and MSD are associated. (1)(6)MSD like SP, LBP and KJP shows association with cabin ergonomics.(1) But it was interesting to note that KSRTC is following Kerala Motor Vehicle Rules and power steering was first introduced in the year 2001 and its been completely implemented in all the buses. As per the Central Motor Vehicle (Amendment) Rules, 1989 Rule (98), Sub Rule(5) substituted by G.S.R 3 (e), dated 10-2-2004 states " the power steering shall be fitted in the category N3 multi-axle vehicles on and from 1st May 2004".(10)And also it is not possible to register heavy passenger motor vehicles without power steering.

According to KSRTC norms, shift of a driver starts half an before the departure and ends half an hour after arrival. And one duty is considered as eight hours which includes six and half hours steering duty (driving), half an hour break and one hour for checking the working status of the bus. A study conducted in Kolkata adds confirmatory evidence to the result of this study which shows an association between shift pattern with NP, SP and AP.(11) This study also shows a statistical association with SP and rest breaks with p value 0.035 similar to the result of study conducted in Israeland Kolkata which reveals an association with LBP and inadequate rest period during the working day with p value 0.03.(1;11) It indicates continuous hours of driving without adequate rest breaks can cause MSD.

Apart from cabin ergonomics and job design this study also reveals an association between other physical illnesses like DM, hemorrhoids & hypercholesterolemia and substance abuse. A study which shows a positive correlation between hypercholesterolemia and tendon injuriesadds evidence to the association with hypercholesterolemia.(12)Various studies have come out with the results showing an association between musculoskeletal manifestations and DM and an increase in musculoskeletal pain was found in patients with type 2 DM ina study. (13-15) The increased use of alcohol and smoking were classified as one of the risk factors of low back painadds evidence to the result of this study which shows an association between substance abuse and MSD.(16)

One of the potential limitations of this study was that association between MSD and route taken by the drivers were not enquired during interview. This question was not included because the transit drivers in the study area do not have a permanent bus route either to the plains or mountain terrains. The routes were assigned according to the availability of the staff. Another limitation of this study is episodes of musculoskeletal pain in the past six months were not captured because participants were not certain about the episodes of illness.

As this study was conducted in a particular depot in Kerala, this could not be considered as the current scenario of long distance transit drivers in Kerala state. This study also shows the need for periodic appraisal of MSD among long distance bus drivers to take appropriate measures for their well being. Thus working in favorable conditions facilitates good health and economic success.(17) The results of this study provide baseline data for further similar type of study and also for decision making.

* G.S.R: General Statutory Rules.

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Performance Of Janani Express Yojna In Terms Of Its Coverage And Services In Vidisha Dist. (M.P)

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Abstract

Introduction: Background - In India several measures have been taken to reduce the maternal mortality ratio (MMR) so that Millennium Development Goal 5 (MDG 5) can be met. To reduce MMR in Madhya Pradesh, the Government started a programme called JANANI EXPRESS YOJNA (JEY)for transportation of beneficiaries to nearby health centre free of cost for institutional delivery. **Objectives** - Objective of this study was to assess the performance of JEY,study the profile of the beneficiaries and perception of the stakeholder namely mothers delivered in last 2 year, district level officer, ANM, and drivers of vehicles. **Method** - List of beneficiaries delivered in a health facility was obtained from the call centre at the district hospital. Name of mothers delivered at home was obtained from theAuxillary Nurse Midwife(ANM). Qualitative data was obtained by in depth interviews with a sample of mothers who delivered at the institution and at home in the last 1 year.Secondary data was obtained from the call centre of beneficiaries of last 2 year. Logistic regression wasperformed to find the relation between JEY usage andvariousindependent variables such as age of mother, education of mother, andbirth order. **Results** – Institutional delivery in Vidisha district was 42.7% in year 2011-2012.Most of the participants in the survey were of age group of 18-20 years (43%) and have birth order of 2 (45%). Participants had mostly done their education till primary school (47%). Logistic regression showed that there is relation between education of mother, birth order, and age of the beneficiaries and JEY usage.In qualitative analysis it was noted that the call centre was not receiving the call due to which many of the mothers had to deliver at home.

Key words: Janani Express Yojna , institutional delivery, maternal mortality ratio,

Introduction

Maternal Mortality Ratio (MMR) and Infant Mortality Ratio (IMR) of Madhya Pradeshis much higher than the other states of the country1.It is very well known that giving birth in a medical institution under the care and supervision of trained health-care providers promotes child survival and reduces the risk of maternal mortality2.In addition to the skilled attendance, well equipped health institution and hygienic condition is equally important for positive pregnancy outcomes.3To increase the institutional delivery of the state,the government of Madhya Pradesh started a programme called Janani Express Yojna in the year 2005through which there is free transport of the expecting mother and newborn children to the health facility. This benefits the motherand children in emergency and pre and post-delivery periods. Skilled attendance at birth can help to achieve the Millennium development Goal 5, to reduce the maternal mortality ratio by three quarters from 1990 to 2015.

MMR of M.P is 302/100,000live birth which is more than the national average of 212/100,000 live birth.1 Most of the maternal deaths occur due to inability to reach health facility and due to complications. Institutional delivery of M.P was 26% in 2005-20064 now the institutional delivery rate has increased to 86%.5

The government started the JEY to combat the 2nd delay in the three delay model. First delay in seeking care, second delay in reaching to the health facility, third delay in receiving care. This programwas designed to reduce the delay in reaching to the health facility.6

Janani Express Yojna was piloted in 20 blocks of 10 districts with a call centre at Guna district in 2006. In 2010 call centres were established in all districts and JEY was implemented all over the state. JEY was established as public private partnership for the provision of the private vehicles for the transport of beneficiaries to the nearest health facility.The vehicle JananiExpresssis well equippedso that first aid can be givenin case of any emergency, no fare is charged, and the vehicle is available within one hour of receiving the call. Objective of this study was to assess the performance of JEY,study of profile of the beneficiaries and perception of the stakeholder namely mothers delivered in last 2 year, district level officer, ANM, and drivers of vehicles.

Methods – Study design

The study was done using both qualitative and quantitative method. To assess the perception and profile of the stakeholders, a qualitative study was conducted .Convenient sample of mothers who have used the JEY and mothers who did not use JEY for the delivery were interviewed. To assess the performance of the JEY secondary data was collected from the call centre before and after the implementation of the

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JEY. The study was conducted in the Vidisha District of M.P.

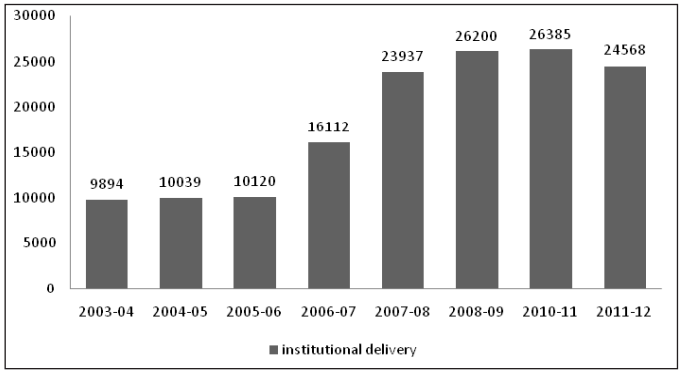
Eligibility criteria and method of selection

Mothers who delivered in last two years were selected for the in depth interview- 50 mothers who used JEYand 50 mothers who did not use JEY. The list of mothers who delivered in the institution in the last 2 years was available at thecall centre in the district hospital and list of mothers who did not used JEY or prefer home delivery was available from the Auxillary Nurse Midwife.(ANM) . Table.1 shows the number of stakeholders interviewed.

Table 1 :
Study participant groups

Sl.no.	Target group	Sample covered
1	Mothers who used JEY	50
2	Mothers who did not use JEY	50
3	Health officer	1
4	Service provider	
	ANM	6
	Doctors	6
5	Drivers	3

Figure 1:
Trend Of Institutional Delivery From June 2003-2004 To June 2011-12



Secondary data for the institutional delivery was collected from the Chief Medical and Health Officer's(CMHO) office, Vidisha District. Secondary data was collected for the beneficiaries who used JEY in last 5 years and for the institutional delivery before and after the implementation of the JEY. Primary stakeholders for this study weremothers, service providers, health officer, andJananiExpress driver. Secondary data about the profile of the beneficiaries who used JEY was alsoobtained for the last 2 years. Indepth interview of drivers of thevehicles were also conducted. Chief medical and health officer(CMHO) and doctors were also interviewed toknow about any difficulty in implementation of the programme. ASHA(Accreditated Social Health Activist)/ANM were also interviewed about theawareness and the perception of the people in the village regarding JEY.

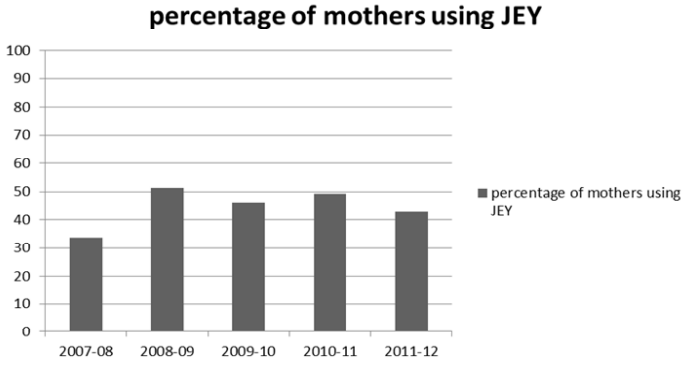
Analysis method- Analysis was done using Statistical Package for Social Sciences (SPSS) version 17. By applying the logistics regression model, relationship between JEY usage and other variables collected was analysed

In the qualitative analysis coding of responses was done the perception of the mothers was analysed in the domains ofperceptions about the JEY, the difficulties they faced while using the JEY, the reasons they prefer home delivery and the reasons they did not use the JEY.

Results

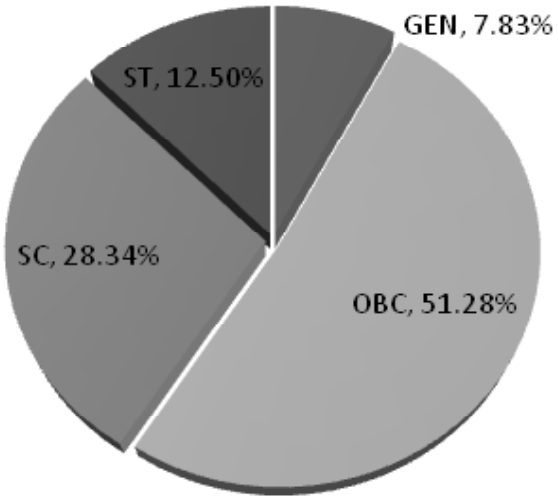
From secondary data collected before and after the start of the JEY it was observed that there is a steep rise in the institutional delivery from 2006-07. Fig 1 shows the pattern of increase in the institutional delivery. Institutional delivery during2005-06 was 10120 which increased to 16112 in 2006-07, further it increase to 23937 in 2007-08 after that it become constant.Fig 2 shows percentage of JEY beneficiaries of total institutional deliveries in 2007-08.Of all those who delivered in the institutions 33.6% of mothers used JEY which increased to 51.3% during the year 2008-09 and again decreased to 43% in 2011-12.

Figure 2:
Percentage Of Mothers Using Jey From 2007-08 To 2011-12



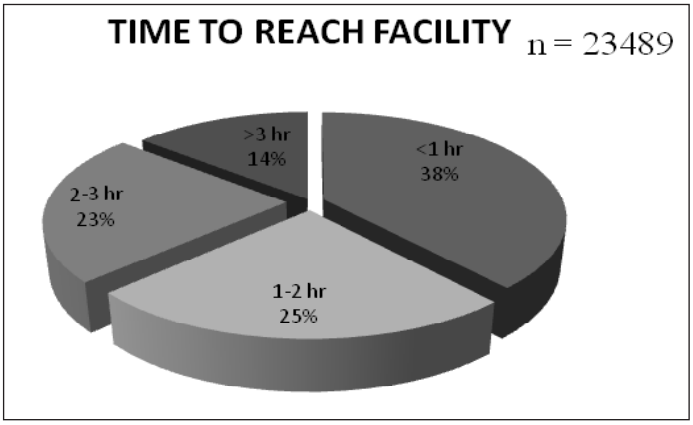
Mothers who delivered using JEY was 23489 from 1/04/2010 to 5/06/2012. Castewise distribution of the JEY usage is shown in fig 3.

Figure 3:
Jey Users,Castewise



Maximum usage of JEY was done by people belonging to Other Backward Communities followed by SC and ST respectively.Out of total SC populationonly 28.34% (78,540) used JEY and out of total ST population only 12.5% (17,649) used JEY over the 2 year period. Time to reach the destination after call is made is shown in the fig. 4.The time taken is within 1hr in, 38.5% of respondents, followed by 1-2 hr and 3-4 hr ,in 23 % and 24.5% respectively.

Figure 4:
Time to reach health facility after call is being made



Result from the primary data.

Table 2 shows usage of JEY with the demographic variables of the mothers.

Table 2:
Relationship between demographic factors and JEY usage

Age the time of marriage	Frequency	Used JEY
15-17	35	65%
18-20	43	42%
21-23	22	32%
Total	100	
Age group of mothers interviewed		
18-20 years	31	74%
21-23 years	42	45%
24-26 years	21	33%
>26	6	17%
Total	100	
Education of mothers		
No education	22	14%
Primary	47	59%
Middle	22	60%
Secondary	9	67%
Total	100	
Birth order		
1	35	74%
2	45	38%
3	17	35%
>3	3	33%

Mothers of age group 18-20 was31 , out of these 74% used JEY. Similarly in the age group of 21-23 years out of 42 mothers 45% , in the age group 24-26 years out of 21 mothers 33%,and in the age group of >26 out of 6 , 17% used JEY.

To find the relation between the characteristics of women and JEY usage logistic regression was performed. Logistic regression Table3 shows that age of the mother at marriage, birth order, and education of the motherwere significantly associated with utilization of JEY. Odds of not using JEY for the mothers having age at marriage of 15-17 is 0.041 times as compare to mothers having age at marriage of 21-23 (O.R=0.041 ,95% CI, 0.006-0.271). Odds of not using JEY for the mothers having age at marriage of 18-20 is 0.182 times as compare to mothers having age at marriage of 21-23 (O.R=0.182 , 95% CI, 0.035-0.945).Odds of not using JEY for mothers having no education are23 times than that mothers having secondary education. (O.R = 23,95% CI, 2.5-220).

Table 3:
logistic regression

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP (B)	
							Lower	Upper
Age at marriage(15-17)	-3.195	.978	10.664	1	.001	.041	.006	.279
Age at marriage(18-20)	-1.704	.841	4.109	1	.043	.182	.035	.945
Birth order(1)	-2.555	1.633	2.447	1	.118	.078	.003	1.908
Birth order(2)	-.264	1.520	.030	1	.862	.768	.039	15.101
Birth order(3)	-.585	1.598	.134	1	.714	.557	.024	12.762
Education of mother(no education)	3.157	1.141	7.649	1	.006	23.491	2.508	220.004
Education of mother(primary)	.700	.956	.536	1	.464	2.014	.309	13.112
Education of mother(middle)	.317	.960	.109	1	.741	1.373	.209	9.016
Constant	1.832	1.839	.993	1	.319	6.247		

Reference : Age at marriage (21-23) Birth order (>3) Education of mother (secondary)
Cox And Snell R square = 0.353 Nagelkerke R Square = 0.470

Result from qualitative data

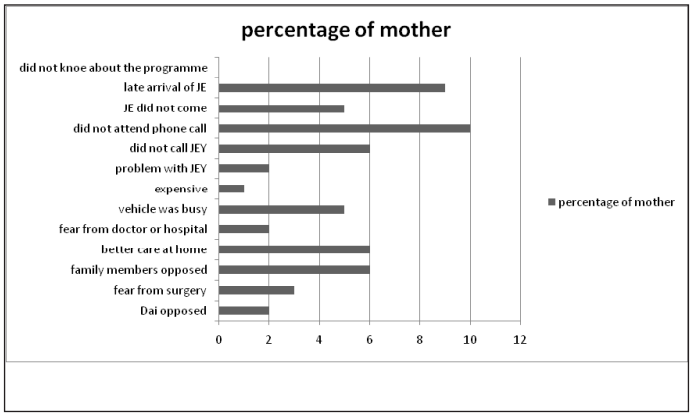
The Chief Medical and Health Officer of Vidisha district mentioned that the confusion regarding whether to include women above the poverty line in the scheme was the main reason for a reduction in the proportion of women utilizing the JEY. In 2011-12 there was a reduction in institutional deliveries because the tender passed for hiring of private vehicles for the JEY was unclear and hence there were less number of vehicles in use.Those partners who had signed on earlier had withdrawn due to increase in petrol prices and no increase in the rent or petrol allowances was given by the government.The withdrawal of vehicles led to decrease in the institutional delivery.

On asking about the delay in reaching the health facility from the driver they gave the reason that condition of the road is very bad which most of the times causes the technical problems and this causes delay. In rainy season this becomes worse. If road is there then it is full of potholes which causes delay in the reaching the health facility and also sometimes causes complications in pregnant mothers.

The reasons why women deliver at home are depicted in Figure 5.

Most of the mothers complained that call centre does not receive the call, followed by late arrival of the vehicle. Reasons given by the mothers who delivered at home are family members opposed the delivery at hospital, better care at home and JEY did not come. Some mothers told that dai opposed it, they feared surgery,and they thought hospital delivery is expensive.

Figure 5:
REASONS FOR HOME DELIVERY



One of the mothers who delivered at home said“Dai ne manakiyatha or gharwalebhichahte the kipehlabachhaghar me ho or hamaresamne ho.”(Daiadviced home delivery and relatives also wanted that 1st child should be delivered at home). Another woman said “hamaregharwalon ne 3-4 baar phone kiyathalekinkisi neyanahiphirhumne gaddikainta zamkarne kikohshsishki tabtakderi hochukithi to gharwalon ne daikobulaliya” (relatives called the call center for the JE but they did not pick up the phone. Then the relatives tried for the private vehicle but it was too late so relatives call tha Dai for delivery.) . One woman said “jab hum ne phone kiya to wahan se bola gayakigadi 30-45 min me pahunchjayegilekingadi 1- 11/2 ghantetaknahiaayi or phirderibhihorahithi to gharwalon ne Dai kobulaliya.”

(from call center they told that vehicle will reach in 30-45 min but it did not arrived even after 1-11/2 hr so it became late and relatives called the Dai for the delivery)." ghar me bacchekiacchidekhbhalhojatihai ,ghar me sab koi rehtehaideknekeliye or gharkochhodkebhinahijanarehtahai or jyada paisa bhinahikharchhotahai"(There are more people and relatives to lookafter the child and no need to leave the house leaving the other child here and is not expensive also)

Discussion.

There is sudden rise in the institutional delivery after 2005-06, followed by further rise in 2006-07 and then institutional delivery rate become constant. In 2011-12 there is little decrease in the institutional delivery. Percentage of mothers using JEY for institutional delivery was also increased in successive year but it decreased in 2009-10 and 2011-12.

Most of the times the JEY vehicle reached the house of the pregnant woman in labor within 1 hour of the call. As most of the maternal death occur due to the postpartum haemorrhage so every hour counts to save the maternal death. So not reaching the health facility at time and home delivery are major causes of the death due to post partum haemorrhage7. This study reveals that in most occasions the JEY serves to bridge this delay in transportation to the health facility for institutional delivery.

Logistic regression was done to analyse the primary data. Results showed that there exist a relation between the JEY usage and the variables age at marriage p=0.004(<0.05), birth order p=0.02(<0.05) and education of the mother p=0.006(<0.05). From the logistic regression table it is clear that β coefficient is negative for the age at marriageand birth order while positive for the education of the mother. This shows that there is negative relation between the JEY usage and the age of the mother and the birth order. As the age at the marriage increases and birth order increases then the JEY usage decreases. The mothers do not give much attention to the later child births. Mothers are not able to attend later child birth because of financial problem and also they have to go for work which keeps them away from their child during work. Another important finding was that as the education of mother increases they preferred institutionaldelivery, as they can understand the complication and the value for their health and child health. More educated mothers have knowledge of the advantage of the institutional delivery as well maternal and child health. Education is related to age of marriage and also to the birth order.

From the qualitative study certain important barriers for institutional delivery were identified. Certain barriers were also identified for the lack of utilization of JEY. One of the common points that emerged was the fact that the call center did not function efficiently and did not respond to the calls when there was a need. There is an immediate need to look at the efficiency of the call center. The perspective of the drivers of the JE revealed that poor road facilities were the cause for the delay in reaching the mother's house. Therefore there is a need to improve general infrastructure alongside such program to make them more effective.

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Health Service Utilization By Paraja Tribes Of Koraput District Of Odisha

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Abstract

Introduction: Odisha's attainment of health goals largely depends upon the health of its 21.1% tribal population and more particularly of Koraput district where more than fifty percent of residents are schedule tribes. This study mainly examines the type of health facility the Paraja tribes are utilizing along with the factors affecting their utilization and the sources of health care financing. **Methodology**: Multistage random sampling method was usedat block, panchayat, village and household levels to obtain the sample size of 201 from 25 villages after thorough mapping. Pilot study was done to validate the questionnaire for the local settings. A simple structured questionnaire was used to collect data from the head of the household. **Result**:Out of 75 respondents who had utilized any type of health facility, most of them were treated at a Government (61.3%) followed by Traditional healers (20%) and Non Registered Practitioners (18.7%). Distance from the PHC inversely affects the preference as well as the place of treatment. Among them who were residing within ten kilometres of PHC, most of them (86%) had used government service for their disease but only 36.8% of them who were residing more than 10 kilometres of PHC had utilised government facility($p < 0.05$). Most of the respondents' source of arrangement for health care expenditure for the last illness was external sources like pawn, loan and selling property. **Conclusion**:This study suggest that proper mapping should be done in order to establish a health setting like PHC, so that distance will not be an obstacle for achievement of the Universal Health Coverage especially in marginalized communities. And also this study suggests the strengthening of social security system by which the poverty cycle can be broken.

Key words: Health care utilization, distance, tribal, Odisha

Introduction

India has a mixed provision of health care services through which she is striving to keep the target of attaining health for all and universal health coverage. Whether or not the service can be reached, the volume of service, the clients' perceptions of the relative worth of services and the acceptability of the service provided, all influences utilization of services. (1) About 21.13% of total population of Odisha and 50.66% of Koraput are Schedule Tribes. (2)Paraja tribes are mostly residing in Koraput district. Most of the disease burden in the state can be directly or indirectly attributed to poverty. Access to local health services by socially and economically marginalised group is thus a major priority (3)A household survey conducted in Udaypur, evidenced that tribal community prefer to go to private doctors for treatment of minor illness instead of government hospitals. (4)According to a study in Rajasthan, 43.9% seek AuxilliaryNurse Midwives, 42.5% private doctors and 22.1% traditional healers for minor ailments. (5)NFHS-3 survey showed that key factors guiding pattern of utilization of health services are reputation of provider, cost and physical accessibility. (6)

Physical access to health facility depends upon several factors such as transportation facility, condition of the road and distance etc. Distance from the government health facility is inversely associated with its utilization. (7, 8) People in the remote areas receive much less health care than comparable people in more accessible areas. (9)A study on children shows that those living at less than 4 kilometre from government facility made 22% less use of that facility than those living 4 kilometre or more away. (10) Distance, household size and total cost of seeking health care affect the utilization of government services. (11)

Selling house hold assets or pawning is very common among the low socio economic status households. A study on forty low and middle income countries shows that 25.9% of households borrow money or sold items to pay for health care. (12)

There are few study have been done specifically on Paraja tribes taking into consideration the utilization of different health services/facility. This study has assessed the pattern of utilization of health services, factors affecting the utilization and tries to point out different sources of financial arrangement to cope with the health care expenditure.

Methods and Materials

This crossectional house hold survey included the head of the household who was above 18 years old as the respondent. In the absence of the head, his/her wife or any person more than 18 years was taken as the respondent. The study area was

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Koraput district of Odisha. Koraput consists of 14 blocks. Blocks having Paraja tribes were selected. A multistage random sampling technique was adopted throughout, starting from the selection of block to the final sampling unit as household. According to the report on utilization of health services by Palestyne refugees by United Medical Group, 72% of them were using a particular clinic rather than others, the reason being the cost consideration (13). Taking 72% as the prevalence with 9% of allowable error and 5% extra sampling, the sample size of 201 was calculated. Among the selected blocks Dasmantapur was selected by simple random sampling. This block consists of 16 Gram Panchayats. From the list of Gram Panchayats five were selected by simple random sampling namely Dumbaguda, Murkar, Dasmantapur, Lulla and Pindapadar. From the selected Gram Panchayats villages/hamlets were listed out and only those villages were taken into count where at least 12-15 Paraja households were residing. Again simple random sampling was done and 25 villages were selected. From each village eight households were selected by systematic random sampling. Only 192 household interviews were collected bearing a response rate of 95%.

Before the data collection mapping of the selected Gram Panchayats was done. Data was collected by using a survey questionnaire specifically designed to attain the objectives of the study. Local NGO field workers helped in collecting data because of the language convenience. They were trained for one day regarding the content of the questionnaire. A pilot study was done for first two days covering 21 households and necessary changes were made to the questionnaire. The questionnaire had four sections such as socio demographic profile, morbidity cum service utilization, service satisfaction and expenditure coping questionnaire. In the morbidity cum service utilization section the last illness of the last three month was used for further analysis along with whether sought treatment or not, the type of health service sought(Government, Non Registered Practitioner, Traditional healer), reason for availing service with that provider and belief in traditional healers. In the expenditure coping section questions were asked only for the last illness. Non Registered Practitioner (NRP) includes any medical practitioner including the medical shop who is not registered under any system of medicine. The section on expenditure coping mechanism deals with the source of arrangement of money for the last illness within the household.

Data was cleaned and analysed using SPSS. Analysis was done to show the statistical association between different variables. Sampled households were divided into two groups such as those who are residing less than or equal to 10 km and more than 10 km from the Primary Health Centre (PHC) for analysis purpose.

After explaining details of the study informed verbal and written consent were obtained. Full confidentiality was maintained regarding the identity of the respondent during analysis and were briefed that their participation is voluntary. Institutional Review Board approval was obtained from the School of Public Health, SRM University. After collection of data a meeting was conducted where ANM, AWW etc were present and some of the perceived issues were discussed in order to enhance their capacity.

Results

The socioeconomic and demographic profile of the sampled population is shown in Table-1.

Table-1:
Socioeconomic and demographic characteristics of the sample households

Background character of the respondents	Number	Per-centage
Gender		
Male	183	95.3%
Female	9	4.7%
Occupation		
Cultivation on own land	4	2.1%
Cultivation on forest land	17	8.9%
Work for daily wages	14	7.3%
Cultivation on own land and works for daily wages	2t3	12.0%
Cultivation on forest land and works for daily wages	126	65.6%
Peon	1	.5%
Did not work	7	3.6%
Education		
Literate	15	7.8%
Illiterate	177	92.2%
Socioeconomic status		
APL	11	5.7%
BPL	181	94.3%

cultivate on their own land. More than 92% of them were illiterate. 92.3% households were below poverty line. About half of the sampled households (50.5%) were residing less than ten kilometres from the PHC and rest half were more than ten kilometres from the PHC. More than 53% households were

having at least one person who suffered from any disease within last three month. Fever was the most reported illness (44.1%) followed by skin diseases (15.7%), diarrhoea (14.7%), backache (5.9%), gastro intestinal disorders (5.9%) etc. Only the most recent episode of illness was taken into account for the analysis. Among those who were ill only 75 (73.5%) had sought any type of health service. Among those who had not sought any type of health services, 74% told financial constraint as the cause of not seeking any services"Not so severe" (48.1%) and "will be cured on its own" (18.5%) were other causes of not seeking any health services. Long distance (79.3%) and expensive (68.9%) were the cause of not using the government service. Among those who were treated at government facility most of them (73.9%) reported "effectiveness" as the cause, why they went there. Similarly most of the respondents (85.7%) who avail the service at NRP reported "can adjust medicine within the money" as the reason.

To a specific question, 49% respondents answered that Government is their first preferred place of treatment followed by NRP (29.7%) and Traditional Healer (21.4%) as shown in Table-2.

Table-2:
Association between the distance of the village from PHC and first preferred place of treatment.

			Preferred place of treatment			Total
			GOVT.	NRP	TH	
Distance of the village from PHC	Less than equals to 10 k.m	Count	67	14	16	97
		% within Distance of the village from PHC	69.1%	14.4%	16.5%	100%
		% within First preferred place of treatment	71.3%	24.6%	39.0%	50.5%
	More than 10 k.m	Count	27	43	25	95
		% within Distance of the village from PHC	28.4%	45.3%	26.3%	100%
		% within First preferred place of treatment	28.7%	75.4%	61.0%	49.5%
		Count	94	57	41	192
		% within Distance of the village from PHC	49.0%	29.7%	21.4%	100%
		% within First preferred place of treatment	100%	100%	100%	100%

Distance of the village from PHC had significant association with first preferred place of treatment at a significance level of <0.05. Most of respondents (69%) who were residing within ten kilometres of PHC, their first preferred place of treatment was government but only 28.4% of respondents who were residing more than ten kilometres from PHC, reported government as their first preferred place of treatment. On the other hand 39% of the respondents whose first preferred place of treatment is traditional healers, resided within ten kilometres of the PHC but majority (61%) of the respondents whose first preferred place of treatment is traditional healers, reside more than ten kilometres of PHC (Table-2). Out of a total of 75 respondents who had utilized any type of health facility, most of them sought treatment at a Government facility (61.3%) followed by Traditional healers (20%) and Non Registered Practitioners (18.7%) as shown in Table-3.

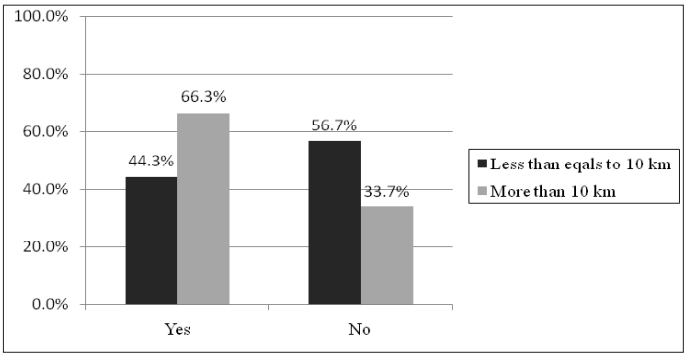
Distance from PHC had significant association with place of treatment (p=.000). Among them who were residing within ten kilometres of PHC, most of them (86%) had used government service for their disease but only 36.8% of them who were residing more than 10 kilometres of PHC had utilised government facility. On the other hand 13.3% of the respondents who had utilised traditional healers are residing within 10 kilometres of PHC but most of them (86.7%) who had utilised traditional healers are residing more than ten kilometres of PHC. Distance from PHC had significant association with whether the respondents believe in

Table-3:
Association between the distance of the village from PHC and first preferred place of treatment.

			Preferred place of treatment			Total
			GOVT.	NRP	TH	
Distance of the village from PHC	Less than equals to 10 k.m	Count	32	3	2	37
		% within Distance of the village from PHC	86.5%	8.1%	5.4%	100%
		% within place of treatment	69.6%	21.4%	13.3%	49.3%
	More than 10 k.m	Count	14	11	13	38
		% within Distance of the village from PHC	36.8%	28.9%	34.2%	100%
		% within place of treatment	30.4%	78.6%	86.7%	50.7%
		Count	46	14	15	75
		% within Distance of the village from PHC	61.3%	18.7%	20.0%	100%
		% within place of treatment	100%	100%	100%	100%

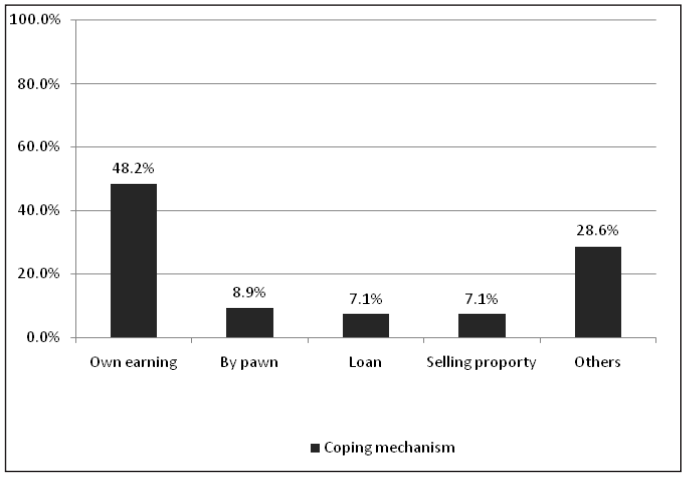
traditional healers or not (p=0.001). Most of the respondents (66.3%) who reported yes, they believe in traditional healers, reside more than 10 km from PHC on the other hand those respondents who responded they do not believe in traditional healers, most of them (56.7%) reside within 10 km of PHC. (Graph-1)

Figure-1
Percentage distribution of distance from village of the household and whether believe in traditional healers or not.



One of the respondents (No 23) told that *"I pawned my three goats for Rs 1000 to treat my son. I have to return the money within one month, otherwise he will sell them". Another respondent (No 182) reported that "I brought Rs 2000 from the Sahukar (Borrower) for the treatment of my wife, instead of which I have to work for one month in his field".* Most of the patients had to pawn, sell property or loan for the treatment. All these not only maintain the poverty cycle but also prevent them from getting their rights. Out of 56 respondents who have spent money for their disease at any type of facility more than 51% of had arranged the money from external sources that is not from their own earning. Around 9% of them have pawned any asset to cope with the expenditure while more than 7% have arranged money by loan or selling property.

Figure-2
Sources of financial arrangement for healthcare expenditure



Discussion

According to WHO Director-General Margaret Chan, universal health coverage "is the single most powerful concept that public health has to offer" (14)The UN

convention on universal health coverage has paved the way to reduce financial impoverishment caused by health spending and increase access to key health services. (15)

Health is not only a function of medical care but also of the overall integrated development of sociocultural, economic, educational and political factors.(16) In this study more than 92% of respondents are illiterate and more than 93% are BPL. Government/private sector should put emphasis on these people by understanding the ground realty for the attainment of good standards of living for all.

This study shows that 49% of the respondents prefer government facility as their first place of treatment while in the previous study 43.9% preferred government facilityand percentage of respondents whose first preference is Traditional Healers is almost same in both the study.(5)This study shows that 69% of the respondents who were staying close to PHC their first preferred place of treatment was Government while 61% of the respondents whose first preferred place of treatment is Traditional Healers stay away from the PHC. It corroborates with the previous NFHS-3survey, which gives evidence that, physical accessibility for the health service affects the preference of the type of facility a person is going to avail. From this study results it is clearly evident that distance from the health facility affects whether a person prefers to avail the Government service or other services.Among those who had gone for treatment, more than 38% do not utilise Government facility. A study on Odisha tribes reported only 7.3% of respondents not utilizing government facility because of the distance. (17) Butthis study in contrast shows more than 79% of respondents had not utilized government facility due to distance factor.Among the respondents who have utilised Traditional healers for their ailments (86.7%), they are residing more than 10 km from PHC. It clearly indicates that accessibility is a grievous issue for these people. Belief on Traditional Healers is also affected by the distance from the PHC.

The study by R Noorali et al suggests that distance is not the primary factor for the utilization of government services for children. This study also clarifies that as the distance from a private facility increased to 5 km or more, the use of the government facility was twice than that of the private facility. This study suggests that more closure a private facility is to the people lesser the use of government facility for child care. But in contrast the present study is based on the marginalized people where the geography and socioeconomic status is totally different and firmly suggests that closer the government health facility is to the people more the utilization and also preference for the government services.

Accessibility, whether it is financial or physical is an integral part to attain the equity in health. From the above discussion it is clear that, well equipped health infrastructures has to reach more closer to these people in order to impress upon their mind regarding the benefits of the Government health facility. So along with the population, distance should be taken into consideration by relaxing the norm of 20,000 for the establishment of PHC like setting in these areas. Proper GIS mapping should be done not only taking the straight distance but also the travel distance into consideration. Health is not only a function of heath infrastructure but also other factors such as education, poverty alleviation etc. So an integrated effort should be done starting from state government, central government, private bodies and local community etc to achieve the goals.

Travel cost may be a confounder in the preference of the type of health facility. Due to time constraint in the collection of data there might be some quick responses come from the respondents specifically in describing the “reason for” questions.

Conclusion

This study demonstrated that distance from the PHC affects utilization of health services, preference for health services and also belief on Traditional Healers. This study suggests that proper mapping should be done in order to establish a health setting like PHC, where almost all basic facilities are available by considering the previous norm for hilly areas, by which distance will not be obstacle for achievement of the Universal Health Coverage. And also this study suggest of strengthening of social security system by which the poverty cycle can be broken down. Both of these suggestions if implemented effectively then it may expedite the process to reach the future targets.

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Assessment of respiratory morbidity among employees of Fertilizers and Chemicals Travancore Ltd (FACT) at Cochin, Kerala

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Abstract

Introduction: **Background**: Increase in chemical production, handling and transportation of hazardous chemicals across the globe, due to rise in food demand and globalization where large numbers of workers are employed in various working conditions which may cause direct or indirect impact on health status, implicated in the causation of occupational asthma and other related disease. **Method**: A cross-sectional study involving 100 employees of a chemical fertilizer factory to assess their respiratory morbidities, health seeking behavior and to find association between the force vital capacity and years of experience. All completed a questionnaire and pulmonary function test. **Results**: The respiratory morbidity was about 39% with a majority having breathlessness whereas only 35% used some type of preventive measures.Non-managerial sector employees had a 0.30 (95% CI 0.11 - 0.83) times odds of developing respiratory difficulty compared to employees in managerial sector (p = 0.016). Regression analysis between years of exposure to chemical dust and force vital capacity reading has negative linear correlation between years of exposure. Logistic regression analysis shows significant association of gender and use of protective gears with respiratory morbidity. **Conclusion**: Years of exposure to chemical fertilizers in the work place is significantly associated to reduction in vital capacity of lungs with increase in respiratory symptoms. Lack of awareness and negligence among non-managerial sector workers regarding use of preventive measures make them more prone to diseases. Improve use of safety measures within the factory and make workers and employers alert about the hazards caused by their working environments.

Key Words: Respiratory morbidity, occupational health, fertilizer factory

Introduction

The demand for food products has increased due to increasing population which in turn raises the demand for fertilizers in India. India at present holds the fourth position as an exporter of fertilizer in the global market and almost equal to the exporting capacity is the countries demand for it.(1)Theglobal fertilizer demand in the year 2005-2006 had registered a 1.5% growth which increased sharply to 5% in 2006-2007.(1)Manufacturing of chemicals and fertilizers involves a host of intermediates like Ammonia, sulphuric acid,phosphoric acid, Nitric acid etc., and also stores and handles several hazardous chemicals at their site. More than 200 industrial agents which when inhaled into common airwaymay cause occupational asthma and other related diseases.(2)Occupational lung diseases are caused due to exposure to harmful chemicals, particles, vapors and gases at work.These chronic respiratory diseases comprise about 10% of all occupational diseases in industrialized countries and are much higher in rapidly industrializing developing countries.(3)

Major cause of health care burden worldwide is chronic obstructive pulmonary disease (COPD) which is also a leading cause of death in the world. For example, it accounts for a morbidity of 4 per cent in the United States andis the fourth leading cause of death.(4)International reviews suggest that 10% to 15% of adult cases of asthma are attributable to occupational exposure.(3) Any work activity which may expose a worker to a chemical including production and handling, storage, transport, disposal and release of chemicals resulting from work activities, the maintenance, repair and cleaning of equipments and containers for chemical may ultimately lead to various respiratory difficulties because of long time exposure. Fertilizers and Chemicals Travancore Limited (FACT) Cochin, Kerala which is a public sector undertaking was incorporated in the year 1943 and is engaged in the production of two major fertilizers Ammonia and Urea. The employees had a pre-employment examination before employment into the factory and annual health check up at the occupational health center with in the factory is also made mandatory.

There is a prevalence of occupational respiratory diseases varying from about 2 to 22 per cent in men and from 1.2 to 19 per cent in women in different reports.(4)

The objectives of this study was to determine various respiratory morbidities among the employees working in the chemical factory, to explore their health seeking behavior, to understand the association if any, between the force vital capacity and period of chemical exposure.

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Method

A descriptive cross-sectional study was done in one of the five chemical fertilizer producing plants of Fertilizer and Chemicals Travancore Ltd (FACT). Male and female employeesincluding managerial, non-managerial and casual laborers currently working with minimum of five years of experience in the factory were enrolled in the study.A total of 845 employees were working in the factory from which 100 samples were selected using systematic random sampling. The payroll or attendance register was used for this purpose. Each employee was interviewed using a structured questionnaire for respiratory morbidity, health seeking behavior and adherence to safety procedures. Respiratory morbidity was inclusive of the questions to identify the presence or history of signs and symptoms which may lead to various respiratory illness and also details regarding diagnosed respiratory diseases which was caused only after being exposed to working environment. The health seeking behavior included various practices followed by individuals to protect themselves from various diseases and to lead a healthy life.

Chroniccoughwasdefinedascoughwithexpectoration on most days that last for three months of each year. Phlegm was defined as thick, sticky, stringy mucus secreted by the mucous membrane of the respiratory tract, as during respiratory infection. Wheezing is high pitched whistling sound produced during breathing; while inhaling and exhaling, often accompanied by difficulty in breathing and excess production of mucus in the respiratory tract. Dyspnoea was defined as difficult or labored breathing; shortness of breath a) undue shortness of breath when hurrying on level ground b) unable to keep pace with people of own age c) undue shortness of breath when walking at own pace on level ground. Chest congestion is tightened chest and chest pain due to short supply of oxygen and labored breathing.

The lung capacity of the individuals was measured using a spirometer and peak flow meter which measures the forced vital capacity (FVC) and (PEFR). FVC represents the amount of air, in cubic centimeters- the participants exhaled when they used the spirometer. And the Peak Expiratory Flow Rate (PEFR) obtained, using Peak flow meter measures the fastest rate of air, in liters; that can be breathed out in one second.

With a prevalence of 50% of respiratory morbidity and 20% allowable error, the sample size was calculated to be 100. Systematic random sampling method will be used to select the samples within the sample frame.

A database file was created and analyzed using SPSS software. Chi-square test and linear regression analysis were the statistical tests conducted in which a P value < 0.05 was taken as statistical level of significance. A logistic regression analysis was done to assess the factors responsible for respiratory morbidity.

Results

GENERAL CHARACTERISTICS: The study involved 100 employees working in the fertilizer factory of which 73% were males and 27% females. The basic characteristics of study population are shown in Table-1.

Table-1
Background Characteristics

Background	Characteristics	Per centage (%)
Age	21-30	4%
	31-40	9%
	41-50	31%
	51-60	56%
Gender	Male	73%
	Female	27%
Working Sector	1.Managerial	29%
	2.Non-Managerial	71%
Years of working	5-15	13%
	15-25	41%
	25-35	40%
	35-45	66%
Education status	No Primary Schooling	2%
	Primary Schooling	29%
	Higher Secondary	34%
	Vocational/Diploma	16%
	Graduation/PG	19%

Of the employees 56% belonged to 51-60 years of age, 31% were in 41-50 years age, 9% in 31- 40 years and 4% in 21-30 years of age. About 71% of the sample population was from non-managerial and 29% from managerial sector. Years of working experience in the factory varied from 5 to 45 years. Of the employees 41% have been working for 15-25 years, 40% for 25-

35 years, 13% for 5- 15 and 6% have been working for 35-45 years. Of the respondents34% had completed higher secondary, 29% had done primary schooling, 19% of the sample includes thosewho had completed some graduation or post graduation, 16% with diploma/vocational training and 2% with no primary schooling.

Respiratory Morbidity:

Table-2 shows that out of 100 study population 39% were suffering from respiratory difficulty in the last three months of which 23 (59%) were males and 16 (41%) were females.

Table-2
Distribution of respiratory morbidity among employees in the factory

Background		Characteristics	Frequency (n)	Percentage (%)
		Yes	No	Yes
Age				
	21-30		13	2.5%
	31-40	2	5	5.13%
	41-50	15	16	38.5%
	51-60	21	35	53.8%
Gender				
	1.Male	23	50	59%
	2.Female	16	11	41%
Been to Hospital				
	1.Male	16	7	73%
	2.Female	6	10	27%

The age-wise distribution shows higher proportion of 21(53.8%) among age group of 51-60 and 15(38.5%) among 41-50 aged employees.

Table-3 is a multiple response table, gives the percentage distribution of various clinical manifestations among the employees. Among the respondents 71.7% had breathlessness, 61.5% had cough, 53.8% chest congestion, 48.7% phlegm, 28.2% wheezing and others including pneumonia, sore throat and allergy were present in 12.8%.

Out of this 39 who had respiratory difficulty 22(56.4%) employees had been to hospital of which 16(73%) were males and 6(27%) were females.

Pulmonary Function Assessment:

The force vital capacity (FVC) and peak expiratory flow rate (PEFR) values were normally distributed. The mean of FVC reading for males was 3027.40ml and female was 1751.85ml. The mean of PEFR reading for males was 428.63L/sec and for females was 305.93L/sec.

Table-3
Distribution of respiratory morbidity among employees in the factory

Signs	Frequency (n=39)	Percentage (%)
Cough	24	61.5%
Phlegm	19	48.7%
Dyspnoea	28	71.7%
Wheezing	11	28.2%
Chest Congestion	21	53.8%
Others(Pneumonia, sore throat, allergy)	5	12.8%

Health seeking behaviour:

Table-4 gives details on various health seeking behaviors among the employees. In the survey 35% of the study population used some type of preventive measures while working inside the factory of which use of dust mask accounts to 14(40%) and use of other protective clothes was 21(60%). Of the study population 33% had healthy practices and all were males. 8(24%) practiced yoga or meditation and 25(76%) had regular physical activities. Of the 33% who had regular health check up 31(93.9%) were males and 2(6.1%) were females.

Non-managerial sector employees had a 0.30 (95% CI 0.11 - 0.83) times odds of developing respiratory difficulty compared to employees in managerial sector ($p = 0.016$).

Simple linear regression analysis was done between years of exposure to chemical dust (independent variable) and force vital capacity reading (dependent variable). It showed a negative linear correlation between years of exposure and FVC both in males and females.

A logistic regression was run for presence of respiratory morbidity as dependent variable (yes=0, no=1) and predictors (independent variable) gender, smoking habit, use of preventive measures, and age entered as discrete variables. The findings of the logistic regression are shown in Table-5.

Table-4
Percentage distribution for
Health seeking behaviour

Health seeking behaviour	Frequency (n)	Percentage (%)
Used any preventive measures	35	35%
Used dust mask	14	40%
Used other protective clothe	15	60%
Healthy practices	33	33%
Yoga/meditation	8	24%
Physical activities	25	76%
Regular health check up	33	33%
Male	31	94%
Female	2	6%

Table-5
Logistic regression

		95% CI for Exp (B)		
Factors	Exp (B)	Lower	Upper	p-value
Gender (1-male; 2-female)	5.397	1.801	16.170	0.003
Smoking habit (1-Non-smoker; 2-Smoker)	1.632	0.564	4.721	0.366
Protective gears (1-no; 2-yes)	0.326	0.124	0.855	0.023
Age	0.933	0.705	1.236	0.630

The significance value for gender is 0.003 and for protective gears is 0.023 which is less than the p-value 0.05, hence gender and use of preventive measures shows significant association with presence of respiratory morbidity even after adjusting with age and smoking habit. Females have 5.397 (95% CI 1.801 - 16.170) higher odds of contracting respiratory diseases, when compared to males. Those used protective gears have 0.326 (95% CI 0.124 - 0.855) less odds of respiratory difficulty when compared to those who do not use. The Cox&snell R square value is 0.119 and NagelkerkeRsquare is 0.162.

Discussion

Most of the studies have previously attempted to evaluate the effect of cement dust, tobacco smoke and fertilizer exposure, concentrating on occupational asthma, bronchial asthma and Chronic Obstructive Pulmonary Disease. Collective effort describing the general effects of chemical dust on pulmonary function in human is very few or not published much. The study observations shows that 39% of the sample had respiratory difficulty in the past three months and the number would be higher if data was collected since the time they started working in the factory. Most of them have been working in non-managerial sector for 25 years or more and have more exposure to chemicals. Of the employees suffering from respiratory difficulties 54% is within the age group of 51-60. About 71.7% had dyspnoea or undue shortness of breath when walking at own pace on level ground. They exhibited the signs both when they were inside the factory and even at home after the day's work. Studies have shown that bronchial asthma, chronic bronchitis was significantly higher among those exposed to high cumulative ammonia levels.

Of the force vital capacity readings of male workers was positively skewed as most workers had low FVC reading. Thismay be because of obstruction / reduction in lung capacity due to long time exposure to chemical dust. For females the graph of FVC was negatively skewed. Most females had low PEFR which may be due to restriction in the airways.A study by, Meo, et al., demonstrated that, lung function indices FVC and FEV1 decreased in cement mill workers and these parameters were further decreased with increased duration of exposure.(5)

Even though the factory provided many facilities like regular check up, medicated mask etc, these were not utilized completely especially by the non-managerial sector workers. Non-managerial sector employees had a 0.30 (95% CI 0.11 - 0.83) times odds of developing respiratory difficulty compared to employees in managerial sector (p = 0.016). Most of the employees did not use the dust mask provided due to either negligence or discomfort wearing it. Only 35% of the study population used some preventive measure to avoid inhalation of chemical dust. Those who had some healthy practices like yoga, meditation or physical activities were only males. Even after the company has made yearly health check up mandatory for all employees66% of the population had no health check up for past 3-4 years.

Regression analysis between years of exposure to chemical dust (independent variable) and force vital capacity reading (dependent variable) gives negative linear correlation for both males and females. The force vital capacityfor both males and females reduces as the years of exposure increases. An exposure of 25 years to chemical dust can reduce the force vital capacity of employees to 2989ml among males and among females to 1696ml.In a study by Gomzi et al.

demonstrated that, the lung function indices FVC and FEV1 in cementmill workers were negatively related with duration of exposure.(6)

In logistic regression, gender and use of preventive measures is significantly associated with presence of respiratory morbidity even after adjusting with age and smoking habit. When compared to males, female have 5.397 higher odds of contracting respiratory diseases. And those used protective gears have 0.326 less odds of respiratory difficulty when compared to those who do not use.

The study collectively describes the general effects of chemicals and fertilizers on pulmonary function in human. This study has shown that long term exposure to chemical and fertilizer dust can cause respiratory symptoms, bronchial asthma and shortness of breath. Regular work environment monitoring and follow up, compulsory use of dust mask during work of exposed especially non-managerial workers would be desirable.

Limitations: Security reasons restricted from getting the list of employees many a times and also accessing the employees for interview consumed lot of time as had to wait for them to get over their works. Respondents were unable to remember with accuracy regarding the symptoms and its duration which have resulted in recall bias. Some of the respondents had not done the pulmonary function tests with complete accuracy resulting in difference of interpretation of the actual function status and assessments.

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A study on Knowledge, Attitude and Practices on Dinacharya based on Naturopathy, Ayurveda and Siddha streams of medicine

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Abstract

Introduction: The Indian systems of Medicine viz Naturopathy, Ayurveda and Siddha have given a greater emphasis on the prevention of diseases and have proposed preventive measures which are incorporated into the daily activities so that they will be practiced for lifetime. These practices are collectively mentioned as Dinacharya. The objective of the study is to find the knowledge, attitude and practice of 10 regimens inDinacharya.A population based- cross sectional descriptive study was conducted in Chennai and data on the 10 lifestyle factors were collected from 297 individuals using a piloted, structured questionnaire. Multistage non-replacementrandom sampling technique was applied in the survey. The prevalence of the lifestyle practices were as follows getting up early in the morning - 57.7%(±5.60) , prayer - 52.7%(±5.66) , brushing with bitter / astringent19.1(±4.46)% , water intake after brushing65.4(±5.40)% , Gargling31.9(±5.29)% , Oil application/ Oleation and massage27.2(±5.05) %, coldwater bath51(±5.65) %, betel chewing 1.3(±1.28) %, fasting 15.8(±4.14)% and avoidance of stimulants such as coffee and tea - 11.1(±3.57)% and avoidance of stimulants such as cigarette, pan and alcohol81.5(±4.41)%. The main source of Knowledge for these lifestyle practices were Family (90.10%). The common obstacle for following these practices was the lack of time (60.80%).

Key words: Dinacharya, Praatharutharna, Praarthana, Danthadhavanam, Ushapaanam, Kavalam, Abyangam, Shitajalasnanam, TamboolaCarvana, Upavaas, KAP. Fasting therapy

Introduction

Lifestyle diseases are those diseases which are associated with the way, the people live and relate with their environment (1). WHO Global status report on Non Communicable diseases 2010states that, four behaviors such as Tobacco use, Physical inactivity, Unhealthy diet and the Harmful use of Alcohol are the main risk factors for non communicable diseases (2).

Naturopathy / Nature cure, Siddha and Ayurveda, the ancient wisdoms of Indian culture has mentioned many health practices as a part of routine life, which can prevent the onset of disease and promote healthy life. These were collectively called as Dinacharya. Of all the practices in Dinacharya, the following 10 selected practices (most of them are proven to be very effective for a healthy life scientifically) were studied.

1. Praatharutharna - Waking up early in the morning (Before 6.00 A.M.) (3-7).
2. Praarthana – Prayer(3;4;6-8).
3. Danthadhavanam- Brushing with bitter/ pungent taste products(3;4;6;9;10).
4. Ushapaanam - Water intake after brushing(3;4;6;7;11).
5. Kavalam – Plain water Gargling(3;4;6;7;11;12).
6. Abyangam - Oleation and massage (3;4;6;7;13;14).
7. Shitajalasnanam-Cold water bath (3;4;6;7; 15;16).
8. TamboolaCarvana- Betel Chewing(3;4;6;15;17).
9. Upavaas - Fasting (3;4;6;7;11;18;19).
10. Avoidance of Stimulants– Any food / agents which stimulates or excites the nervous system has to be avoided(7;11;20-25)

These practices were imbibed to the daily activities of Indians as a culture. One could practice all these things to lead a healthy and disease free life. With the changing era, these lifestyle practices have changed. The objective of the study is to assess the prevalence of these ten lifestylepractices and to find the factors associated with these practices.

Materials and Methods

A population based, cross sectional descriptive study was conducted in Chennai, capital of Tamil Nadu in the month of July 2012.

Study population and sampling technique

The study population was from Chennai city. Multistage sampling technique was followed. Of the 10 zones of Chennai city, Anna Nagar zone having 19 areas was selected by simple random sampling. Based on probability the proportionate to size (PPS) sampling, 5 areas were selected in Anna Nagar. Within

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the areas, the houses were selected by systematic random sampling.

Inclusioncriteria

Respondentswere adults of age18 and above. One member from each generation i.e., son, Father and grandfather were interviewed.

Sample size

A sample size of 294 was calculated, assuming the prevalence of these lifestyle practices as 50% with 95% confidence interval, precision ±15%, non-response rate of 10% and the inclusion of design effect of 1.5.

Survey Tool

Piloted, translated and structured questionnairein Tamil language was used in the study. The questionnaire was designed to collect the information about the socio-demographics, Knowledge (10), Attitude (5) and practice (10) of the 10 Healthy life practices and about the self perceived health status.

Data entry was done with Epi info (version 3.5.3.) and Data analysis was done with SPSS version 17 and MS excel 2010. The statistical tools used in the study were frequency,descriptive, chi-square and cluster analysis.

Scoring method

Attitude and practicewere assessed using the 5 point Likert scale, a psychometric scale which is the widely used approach, to scale the responses. Scores were given for the knowledge, attitude and practice related questions ranging from 1-5. Then the knowledge scores, attitude scores and practice scores were added for furtheranalysis. No negative scoring was used for knowledge questions.

Results

General characteristics of the study subjects (Table 1)

56% of the respondents were female. Only 46% of the respondents are employed. 26% of the respondents were in the age-group 18-30 years, 58% were in the age-group 31-60% and 16% were 61 and above. Of all the respondents 48.4% were diploma and degree holders and only 3.7% of people didn't have formal education.

Table 2 shows the prevalence of the ten lifestyle practices with 95% confidence intervals.

Table 1
General Characteristics of Study population

S.No	General Characteristics of the study subjects	Percentage
1	Sex	
	Male	44%
	Female	56%
2	Working status	
	Employed	46%
	Unemployed	54%
3	Age Group	
	18-30	26%
	31-60	58%
	61 & above	16%
4.	Educational Status	
	No formal education	3.7 %
	Primary School	6.7%
	Middle School	13.8%
	High School	27.5%
	Diploma and Degree	48.4%

Figure 1
Frequency Distribution of Total Knowledge score.

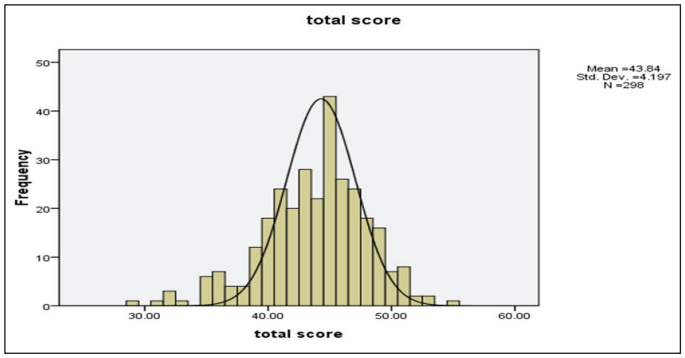
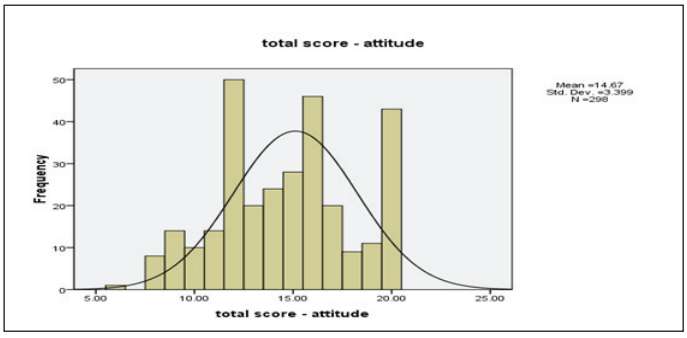


Figure 2-
Frequency Distribution of total attitude score



KAP Results

The overall knowledge had a mean of 43.84±4.197 (Figure-1) and the overall attitude had a mean of 14.67±3.399 (Figure-2).

Family (90.10%) was the main source of knowledge for these lifestyle practices. Community (22.8%) and

Media (22.8%)also served as the source of knowledge (Figure - 3).

Lack of time(60.80%) was the common obstacle for the practice of the ten lifestyle practices (Figure-4).

Tests for association and relations between demographic variables and KAP

Praathar uthana - Getting up early in the morning

Age is correlated with the Knowledge of getting up early in the morning, but not with attitude and practice scores.

Linear regression tests done with the age and knowledge scores suggested that with every decrease of 1 year of age, the knowledge score of getting up early in the morning decreases by 0.004 unit (P<0.05).

Males have more practice scores than females (Mean difference – 0.33 ± 0.15).

Educational status is not correlated with Knowledge, attitude and practice scores.

Figure 3 -

Source of Knowledge (n=298) (total percentage may exceed 100% as it involves multiple answers)

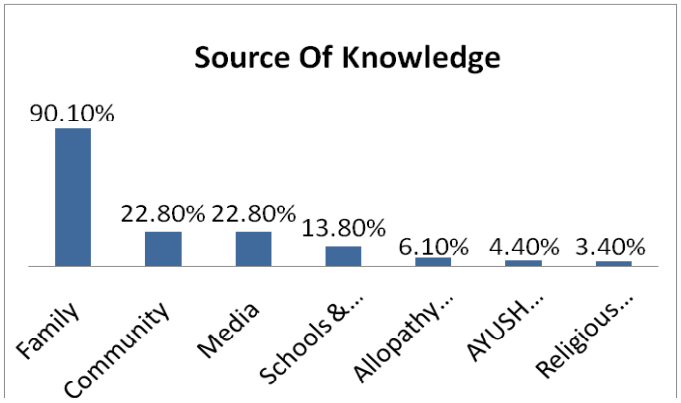


Figure 4

Obstacles for Practice (n=298) (total percentage may exceed 100% as it involves multiple answers)

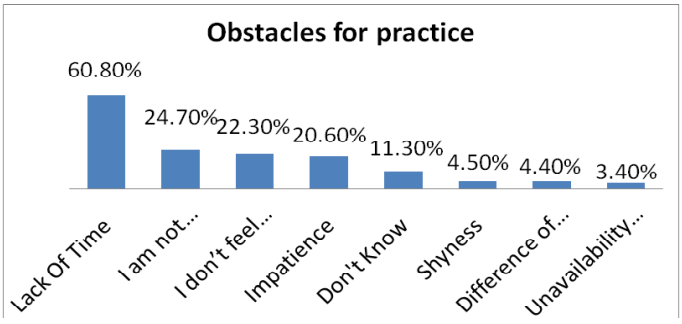


Table 2-
Prevalence of the Lifestyle practices

S.No	Lifestyle	Prevalence of Always practicing, σ at 95% CI (n=298)
1	Waking up early in the morning	57.7(±5.60)
2	Prayer	52.7(±5.66)
3	Brushing with bitter / pungent taste products	19.1(±4.46)
4	Water intake after brushing	65.4(±5.40)
5	Gargling	31.9(±5.29)
6	Oleation and massage	27.2(±5.05)
7	Cold water bath	51(±5.65)
8	Betel chewing	1.3(±1.28)
9	Fasting	15.8(±4.14)
10.A	Avoidance of stimulants such as coffee, Tea	11.1(±3.57)
10.B	Avoidance of stimulants such as smoking, Pan, Alcohol etc…	81.5(±4.41)

Married people have more practice scores (Mean Difference – 0.54 ±0.22) than the unmarried, but no difference in the knowledge and attitude scores.

Practice score of getting up in the morning is correlated with the Knowledge score and not with the attitude score. With each unit increase in knowledge, the practice score increased by 0.261 unit.

Knowledge, attitude and practice of Praathar uthana were not correlated with Perceived health status.

Praarthana- prayer

Age is correlated with practice of Praarthana but not with knowledge and attitude scores.

Gender, Educational status and Employment status has no association with the Knowledge, attitude and practice of Praarthana.

Married people have more practice scores of prayer than the unmarried (Mean Difference – 0.66±0.25). No difference in attitude and knowledge scores.

Dhantadhavanam – Brushing with bitter / astringent taste

No significant association between the demographic variables and the knowledge, attitude and practice of Dhantadhavanam.

Practice of Dhantadhvanam is associated with Knowledge and attitude scores of Dhantadhavanam. With each unit increase in knowledge, the practice

score increased by 0.163 unit. With each unit increase in attitude, the practice score increased by 0.35 unit.

Ushapanam

No significant association between the demographic variables and the knowledge, attitude and practice of Ushapanam.

Practice of Ushapanam is correlated with knowledge and attitude scores (P<0.05). Attitude is correlated with knowledge (P<0.05).

Knowledge, attitude and practice scores of Ushapanam were not correlated with the Perceived health status.

Kavalam

No significant association between the demographic variables and the knowledge, attitude and practice of Kavalam.

Practice of kavalam is correlated with knowledge and attitude scores (P<0.05). Attitude is not correlated with knowledge.

Knowledgeof Kavalamwas correlated with the Perceived health status (P<0.05), but not the attitude and practice scores.

Abhyangam

No significant association between the demographic variables and the knowledge, attitude and practice of Abhyangam.

Practice of Abhyangam is correlated with knowledge score (P<0.05) but not with the attitude score. Attitude is correlated with knowledge of Abhyangam (P<0.05).

Linear regression analysis, suggests that, Perceived health status increases by 0.20 and 0.12 units with each unit increase in Knowledge and Practice Scores respectively (p<0.05).

Shitajalasnanam – Cold water Bath

No significant association between the demographic variables and the knowledge, attitude and practice of Shitajalasnanamexcept gender.

Males had higher knowledge (Mean difference - 0.35±0.14, P<0.05) and practice (Mean difference - 0.69±0.17, P<0.05) scores of Shitajalasnanam than females.

Practice of cold water bath is correlated with knowledge score (P<0.05) but not with the attitude score. Attitude is correlated with knowledge of cold water bath (P<0.05).

Knowledge, attitude and practice scores of Shitajalasnanamwere not correlated with the Perceived health status

Tamboolacarvana- Betel Chewing

Age is correlated with knowledge of Tamboola cavana(P<0.05) but not with practice and attitude scores.From the results of One Anova test, People in age group below 30years have less knowledge scores than people in age group 31-60 years (Mean Difference 0.40, 95% CI – 0.06 - 0.73, P<0.05) and age group61 and above (Mean Difference 0.64, 95% CI – 0.18 – 1.08, P<0.05)

No significant association between other demographic variables and the knowledge, attitude and practice of Tamboolacarvana.

Upavaas- Fasting

Age is correlated with the Knowledge score of Upavaasnot with attitude and practice scores. The results of Linear regression analysis, with each unit increase in age, the knowledge score of Upavaasincrease by 0.018 unit (P<0.05).

Females have more knowledge of Upavaas than males (Mean difference – 0.34, 95% CI – 0.013 – 0.66, P<0.05).

The results from linear regression analysis inferred that, with each unit increase in knowledge score by the practice score of Upavaas, the practice score increased by 0.473 units.

Avoidance of Stimulants such as coffee and tea

Males have more knowledge scores than females (Mean Difference – 0.357, 95% CI- 0.029-0.685 P<0.05).

From the linear regression analysis results it was inferred that the perceived health status was increased by 0.078 unit with each unit increase in knowledge score (P<0.05).

Employed people have more total practice score than the counterpart (Mean Difference – 2.286- 95% CI- 0.22 – 2.93, p<0.05).

People in age group 18-30 have less perceived health score than people in age group 31-60(Mean Difference 0.54, 95% CI- 0.3-0.79, p<0.05) and people in age group 61 and above (Mean Difference o.54, 95% CI – 0.20 – 0.8,7p<0.05).

People in age group 61 and above has higher total KAP score than people in age group 18-30 (Mean Difference 4, 95% CI- 0.64- 7.37, p<0.05).

Linear regression analysis results inferred that with each unit increase in practice score, the perceived health status decreases by 0.036 units (p<0.05). This result has to read with caution.

Cluster analysis Results

Cluster analysis was performed based on the total Knowledge, Attitude and practice scores.

Two clusters- cluster 1 and cluster 2 were formed with the cluster analysis where cluster 1 represents people with Good KAP scores and cluster 2 represents people with poor KAP scores. Chi-Square analysis of clusters and the knowledge, attitude and practice scores showed the associations of KAP with clusters(Table 3).

Table 3-
Chi-Square analysis of KAP scores with clusters (n=298)

Scores	Character-istics	Cluster 1 – Poor KAP	Cluster 2 – Good KAP	P-Value
Knowledge score	Poor / No Knowledge	73.2%	28.2%	<0.05
	Good Knowledge	26.8%	71.8%	
Attitude score	Negative Attitude	79.2%	15.4%	<0.05
	Positive Attitude	20.8%	84.6%	
Practice score	Poor/ No practice	69.1%	30.2%	<0.05
	Good Practice	30.9%	69.8%	

Chi-square analysis of clusters and the demographic variables showed an association between employment status and the cluster (p<0.05).Cluster 2 has more number of employed people than cluster 1(p<0.05).

The chi-square analysis showed a significant associationbetween overall attitude scores with obstacles such as lack of interest, difference of opinion with media and difference of opinion with doctors(p<0.05). The feel of lack of importance has been significantly associated (p<0.05) with overall knowledge, attitude and practice of Dinacharya. The independent samples-t test showed the subjects who have the feel of importance of Dinacharya have higher knowledge and practice scores(p<0.05).

Discussion

To our knowledge this is the first study conducted to find the Knowledge, attitude and practice of 10 routines of Dinacharya in any population. The results have shown many associations between the knowledge, attitude and practice with obstacles of practice, self perceived health status and different demographic variables which can be evaluated on further research.

Family(90.10%) was the main source of knowledge of the lifestyle practices. The ten lifestyle practices were imbibed in the culture and daily life as like a physiological need, so that it will be practiced throughout the life. These practices ran over the generations and with the changes over time have started losing its ground which is evident from the prevalence of these practices.

Although lack of time has been the most common obstacle reported by the study subjects, the other obstacles such as the lack of feel of importance(22.30%) of these routines have been associated with the overall Knowledge, attitude and practice of Dinacharya and the difference of opinion with doctors and media has been significantly associated with the overall attitude score. Addressing this lack of feel of importance may improve the overall knowledge and practice scores as evident from the results of independent sample-t test.

Employment status is the only demographic variable which has been significantly associated with five routines of Dinacharya such as practice of brushing with bitter/astringent taste, cold water bathing, prayer, ushapanam and gargling. Hence it is a key variable in the practice of Dinacharya although there is no association of employment status with the knowledge and attitude components.Association of the employment status and Clusters formed (p<0.05) suggests that employment status is the key variable in distinguishing the people with good Knowledge, Attitude and Practice from the rest.

The Self perceived health status has been significantly associated with the overall practice score (chi-square and one way ANOVA test, p<0.05). This suggests that, higher the practice score better is the self-perceived health status.

Although linear regression analysis results inferred that with each unit increase in practice score, the perceived health status decreases by 0.036 units (p<0.05),this result has to read with caution.

This may also be due to the fact that those people who have health problems may be practicing dinacharya more regularly to keep them healthy.

Limitations

The study was a pilot study conducted with a high Relative Precision Error – 15%. The study was conducted in the city of Chennai and so the results of the study can be generalized only to the urban areas. Knowledge, Attitude and practice of the healthy life practices have to be studied extensively for each of the dinacharya to make the clear estimates about their associations with the demographic and other variables, as the sample size is not powered for any difference in means or proportions.

Conclusions

The prevalence of the lifestyle practices were as follows getting up early in the morning - 57.7(±5.60) , prayer - 52.7(±5.66) , brushing with bitter / astringent19.1(±4.46) , water intake after brushing65.4(±5.40) , Gargling31.9(±5.29) , Oleation and massage27.2(±5.05) , coldwater bath 51(±5.65) , betel chewing 1.3(±1.28) , fasting 15.8(±4.14) and avoidance of stimulants such as coffee and tea - 11.1(±3.57) and avoidance of stimulants such as cigarette, pan and alcohol81.5(±4.41). The main source of Knowledge for these lifestyle practices was Family (90.10%). Although the common obstacle for following these practices was the lack of time (60.80%), the other obstacles such as lack of feel of importance of Dinacharya has been associated with the overall knowledge, attitude and practice scores. The self perceived health status is associated with overall practice score

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Knowledge, Attitude and Practice (KAP) of family planning among Muslim rural women of Sunsari district, Nepal. July 2012.

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Abstract

Introduction: **Background**: -.Family planning programmes have been in operation in Nepal for more than 30 years and it is a high priority programme of the Nepal government. **Objectives**: -The objective of study wasto assess the knowledge, attitude towards family planning and practice of family planning in rural Muslim married women of Sunsari district, Nepal. **Methodology**: -A cross-sectional study was done using a semi structured questionnaire. The sample population was 150 and they were selected by multistage, simple random sampling method. **Results**: -The study showed that 98.7% (148) of the respondent had heard about family planning. The couple protection rate was is 64%. Modern methods are more widely known that traditional methods, almost all women knew a modern method. The awareness level about each method of contraception was Female Sterilization 70.7% (106), Male sterilization 70.7% (106), Pill 98.7% (148), IUD 42.7% (64), Injectables 96.7% (145), Implants 40% (60) and Condom 85.5% (128)respectively. With respect to traditional methods 40.7% (61) known rhythm method, 72.7% (109) known withdrawal methodonly 10% (15) had knowledge about the emergency contraceptives.Among the contraceptives practices 34% of women were using injection, 15.3% oral pills, 7.3% female sterilization, 6% IUD and 1.3% condom. The major reasons for non-use of family planning were due to fear of side effects (33.33%), followed by religious belief (50%) and due to pressure from husband (16.66%). **Conclusion**: -The study revealed good knowledge and favorable attitude of Muslim rural women towards Contraceptives. The perception of about ideal number of children ranges from 2 to 4.Though knowledge is high and attitude is positive, there seems to be low use of contraceptives.Early marriage in Muslim community leads to longer reproductive period for women, which is a reason for high fertility. The study concludes thatKnowledge and attitude are alone not enough to promote practice of Use of contraceptives in Muslim community and other factors such as belief and perception need to be explored.

Key Words: Family planning, Unmet need, Married Muslim Women.

Introduction

In Nepal, the ratio of chances of death of women caused by pregnancy or childbirth is 1:32 where asin developed countries it is only 1:1000. At present approximately 40 00-6000 women die because ofpregnancy and child birth (1). In Nepal, out of total pregnancy 40% are set to be high risk pregnancy (2). The main thrust of the National Health Policy, 1991 in relation to National family planning programmeis to expand and sustain adequate quality family planning services to communities through all healthfacilities (3). The familyplanning services are designed to provide a constellation of contraceptivemethods that reduce fertility, enhance maternal and neonatal health, child survival, and contribute tobalance in population growth and socioeconomic development along with quality life (4).

After more than thirty years of family planning program efforts, contraceptive use among married women of reproductive age in Nepal has increased from 26% in 1996 to 44% in 2006. At the same time, fertility has decreased from 4.6 to 3.1 per woman (5). Yet the need for family planning is partly unmet (25%) and some ethnic groups use family planning much more than others. For example, almost three times as many Newars (56%) use family planning as Muslims (17%). Use of family planning among Dalits (41%) and Muslims (17%) is less than the national average (44%) (6).

Theobjectives of the National Family Planning Program include gradually reducing the population growth rate

through the promotion of a small family norm to the population in general and the rural population morespecifically, working toward satisfying the demand for family planning services, providing high-qualityservices, and reducing unmet need. The Government of Nepal initially introduced contraceptive method mainly with theobjective of reducing birth rate but later this was emphasized not only to reduce birthrate but also to reduce infant and child mortality and maternal morbidity and mortality. This is so because when a woman plans births and limits the number of pregnancies bypracticing contraceptive method her chance of risking pregnancy related problemsincluding mortality is also reduced.Contraceptive prevalence rate has risen from 3percent in 1976 to 48 percent by 2006 (7). Total fertility rate showed an unprecedenteddecline of one child per woman in five years (TFR declined

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from 4.1 in 2001 to 3.1 in2006). However, unmet need for contraceptive method still remains at 25 percent whichwhen translated into absolute numbers comes to 1.2 million women. Besides, thenumber of currently married women not using contraceptive method is estimated at 2.6million (7).

Population Features over the Last Five Decades among Muslim Population in Nepal

According to Nepal CBS report 2003, over the last five decades, the total population of Nepal has grown rapidly with inter-census annual growth rate of about 2.1 per cent. Exceptional were the 1961 and 1981 censuses when the population growth showed some deviations. The annual growth rate of the Muslim population in this period shows an exponential growth of 3 per cent in 1961, 5 per cent in 1991 and 3.9 per cent in 2002. With the current growth rate of 2.1 per cent, the total population is projected to double in 33 years whereas the Muslim population, with the current growth rate of 3.9 per cent, is projected to double in 18 years.Nepal is developing country where resources are limited to fulfill its needs. Increasing rapid growth of population is one of the major social problems of Nepal. Nepal population doubled in last 30 years from around 12 million in 1971 to 23 million in 2001. Despite the efforts made by the government and international donor agencies, The FP/MCH situation in Nepal has not improved as desired.

The rationale of this study was to find out the current contraceptive practices in Muslim married rural women of Sunsari district.

Methods:-

Methodology of study:-

The study was a cross-sectional community based descriptive study conducted in the rural area of Sunsari district. The sampling frame consisted of Muslim married women of age group 15-49 years. The Couple Protection Rate of Nepal as per the annual report of 2009-2010 is 47.5%. So at anabsolute precision of 10% the sample size was calculated at 160. The sample selection was done by Multi stage, systematic random sampling. From the Sunsari district 3village development committee (VDC) were selected by systematic random sampling. Each VDCs consist of 9 wards. In the 3 selected VCD, 1 ward from each VDC was selected by simple random sampling. These wereKhanar, Sonapur and Gaisaar. There are 170 household (HH) in Khanar, 320 HH in Sonapur and 180HH from Gaisaar among which 53, 53, and 54 HH were selected by systematic random sampling.

In each of these wards 50 interviews were conducted that is a total of 150 interviews were conducted. The tool used for these interviews was a semi structured questionnaire which included general questions about demographic characteristics and specific questions about knowledge, attitude and practice about the use of contraceptive and family planning.. The interview was conducted by one female community health volunteer (FCHV) and one auxiliary nurse mid-wife (ANM). They were given two days of training about how to conduct the interview session and to collect the data. The questionnaire was pre-tested with 10 Muslim women which helped to field test the tool and also to familiarize FCHV and ANM with the tool.

The statistical analysis was done using Statistical Package for social sciences (SPSS) version 17. Association and co-relation with determinants of the use of contraceptives and family planning was analyzed. The co-relation and Fishers exact test were used for analysis. Also to find the fertility behavior and unwanted fertility, analysis between total number of living children and perception of ideal children was done.

Results:-

A total 150 women of reproductive age group (15-49 years) were interviewed. Current contraceptive practice was 64%. Contraceptive use increased with increasing age of mother, parity and number of living children. The socio-demographic characteristics are shown in Table 1.

Table 1
Percentage distribution of the respondents according to their background characteristics

Age	Median age Percent	28 years Frequency
Education		
Illiterate	43.3	65
Primary school	28	42
Middle school	19.3	29
High school	5.3	8
SLC & above	4	6
occupation		
House wife	90.7	136
Labour	6.0	9
Govt. sector	3.3	5

The mean age of respondent was 28years. 43.3% of women are illiterate, 28% had primary education,

19.3% had middle school and only 5.3% had high school. 90.7% were house wife, 6% were laborers and only 3.3% were government workers.

Table 2 shows the age at marriage of respondents. Among the participants 64% of women were in age group of 15-19 years, 24.7% of women were in age group of below15 years, 8.7% and 2.7% were of 20-24 years and 25-29 years. Of the interviewed women 21.3% had 3, 22% had 2, 18.7% had 1, 17.3% had 5, 12.7% had 4 and 7.9% had more than 6 living children.

Table 2
-Percentage distribution of background characteristics of respondent

		Percentage	frequency
Age at marriage	Below 15 yrs	24.7	37
	15-19 yrs	64.0	96
	20-24 yrs	8.7	13
	25-29 yrs	2.7	4
	No. of children	percentage	frequency (n=150)
No. of living children	1	18.7	28
	2	22	33
	3	21.3	32
	4	12.7	19
	5	17.3	26
	6+	7.9	12

Of the respondent 98.7% had heard about family planning and contraceptives. Table 3 shows the respondents knowledge about family planning methods.Modern methods are more widely known than traditionalmethods, almost all women know a modern method.

The knowledge of specific contraceptive methods were Female Sterilization 70.7% (106), Male sterilization 70.7% (106), Pill 98.7% (148), IUD 42.7% (64), Injectables 96.7% (145), Implants 40% (60) and, Condom 85.5% (128). With respect to traditional methods 40.7% (61) known rhythm method, 72.7% (109) known withdrawal method only 10% (15) had knowledge about the emergency contraceptives.

Table 4 shows the respondent source of information about family planning methods. Among 148 women, who had information about family planning and contraceptives, 89.3% got information from female friend, 56% from husband, 16.7% from Television, 22% from doctor and 6.7% got information from newspaper.

Table 3

Multiple Response of Respondent about the knowledge of Family Planning Methods

Knowledge about contraceptives	Percentage	Frequency (n=150)
Modern method		
Female sterilization	70.7	106
Male sterilization	70.7	106
pill	98.7	148
IUD	42.7	64
Injectables	96.7	145
implants	40	60
condom	85.3	128
Emergency contraceptives	10	15
Traditional method		
Rhythm method	40.7	61
Withdrawal method	72.7	109

Table 4
Respondent knowledge of Information about Family Planning Methods

Source	Percentage	Frequency
Husband	56	84
Female friend	89.3	134
TV	7.3	11
Family planning centre	16.7	25
Doctors	22	33
Newspaper	6.7	10

Table 5shows the respondents knowledge about services available.

Table 5
Multiple Response of Respondent knowledge about services availability

	Percentage	Frequency
Service Available place		
Govt. hos	7.3	11
PHC	4	6
Health post	78	117
Private clinic	79.3	119
Marie stops	9.3	14
Mobile clinics	3.3	5

79.3% of women had knowledge on availability in private clinic, 78% inhealth post, 9.3% in Marie stops clinics,7.3% in government hospitals, 4% in PHCs and 3.3% in mobile clinics.Table 6 shows the respondents

attitude towards family planning methods.

Table 6
Respondent attitude towards family planning method

	Percentage	Frequency
1. Agree about small family happy family		
Yes	7.3	11
No	4	6
2. Ideal no. of children in family		
Total no. of children	percentage	frequency
2	72	108
3	7.3	11
4	20.7	31
Ideal male		
No. of male		
1	72	108
2	28	42
Ideal female		
No. of female		
1	79.3	119
2	20.7	31

Respondent's attitude towards family planning methods and contraceptives was positive. 96.7% of women agreed with the concept of small family. Of the respondents 72% perceived, 2 children as ideal number of children in the family, 20.7% said 4 and 7.3% said 3 children as ideal number in the family.

Of the respondents 34% of women were using injection, 15.3% oral pills, 7.3% female sterilization, 6% IUD and 1.3% condom. The major reasons for non-use of family planning were due to fear of side effects (33.33%), followed by religious belief (50%) and due to pressure from husband (16.66%).

Table 7 shows about the fertility behavior and preferences of respondents.

The table represents the total living children, perceived ideal number of children and thus the number of living children exceeding the reported ideal number of children. This excess can viewed as the unwanted fertility. The findings of study shows 38 respondents had living children more than 5, 33 had 2 living children, 32 had 3 living children and 19 had 4 living children. And 108 respondents reported 2 as ideal number of children, 31 reported 4 as ideal number of children and 11 respondent reported 3 as ideal number of children. The total number of living children during study period was 440 and ideal number of children reported by respondent was 373. The study shows the total unwanted fertility in the sample population was 203 children.

Table 7
Respondent attitude towards family planning method

Ideal no of children		Tot. no. living children	
Ideal no. reported	Resp.	Living children	Res pondent
2	108	2	33
3	11	3	32
4	31	4	19
		5+	38

Discussion:-

The study shows that Current contraceptive practice was 64%. Contraceptive use increased with increasing age of mother, parity and number of living children. The mean age of respondent was 28years. The study shows 43.3% of women are illiterate, 28% had primary education, 19.3% had middle school and only 5.3% had high school. 90.7% were house wife, 6% were laborers and only 3.3% were government workers. This study points towards low literacy rate and poor socio-economic status of women, which could be the reasons for the low CPR.

The age at marriage of respondents shows 64% of women were in age group of 15-19 years, 24.7% of women were in age group of below15 years, 8.7% and 2.7% were of 20-24 years and 25-29 years. The study shows use of contraceptives with age of marriage is very low. Thus, there is need to promote and accelerate family planning measures in youngsters to decrease birth rate.

Regarding respondent source of information about family planning methods 89.3% got information from female friend, 56% from husband, 16.7% from Television, 22% from doctor and 6.7% got information from newspaper. The study shows that female friend as important factors for generating the source of information among rural Muslim community.

The study shows respondent's knowledge about services available was 79.3% of women had knowledge on availability in private clinic, 78% in health post, 9.3% in Marie stops clinics, 7.3% in government hospitals, 4% in PHCs and 3.3% in mobile clinics. The study points majority of respondent were aware about the private clinics. 96.7% of women agreed with the concept of small family it shows that Respondent's attitude towards family planning

methods and contraceptives was positive.

98.7% of respondent had heard about family planning and contraceptives.Awareness and knowledge of different contraceptive methods is the key point in the adaptation of family planningand making a choice for a particular method. Although nearly all the respondents knew at least a single method ofcontraception, current contraceptive practice was far from the ideal. 34% of women were using injection, 15.3% oral pills, 7.3% female sterilization, 6% IUD and 1.3% condom. The major reasons for non-use of family planning were due to fear of side effects (33.33%), followed by religious belief (50%) and due to pressure from husband (16.66%). In present study the fertility behavior and preferences of respondent shows the total unwanted fertility in the sample population was 203 children. It shows that the unwanted fertility between ideal no. children reported by respondent and the present living children with respondent is very high it shows that the need of family method and contraceptives is very crucial to respondents in the rural Muslim community.

Ghimire concluded in the study conducted on Muslim women of Rupandehi district that 92%of women had knowledge about family planning methods and 100% respondents told that using family planning methods is against their religion especially permanent family planning methods (8).Sapkota reported that 30% did not know the emergency contraception methods available in Nepal and 84% want to seek medical help for using contraception and other family planning methods (9). Lopchan stated in his study that oral pills has highest percentage of users followed by injection (10).Nepal Fertility, Family planning and Health survey reported that, 29% women said that they would prefer female sterilization followed by 27% women preferring Injectables and 18% preferring pills (11). Thapa reported that almost half of the women interested in using Norplant contraceptive sub dermal implants were actually those who wanted to limit childbearing; a pattern also found in international Norplant clinical studies (12).Pandey reported that most acceptors of female sterilization were illiterate, regardless of service delivery point(13). Tuladhar reported in his study on determinants of contraceptives use in Nepal that, women aged 35-49 are three times more likely than women aged 15-24 to use contraceptives (14). Schuler and Goldstein reported that in the urban areas reproductive attitudes are changing much more rapidly than behavior, resulting in many unwanted births (15).Ahmad reported that about 98% have heard about the term family planning, among which 78% knows the kind of family planning methods (16).

The knowledge and practice is different thing so most of married aged women has knowledge about family planning but not using family planning methods. There is high unmet need if family planning in young adult female due to lack of adequateknowledge and awareness, low socioeconomic status of women in society, fear of side effects, religious opposition, lack about service and availability, lack of participatory discussion on use or non use of family planning methods. The study revealed good knowledge and favorable attitude of Muslim rural women towards Contraceptives. The perception of about ideal number of children ranges from 2 to 4. Though knowledge is high and attitude is positive, there seems to be low use of contraceptives. Early marriage in Muslim community leads to longer reproductive period for women, which is a reason for high fertility. The study concludes that Knowledge and attitude are alone not enough to promote practice of Use of contraceptives in Muslim community and other factors such as belief and perception need to be explored.

Conclusion:-

The study reveals good knowledge and favorable attitude of rural women towards contraception. Contraceptive knowledge and practice was influenced by female friends, media exposure and family opposition. Women education and counseling of couples can play an important role to adopt family planning methods. Electronic media, health personnel and government's organizations can play a positive role to provide knowledge and overcome the knowledge/practice gap.

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Barriers in Utilization of Maternal Health Care Services: Perceptions of Rural Women in Eastern Nepal

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Abstract

Introduction: **Introduction**:Nepal is promoting safe motherhood through maternity incentives schemes. Still two-thirds of births (63 percent) take place at home. Compared to antenatal care and intuitional delivery, postnatal care has been largely neglected, only 50% use postnatal services. Inadequate access to health care and under utilization of services is the major reasons for poor health of women and children. **Objectives**:The study aim to explore the barriers in utilization of maternal health care services in eastern Nepal specifically to explore the reasons for not availing the services and to assess the indigenous practices regarding maternal health. **Methods**: An exploratory study design was adopted to elicit the information from selected respondents of different villages. Focus group discussions andin-depth interviews were conducted. Data was transcribed and analyzed manually to identify themes. **Findings**: The barriers to maternal health care service utilization were identified as social factorslike family pressure, superstition, shyness, misconception, negligence, illiteracy, alcoholism. Likewise, large family size, jobless, unnecessary expenditure on health services was identified as economic barrier. Some cultural practices were also found as barrier for not availing the health services. Summary:The study explored factors that are contributing in not availing the maternal health care services. The elimination of these barriers will facilitate quality of care and health outcomes. Therefore, the interventions should be developed and implemented to improve the health status of women and children. The result of this study can be utilized to draw the attention of local government, in strategic planning related to maternal health interventions.

Key words: Barriers, indigenous practices, maternal health care services.

Introduction

Every year more than half million women die due to complications of pregnancy and childbirth. Almost 99% of maternal deaths occur in developing countries. Half of all maternal deaths occur in sub-Saharan Africa and another major portion in southern Asia. (1)There were much variability between countries with a maternal mortality ratio of 240 deaths per 1,00,000 live births versus 16 deaths per 1,00,000 live births in countries of developed regions.(2)Thus, maternal mortality continues to be a major public health problem.

Utilization of maternal health services vary from country to country and within the country itself in manydeveloping countries.(3)Access to health care services has great deal of impacts on maternal and child survival and significantly affects mortality trends in a population. Antenatal care may play an indirect role in reducing maternal mortality by encouraging women to deliver with assistance of a skilled birth attendant or in a health facility. In most rural settings, there are challenges in increasing such health care service utilization mainly because the decisions that lead women to use the services seem to occur within the context of their marriage, household, and family. (4)

The situation is worse in developing countries due to inadequate access or poor utilization of health services. In Nepal, only 85% of women received antenatal check up, 35% undergoes institutional delivery and 51% use postnatal services. Maternal mortality ratio is 229 per 1,00,000 live birth and neonatal mortality rate is 33%.(5)Complications of pregnancy and childbirth cause more death and disability than any other reproductive healthproblems.(6)Examining the use of maternal health services in developing countries can inform programs about where to focus interventions that can reduce maternal and newborn mortality and improve their health outcomes.(7) The study was conducted to explore the barriers in utilization of maternal health care services in Eastern Nepal.

Research Methodology

An exploratory research design was adopted to elicit information from the selected respondents from seven villages of Jhapa district from June to July 2012. The key informants of this study were pregnant women, postnatal mothers, mothers-in-law and service providers. The groups were divided according toservice users, non-users and service providers. Six focus group discussions were conducted in different villages.Ten in-depth interviews wereconducted with service providersin the health centers and women who delivered in home were interviewed in their home. Focus group discussions and in-depth interview guide were prepared according to the objective of the study andprobing questions were askedfor each of the main questions in order to make the participants

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clear and to make it easier for them to answer. Each focus group hadabout eight to ten participants which was scheduled for about one hour. Each discussion last about 50 to 60 minutes. Two people facilitated each focus group, in which one led the discussion and the other took down notes. All sessions were recorded using digital voice recorders and field notes were taken for post discussion reference. The data was transcribed in local language and translated in English thereafter. Transcripts along with field notes were analyzed manually for key themes and sub themes through the use of thematic analysis. In addition, verbatim quotations were used to illustrate responses on issues and themes.

Results

Table 1
List of Open codes obtained on thematic analysis

Domain	Codes	Code Description
Barriers		
	B1	Lack of education/illiteracy
		Lack of education/illiteracy
	B2	Low socioeconomic status
	B3	Family pressure
	B4	Misconceptions
	B5	Shyness/shame
	B6	Lack of transportation facilities
	B7	No time
	B8	Lack of awareness
	B9	Negligence
	B11	Cultural practices
Economic barriers	F1	unemployment
	F2	Large family
	F4	Health expenditure perceived as waste
Social barriers	SB1	Family pressure
	SB2	Misconceptions
	SB3	Superstition
	SB4	Negligence
	SB5	Illiteracy
	SB7	Shyness/ shame
Cultural	C1	Religious practices
Lack of awareness	A1	Lack of formal education

Barriers in utilization of services

Users Perception on Social barriers

Illiteracy and lack of awareness were perceived as barriers for not utilizing the maternal health care services. They believed most women from remote areas are illiterate and do not know the advantages of utilizing health care. One participant mentioned, *"They do not visit health center because they are not aware of the services and its benefits for our health. Those women should be encouraged to visit health posts".*

Some respondent felt that some women have misconception related to hospital delivery like fear of being operated and fear of being referred to higher centers. Besides this, superstition wasalso one of the barriers for not availing the services. One woman stated, *"Sometimes they refer the patients to other private clinics saying that equipments needed are not enough in health post so it is difficult for women to manage to go there".* Anotherwoman mentioned, *"It is difficult to find vehicle or any means of transportation, even ambulance is also not allowed during strike (no any vehicles are allowed to) s. Therefore we can't visit the health post even if we need and want to".*

Non-Users Perception on Social barriers

Women's perception from this group was related to illiteracy and shyness; they said that it was shameful to go for check-up during pregnancy. They also had misconception related to medications provided during pregnancy. Woman reported, *"We have heard that taking medicines during pregnancy, including iron tablets causes nausea, leading to enlargement of the fetus resulting difficult delivery or even miscarriage".* Other woman stated, *"I do not know how to read and write so I don't have any idea regarding the maternal care. My family says there is no benefit of going to health centers".*

Women prefer to deliver in home as it was convenient for them. Women perceived shyness/ shame as the barrier. One woman stated, *"I don't want to go to hospital as I don't want to be examined by male doctors because I feel uncomfortable to show my body parts".* Women reported that most men in the community say that their wives do not need to go to hospital because their mother had never been to hospital even once. Women felt that since the society is male dominated their husband's decision have to be followed. No any health related problems were reported by women even though they gave birth at home.

The respondent felt that it waswaste of time and money to go for postnatal check up. One woman said, *"I know I should go to hospital for check up after delivery but baby was good he was feeding well, his activities were good too and I also don't have any problem so why should I go to hospital and increase unnecessary expenditure. If any complication happens then we will go".*

Perception of Service providers on social barriers

Service providers also alleged that the main reasons for not availing the services are due to lack of awareness. A staff nurse stated, *"Women often do not have enough time to visit a health facility due to social obligations and household chores".*

Users Perception on cultural barriers

Some of the respondent felt that prevailing cultural practices leads to under utilization of health services. One woman stated, *"Most of the women in our village are forced to give birth in cow shed, often alone and stay there with baby afterwards for eleven days, we are bound to follow traditional and cultural practices".* One woman said, *"Nwaran" (name giving ceremony which forbids women from leaving the house or touching anyone for eleven days after delivery) so women are not able to go for health check up outside the home".*

Non-Users Perception on cultural barriers

Women felt that it is important to follow their culture and tradition regarding home delivery especially for first baby. One woman stated, *"There is a tradition in our family that first baby should be delivered at home so we cannot go against our family. We have a tradition that our elders will make decision for us and we respect it".* While mentioning about cultural barriers, post natal woman stated, *"It would be difficult to follow the practices like oil massage for mother and baby in hospital because of hospital rules".*

Perception of Service providers on cultural barriers

The service providers also mentioned that there are various cultural practices because of the diverse people living in a community that are still being practiced in some community and those cultural practices prevent them from availing the health services. Female health volunteer stated, *"Some prefer home delivery because of home environment (warmth from a fire, hot food and massage) some are reassured by elder women that their delivery can be managed at home, while some are too shy to seek care from a health facility, especially if they have to see a male health provider".*

Users Perception on economic barriers

Unemployment was regarded as important barrier resulting in lack of money due to which decision is taken late, and time taken to accumulate the assets delays care further which was the reason for women from low economic status for not availing the services. One woman said,*" Even though the services provided in health centers are free, the cost of transportation and other expenses are high, so people cannot afford to bear the extra costs. Therefore I think most of the women from remote villages are deprived of services because of lack of money".*

One woman stated, *"Government is providing financial assistance through maternity incentives to women seeking skilled delivery care in a health facility so no need to worry about the costs. It is all free so we have come for hospital delivery".* But they also felt sometimes, health centers lack adequate facilities like X-ray, ultrasound scan, basic medicines. Therefore, they are referred outside. This leads to further expenses such as arrangement for transport. One woman said, *"Delivering a child calls for lot of expenditures. People with less money cannot afford so they prefer to deliver at home. Although hospitals provide some money for check up and delivery, it is not enough. People cannot afford to pay the persons accompanying in hospital and other transportation expenses so the amount given by government is also not adequate at all to save poor people from the economic burden".*

Postnatal mothers felt that oncethey get discharged, they have to visit again for checkups. For that, they cannot travel in local vehicle with newborn baby and mother so they have to hire private vehicle so it will cost more in travelling. If mother and baby are good then most of the women do not go for postnatal checkups.

Non-Users Perception on economic barriers

Some women did not attend antenatal clinic because they perceived pregnancy as normal phenomenon. The reason for not attending clinic was financial constrain. There are frequent instances of people having to sell their assets or borrow money, which often forced them to put their home or farm as collateral, to cover all costs associated with seeking formal care.One woman said, *"I know the services are free there but we can't afford to go there as we have to pay a lot of money for transportation." One*

woman stated, "There are altogether eight members in my family, and it is very difficult for me and my husband to look after the expenses like food, school and other. I do not want extra expenses by going to health canter which cost a lot to reach there since it is quite far from our place".

Men control important household decisions and money in most of the households. One woman stated, *"Even if I want to go for check up for myself and baby, myhusband does notthink it is necessary to go as baby was feeding well and had no any other complications. Even though the services are free, cost to reach there is high. I do not want to put burden to my family. So whatever they say I have to obey".* Once women deliver baby they perceived that everything is back to normal so women started their household chores. Therefore, women often did not have enough time to visit a health facility. One mother-in-law said, *"Sometimes they recommend expensive investigations in case of complications which are not available in health post so we need to go to private clinics which cost more".* This was also an important reason for utilization of postnatal care.

Perception of Service providers on economic barriers

Service providers mentioned that low economic status is not the barrier because the maternal health services they are providing are free of cost and some are of minimalcost.

Indigenous practices

Indigenous practices refer to the unique, traditional practices of the people in that particular area with respect to pregnancy and childbirth.

Some families believed that expectant women should not go out of home andcrossthe river. She should not make neighbors or relatives angry as they could become embittered killing her unborn child. In addition, pregnant women should not step over the plough and rope that is being tied toanimals. Breaking these beliefs will result in prolonged and difficult delivery. So women are compelled to remain in home. Certain fruits are not given during pregnancy like papaya, pineapple, mango that leads early labour sometimes leading to abortion.Vitamins are also not given because they believe thatvitamins are 'strengthening' so it will make the fetus grow big resulting in difficult delivery so women are encouraged to take some herbal preparations made at home.

Some families havetradition that first baby should be deliveredat home. Home delivery is preferred because of convenience that provides homely environment and family support.A quiet, secluded room is chosen for delivery once labor pain starts. A large amount of straw an ideal insulation material is brought into the house to form birth bed. After delivery it is burnt. In some villages, women are still forced to give birth in cow shed.

Postnatal confinement is commonly practiced in most villages of Nepal. Confinement is about keeping mother and baby at home for a certain number of days or weeks. The tradition arose from the need to protect newly born baby and mother from infection and help mother recover from exhaustion of childbirth. During confinement, new mother and baby are given full body massagewith mustard oil and allowed to sunbathe which encourages the shrinkage of the mother's womb. It is generally believed that after birth a mother's body loses "balance" and enters a "cold stage" due to loss of blood. Food is therefore usually made with ingredients that are believed to be warmingand hencespeed up recovery from exhaustion of childbirth. Special soup is given to mother 'Jawanokojhol'(thyme soup), 'chakku' (sweet made from jagaggery)which helps to increase milk secretion. Similarly,increased intake of ghee is believed to help regain strength and muscle repair. The confinement period is over after the rituals of "Nwaran". This period of seclusion also functions as a rare opportunity for mother to rest.

Discussion

The pregnancy, delivery and postpartum periods are important in the women's life. The health care services that a woman receives during pregnancy, childbirth, and immediatepostnatal period are important for survival and well-being of both mother and child. Various factors were perceived byparticipants as barriers to maternal health service use. The 'barriers' identified are especially useful in explaining why the target area continues to have maternal and neonatal deaths.(8)

Most developing countries have achieved great success in extending the reach of antenatal care. (7)Still there are barriers in availing the services. Travelling difficulties during pregnancy hinders women to use available care. Several other studies showed similar results in Malawi(8)Uganda(4) Vietnam(9)Cambodia, and Philippines.(10)In the context of Nepal, transportation becomes worse

during monsoon in damaged roads for women to travel.There are very few local transportation facilities available in the villages, which limits their choices for travelling to the health centre. They are compelled to hire private vehicles that adds heavy economic burden to their livelihood.Studies from Jamaica found that an increased probability of early antenatal care attendance was associated with increased household expenditure.(3)In contrast, health care provider do not perceive economic factor as a barrier but from the beneficiaries point of view free services are not facilitating them, as indirect cost like travelling to health centre, food and accommodation of people accompanying them becomes unaffordable which plays a vital role in late decision-making. Similar findings were revealed in study done in Vietnam, Nicaragua, Kenya.(9;11;12)

Women from illiterate, rural and marginalized communities did not understand the importance of seeking routine care. Similar findings was there in Non-white South African women who did not see the value of antenatal care.(3). The use of antenatal care services from skilled provider was strongly related to the education of mother.(13)(14)Many of the women viewed that they should only seek care once complication occurs. Women believed that taking iron tablets during pregnancy cause enlargement of fetus leading to difficult delivery. They were not aware about the importance of antenatal care thus women's education plays vital role in utilizing the services.(15-17)

Family and social restrictions affect women's care seeking behavior.(8)They believed that social norms discouraged women from seeking care, and women often did not have enough time to visit a health facility due to social obligations and household chores. They also felt that lack of support from family members restricted women's access to care. This was a commonly held view because they believed their daughters-in-law should deliver without medical attention, just as they themselves had done in the past.However, the scenario is different in Jamaica,women did not want to be treated as ill during uncomplicated pregnancies and so tended to delay initiation of antenatal care.(3)

Delivery careincluding giving birth in health centers and receiving skilled attendance at birthhas a positive influence on the health of mothers and their children. The percentage of home delivery continues to remain high in all Southeast Asian countries except Vietnam. Bangladesh, Cambodia and Nepal having the highest levels of home deliveries.(5)Nepal is promoting safe motherhood through initiatives such as providing financial assistance throughmaternity incentives schemes to women seeking skilled delivery care in health facility. Still two-thirds of births (63 percent) take place at home.(15)

Women intended to give birth at health centers but they are reluctant to avail the service asthey feel easy and convenient to deliver in home due tofinancial constrains and shyness. According to their perception most of the health care providers are male so they are not comfortable exposing their body parts for examination. Use of health facilities for delivery varies by women's socioeconomic status. Women perceived lack of money as reason for not going to hospital as many government health facilities are not able to treat complications, so they are referred outside. This leads to further expenses such as arrangement for transport even though incentives are provided for institutional delivery. Most of the populations in rural areas are of low economic status that depends upon daily wages, so they cannot arrange funds immediately.In contrast, study done in Maharashtra, India revealed socio-economic status was not the barrier.(18)The study revealed that socio-economical and socio-cultural factors influenced women's decision-making about the place of delivery. They have to get permission from their husband(19) and mother-in-law before seeking care even though they are responsible for health status of their households.

In comparison to antenatal care and skilled attendance at birth, postnatal care has been largely neglected in safe motherhood programs. Postnatal complications is an important cause of maternal deaths in developing countries so it is highlyrecommended that women should receive at least three postnatal checkups. (15)Some of the perceived barriers were lack of awareness and negligence. They perceived going to health centers was waste of money and time. They do not seek health services until and unless some complication arises.Moreover, cultural practice like name giving ceremony was also found as barrier.

Despite the fact that maternal health services are accessible to all villages in most instances at lower or no cost, people are not availing the services. The additional costs like transportation cost, investigation costs, and hospital stay expenses cost them higher than free services provided. Many instances were given like being referred to private hospital and clinics in case of complication that further add up

their financial burden. In addition, women are not provided freedom for decision-making. Menmade all the important household decisions and controlledthe family's money. Some respondents felt that youngwomen were incapable of taking important decisions.(20)Some of the suggestions given by respondents in order to overcome such barriers are: increasing awareness among women and influencing members like husband, mother in laws, elderly women, upgrading health posts, providing training to health workers, empowering women in decision-making on how to take care of themselves.

Summary

Several factors are contributing in low utilization of maternal health care services. The government has made numerous efforts to improve maternal health. However, achievements are still low. Inadequate access to health care and under utilization of services is the major reasons for poor health of women and children. Therefore, it is important to explore the reasons for not availing the services. The elimination of barriers will facilitate quality of care and health outcomes. Hence, interventions should be developed and implemented to improve the barriers reported. The result of this study can be utilized to draw attention of local government, in strategic planning related to maternal health interventions.

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Patient-Physician trust among adults of rural Tamil Nadu: a community based survey.

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Abstract

Introduction: Trust is the acceptance of a vulnerable situation in which the truster believes that the trustee will act in the truster's best interests. The cornerstone of the patient physician relationship is trust. Despite the intensity and importance of trust relationship of patients towards their physician the phenomenon is rarely studied in developing countries. **Objective** This study aimed to assess the status of patient-physician trust among adults of rural Tamil Nadu and to assess the factors affecting patient-physician trust relationship. **Methodology**: A cross sectional descriptive household survey was done on 112 individuals selected by multi-stage random sampling method. Men and women aged above 40 years who have visited a health care service at least once during the last five years were included in the study. Thom et al's modification of the Anderson &DedrickPhysician Trust scale was used to measure patient trust in physician. **Result**: Trust is a one-dimensional construct in the surveyed population. Trust influences patient's self reported satisfaction and remains independent of all the other factors assessed in the study such as, age, gender, education, self reported health status, time spent with the physician, physician's gender, physician's age and medical specialty that the physician belongs to. Physician's gender, physician's age, self-reported health status and time spent with the physician were significantly associated with satisfaction with the physician. **Conclusion**: Trust in physician is a one-dimensional construct in the rural Indian community setting when measured using a tool developed in a Western context. It seems to not depend on any of the assessed factors and largely seems to be implicit in the doctor-patient relationship. Further studies are needed to assess trust in physicians in developing country settings.

Key words: Trust in Physician, Satisfaction, Dimensions, Vulnerability,

Introduction

Interest in patient-physician trust has increased dramatically since 1979, when Russell Caterinichhio published the first study "Testing Plausible Path Models of Interpersonal Trust in Patient-Physician Treatment Relationships". Some theorists consider patient trust to be a set of beliefs or expectations that a physician will behave in a certain way. Others have stressed a more affective nature of trust, identifying patient trust as a reassuring feeling of confidence or reliance in the physician and the physician's intent. (1) Trust has been defined as the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the truster, irrespective of the ability to monitor or control that other party. (2) Trust embodies the notion of expectations: expectations by the public that healthcare providers will demonstrate knowledge, skill and competence; further expectations too that they will behave as true agents (that is, in the patients' best interest) and with beneficence, fairness and integrity. It is these collective expectations that form the basis of trust. (3)Trust is the acceptance of a vulnerable situation in which the truster believes that the trustee will act in the truster's best interests.(4-6)Trust is inseparable from vulnerability. The greater the risk, the greater the potential for either trust or distrust.(7,8)Evidence from qualitative studies suggests that patient trust is a "state," not a "trait," and is therefore subject to change. (4)

Patient trust has been associated with patient-reported satisfaction with their care(5,9,10), intent to retain or switch physicians, willingness to recommend a physician to others, and treatment adherence. (9) Trust is related to, but distinct from, satisfaction. In contrast with satisfaction, which is an evaluation of previous experiences, trust characterizes a relationship or a cluster of personality and behavioral traits, and it is primarily future oriented ("willingness to be vulnerable").(2,6) Organizational characteristics of health care system have strong influence on patient satisfaction in primary care setting. (11)Donabedian identified the importance of patient satisfaction. The concept of satisfaction is complicated and is a multidimensional concept which is yet to be well defined.(12)

The dimensions of trust are entailed for the purpose of measurement of physician attributes identified by patients which are characterized into potentially five overlapping domains i.e. fidelity, competence, honesty, confidentiality, global trust. (7)

Trust is often a defining characteristic of patients' relationship with physicians and other care providers. (13)Patient trust can be considered a collective good,

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similar to "social capital," that is necessary for an effective health care system.(4)

Psychosocial aspect is an essential dimension of an individual's health. Trust in physician can significantly influence self-healing and lead to placebo effect among the patients.(5,14) Despite the importance of trust in physicians it is scarcely studied. There are very few studies on the dimensions and determinants of trust from developing country settings. Trust in health care as measured and understood in the Western context is likely to be very different from that in developing settings. The managed care health system, nearly universal health access, large coverage of health insurance and high quality health system functioning lead to different dimensions of trust in the developed countries. With Structural Readjustment Programs and introduction of private players in health care system health care cost is sky rocketing in several developing countries. Increasing commercialization of medical practice is eroding the faith and trust of common man in the medical profession. (15)

There is a need to understand the dimensions and factors influencing trust in this background.

Trust is often implicitly or explicitly used in marketing hospitals, health plans, and physician groups. However, if patient trust is not measured, it is unlikely to be valued sufficiently to balance the economic forces believed to reduce the strength and quality of medical relationships.(4) Different physicians from different background evaluate and treat clinically similar patient in very different ways.(16) A person who trusts a provider is more likely to seek care, to comply with treatment recommendations, and to return for follow-up care than a person who has little trust in a specific provider or health care system at least when the cost of medications are financially feasible.(4,17) Understanding trust can give vision of how health law and medical markets should function, but compelling laws can have paradoxical effect on trust by suppressing people's intrinsic motives.(8)

The objective of the study was to assess the status of patient-physician trust among adults of rural Tamil Nadu, India and to assess the factors affecting patient-physician trust relationships.

Methods

This cross sectional household survey included men and women above 40 years of age who may or may not be suffering from any illness during the time of study but have visited physician atleast once during the past 5 years. Since healthy people are more likely to be capable of thinking about trust in a conscious, calculative fashion they were chosen for the study. (8)Assuming 50 % prevalence of Patient –physician trust in rural Tamil Nadu with 10% allowable error, the sample size of 120 was calculated but only 112 samples responded giving a response rate of 93.3% . Multistage random sampling method was used. Tamil Nadu, a state in the southern part of India is divided into 32 districts. Kancheepuram is a district in the northeastern part. Kancheepuram district is divided into 13 rural development blocks. One of the blocks, Thirukalkundram was selected by simple random sampling from the list of blocks. From the list of villages in that block, eight villages were selected by simple random sampling. From the selected villages 14 samples each were selected conveniently based on eligibility criteria. Physician Trust Scale(18) which was further modified by Thom et al in 1999 was used for measurement of patient physician trust in this study. The scale has total 11 items which were given scores according to the response on a Likert type scale with a maximum of 5 and minimum of 1 corresponding to 'strongly agree' and 'strongly disagree' respectively. The scale covered questions pertaining to the domains of physician dependability, reliability of the information provided by the physician and confidentiality and competence of the physician. The scores for each respondent were totaled to give a maximum possible score of 55 and minimum of 11. The median score was taken and all those with scores above the median were classified as those with high trust and those with scores below the median as those with low trust. Socio-demographic variables such as age, gender, education, self reported health status, basis of choice of physician, time spent with physician, physician characteristics such as age, gender and type of practice which are likely to be associated with trust in physician and satisfaction with care were analyzed using the Fisher exact test. Simple linear regression analysis was done to assess the relationship between patient satisfaction and physician-patient trust. Exploratory Factor Analysis was performed to assess the domains of trust in physician as perceived by the sample of respondents.

Results

The mean age of respondents was 53 years, where 51 % of them were male. About 35% were illiterate and only about 30% had high school education.

Table 1:
Respondents Characteristics

Mean Age of Respondents	52.88 years
Gender of Respondents	
Female	49 %
Male	51%
Highest Education of Respondents	
Illiterate	35.71%
Primary	19.64%
High School	30.36%
Graduation	14.29%
Occupation of Respondents	
Unemployed	6.25%
Daily Labour	22.32%
Home Makers	30.04%
Government Employee	2.68%
Private Firm	24.11%
Retired	11.61%
Place of Last Health Check up by Respondents	
Private Clinic	29.46%
Private Hospital	15.18%
Government Hospital	49.11%
Primary Health Care	1.79%
Others (Camps)	4.46%
Basis of Physician's Choice	
Personal Recommendation	24.11%
Convenient	60.71%
Referral	14.29%
Others (Accidental cases)	0.89%
Self Reported Present Health Status	
Very Good	27.68%
Good	52.68%
Neither Good Nor Bad	12.50%
Bad	5.36%
Very Bad	1.79%
Reported Physician's Practice Background	
Allopathy	72.32%
Siddha	6.25%
Homeopathy	3.57%
DK/CS	17.86%
Exclusive Time Spent with Physician	
Less than 5 min	14.29%
5-10 min	50.89%
10 min & above	34.82%

When asked about place for last health check up 49.11%reported Government Hospital as the place for last health check up, where convenience (60.71%) of the location of the health care facility was reported as the main factor for choice of the facility. Roughly 52% of the respondents were in good self reported health status at the time of study. About 72% of them were seeing Allopathic physicians for their health checkup whereas 17.86% of respondents were unaware about the practice background of their physicians. When asked about exclusive time spent with physician, 50.89 % of respondents reported that they spend 5-10 minutes exclusively with physicians and majority of respondents (70.54%) were satisfied with their last health check up. These characteristics of the study respondents are shown in Table 1. The characteristics of the last physician seen by the respondents were reported. This revealed that 81% were male doctors, and about 64% were perceived to be between 25-40 years of age and more than 60% were in hospital / institutional practice. This information is depicted in Table2.

Table 2:
Physician's Characteristics

Physician's Gender	
Female Physician	19%
Male Physician	81%
Physician's Age	
Less than 25 years	4.46%
25-40 Years	64.29%
41-60 Years	26.79%
Above 60 Years	4.46%
Physician's Practice Type	
Solo Practice	38%
Institutional Practice	62%

The mean Trust Score from 112 respondents was 39.05 with standard deviation of 7.67. The minimum trust score obtained in the study was 15 whereas the highest score was 54. The median trust score was 39. Respondents gender, education level of respondents, occupation, place of last health checkup , basis of physician's choice, present health status of respondent, physician's practice background, physician's gender, physician's age, physician's practice type and exclusive time spent with physician did not have an influence on the trust. Patient satisfaction had significant association with trust. (Fisher exact test p =0.025).

Sample size for factor analysis was sufficient (KMO

measure of sampling adequacy=0.902). The Factor model was a good fit (Bartlett's Test of Sphericityp< 0.001). Of the 11 trust variables in the questionnaire only 9 items were included for the factor analysis by principal component method of extraction because of the complex structure shown by the two items from the scale. The nine item components together explained 50.12% of the variance. The factor structure is shown in Table3.

Table 3:
Component Matrix

	Component 1
My doctor is usually considerate of my needs and puts them first.	.765
I sometimes distrust my doctor's opinion and would like a second one.	.738
I doubt that my doctor really cares about me as a person.	.734
I trust my doctor's judgments about my medical care.	.727
I sometimes worry that my doctor may not keep the information we discuss totally private.	.717
My doctor is well qualified to manage (diagnose and treat or make an appropriate referral) medical problems like mine.	.692
I trust my doctor to put my medical needs above all other considerations when treating my medical problems.	.687
I trust my doctor so much that I always try to follow his/her advice.	.670
I trust my doctor to tell me if a mistake was made about my treatment.	.634

Extraction Method:
Principal Component Analysis.
a. 1 components extracted.
KMO measure of sampling adequacy=0.902,
Bartlett's Test of Sphericity =.000
Total Variance Explained 50.12%

Only one component was extracted in component matrix supporting that tall those 9 components were measuring one dimension.The data had high internal consistency with a Cronbach's Alpha of 0.87.

Discussion

Trust in physicians is a scarcely studied construct, especially in the setting of developing countries. Even in developed western world there is barren dichotomy between the significance of trust in medical relationships and lack of attention to trust in existing legal analyses.(8)Blochealludes to anecdotes where characterization of the stark dichotomy of legal medical care system against trust issues of general patient.(16)This study looked at trust in physician in a rural community based setting in India. The important finding was that trust in physician is a one-dimensional construct. All the components of the questionnaire were perceived as pertaining to trust in the physician by the respondents. None of the demographic characteristics of the patient or the physician or self rated health status were associated with trust. Nevertheless significant association was found between trust and patient satisfaction, higher the trust, higher being the level of satisfaction. Satisfaction with care is usually high in those who are healthy(14), which can be the reason for high level of satisfaction among the majority of respondents.

The strength of this study is that it is, to our best knowledge, the first study to explore trust in physician in the community setting in rural India. This is also probably one of two studies which have made use of the Trust in Physician Scale in India. One previous study by Banerjee and Sanyal done in Pune, India has explored trust in physicians using the same scale. But that institution based study did not assess the dimensional structure of trust and did not look into trust related factors other than concordance with the physician. (15) The validity of using this scale, which has been developed and validated in a Western setting, in India is a point to be discussed. The items of the questionnaire have face validity. They seem to cover the important domains of physician trust which are likely to be similar across the world irrespective of the type of health system. The scale does not have items which pertain to financial aspects or payment methods which are drastically different between the Western and Indian settings. Thus the questionnaire has high face and content validity for the Indian setting. The factor structure was one-dimensional. There could be several reasons for this. One of the important reasons could be that the respondents perceived each item to directly relate to trust in physician or some other latent variable which related to trust. Respondents were unable to slot their trust appraisal of their physicians and simply lumped all trust dimensions together suggesting patient have one residual type of trust assessment of their physician.(8) The lump of trust dimensions can be due to inability of patients to judge physician's knowledge or skill, but they judge their health care on the basis of other dimensions that relate to areas that they personally know and value.(14) People in the sample do not appear to distinguish trust in medical profession among the

previously defined trust dimensions.(6,10)Socially desirable response bias could be another reason for strong one-dimensionality of the questionnaire. The proper dynamics of trust in physician in the rural Indian context can be fully understood only after thorough qualitative explorations and development of a scale unique to the Indian setting. If after qualitative studies the same domains are obtained and the scale found suitable, then the findings of this study could be validated.

Several previous studies have also shown that physician trust has extrinsic value because of its link with patient satisfaction(19), and patient trust has been associated with patient-reported satisfaction with care(5,9,10) .Trust often corresponds with satisfaction but the two are different concepts. Currently patient satisfaction is widely used as a measure of quality of patient care. It is important to note that trust might be a better indicator as it has a strong emotional component, takes time and effort to build and reflect a long standing benchmark of doctor patient relationship. Theoretically, patient trust should serve to reinforce the functioning of clinical relationship thereby increasing probability of patient satisfaction. (1)

The major limitation of the study was it could not capture the interpersonal and behavioral factors of physicians as prime focus was given towards the factors affecting the trust relationship. Small sample size only capturing scenario of adult population in rural settings was also a limitation of the study. Nevertheless it gives a very important perspective of the need to explore the aspect of patient-physician trust in the Indian setting.The fact that the study was conducted in the community setting among healthy individuals is both strength and a weakness of the trust assessment. It is strength because, as noted before, healthy individuals are at a better position to make objective assessments of their trust in physician. It is a weakness because there could be a significant recall bias of the nature of trust that existed at the point of contact with the physician, especially given that trust is a state and not a trait. The aspects of trust captured by the institution based study and the community based study are likely to be different. While the institution based study assesses the immediate trust state that the patient has in the physician in the context of the illness, the community based assessment gives a picture of the overall trust in health care, with particular reference to the physician. Further qualitative study focusing on interpersonal skills of physicians could better clarify the relationship between dimensions of satisfaction and trust.

Research on trust is important in the developing country setting. There is increasing realization that health is a basic human right. Therefore many developing countries are working on universal health access. This health for all will be a reality only if trusting patient-doctor relationships are fostered. Therefore there is a need to research trust and understand the dynamics of trust in physicians.

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Risk factors of malnutrition in children under the age of five in Morang District, Nepal

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Abstract

Introduction: Malnutrition is one of the major public health problems of the world which accounts for more than one third of all child deaths globally. The most common forms of malnutrition in Nepal are Protein Energy Malnutrition (PEM), Iodine Deficiency Disorder (IDD), Vitamin A Deficiency (VAD) and Iron Deficiency Anaemia (IDA).According to the National Demography and Health Survey (NDHS) 2006 under nutrition of children less than five years of age in Nepal is 49% stunted, 13% wasted and 39% underweight. **Objective**: The objective of the study was to explore the risk factors for malnutrition among children under age of five.**Methods**:A descriptive cross-sectional study wasconducted in Morang district of Nepal. Multi stage random sampling was done and data were collected using questionnaire and measuring weight by Salter weight scale and height/length by standard procedures. **Results**:A total of 100 children participated in this study with a response rate of 87%. The prevalence of malnutrition of children under five years of age in the study population was found to be 49% underweight, 49% stunted and 20% wasted.An association was found between mother 's education, father's education, father's drinking habit, morbidity of the children and wasting. **Conclusion**: The prevalence of malnutrition was found to be more or less similar to national data. Although association was found between different factors and wasting of the children results of logistic bivariate regression showed that morbidity of a child (recurrent respiratory infections, diarrhoea and fever) is a significant factor associated with the wasting of the children even after adjusting other factor.

Key Words: Malnutrition, Stunting, Wasting, Underweight, Risk Factors, Morbidity

Introduction

Malnutrition is one of the major public health problems of the world which accounts for more than one third of all child deaths globally (1). The nutritional status of young children reflects the level and pace of household, community, and national development. Malnutrition can result in an increased risk of illness and death and can also result in a lower level of cognitive development (2). The problem of malnutrition is not only a problem of Nepal but it is a global problem. In the case of developed countries, there is the problem of over nutrition but in the case of developing countries, there is the problem of under nutrition. Among different forms of under nutrition stunting is a major problem of larger proportions. It has been estimated that among children in the developing world 195 million children are stunted and 129 million are underweight. Twenty four countries bear 80 percent of the developing world burden of under nutrition as measured by stunting and more than 90 per cent of the developing world's stunted children are found in Africa and Asia(3).Nepal is one of the least developed nations in SEAR, which was ranked 140 among 174 countries in the Human Development. Index and 0.44 GDP index in 2002(4). In Nepal the most common form of malnutrition is PEM. The other forms of malnutrition are IDD, VAD and IDA (5).The prevalence of Malnutrition in Nepal is 49% Stunted, 13% Wasted and 39% Underweight according to NDHS 2006(6).The main objective of the study is to explore the risk factors for malnutrition including socio-economic variables, among children under the age of five in Morang District, Nepal

Methodology

Study Design

A descriptive cross sectional survey was conducted in the Morang district of Nepal during the month of June 2011.

Study Population

A questionnaire was administered to the mothers of children between 0 and 5 years of age and the corresponding height and weight of the children were measured.

Sampling

Multi stage random sampling method was done. Out of seven Primary Health Centres in Morang District one centre was chosen randomly. List of all the children less than five years of age in the catchment area of that PHC were listed with the help of Female Community Health Volunteer (FCHV). Simple random sampling was done to select children from the list given by FCHV.

Sample Size

The sample size was calculated by using the formula $n = 4 PQ/d^2$. Taking prevalence as 49% stunting from national data and relative precision of 20% and with oversample of 10% the sample size was calculated n=115.

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Data Collection Procedure

A structured questionnaire was designed consisting of two parts: socio demographic details and anthropometric measurement of the children. Data was collected by visiting selected household of the children. The weight of the children was measured in Kilogram (Kg) by the use of Salter weight scale and height of the children above two years of age was measured in standing posture and length of the children below two years of age was measured by recumbence scale in Centimetre (Cm).Accurate date of birth was collected where available, and when not available it was taken as first of June of the year corresponding to the stated age.

Ethical Consideration

A detailed description was provided to the respondent and they were assured that the information given by them will be kept confidential and they can withdraw the interview at any point of time if they don't want to participate. The verbal consent was taken from the respondent before filling up the questionnaire. The study was approved by the Institutional Review Board of the School of Public Health, SRM University.

Data Analysis

Data was at first entered in SPSS and then imported to WHO Anthro Software. The nutritional status of the children were calculated by using the three main indicators weight for age (under weight), height for age (stunting) and weight for height (wasting).

Definitions

Under weight is inadequate weight for age of the children and reflects both chronic and acute malnutrition.

Stunting is an indicator of chronic malnutrition. A child not getting proper nutritious diet for a long period of time suffers from stunting which often results in delayed mental development, poor school performance and reduced intellectual capacity.

Wasting is an indicator of acute malnutrition due to insufficient food intake or high incidence of infectious disease like diarrhoea.

Results:

Out of total 100 samples 46 were in the category of disadvantage non dalit Terai group and 7 were in the dalit group. Of the 100, 91 respondents were Hindu and only 9 were Muslim. Family type consisted of 34 nuclear and 66 joint families. Majority of mothers (63) were illiterate and only 2 mothers were at secondary level whereas among the fathers, 41 were at primary

Table 1:
Characterictics of the Study Participants

Characterictics	Number
Ethnicity	
Disadvantage Non Dalit Terai Group	46
Upper Caste Group	14
Relatively Advantage Janajati	13
Religious Minorities	10
Disadvantage Janajati	10
Dalit	7
Family	
Nuclear	34
Joint	66
Educational Status of Mother	
Illiterate	63
Primary	35
Secondary	2
Educational Status of Father	
Illiterate	5
Primary	41
Secondary	24
Intermediate	24
Bachelor and more	6
Occupation	
Crop farming	5
Daily labour	51
Business	20
Government job	13
PrivateJob	
Others	7
Sex of the child	
Male	58
Female	42
Child Age Distribution	
0-24 months	50
25-36 months	22
37-48 months	15
49-60 months	13
Ever Breastfeed	100
Time Period of breastfeeding	
Immediately after birth	18
Within one hour of birth	82
Morbidity Profile	
ARI	7
Diarrhoea	29
Fever	0
None	64

level of education and 5 were illiterate. About 41 percentages of the respondent husbands had the habit of taking alcohol and among those, 22 had the habit of taking alcohol whenever they wanted, 10 once a week and 9 once a month. The main income of the family was daily labour in 51 percentage, followed by business 20 percentage and government job 13 percentage. The socio demographic characteristics of family and the age group of the children is shown in Table 1.

Among 100 children 58 were boys and 42 were girls. Morbidity profile of the children revealed that out of 100 children 7 suffered from acute respiratory infections and 29 suffered from diarrhoea more than 3 times in the past 3 months and no recurrent fever cases were reported. Out of 100 children 82 were breastfed within one hour of the birth. Among 50 children of age group between 0-24 month 47 children were currently breastfeeding and out of 50 children of age group between 25-60 month only 14 children have been breastfeed for a period of 24 months.

The prevalence of malnutrition in the study population was found to be 49% underweight, 49% stunting and 20% wasting. For seeing the association between educations of parents, fathers drinking habit, morbidity pattern with the anthropometric measurement Fisher exact test was done. About 52.2% of children who had suffered from any of the disease like Diarrhoea, ARI more than 3 times in the past 3 months were severely underweight and 61.8% of the children who did not have repeated morbidity had not suffered from any illness (p value 0.003). Likewise 68.8% of the children who has suffered from any of the disease like diarrhoea, ARI more than 3 times in the past 3 months were severely stunted and 61.8% of the who had no morbidity were normal (p value 0.003).

Bivariate logistic regression was done for studying the significant risk factors.Mother's education and underweight (OR=2.9, 95% CI=0.888-9.468), father's education and underweight (OR=0.9, 95% CI=0.340-2.769), father's drinking habit and underweight (OR=0.854, 95% CI=0.343-2.122) were not associated whereas morbidity of the children (OR=4.594, 95% CI=1.769-11.932) was a significant factor for underweight of the children after adjusting for the other factors. Similar logistic regression for stunting showed that mother's education and stunting(OR=2.9, 95% CI=0.888-9.468), father's education and stunting(OR=0.9, 95% CI=0.340-2.769), father's drinking habit and stunting (OR=0.854, 95% CI=0.343-2.122) were not associated whereas morbidity of the children (OR=4.594, 95% CI=1.769-11.932) was a significant factor for stunting of the children. These analyses are shown in Tables 2 and 3.

Table 2:
Logistic Regression Bivariate Analysis: Underweight

Covariates	Regression Coefficient	Significance	Adjusted odds	Confidence Interval	
				Lower	Upper
Education of mother	1.065	0.078	2.900	0.888	9.468
Education of father	-0.030	0.955	0.970	0.340	2.769
Alcohol habit	-0.158	0.733	0.854	0.343	2.122
Morbidity of the children	1.525	0.002	4.594	1.769	11.932

Discussion:

According to NDHS 2006 prevalence of malnutrition of Nepal is 49 percentage stunting, 39 percentage underweight and 13 percentage wasting and from our study the prevalence of the sample area was found to be 49 percentage stunting, 49 percentages underweight and 20 percentage wasting. Educational status of parents (mother and father) was found to be associated with children being underweight (p value 0.025 in case of mother and 0.007 in case of father). This is observed in many other studies done in Ethiopia (7), other African Country (8-10), Southeast Asian (11-12) and Nepal (Dhanusha District)(13).In this study we tried to see the father's alcohol habit and its relation with child being malnourished because habit of drinking alcohol and how occasionally he drinks is related with the money spent by father on alcohol and hence the compromise on good quality food for the family. On doing Fisher exact test (p value 0.028) the result came that fathers drinking habit is associated with the child malnutrition status which is a new finding of the study. If the child is being

Table 3:
Logistic Regression Bivariate Analysis:Stunting

Covariates	Regression Coefficient	Significance	Adjusted odds	Confidence Interval Upper	
Education of mother	1.065	0.078	2.900	0.888	9.468
Education of father	-0.030	0.955	0.970	0.340	2.769
Father alcohol habit	-0.158	0.733	0.854	0.343	2.122
Morbidity of the children	1.525	0.002	4.594	1.769	11.932

regularly sick then it is obvious that he/she will be suffering from malnutrition as if the child is sick then the child will be having loss of appetite causing less consumption of food and hence the body will be suffering from lack of energy, protein and vitamin in a body which will lead the child to suffer from malnutrition and this study also showed that morbidity of the children is associated with underweight (p value 0.003) and stunting (p value 0.004) of the children like in other study(14,15,16). Several other mechanisms of association between morbidity and malnutrition have been explained. All the mothers had fed their baby's breast milk with majority within one hour which showed that mothers are well aware that colostrum milk should be given to the babies within one hour of birth. In case of introducing complementary food in context of Nepal it is the culture of introducing food to the children once she is six months old and same is the scenario of the study. After finding out the association between different factors that is mothers education, fathers education, fathers drinking habit, morbidity of the children and children's nutritional status bivariate logistic regression was carried out which showed that morbidity of the children is an important factor associated with underweight and stunting of the children even after adjusting other factor. This study adds strength to the argument that recurrent morbidity is an important risk factor for malnutrition.

The definition of recurrent morbidity in this study was recurrent infections such as diarrhea, upper respiratory infections and fevers. Recurrence was defined and more than three episodes in the past three months. This definition is likely to have captured the most severe forms of recurrent infections because an incidence of 3 times over 3 months is very severe. But this was done to keep the recall bias to minimum. Moreover, this clearly picks up the worse forms of recurrent morbidity. This might be the reason for the strong association observed in the study. The effect sizes observed in this study are significantly high. This is also probably because of the severity of the morbidity that is defined in the study. The limitation of the study is that it could not rule out the presence of severe congenital anomalies, cardiac anomalies or other chronic infections in the child which could have manifested as recurrent respiratory infections. Also the effect of treatment could not be studied. Another significant limitation of the study is that it could not factor in the dietary patterns of the child and its effect on the associations between the other risk factors and malnutrition.

Malnutrition is an important cause for under 5 morbidity and mortality. Despite several concerted efforts to fight malnutrition, the progress in reducing malnutrition has been very slow in most developing countries. Nepal, India and the countries in the Indian subcontinent are still fighting with high rates of malnutrition. In this setting it is important to understand the various factors in the causal pathway and try to eliminate them. This study adds to the fact that severe forms of morbidity are a high cause for malnutrition. Therefore proper hygiene, sanitation and immunizations would go a long way in reducing malnutrition.

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A qualitative study on Ayurvedic treatment seeking pattern & best practices in Kerala.

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Abstract

Introduction: Ayurveda, the traditional Indian science of medicine has been alwaysevolving right from the period of Vedas. There are three samhitas (books)which are followed mainly,they are the Charaka Samhita, Susruta Samhita and Ashtanga Hrdhayam. Unlike the western medicine, teachings of this science was never institutionalized and hence its unique concepts that was passed on from one generation to the nextwas documented and updatedeven into the three main samhitas.Even a trialto translate or compare Ayurvedic concepts into western medical terminologies would risk degrading them. Ayurveda at all costs must remain in its integrity. As the same term may apply to a horizon of ideas and are mostly contextual. The diversity of geographical, cultural, climatic and daily routine practices has had its impact upon Ayurveda. In the Northern part of India, the principle book followed is Charaka Samhita while in Southern India in Kerala Ashtanga Hrdhayam is followed. The study area selected is Kerala which is known to be then land of Ayurveda. With backing of rich cultural backgrounds and traditions, Kerala has its own contributions towards Ayurveda. A salient feature is Kerala has been able to preserve many of the long lost traditional practises like Ottamulichikitsa, Kalaripayittu, Keraleeya Pancha karma, Vishachikitsa, and so on though most of its charm is also been degrading. In Kerala, the literary contributions in Ayurveda are commentaries of classical text, or independent books based on them; prescriptions and directions for practical application and finally the latest works adapted from present evolution in Ayurveda. Kerala has also assisted the growth of Ayurveda by means of the many comprehensive books such as Rasavaiseshikam, Rasopanishat, Tantrayukthivichara, implying the level of knowledge possessed by Kerala physicians. During the period 1560 - 1850 came the services delivered in Ayurveda and also the 'summoning' by the 'Astavaidya' Brahmin families, some of the families in the backward community and also other sects of people who studied Astangahrdayam thoroughly and practised the system of Ayurveda as a traditional vocation, should be remembered with gratitude. The vaidyas are called 'Astavaidyas' as, they were practitioners of Ayurveda having eight branches(1). With 5 Govt colleges and 8 Private self financing colleges of which 4 colleges coming in the top 15 colleges in India Kerala is still the land of Ayurveda. This traditional science of medicine being so strong in Kerala due to the Ashtavaidya tradition, authentic ayurvedic products, and so much of varied contributions to this science; Ayurveda does still manage only to be the secondary to the western medicine which is the primary health care of India. However the Government of India has considered mainstreaming of Traditional medicinal sciences of the nation; collectively called as AYUSH under the umbrella program called as NRHM(2). Though started from the vedic period still has issues like no evidence based documentation in terms of quality, efficacy in treatments and toxicity profile explanations. The real thought behind mainstreaming AYUSH is; take for example the state of Kerala, where Ayurveda is more acceptable culturally and is more welcome into even the tribals of the Wayanad district of Kerala. Laada vaidya (a type of tribal traditional practise of herbo medicine) is an example for that which indicates that by in corporating AYUSH the public health system of the nation can be strengthened from the lowest to the highest levels (3).

Key Words: Kerala, Ayurvedha, Treatment seeking behaviour.

Introduction

Area And People: The study area i have selected is Kerala; as the state is the hub for the renaissance of Ayurveda. In fact, three hospitals chosen in Kerala are situated in different geographical planes that is on hilly, coastal and city terrains. The idea behind it was to find out the varied clinical presentations and line of treatment for the diseases. Any variations any patterns that could be standardized.

Also other than that the NRHM believes in mainstreaming of Ayurveda within the state. Studies show that most of the health care professionals favoured mainstreaming of complementary and alternative medicine(CAM) physicians. More number of doctors and paramedical staffs believe and have favoured the mainstreaming of CAM.The reasons for that starts from patient interests,relay driven; were even the conventional treatment fails the CAM has worked in few cases. The primary health care professionals have also shown significant interest in more training/ information on CAM. Many primary health care professionals believe that by the integration of CAM it is possible to even reduce the out of pocket expenditure of the patients(4).

Studies says that, the people wants to get complementary and alternative medicine (CAM) line of treatments. Henceforth they want their family physicians should be more knowledgeable and skilful in complementary and alternative medicine(CAM). The physician should play a significant roleforgenerating models of referral and treatment with a balancing role in integration of complementary and alternative medicine in a primary setting(CAM)(5).

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Materials & Method:

The study used was a qualitative design and data was collected through in depth interviews (IDI). There were two different kinds of participants the doctors and patients for whom three different in depth interview (IDI) was developed. After first interview the previously developed check list was slightly modified in their sequencing and few questions were modified accordingly to get the information. The modified checklist was used for further interviews . Following are the inclusion criteria for the respondents:

- Hospital that to be chosen should be having atleast 5 IP bed facility.
- Doctors who are having atleast 10 years of service in patient handlingand successfully treated patients.
- Patients who have been taking only ayurvedic medication for the disease he/she has been admitted in the hospital.

A sample of 40 patients from Ayurveda Hospitals was interviewed by in-depth interviewto find outthe common diseases for which an Ayurvedic physician is sought.An Ayurvedic physicians from each hospital and patients were be interviewed todescribe at what stage and severity of the disease, patients approaches an Ayurvedic physician and also to assess the best treatment practices available for various ailments in the Ayurvedic system of Medicine.

Patients who have successfully undergone treatments for the above identified diseases in the Ayurvedic system will be interviewed by case study methodology to document the best practices.For each of the main questions, probing questions were asked in order to make the participants clear and to make it easier for them to answerto get information that would suffice objectives. In the IDI for both the participants the questions were put to understand for what reasons does the patient approaches the Ayurvedic system of medicine.

For the purposes of this study, the following definitions have been used:

Patient : The individual who should have taken ayurvedic treatment for the disease for a period of at least 6 months.

Disease : All the chronic ailments that are approached for treatments.

Chronic Diseases : The diseases that lasts more than 3 months.

Result:

Docotr's Perception On Diseases Most Approached:

Irrespective of what the doctor is most specialized or known to cure or based on geographical variation is; proportion wise in all the three hospitals almost half of the patients approach for arthritic issues and next to it is neurological issues.

One of the doctor whose hospital is in town area said, "Arthritic patient mostly comes to me; but recently there has been an increasing patients suffering from asthma, diabetes, fertility and hypertension". When the doctor was asked why, what could be the reason for the appraisal for these diseases he said, "The sudden transformation of people who previously was doing hard working job to a desk job where there is no strain of physical activity.This led to the failure of bodies mechanism that had been set for a hard working individual to understand that the person is doing desk job and won't do hard strenuous work no more; could be a reasonfor the shift of diseases to non communicable diseases. The diet these people may still be following of a hard working individual but job has been transformed, also though food quality and purity could be a reason for the upcoming fertility issues. The junk food, high fatty food with no physical strain, and the unaccustomed change in diet and lifestyle could also be the reason for this disease."

Stage And Severity Of Disease:

Doctor's Perception On Severity Of Diseases:

- Arthritic and Endocrine related disorders patients approach Ayurveda when the disease have reached chronic stage of disease.
- Neurological related disorders comes often in sub-acute and chronic stages of disease.
- Respiratory related disorders patients approach ayurveda in acute and sub-acute stages of disease.

One of the doctors said, *"Vyakthibhava - when the symptoms are visible the patient comes to us. Generally keralites have a nostalgic feeling when taking Ayurvedic treatments. A lot of NRI's come to us just for having massage and treatment to revitalize their body for whom we give rejuvenation treatments."*

Few cases which had an ayurvedic background that is they have any relatives working in the ayurvedic field or have themselves or their relatives or anyone in their circle had prior success only approached Ayurveda in the beginning phases. A doctor also said

that, "Skin diseases in different stages like chronic and acute stages they are approaching mostly in chronic stages. In hemiplegic mostly after two to three weeks or after few months after the attack patients are coming. In joint disorders both in acute and in chronic conditions they are approach us".

Another doctor opined that, "Most of the times patients with chronic complaints approach which is around 60% of the total patients visiting the hospital. More youngsters are approaching these days compared to 5 - 8 years back".

Of all the cases interviewed respiratory system & certain neurological system related disorders only came at the most in sub acute stages. Remaining of the cases approached ayurveda after consulting other systems of medicine and by the time many of the diseases would already have entered the chronic stage.

Reasons For Availing Services:

Doctor's Perception on reason's for availing services:

- Experiences.
- Side – Effects.
- Faith.
- Background

There are a spectrum of reason's for patients availing treatment from Ayurveda. A doctor mentioned that; *"Most of the times the patients approach as they have no other go and have been rejected from other systems of medicine. Some come purely because of the faith in Ayurveda".*

Another doctor mentioned that; *"They are getting relief form ayurvedic treatments. Probably thinking in consideration as a chronic disease long duration of allopathic medicine may harm their internal organs while ayurveda and ayurvedic medicines are harm less and herbal". A doctor also said,"Because people started to believe it is authentic, gives no side effects, affinity to nature and increasing universal awareness about Ayurveda".*

Though Kerala is a state where Ayurveda is practiced with at most sincerity and commitment because of competition so the people has a tendency to approach with trust; but now education has changed the portfolio of a lay man in Kerala. It has made the lay man more aware so the doctor expecting such a patient should be updated the most too.

Patient's perception on why availing services:

- Self experiences – It is an understanding that the patient has developed when one selves, or any body of his/ her acquaintance has got treated for the ailment approached.
- Felt Belief – It is a belief generated which the patient gets as he / she has hearing from her earlier generation, people around that Ayurveda is good or is the only line of treatment. Because to some family they stick only to herbal medicines as cus tomary.
- Long term relief – When the patient has approached many doctors say for other system of medicine and got treated but recurred then when he came to Ayurveda he got cured and was no further recurrences that made the patient believe Ayurveda can provide long term relief.
- Doctor's Approach.
- Financial considerations.

In an era where one can get treated completely within a shorter period of time on approaching allopathy yet what could be the reasons still a very large number of people out there going for Ayurveda. A patients have quoted that,*"Previously I had pain in my shoulders for which I came here and took treatment for 2 months and was cured so now when I had the pain in the wrists I came here believing it will also get cured". So it is the patients previous experience that made him visit again an Ayurvedic doctor.Another patient mentioned that,"I have attended a free medical camp conducted by the hospital for sleeplessness had considerable improvement so got admitted here for completion of the treatment".*

Another patient when interviewed told that, *"I would get re–imbursement for Ayurvedic treatments from where i work so it will be a great help to cover my health expenses so i came here. I have heard ayurveda is good for arthritis".* There are financial assistance for health problems for the employees working in a government run organization and yet the patient chose Ayurveda the line of treatment for her arthritic issues as she was told in her circle.

Another patient quoted that, "This doctor is quite famous in my neighbourhood people goes for different issues so I thought for my problem also he can cure it other than that he always charges less fees than others".

Best Practices:

A doctors logic can never be questioned; he can never be asked upon why is he treating his patient like this; except the patient doubts him. So there is nothing as such the best practices but the most commonly practiced by the doctor for the need. Some of the commonly practiced regiments commonly by all the five doctors for their patients for a particular cases

are:

• There is a general belief that in arthritic issues one can apply oil so when one gets such issues most of the patients even start applying oil before consulting; but in case of rheumatoid arthritis the patients are strictly asked to stay away from oil, cold water bath, cold water intake, urad daal (black gram), rajmasa daal (kidney beans), ladies finger, curd, butter, lemon water, tomatoes, and potatoes. The patient is asked to put a lepam (A medicinal plaster which cleanses and reduces inflammation)of paste of shashtika saali rice (oryza sativa linn), methi dhanya (fenugreek), and jaggery.

• For back pain all doctors indicate the patient Kati Basti. It is a procedure in which a well shaped structure is made at the site of paining area and medicated oil is poured in it maintaining oil temperature in a bearable heat.

• Some doctors in case of Sciatica has prescribed yogic exercises that is on the commencement of first week of treatment the patient should try to practice vajrasana(The practitioner sits on the heels with the calves beneath the thighs. There is a four finger gap between the knee-caps, and the first toe of both the feet touch each other and sit erect).The second week the bhujangasana(Lie prone with arms by your sides. Slowly bring your forehead to rest on the floor. Place your hands by the sides of your ribs with your fingertips facing inward. Tilt your head backward and begin raising your trunk. Push your hands against the floor and slowly start straightening your arms. Arch your back and roll your head back to gaze at the ceiling. Keep your legs together and elbows alongside your body slightly bent, shoulders back. Hold the position for as long as you can. Slowly tilt your head forward and lower your trunk to start coming down). And finally on the third week the nauvgasanna. The body comes into a V-shape, balancing entirely on the buttocks. In different variations and traditions, the arms legs and torso may take different positions. In Paripurna Navasana, the legs and back are lifted high and arms extend forward and parallel to the ground. In Arda Navasana, hands interlace behind the neck and both back and shoulders are closer to the ground.

Case Studies:

1. In a case study, a patient treated for diabetes was to be discharged a day after was interviewed he told

He was instructed to have a juice mixture of amla(gooseberry), haridra(turmeric) and kumari swarasa(juice of) in the morning empty stomach. Should have nuts- 2 walnuts, 1 almond and 1 pistachio at 11 in the morning. Should perform ardha matsyendrasana, vakraasana, & yogamudraasana. Should have a ball made of 3-4 curry leaves in the evening at the least 1 hour after having tea and have an early dinner that is 2 hours before he sleeps.He was also instructed walk for 20 minutes daily.

2. Another patient who was treated for rheumatoid arthritis was to be discharged on the day of interview told.

The patient was instructed to take black sesame seeds soaked overnight to be taken in the morning in empty stomach. He supposed to take a glass of pineapple or cranberry juice in the evening instead of tea or coffee. Should have bath in warm water and should keep the affected joints in lukewarm water mixed with Epsom salt. He should apply sandalwood paste mixed with turmeric on the affected joints to relieve from inflammation or the patient is asked to put a lepam of paste of shashtika saali rice, methi dhanya, and jaggery He should avoid cold breeze, sweets, oily foods, cold drinks, milk, black gram, too salty and sour food and fish. He should go for a gentle walk after food.

Discussion:

Most approached disorders in Ayurveda are Arthritic and neurological related disorders. But the trends points out, there is a shift from communicable diseases to non communicable chronic diseases. This more occurrence of CHD, diabetes, respiratory issues coming for ayurveda than the previously; perhaps this could be due to sudden shift of daily routine dietary and lifestyle practices.Recently more youngsters are also approaching Ayurveda clinics which shows increasing awareness of the common people. Still many patients have tendency to discontinue their medications. Few strong findings are the palatability of the medicines makes the patients especially children and women irregular. Women though particular that her family members takes medicines on time yet they often fail to take medicines after their daily routines. When asked often they forget about themselves due to the busy schedule but they take it as a point that neither her husband or her children does not forget to take.

Most of the Ayurvedic medicines takes time to display its efficacy that too long and slow improvements which makes patient more depressing and try for short cuts and also finally the palatability of the medicines when the patients already know the medicines going to help but takes time and due to the disease the quality of life is going to be affected for long till the disease remains. Henceforth this itself paves way for the patients to think about other systems of medicine or the quacks who promises assured and faster relief. Patients come for revitalization and relaxing – have understood that Ayurveda preaches ways of living. In Kerala, patients has culturral acceptance to this science and many believes and preaches Ayurveda; despite of it's palatability issues and long time for improvement.

It is affordable to make choices in Kerala but when considering those places where doctor to population of the place ratio is too straining is where the NRHM India is trying to add the AYUSH doctors to already existing primary health centres than starting new setups for to make the addition more over economically feasible (6).

Strengths And Weakness:

The study was conducted very well; the discussions with patients and doctors was possible and very diplomatic since the level of awareness and acceptance was high there in Kerala. The requirement and clarity of the study was there as i am from an Ayurvedic background. The selected area was Kerala known for preaching Ayurveda.

Though the subjects were co-operative some of the physicians were not ready to give away any of their traditional medical practices saying it might get miss used and can affect their patient flow by arousing competitions. Then most of the cases the patients use to take allopathic and ayurvedic drugs together hence many potential cases and to be discarded.

Table 1
Diseases Most Approached

HOSPITAL	No. of cases	Disease					
		Arth	Gynae	Resp	Skin	Neuro	Endo
Amrita School of Ayurveda	20	9	2	1	1	7	
Sanjeevani Ayurveda Hospital	10	4	1	2	1	2	
Amrithanja-li Hospital	10	4		2	1	3	1

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Health Seeking Behavior of the Elderly Ho Tribe in Mayurbhanj District, Odisha.

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Abstract

Introduction: India is the second largest country of tribal population in the world.Among all districts in Odisha, Mayurbhanj district has the second highest tribal population. **Objectives**: The aim of the study was to assess the current health status and health seeking behavior of the elderly Ho tribe aged 60years and above. **Methods**: A descriptive cross-sectional study was conducted. Data were collected by using both open and close ended questions in the Bahalda block, Mayurbhanj District, Odisha. A total sample of 180 respondents was interviewed. **Results**: Out of 180 respondents 105 (58.3%) were males, 75(41.7%) females and 75(41.7%) of the respondents were in the age group of 65-69yrs. Of the respondents92(52.2%) were unemployed with no source of income. Among the 75 women, 55 (73.3%) were widowed and had nosource of income. Majority of the respondents 119(66.1%) had joint family and they were staying with their spouse and other members of the household. It was observed that 108(60%) respondents had suffered acute illness in the patst 3 months. Out of 108 respondents 40(37.0%) had suffered diarrhoea. It was seen that 76(70.4%) respondents took treatment and among them 29(38.2%) respondents took treatment from traditional healers. All respondents suffered from chronic illness for more than 1year. It was observed that the prevalence of the diseases were respiratory complaints 61(33.9%), musculoskeletal problems 112(62.2%), digestive complaints 36(20.0%), urinary complaints 20(11.1%), skin complaints 40(22.2%) and dental complaints 33(18.3%). Of those who had chronic health problems 70(38.9%) respondents sought treatment and among them 24(34.3%) respondents took treatment from traditional healers. Almost all 110(61.1%)respondents did not take treatment and out of 110respondents 52(47.3%) believed that their religion did not allow them to. **Conclusion**: Thehigh level of illiteracy, unemployment, poor hygiene and lack of basic sanitation affected the health status of the elderly tribes. Low level of utilization of health facility, lack of transportation, cultural belief and traditions prevented treatment seeking.

Key words:Health-seeking behavior, Elderly, Ho tribe, Odisha, Traditional healers, Faith healers.

Introduction: India is the second largest country of tribal population in the world. In 2001 census tribal population consists 8.08 percent of the total population of India. (1) The tribal population of Odisha constitutes 22.1 percent of the total population of the State as per 2001 Census. (2)Mayurbhanj is located in the Northern region of Odisha. Tribal population is second highest in Mayurbhanj among all districts in Odisha. Mayurbhanj consists of 56.6 percent tribal population according to the 2001 census of India. (3) Mayurbhanj is the mother lands of the tribe because out of 62 tribal communities of Odisha 45 communities originate in that district. The major tribes who are residing in that district are Santal, Ho, Bhumij, Bhuyan, Bathudi, Kolho, Munda, Gond, Kharia, and Lodha. (4)

Rationale: Human beings in their lifetime have to pass through four stages of life i.e. childhood, adolescents, young and elder. Ageing is a natural process of life. Elderly populations are more vulnerable groups because they are more prone to communicable and non communicable diseases due to lack of immunity power. Elder persons are more vulnerable due to dependency status, lack of capability to earn and lack of essential requirements which mainly affect their health status. According to world population the elder persons has been growing from 8 percent in 1950 to 11 percent in 2007, with a probable growth of 22 percent in 2050. Globally the population of elder persons is increasing at a rate of 2.6 percent per year. (5) In India, according to census 2001, 7.5percent populations are elder person. (6) According to census 2001, 7.31percent of elder tribe persons are residing in Mayurbhanj district. (7) Therefore there is a need to study their health status.

Ho Tribes: Ho is one of the largest tribes in Odisha and Jharkhand. In their language “Ho” means man. Ho tribes are secluded and marginalized groups and less in numbers. As per 2001 census Ho tribal population in Mayurbhanj consisted of 12,971 people. (8)Ho Tribal communities are not similar like other tribal communities because they pursue their own religious system and they did not belong to any the major religious groups. They have a strong faith in religion, spirits and super natural powers. They are belongs to “Saran” religion. The word “Saran” is derived from the word “Sir” (arrow). The health care problems of this community are mainly due to high level of illiterate persons, poor hygiene and lack of basic sanitations and their customs and traditions.

Objectives: The aim of the study was to assess the current health status and health seeking behavior of the elderly Ho tribe aged 60yrs and above.

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Methodology:

Study design: A descriptive cross-sectional study was conducted in Bahalda block, Mayurbhanj district, Odisha in the month of June 2011. This study was based on a household survey.

Study Population:

Respondents of this study was any elder person 60 years and above. One respondent was selected from each household after taking informed consent.

Sampling:

Multi stage sampling was carried out in this study. Mayurbhanj district has 26 blocks. Out of 26 blocks one block (i.e.Bahalda) was selected by using simple random sampling. Bahalda block has 12 gram panchayats, out of 12 gram panchayats 5 gram panchayats (i.e.Jharadihi, Jashipur, Gidighaty, Bhitarmada, and Asana) were selected through simple random sampling. All villages from each panchayat were listed and two villages were selected from each panchayat by simple random sampling. Then the households were selected by purposive sampling based on presence of elderly person.

Sample size: The sample size was calculated from the formula 4pq/l2. Prevalence (P) 50% assuming the morbidity rate, relative precision of 15%, confidence level of 95% and a design effect of 2 for multi-stage sampling. After calculation sample size of this study was 178 and 15% over sampling. Finally expected sample size was 205.

Data collection tool: A structured questionnaire was prepared for data collection. Question was formulated on the basis of study objectives. Data were collected by using both open and close ended questions. The questionnaire was divided into 5 parts. It comprised personal information, household information, environmental information, behavioural information and morbidity profile. The data were collected with the help of a translator, who knew both odiya and tribal language that community.

Statistical Analysis:

Data entry and analysis was done by using of statistical software. Frequencies were calculated. Chi square ($\chi 2$) and Fisher's exact test was done for find out the association between the different variables.

Operationalization of key words:

Health seeking behavior:

Health seeking behavior is defined as the behavior required for find out the cause and complications of diseases, treatment and prevention.

Elderly:

According to World Health Organisation elderly is defined as any persons whose age is 60 years or above that. Elderly are classified into 3 groups according to their age groups (A) Young old: Persons those who are in the age group of 60 years to 69 years (B) Old old: Persons who are falling in the age group of 70 years to 79 years (C) Oldest old: Persons whose age above the age of 80 years.(9)

Traditional Healers:

Traditional healers are the persons who treat the diseased person by giving some kinds of local prepared medicines or western medicines. They are mainly called village healers or local healers or vaidya raj. Inthis research study traditional healers are mainly unregistered practitioners.

Faith Healers:

Faith healers defined as the person who treats the diseased person through the spiritual practices or ritualpuja(jhar-phukand mantra). They believe that disease can be healed byreligious devotion through prayer and rituals.According to the perception of Ho community that faith healers have power to stimulate the presence of the divine which helps correcting the diseases and disability. Faith healers are the head of this community; they are called as Dehuri or Deuri who perform the religious rituals. They are also called as village priest.

Ethical consideration:

The study was approved by the Institutional Review Board of the School of Public Health, SRM University. Before interview was started respondents were given detailed information about the aim and objectives of this study. Informed consent was taken from the respondent after they agreed. Respondents were guaranteed full confidentiality of the data. Respondents could withdraw at any point of the interview if they felt uncomfortable.

Results:

The total numbers of respondents were 180. Out of 180 respondents 105 (58.3%) were males, 75(41.7%) were females and 75(41.7%) were in the age group of 65-69yrs. All the respondents were illiterate and practiced Hindu religion. More than half of the respondents, 92(52.2%) were unemployed that means they had no source of income. Among 75

Table .1
Demographic distributions and characteristics household of the respondents

Background characteristics of the respondents	Frequency	Percentage
Age (years)		
60-64	72	40.0%
65-69	75	41.7%
>70	33	18.3%
Sex		
Male	105	58.3%
Female	75	41.7%
Religion		
Hindu	180	100%
Educational status		
Illiterate	180	100%
Occupation		
Agriculture labour	75	41.7%
Daily labour	11	6.1%
Unemployed	94	52.2%
Marital status		
Married	125	69.4%
Widow	55 (75)	73.3%
Type of family		
Joint	119	66.1%
Nuclear	61	33.9%
Living arrangements		
With spouse only	46	25.6%
Spouse and other members	119	66.1%
With children	15	8.3%
Monthly income		
500-1000	30	16.7%
1000-1500	34	18.9%
1500-2000	22	12.2%
No income	94	52.2%
Type of house		
Kaccha	151	83.9%
Semi-pucca	13	7.2%
Hut	16	8.9%
Source of drinking water		
Well	42	23.3%
Tube well	60	33.3%
River	23	12.8%
Pond	39	21.7%
Dam	16	8.9%

females, 55 (73.3%) were widows. Majority of the respondents 119(66.1%) had joint family and they were staying with their spouse and other members of the household. In this study it was seen that most of the respondents151 (83.8%) had Kaccha houses. Out of the 180 respondents 60(33.3%) were using water from tube well for drinking purposes. All the respondents were practicing open defecation. It was found that 103 (57.2%) were smokers and 172 (95.6%) consumed alcohol. It was observed that 108(60%) respondents had suffered acute illness in past 3 months. Out of 108 respondents 40(37.0%) had suffered diarrhoea. It was seen that 76(70.4%) respondents took treatment and among them 29(38.2%) respondents took treatment from traditional healers.All respondents suffered from some chronic illness for more than 1year. It was found that the80(44.4%) of respondents suffered chronic illness since 3-4 years. In this study it was observed that the most common complaints were respiratory complaints 61(33.9%), musculoskeletal problems 112(62.2%), digestive complaints 36(20.0%), urinary complaints 20(11.1%), skin complaints 40(22.2%) and dental complaints 33(18.3%). Of those who had chronic health problems 70(38.9%) respondents sought treatment and among them 24(34.3%) respondents took treatment from traditional healers. Of all those who had some chronic health problems more than one year, 110(61.1%)respondents did not take treatment and they believed that their religion did not allow them to. It was found that 55(30.6%) of the respondents gave first preference to faith healers as a first service provider. Of them 75 (41.7%) believed that the faith healers had supernatural power. All the respondents also believed in faith healers as they believed that they had supernatural powers. Majority of the respondents 134(74.4%) were not using the government health facilities due to reasons like religious belief 37(27.6%), facility not nearby 36(26.8%) and road condition not good 36(26.8%). Out of 180 respondents 53(29.4%) had perception that diseases are due to supernatural spirit.

Table-2
Morbidity profile and health seeking ehaviour of the respondents

Morbidity profile of the respondents	Frequency	Percentage
Type of acute illness		
Diarrhoea	40	37.0%
Febrile symptoms	31	28.7%
Mucoid stool and pain in abdomen	37	34.3%
Acute illness in past 3 months		
1-3 days	57	52.8%

3-5 days	51	47.2%
Seeking treatment of acute illness		
Yes	76	70.4%
No	32	29.6%
Reasons for not taking treatment		
Not serious	11	34.4%
No money	9	28.1%
Religious belief	12	37.5%
Place of treatment		
Faith healers	21	27.6%
Traditional healers	29	38.2%
Rmps	16	21.1%
Government hospital	10	13.2%
Seeking treatment of chronic illness		
Yes	70	38.9%
No	110	61.1%
Place of treatment		
Faith healers	23	32.9%
Traditional healers	24	34.3%
Rmps	8	11.4%
Government hospital	15	21.4%
Reasons for not taken treatment		
Not serious	29	26.4%
No one to take to the facility	14	12.7%
Religious belief	52	47.3%
No money	15	13.6%
First service provider		
Faith healers	55	30.6%
Traditional healers	52	28.8%
Rmps	27	15.0%
Government hospital	46	25.6%
Reasons for preferring first service provider		
Effectiveness	41	22.8%
Having supernatural power	75	41.7%
Easy to access	33	18.3%
Cheaper	31	17.2%
Preferring faith healers		
Yes	180	100%
No	0	0
Reasons for preferring faith healers		
Effectiveness	51	28.3%
Easy to access	26	14.4%
Having supernatural power	75	41.7%
Cheaper	16	8.9%
Bounded by custom	12	6.7%
Using Government health acility		
Yes	46	25.6%
No	134	74.4%
Reasons for not using		
Religious belief	37	27.6%
Facility not near by	36	26.8%
Road condition not good	36	26.8%
No transport facility	22	16.6%
Cannot afford	3	2.2%

Chi square ($\chi 2$) test was done for find out the relation between the variables. There is association between the type of family and seeking treatment of chronic illness (P value = 0.03, Odds ratio: 4.835, C.I: 95%). Respondents those who were from joint family their seeking treatment towards chronic illness were better than those who were from nuclear family.

The test where Chi square ($\chi 2$) was not applicable due to small samples, Fisher's exact test was done.Therewas association between the age of the respondents and musculoskeletal disorder as respondents age increases musculoskeletal disorder also increases (p value = 0.001). It was observed that respondents whose age was more than 70 years were more prone to musculoskeletal disorder rather than whose age less than 70 years. There was a relationship between monthly income of the respondents and treatment of chronic illness (P value = 0.029).In this study it was found that respondents whose monthly income was good had better treatment seeking behavior but those who had no source of income had poor treatment seeking behavior.There was also association between sources of drinking water and type of acute illness (P value = 0.001).Respondents those who took water from pond, river and dam for drinking purposes more prone to G.I illness rather than who took water from well and tube well. According to (P value = 0.001) it observed that there is association between place of treatment and type of acute illness. Respondents those who were suffered G.I illness they took treatment from traditional healers but those who were suffered febrile symptoms they took treatment from faith healers because they had perception that febrile symptoms were only cured by faith healers. There was a relationship between the first service provider and reasons for preferring them. Respondents who preferred faith healers as a first service provider did so because of the belief

that they have supernatural powers but those who preferred traditional healers did so due to mainly effectiveness of treatment.

Discussion:

This study population was primarily male dominated with majority in the age group of 65-69 yrs. In this study all the respondents were illiterate and 52.2% respondents were unemployed that means they had no income and poor sanitation which consequence poor health status which is similar to the previous study done in elderly. (10) It was found that majority of the respondents 119(66.1%) had joint family and they were staying with their spouse and other members of the household which is supporting to the previous study. (10, 11) It was found that 95.6% consumed alcohol like the previous study. (10) In this study they consumed mainly local brand of alcohol. These characteristics are typical of elderly tribal populations living in Odisha. This ensures that the findings can be extrapolated to the other tribal populations as well. It was observed that 60% respondents were suffering from acute illness like Gastro intestinal symptoms and febrile symptoms, due to monsoon season at the time of data collection. Those respondents who took drinking water from river, pond and dam mainly suffered from G.I illness. Those who were suffering G.I illness (diarrhea andmucoid stool and pain in abdomen) mainly took treatment from traditional healers and those who were suffering febrile symptoms mainly sought treatment from faith healers which is supporting the previous study which was done also in tribal community in Rajasthan (12),but another study was done in North East India which is opposite to this study because of preferring traditional healers in case of febrile symptoms.(13)There was a high burden of chronic diseases, mainly musculoskeletal diseases (62.2%), respiratory complaints 61(33.9%), digestive complaints 36(20.0%), urinary complaints 20(11.1%), skin complaints 40(22.2%) and dental complaints 33(18.3%).Respondents those who were from joint family their seeking treatment towards chronic illness were better than those who were from nuclear family. This is probably because of better socioeconomic status in joint family and better social support. It is also likely that the elderly are more cared for and respected in the joint family system. In this study 52.2% respondents had no source of income and so did not seek any treatment, similar to a previous study. (15) Another factor which influenced health seeking behavior is traditional beliefs. They believed that spirits were responsible for disease and death.For relieving the disease they have to sacrifice some type of birds and animals. Maximum numbers of the respondents preferred faith healers as first service provider due to having supernatural power. About 74% of the respondents were not using the government health facility because of bad road conditions, religious belief and distance of the facility. These findings correlate with findings of previous studies. (12) Some of the respondents 53(29.4%) had perception that diseases are due to supernatural spirit.

These findings are very important from a policy perspective. As we saw earlier the numbers of elderly are increasing as India is going through a demographic transition. In this situation there is a need to understand the health status and health seeking behaviour of our elderly. This becomes all the more important for the marginalized communities such as the tribal communities. The public health system should strengthen the services provided to the elderly and thus prepare for the future health burden and health needs in India. This study is an initial step in the understanding of the health needs and health seeking behaviors of the elderly tribes in Odisha.

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Does spirituality influence abstinence from health risk behaviors? – A study among university students in Kerala

Hari Sankar[1], Geetha Veliah[2]

Abstract

Introduction: Spirituality has long been known to have effect on deaddiction programs however its effect in preventing people from risk behaviors have not been explored before the present study aims to do that. **Methods :** A descriptive cross sectional study on a convenient sample of 100 students of Amritha University, Kerala was done using a self-administered questionnaire which measured the spirituality quotient in students, demographic data and risk behaviors. **Results :** Smoking was found to be less in students with high spirituality quotient (p=0.07) but other risk behaviors didn't show statistical significance .The spirituality quotient was found to be increasing with years of stay in the institution. **Conclusion:** The present study threw light on the effect of spirituality as a potential solution to prevent addictive behaviors in students.

Key Words: Spirituality, risk behaviors, college students.

Introduction:

Spirituality and its influence on health have been studied for a very long time now. Research studies supportive to the various positive effects of spirituality are under the scanner. A considerable amount of physicians and health care providers feel that religiosity and spirituality of patients do play a vital role in cure of illnesses.(1,2,3) Western philosophy often considers spirituality as belief in a supreme power governing everything in this world .The belief that everything happening in the world are connected and however bad the situation tends to be, it all ends up good.(4) Spiritual dimension of an individual in an organization has been studied and the study stated its importance in delivering a better productivity in individuals. (5,6,7)Spirituality quotient and its effect as a protective factor against various risk behaviors is the area this study focuses on. Any behavior that puts the exposed to a risk of negative consequence like future poor health, injury or death can be termed as a health risk behavior.Alcoholics anonymous, the internationally acclaimed group working towards sobriety has used the effect of spirituality and designed peer influence to a great success in their programs. Duration of sobriety was found to be statistically associated with spiritual experience.(8) This study how ever focuses on preventive effects of spirituality rather than its therapeutic benefits .If spirituality can address the needs of the people who need to get away from risk behavior say alcohol consumption, can it help to prevent the individual from starting to use it These are the questions this research tries to find an answer to.

Methods

A descriptive cross sectional design was opted for the study and the study area was Amritha University, Amrithapuri campus, Karunagapalli, Kerala. The university which runs under the guidance of Her Holiness Mata Amritanadamayi Devi a world renounced spiritual leader, has its students exposed to spiritual teachings and meditations along with academics . A sample size of 100 was calculated by taking 50% prevalence of spirituality and with an allowable 20% error. Students currently enrolled in the university course and who were residing in the hostels were considered for the present study.

Data was collected using a questionnaire which consisted of two parts .First part had the scale to measure spirituality and second the questionnaire to assess the risk behaviors that they were involved in.

The scale used here is a 22 item likert scale developed by Tripti singh et al(9) which covers mainly six domains of spirituality namely a)Service towards human kind b)Feeling of inner peace and calm c) Inner connectedness d)Respect for others e)Self awareness and f) Having a vision and value . The responses were marked as numerals according to the statement number to which they agreed to each questions .The scores were summed up to obtain a spiritual quotient. After the filled in questionnaires were collected and scores computed, the median score of the spiritual quotient of all the participants were taken which came as 85 and thus the sample was divided to two groups, those above the median score were labeled as high spirituality group and those below the mean score were termed low spirituality group.

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The second part of the questionnaire consisted of questions about demographics and risk behaviors. Five domains were considered in assessing the risk behavior of participants they were a)Risk for un intentional injury b) Risk of depression and suicidal tendencies c) Alcohol use d) Tobacco use and e) Inadequate physical activity. The risk behavior assessment has been done taking YRBSguidelines(10) . An informed consent was taken after explaining the purpose of the study and the contents of questionnaire. Statistical Analysis was done using SPSS statistical package after the data was collected from respondents .The analysis comprised of basic descriptive statistics and Chi square test for association.

Results

The total sample were 100 students of Amritha university. Their demographic characters are given in table 1. The spiritual quotient distribution of these respondents are depicted in the fig 1. The mean score was 83.5 with SD of 9.3. and the median score was 85 .

Table 1
demographic characters of the sample population

S.No	Characteristics	Percentages
1. Age	18yrs	7
	19yrs	12
	20yrs	21
	21yrs	14
	22yrs	20
	23yrs	26
2. Years in college	First year	14
	Second year	43
	Third year	26
	Fourth year	19
3. Gender	Male	51
	Female	49

It was observed that 29% of males and 28% of females belonged to the High spirituality group. The distribution of spirituality quotient according to age is shown in fig 2

Risk behavior analysis showed that a majority of the students abstained from risk behaviors like alcohol use and smoking. Of the respondents 67% hadn't used alcohol for the past 30 days 90% abstained from smokeless tobacco and 79% of the students didn't smoke a single cigarette in the reference period. The domains of risk behaviors like risk for unintentional injury was measured by their habits of wearing a seat belt while driving or travelling in a car to which 35% replied they never wore and 30% said they rarely wore. Similarly 12% of students replied that they always wear a helmet while riding a two wheeler while around 65 % replied they wore it rarely or never. To the questions related to depression and suicidal tendencies 38% replied they had stopped doing their daily activities for two weeks in a row. Another area explored in risk behaviour was the amount of physical activity in daily life,76% of students answered they did physical activity by which we meant any kind of activity continuously for an hour which induced increased breathing heart rate and sweating ,less than three days in the past one week. Chi square test were done with spiritual quotient and each one of the risk behaviour data to find out if any association existed between spirituality and these risk behaviors. The test showed significant association between smoking and spirituality quotient with odds ratio of 0.236 (95% CI 0.07 ,0.78). The rest of the tests didn't show any statistical significance yet the absolute proportions indicated that the low spirituality group students were more exposed to each of the risk behaviors.

Fig 1:
spiritual quotient score distribution in the sample

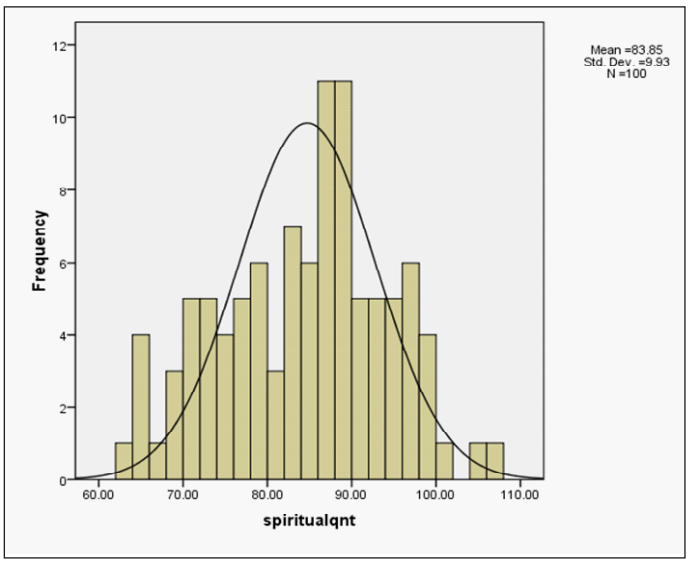

Fig 1 shows the distribution of spiritual quotient scores in the sample .The scores range from 60 to 110 and the mean score was 83.5.

Fig 2:

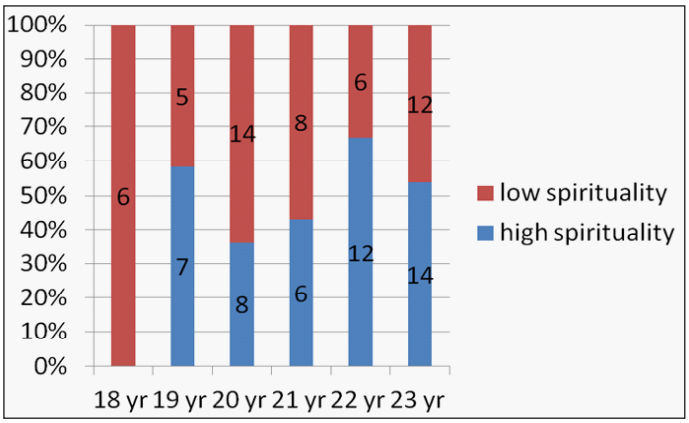

Fig 2 shows the number of students falling to low spirituality group and high spirituality group the number in high spirituality group seem to be increasingwith years of stay in college

Discussion

A large volume of studies on spirituality related to health done earlier focused mainly on the therapeutic effects of large group gatherings and structured peer group influence .While here the current study focused on the preventive effect of the same spirituality .The distribution of spirituality quotient among the students in accordance with their age showed that the number of students in high spirituality group increased with increasing age also indicative of the fact that years of stay in an institutionalized spiritual instruction tend to influence them. One possible confounding factor here might be the sampling technique as number of students from each group varied and those students present at the time of study were only included in sampling. Smoking was found to have an association with odds of 0.236 suggesting high spirituality group students had a chance of smoking 0.23 times than the low spirituality group students. Even in the absence of statistical significance, speaking in absolute numbers current study showed that students of higher spirituality group had better chance of abstaining from other risk behaviours .As college years are the most crucial phase in shaping the way individual lives his life a properly structured program to incorporate values about life and health might be helpful to them .The major limitation of the study was the sample selection as the strict rules regarding risk behavior in the campus might have made many students reluctant towards either attending or disclosing the complete truth about the questions .The possibility that in addition to spirituality the rules which are maintained strictly might be a factor which influences students from abstaining from these behaviors ,a further study in a campus without spiritual instructions in academics will throw more light on the findings of the present study. Inspite of all these limitations we hope the current study may be a indicator to an area less studied before ,and with further more research studies done might bring a potential solution to the ever growing threat of individuals being slaves and victims of their own habits.

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Female Genital Mutilation And Cutting (FGM) In Nigeria:

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Abstract

Introduction: Female Genital Mutilation (FGM) is a human rights violation that involves the mutilation of the female external genitalia for various non-medical reasons. Commonly practiced in Africa, Asia and Middle East as well as in their migrant communities in developed nations. An estimated 140 million women worldwide have undergone some form of the procedure & approximately 3 million girls are at risk yearly. Despite various international and domestic laws against it, the practice is largely unchanged in in Africa including Nigeria causing great physical and emotional suffering as well as death among victims in the practicing communities. **Objective:** To present a systematic review on the issue of Female Genital Mutilation in Nigeria through the use of available articles, documents and literature. **Methods:** Descriptive study of secondary data taken from the Nigeria National Demographic and Health Survey (1999, 2003 and 2008) as well as a wealth of information from the Nigerian Ministry of Health and other sources. **Discussion:** Despite programs against FGM and some awareness in Nigeria the practice is still very prevalent. Across the timeline it is performed mostly by traditional circumcisers (occasionally by healthcare professionals) in infants and highest in terms of practice in the more literate southern part of Nigeria.

Key Words: Female Genital Mutilation, Nigeria, Africa, Complications.

Introduction:

What is referred to as Female circumcision or Female Genital Mutilation/Cutting includes a range of practices involving the partial or complete removal or alteration of the external genitalia for non medical reasons and appears in a widely varied cultural contexts in Africa as well as other populations including those from Middle East and Asia as well as migrant communities in Europe and North America, Australia and New Zealand [1,10]. It is estimated that between 100 to 140 million women worldwide have undergone some form of the procedure [1,3,5,6], and about 3 million girls world wide are at risk of undergoing the procedure every year (most of which are found in Sub-Sahara Africa, Egypt and Sudan) according to these reports a it means an astonishing 8000 women and girls approximately are circumcised per day [9]. Female genital mutilation has no known health benefits, as a matter of fact it is known to be harmful to girls and women in many ways causing a host of short term and long term physical and/or psychological trauma or complications and in severe cases may even lead to death [7]. The removal of or damage to healthy, normal genital tissue interferes with the natural functioning of the body and causes several health consequences. For example, babies born to women who have undergone female genital mutilation suffer a higher rate of neonatal death compared with babies born to women who have not undergone the procedure [7,12].

The procedure may be performed at infancy, at puberty, upon contracting marriage, in the seventh month of the first pregnancy or after the birth of the first child. A number of misconceptions/assumptions are usually associated with the practice, examples of which include that it is an “ancient” and deeply entrenched practice, that it is associated with an initiation (into womanhood etc). It is associated with religion and with patriarchy [1] etc. It should be noted that FGM is practiced among Muslims, Christians, Jews and indigenous African religions [1], however there is controversial or no reference made to this act in either the Qur’an or the Bible [7,8]. Although as a worldwide trend FGM is practiced more amongst Muslim [27,28]. What ever the misconceptions, assumptions or the impressions FGM/C may have, there is an existing consensus that it has an unparalleled ability to evoke an emotional response in those exposed to it, be they victims or witnesses. Because of this exposure it has led to increased scrutiny from the media, feminist groups, human rights organizations, health practitioners and legislators [2]. In 1997 in order to emphasize the negative nature of the practice and address to the growing concern, gravity and severity of the situation the UN issued a joint statement that Female Circumcision will henceforth be referred to as “Female Genital Mutilation” [7]. It will also no longer be considered as a traditional practice, but rather a Human rights violation. However the terms vary and may include FGM/Cutting (FGM/C) which are all used

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interchangeably [2,7]. For the purpose of this article it will simple be referred to as FGM.

The term FGM refers to several procedures for altering the female genitalia. Although these procedures seemingly overlap, some distinctions can be made, & as a result four major types are recognized and are classified into types I to IV [3,4,5], as follows:

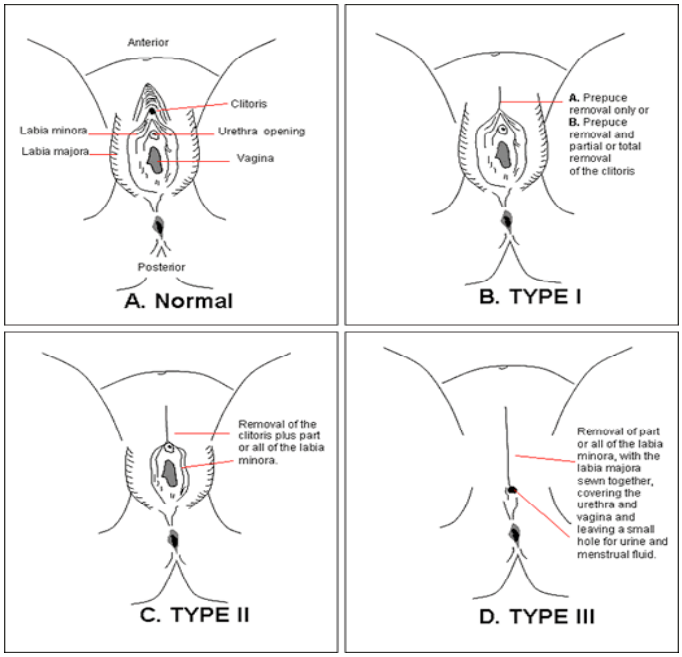
Type I: Excision of the prepuce (the fold of skin surrounding the clitoris), with or without excision of part or the entire clitoris. This is the extensive type (the only type that can be construed to be analogous to male circumcision) commonly called "sunna" (Arabic for tradition or duty)

Type II: Excision of the clitoris with partial or total excision of the labia minora [the smaller inner folds of the vulva].

Type III: (aka pharonic) Excision of part or all of the external genitalia and stitching or narrowing of the vaginal opening (infibulation). This is the most radical form of FGM and refers to the ancient roman practice of fastening a fibula or clasp through the labia majora to prevent extra-marital sex.

Type IV: Unclassified, which includes pricking, piercing or incising of the clitoris and/or labia; stretching of the clitoris and/or labia; cauterization by burning of the clitoris and surrounding tissue; scraping of tissue surrounding the opening of the vagina (angurya cuts) or cutting of the vagina (gishiri cuts); introduction of corrosive substances or herbs into the vagina to cause bleeding or to tighten or narrow the vagina; and any other procedure that can be included in the definition of female genital mutilation noted above.

Figure 1:
Diagrammatic representation of the types of FGM



Complications Of FGM

FGM has a varying degree of adverse effects on the reproductive, physical, sexual, psychological and emotional health of victims [7,12]. The extent of these adverse effects seems to correspond with the severity of FGM. Therefore complications correspond to the type of FGM, with infibulation (type III) having the worst effects [2,18]. The physical effects range from early complications which include severe hemorrhage that leads to anemia from prolonged lesser bleeding, infections (including HIV/AIDS), septicemia, tetanus, gangrene, and wound ulcers. Late complications (more often associated with Infibulation) are chronic pelvic infection, dysmenorrhea, dermoid cyst formation, urinary tract infections that could cause kidney damage and infertility to name a few [12, 22]. There are also increased risks of complications and adverse outcomes during and after childbirth, which include higher death rates of neonates [2,12]. The feeling of powerlessness, resulting pain, confusion and misunderstanding the procedure to mention a few leads to psychological trauma and arguably Post Traumatic Stress Disorder (PTSD) in some patients [30].

Apart from the consequences of FGM on an individual, studies have also shown that it has far reaching effects on the economy of a nation. As a result of the complications, there are increased medical costs in the management between 0.1 to 1% of a nation's reproductive health budget [21].

Situation In Africa

"Even though cultural practices may appear senseless or destructive from the standpoint of others, they have meaning and fulfill a function for those who practice them. However, culture is not static; it is in constant flux, adapting and reforming. People will change their behavior when they understand the hazards and indignity of harmful practices and when they realize that it is possible to give up harmful practices without giving up meaningful aspects of their culture."

— Female Genital Mutilation, A joint WHO/UNICEF/ UNFPA statement, 1997

FGM/C is practiced in approximately 28 countries in Africa [1,6]. Prevalence rates of FGM range from 5% to 99% [1] depending on the country. There are many supposed reasons why this practice is continued in these countries, such as the "prevention of promiscuity among women" to "ensuring the cleanliness of the victim". No matter where it is

practiced it represents a certain level of gender inequality that is part and parcel of that community structure [2]. Female genital mutilation represents society's control over women. Such practices have the effect of perpetuating normative gender roles that harm and are unequal to women. Analysis of international health data shows a correlation to the attitude that FGM should be discontinued and the women's ability to exercise control over their lives (UNICEF, 2005). In Africa it is estimated that about 92 million girls from the age of 10 and above have undergone some form of FGM [6]. As highlighted in previous paragraph this procedure is carried out anytime in between infancy and adulthood and in some cases even during pregnancy. Recently it has been noticed that the average age this procedure is carried out is decreasing. Another disturbing trend that is emerging is the increasing degree to which parents seek out the involvement of trained medical practitioners to perform FGM (i.e. Medicalization of FGM) [8,9].

Table 1:
Summary of the awareness and prevalence of FGM in 2003 and 2008

Zones	% of women who have heard of FGM		% of women undergone FGM		Types of FGM					
	2003	2008	2003	2008	Type I	Type I*	Type II	Type II*	Type III	Type III*
N. Central	36	32.7	9.6	11.4	1.2	1.4	64.6	56.5	2.5	8.2
N. East	40.1	38.9	1.3	2.7	-	13.8	-	48	-	17.6
N. West	25.1	39.4	0.4	19.6	-	0.6	-	24.4	-	10.5
S. East	87.7	88.5	40.8	52.8	0.3	1.3	12.2	48.7	12.7	5.5
S. South	82.5	82.1	34.7	34.2	3	3.6	66	50.8	7.5	5.7
S. West	85.7	87.1	56.9	53.4	2.2	4.7	36.3	47.9	1.3	1.8

Table 2:
Urban/Rural distribution of FGM for the years 2003 and 2008

	Percentage of women who have undergone FGM	
	2003	2008
Urban	28.3	36.8
Rural	14.0	25.6

Table 3:
Educational Status and wealth quintile against the percentage of women have 1 daughter who has undergone FGM and those who intend to have it done on their daughters for the years 2003 and 2008

Background	% women who have at least one daughter undergone FGM		% women who intend to have daughter(s) undergo FGM	
	2003	2008	2003	2008
Education				
No education	5.6	36.1	1.6	4.5
Primary	14.8	32.9	4.2	8.1
Secondary	14.9	25.4	5.7	4.9
Higher	11.8	15.4	4.4	1.8
Wealth Quintile				
Lowest	6.8	28.1	3.1	5.0
Second	6.2	36.6	2.6	6.5
Middle	8.2	30.2	1.9	6.9
Fourth	11.1	30.4	4.0	5.3
Highest	18.4	26.0	4.2	3.7

The Maputo Protocol

As a result of the widespread moral and health problems FGM was causing across the continent the former Organization of African Unity (formerly OAU now African Union-AU) mandated the African Commission on Human and People Rights (ACFHPR) in June 1995 to propose a set of suggestions to address the rights of women in Africa continent.

After several consultations with domestic and international human rights groups and NGOs a final draft was submitted to the OAU in 1999. This draft was merged with another, the Draft Convention of Traditional Practices and following a successful lobby it was adopted by the African Union at a summit in Maputo, Mozambique on 11th July 2003 and finally in 2005 following the ratification by the required 15

Table 4:
Educational Status aTable 4: Nigerian tribes against awareness and percentage of women who hav undergone FGM

Ethnic Group	% of women who have heard of FGM		% of women who have undergone FGM	
	2003	2008	2003	2008
Ekoi	-	83.5	-	34.9
Fulani	19.4	28.2	19.4	8.5
Hausa	28.5	40.3	28.5	20.3
Ibibio	-	72.9	-	15.8
Igbo	86.5	87.6	86.5	51.4
Ijaw/Izon	-	82.9	-	23.5
Kanuri	58.5	-	58.5	-
Tiv	27.9	-	27.9	-
Yoruba	88.2	87.8	88.2	58.4
Others	54.8	48.6	54.8	14.0

nations of the AU (a perquisite), the Maputo protocol was entered into force. Of the 53 nations of the AU, the Heads of State of 46 signed the protocol, but only 28 have ratified it which include Angola, Benin, Burkina Faso, Cameroon, Cape Verde, Comoros, Democratic Republic of the Congo, Djibouti, Gambia, Ghana, Guinea-Bissau, Kenya Libya, Lesotho, Liberia, Mali, Malawi, Mozambique, Mauritania, Namibia, Nigeria, Rwanda, Senegal, Seychelles, South Africa, Tanzania, Togo, Uganda, Zambia and Zimbabwe. Figure 2: Prevalence of FGM/C among women aged 15-49 across Africa

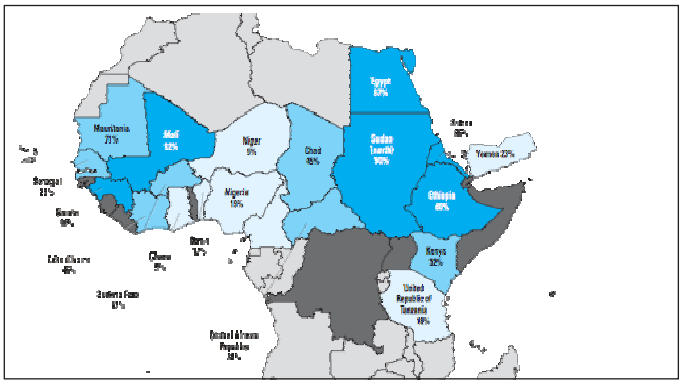


Figure 3:
Map of Nigeria with Geo-political zones

Countries that have neither signed nor ratified it are Botswana, Egypt, Eritrea and Tunisia. In spite of this protocol and other laws against FGM, the practice continues unabated in and around Africa including many of the countries that signed and ratified the protocol into force. There has been little or no progress in the fight against the practice in Africa. (See Appendix 1 Figure B for map showing the prevalence of FGM in different countries in Africa).

FGM In Nigeria

Nigeria is a multi-religious, multi-ethnic country found in the western part of Africa with an approximate population of 160 million making it the most populous “black” nation in world. The country is divided into 36 states and a Federal Capital Territory (FCT). Many differences exist between the people and ethnic groups within the country with these people speaking different languages and following very different religions, with a mainly Muslim north and a largely Christian south, as well as various traditional/ local beliefs in between. Despite these differences (in religion & ethnicity) a Ministry of Health survey established that FGM is practiced in every state of Nigeria [13,14]. Another survey by the WHO in 1997 estimates 60% of the female population has undergone FGM [19, 23]. (See Appendix A Figure 3)

Results and figures from the Demographic and Health Survey (DHS) for the years 1999, 2003 and 2008 also revealed that despite some awareness of FGM (and possibly its harmful effects) especially in the more educated southern region of the country, there is also an appreciable number of women who have undergone some form of FGM or other. This is consistent in all the years when the cross sectional studies were performed. It also shows that although there may have been a minimal reduction in the practice in some parts in the north, there is some increase in the practice in the south across the board of the different types/classifications of FGM. Considering the urban/rural distribution, educational status and the wealth quintile of the families of

women interviewed, these studies reveal that FGM is most prevalent in urban families who are literate and within the middle to fifth quintile. This is further emphasized in results highlighting ethnicity against the practice of FGM, this shows that even though awareness of FGM is highest in the Yoruba tribe of Southern Nigeria it is also practiced most among the same tribe, who ironically are widely considered by some as the most educated ethnic group in the country. Figures also reveal that FGM is performed when children are infants mostly by traditional practitioners (circumcisers) in what must be added are usually of questionable hygiene, further exposing victims to the potential of blood borne diseases [20]. Although recently in urban setting health care workers

Another disturbing worldwide trend to which Nigeria is not exempted is that of the "medicalization of FGM", whereby trained healthcare professionals perform FGM [9]. This is reflected in the DHS a certain degree of FGM is performed by these medical professionals (See Appendix B Figure 1). Of the different healthcare professionals that perform FGM, Nurses perform the greatest number of procedures [29].

Reasons for Practicing FGM in Nigeria

Some claim that historically the aim of FGM was to serve as protection for young women against rape who take animals to pasture. There are however many diverse reasons why FGM is practiced in Nigeria; psychosexual reasons include ensuring fidelity and virginity, sociological reasons range from a religious rite, initiation into womanhood, some cultures deem it a source of family honor as well as a way of ensuring marriage of daughters [25]. Hygiene and aesthetic reasons include removal of unclean/unsightly parts of the human body [7, 22]. Other reasons as observed among some tribes in the southern region of Nigeria claim that during birth, contact of the child with the female clitoris will lead to it's death thus it must be removed to forestall the "tragedy" [7]. Despite the fact it may seem otherwise FGM is not an act of hate, rather it is the opposite as parents do what they think is in the best interests of their children [28,32]. Whatever the reasons may be, performing FGM is usually entrenched in the culture of the practicing community [24]

Efforts to Eliminate FGM in Nigeria

At the 47th World Health Assembly 1994 Nigeria was involved in a resolve to eliminate FGM (WHA 47.10) [13, 20]. Nigeria has taken several initiatives some of which include the formation of technical working groups, conducting various studies and surveys on Harmful Traditional Practices (HTPs), launching of a Regional Plan of Action, formulation of a National Policy and plan of action for the elimination of FGM in Nigeria [13, 20]. Concerted efforts have also been made to educate lawmakers, community and community leaders, the general public, health workers and those who carry out the practice on all its health and psychosocial consequences.

The Nigerian government recognizes that FGM as a harmful practice that has to be eliminated. As a result a bill was proposed in the national assembly to penalize the practice of FGM with a 2year jail term with an option of a 16,500 Naira (US$100 approx.) fine [22], the end result of this bill is unknown. Other than this proposed bill there are no specific federal laws known to be in place banning the practice [19]. Even though some state governments (e.g. Bayelsa, Benue, Cross-River, Ogun, Osun and Rivers - States) have taken initiative and set up state laws against the practice [16], the penalty for individuals convicted of performing FGM is a paltry 1000 Naira (US$ 6 approx.) [19] and in my opinion are hardly a deterent. While psychological and health complications have been emphasized, little or no emphasis has been made regarding the economic implications, especially, of addressing the health complications [13,16].

Effectiveness of Programs to Eliminate FGM in Nigeria

Although Nigeria has taken several initiatives to combat and indeed eliminate FGM within its borders the effectiveness of these programs can be called into question. In spite of several searches over an extended period of time, no statistical data could be found of any of these programs as concerns their aims, objectives inputs, activities outputs or outcomes. What can generally be deduced from available documents such as the DHS is that there has been not a significant improvement in the figures pertaining to the prevalence of FGM (refer to Appendix C). This indicates that the methods employed to target the awareness and possible eradication FGM in Nigeria, do not effect any significant behavioral change possibly by not fully addressing the issues as they affect or inform the decisions of this unique population. Possible reasons could be ineffective/ inadequate education, training duration, activities and/or empowerment [4]. Another reason why programs have fallen short is the failure to gain insight into the significance the tradition of FGM to women and to the society in question [31].

Conclusion

Nigeria is a culturally diverse nation with approximately 250 to 300 languages spoken with different religions usually distributed among regional lines. This however does not affect the distribution of FGM as it is found nationwide. Although the exact figures of the prevalence and other variables are debatable, what cannot be argued is the continued practice and the trend of consistently high numbers and vast distribution of FGM which can be deduced from documents as far back as 1993. It may also be hypothesized that it may contribute to the nation's poor maternal and child health. All in all what we can conclude from this is programs and interventions designed by health officials have largely been ineffective in tackling the issue of FGM in the world's largest "black" nation. In spite of this there is a sliver of hope as the literacy of the population rises and the ever-increasing attitude that it should be discontinued, stakeholders may be able to ride this wave of change to finally rid the nation of the scourge of FGM in Nigeria.

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Morbidity pattern and treatment seeking behavior of people working in tanneries in Ranipet.

Arun Kumar Udayachandran[1], Alex Joseph[2]

Introduction

Work in leather tanning and processing may involve exposure to a wide range of chemicals. Some of these are carcinogens or suspected carcinogens, such as hexavalent chromium salts, etc.. And chlorinated organic solvents. Furthermore, exposure to leather dust, which has caused increased risks for Sino nasal cancer in the leather industry. The footwear industry is a significant segment of the leather industry in India. India ranks second among the footwear producing countries next to China. Work in leather tanning and processing may involve exposure to a wide range of chemicals. Some of these are carcinogens or suspected carcinogens, such as hexavalent chromium salts, vegetable tannins, chlorophenols, aniline dyes, formaldehyde, methyl mercury, arsenic, benzene, and chlorinated organic solvents. Weak associations between employment in the leather tanning industry and bladder cancer have been shown in some studies, but not in all. In a single study an increased incidence of renal cancer was reported. Increased risk for pancreatic cancer has been shown in a Swedish case-referent study, but no such association was found in cohort studies. An excess of soft tissue sarcomas (STS) among leather tanners has been reported, including a significantly increased incidence based on five cases, observed in the first report from this Swedish cohort of leather tannery workers.

Methods:

Study design:

Descriptive - cross sectional study.

Study setting:

The study was conducted in the tannery workers in the Sipcot area, Ranipet.

Eligibility criteria and method of selection:

All women and men who works in the tanneries for more than 1year were eligible for the study.

Sampling Technique

Simple random sampling done to select the 8 tanneries among 127 tanneries.

Sample size:

Sample size was calculated as 156 individuals assuming a prevalence of 16.7% and with error of 6%.

Process of data collection:

The people who works in the industries where identified, the name list was obtained from the co-worker in the mornings. Then the data collection was done by visit their individual house.in the data collection 1 the co-worker from the industry was taken along with us for finding out the houses.

Ethical Consideration:

To address the ethical issues the researcher obtained oral concern from the respondents after informing them about the objective and purpose of study, all assured of anonymity, confidentiality and their ability to withdraw from the study at any time. The study was also approved by the Institutional Review Board at the School of Public Health, SRM University.

Results:

In the study there were 156 individuals among whom 126 were males and 32 were females. The age distribution was between 17 and 58 years. Most of the respondents were aged between 21 to 40years.

The literacy rate among the people who works in tanneries are very less. There are 53.8% of people who stopped their studies in their primary level, 23.4% of them where stopped their studies in secondary level, 22.2% were illiterate and only 0.6% people completed their higher secondary level.

Figure 1:
Gender Distribution in the departments

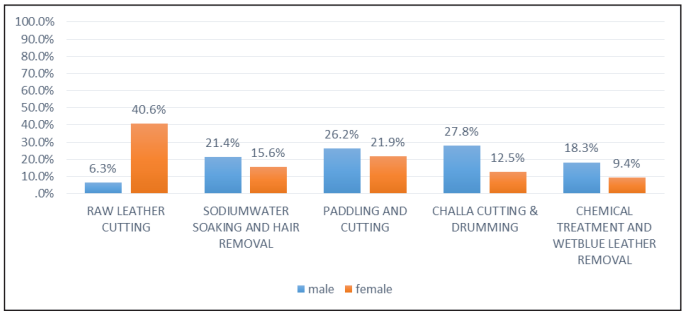

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Figure 2:
Exposure of direct and indirect risk in the various work domains

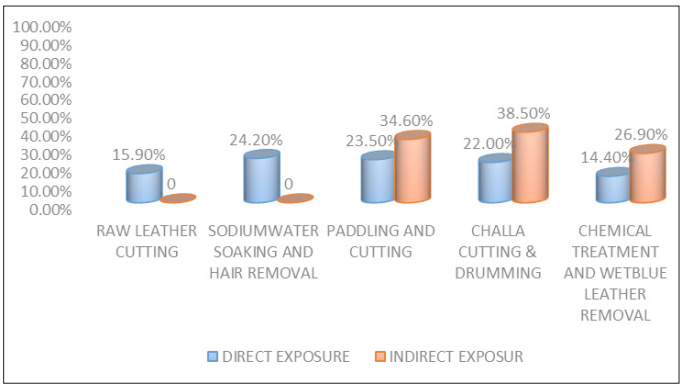
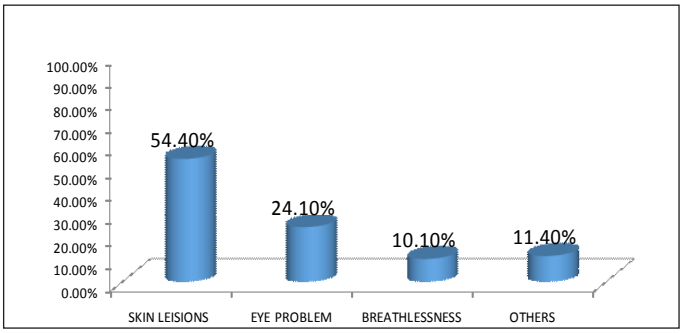


Figure 3:
Morbidity pattern among the workers



With respect to the marital status 96% males and 29% of the females are married.

In raw leather cutting department females were more. Other than that, the number of women were lesser in most of the departments due to the heavy work load. This is shown in Figure 1.

Many of the companies provide safety measure to their employees. Among them about 80.4% of the people use safety measures provided by the company and 19.6% of the individuals did not use their safety measures given by the company. There were some companies where they didn't provide safety measures to the employees and they use their own safety measures like lorry tubes and sacks. In total 67.5% males and 43.8% females were using the safety measures. Figure 2 shows the exposure to various levels of direct and indirect risks in the different work domains.

The morbidity patterns shows skin lesions and eye problems are more when compared with other diseases. This is shown in Figure 3.

The treatment seeking behavior of the individual are analyzed in which it was found that only 7.9% male and 53.1% of the females are using primary care services and others are using the private clinics due to lack of time due to their loss of daily wages.

Discussion:

This cross sectional study done to identify the disease pattern of the tannery workers. This study helps in identifying the work related hazards in the different process of manufacturing. It was seen that there was a dominance of men in the leather tannery work force. Women were more in some specific departments such as raw leather cutting. Skin lesions and eye problems were common among the tannery workers. It was also found that utilization of the public health services was very minimal. There is a need to improve safety measures in leather tanneries.

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Repetitive Strain Injuries among employees in an Information Technology firm in Chennai.

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Abstract

Introduction: Repetitive Strain Injuries (RSI) is defined as injuries caused by repetitive exertion of the body's tissue structures including muscles, tendons, ligaments, and nerves.It is common in computerusers. In a survey in Hyderabad it was found 50% had RSIproblems. As Chennai has a large number of software professionals it is important to assess the situation here. Objectives: The study objectives focus on finding the prevalence of RSI, various types of RSI and factors leading to RSIin the people working in a software industry in Chennai. **Methods**: Aconvenient sampling method was followed. Data consisted of 75 computer users in software industrywhich comprised of 44male and 31 female workers. Data collection was done by questionnaire method. **RESULTS**: About 41.3%workers were suffering from RSI problems. Among them 12.9% have single joint problem and remaining87.10%have multiple joint problem. Among persons suffering from RSI 24% have back pain ,8% neck pain 25.3%shoulder pain, 18.7% wrist pain 9.3% elbow pain, 22.7%knee pain. About 60%of themwere using proper ergonomic chair. **Conclusion**:Out of all symptoms shoulder pain is highest of 25%.we found that above 60% of workers are using proper ergonomicchair.

Key Words: IT industries, Repetitive strain injuries

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Bio-medical waste management in Private hospitals of Puducherry

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Abstract

Introduction: In today's world human beings are generating more and more amount of waste. There is a stupendous rise of big and small hospitals in cities and they generatebiomedical waste which is hazardous and harmful to people and the community which come in contact with this type of waste. Special management procedures and regulations are already in place to manage bio-medical waste. But it is seen that even when the health care providers know about the hazards of biomedical waste they do not follow the laid down procedures and regulations. This study assessed the practice of bio-medical waste handling and perceptions related to it from the point of view of doctors, nurses and housekeeping staff of private hospitals in Puducherry. **Method:** An exploratory study design was adopted to get information from the respondents. In depth interviewswere conducted with 10 doctors, 10 nurses and 10 housekeeping staff who were working in 10 selected private hospitals. A pretested check list was used for gathering information. **Findings:** Among the 10 Hospitals all hospitals were using needle destroyer while colour coding was used by only three hospitals. Most doctors perceived that this was the government's duty and thatit was expensive. Most nurses were using the needle destroyer but perceived that there is a shortage of housekeeping staff to manage this waste handling. All housekeeping staff perceived that salary is too less and no training is imparted to manage the wastes. **Conclusion:** The right kinds of rules and regulations for managing the biomedical waste are in place but no training has been imparted for the private health providers inmanaging biomedical waste. The monitoring mechanism is also poor. Though doctors and nurses agree to the need of managing biomedical waste, inadequate knowledge causes them to perceive the management as expensive and not important. The housekeeping staffhas no monitoring and supervision. There is an immediate need to regulate biomedical waste handling practices in small private hospitals.

Key Words: Bio Medical Waste, Private Hospitals, Environment, attitudes.

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Assessment of low back pain in activities of daily living among adults in Ranchi community of Andaman and Nicobar Island.

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Abstract

Background :In India the tribal community is the most marginalised. During British rule these communities were slaved and made into slave labourers. These included people from the Chota Nagpur tribal belt who were brought to Andaman and Nicobar Islands (AandN) to work as forest labourers. **Objective**: objectives of this study are to find the prevalence of LBA. Also it will find the disability caused due to LBA and assess factors associated with LBA. **Methodology**: The study is a cross sectional descriptive study. The sample frame is the Ranchi community Sample size was decided by taking prevalence of 17% with 30% precision came to 217. The sample was selected by multistage random sampling. Results: Among the respondents 89 respondents i.e. 41% were suffering from LBA. It was seen that 44.7% people who were under weight and 38.9% people who are normal weight suffer from backache while 65.5% over weight and 40% obese do not suffer from back ache. The fisher's exact test shows significant association between the two

Key words : Low back pain, Ranchi Community, Andaman Nicobar

Introduction:

In India the tribal community is the most marginalised. During British rule these communities were slaved and made into slave labourers. These included people from the Chota Nagpur tribal belt who were brought to Andaman and Nicobar Islands (AandN) to work as forest labourers. They were mainly the Oraon, Kharia andMunda tribes who were collected from Jharkhand, Chhattisgarh, Bihar, Orissa, West Bengal and Madhya Pradesh. In the Andaman's they are called Ranchi's, after the city that was their recruiting centre. While these communities are recognised as Scheduled Tribes in their regions of origin, in Andaman and Nicobar islands they are seen simply as a homogenous group of migrants. Introduced in 1918 under the British government's island development scheme, 'Ranchi's' continued to be brought to the islands after India's independence as labourers to clear jungle areas for settlements. Evicted from the forests in 2002 following a Supreme Court ruling, Ranchi's now own no land and rely on irregular labour jobs for survival. While, the Scheduled Tribes have 'fixed quota' benefits for higher education, employment and other social security guaranteed under the Indian Constitution, inn the absence of tribal status and living in remote in accessible areas, the Ranchi's remain outside the fold as they are not registered as tribals in AandN.So they mainly depend on meagre hard work labourer jobs to earn their livelihood.

In the year 2008 a study team of ICMR,RMRC Port Blair,NIMHANS Bangalore ,and Action Aid International conducted a cross-sectional study on alcohol consumption :prevalence and pattern in A and N Island. In that particular survey a questionnaire on general health was also assessed and it was known that 16.6%* of that community was suffering from disc problems. It was the second largest cause of morbidity after mental health problems. As the community is mainly into hard menial labours so having a disc problem affects their capability to earn their livelihood. They being already poor this type of disease causes an effect on the overall family of that individual. So it is important to study the prevalence of LBA and also to measure the level of disability in the community. This will give the exact magnitude of the disease and help in making policy decisions so as to reduce disability. It will also help to make rehabilitation measures for this marginalised community.

The objectives of this study are to find the prevalence of LBA. Also it will find the disability caused due to LBA and assess factors associated with LBA.

Methodology

The study is a cross sectional descriptive study. The sample frame is the Ranchi community of North andMiddleAandNisl.Samplesizewasdecidedbytaking prevalence of 17% with 30% precision came to 217. The sample was selected by multistage random sampling. First from North and MiddleAndaman out of three tehsilsMayabunder, RangatandDiglipurMayabunder was selected randomly. In this tehsil there are 8 Gram Panchayats(GP) namely Pahalgoan, Chainpur, Mayabunder, Pokadera, Rampur, Harinagar, BasantipurandSwadeshnagar. Among these two Gram PanchayatPahalgoanandChainpur were selected by simple random sampling. In these 2 GP there are 10 villages. The sample of 217 was selected from these

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10 villages by population proportionate to sizein a non replacementform. From 1st June to 30th June 217 people were interviewed. These interviews were done by house to house interviews with the help of a pre formed questionnaire which took 20 minutes to administer. The data included basic demographic characteristics (age, sex and medical history). Weight and height were measured in kilograms and centimeters using standard instruments and BMI was calculated. For the interview a tested Owestry's low back questionnairewas used. The Owestry's questionnaire consists of 10 section with 6 answer. For each section the total possible score is 5.If all 10 sections are completed the score is calculated as per guidelines given with the questionnaire.

Results

The study sample comprised of individuals aged <20, 21-40, 41-60, 61-80 and>80 in proportion of 6%, 60%, 25%, 8% and 0.5% respectively among whom 49% were males and 51% were females. In the population private worker, cultivator, house wife, government service, PRI member and studentwere 22%, 21%, 38.5%, 9%. 0.5% and 6% respectively. In the sample predominantly 84% people lived in kucha house while 7% lived in puccaand 9% lived in semi pucca house. Among the sample underweight, normal, overweight andobese accounted for 22%, 58%, 13% and 7% respectively. The perception of respondents about the health status was good 42%, very good 36%, and fair 17% while only 3% said that their health status was excellent and 2% said that their health status was poor. Among the respondents 89 respondents i.e. 41% were suffering from LBA. It was seen that 44.7% people who were under weight and 38.9% people who are normal weight suffer from backache while 65.5% over weight and 40% obese do not suffer from back ache. The fisher's exact test shows significant association between the two. About 42.7% of respondents who don't think that their occupation is strenuous suffer from backache while 51% of respondents who think their job is strenuous are suffering from backache. This was also statistically significant by Fisher's exact test.

The disability of the people who are suffering from back ache as per the Owestry's questionnaire is divided into minimum, moderate, severe, crippled which is at 39%, 39%, 15% and 7% respectively. Cross tabulation was done between perception of health status and disability. Of the people who perceive their health status as poor 50% have severe disability while 25% have crippled disability.Of the people who perceive their health status as fair 56.7% have moderate, 23.3% have severe while 6.7% have crippled disability. Of the people who perceive their health status as good only 10.6 and 6.4% have severe and crippled disability while none of the people who perceive their health status as very good suffer from severe and crippled disability.

Discussion

The prevalence of LBA among the Ranchi community is considerably high. This is also substantiated by study done by NIMHANS. But as they had taken a larger sample within a larger geographical area their results are more representative of Ranchi community than this study as we concentrated on a small part of Ranchi community. The study shows that there is not much difference between genders in having backache. These are all related to strenuous work. As many respondents have the condition for more than 1 years, the study shows that LBA is a chronic condition in this population. The Ranchi community people do hard and heavy work which leads to their belief that the work is causing LBA. There are scanty occupational health considerations of people working in the informal sector like the Ranchi community. Little attention is paid about the ergonomics of their work environment. About half of people who suffer from backache have met with an accident which is a contributing factor to high prevalence. As the community is mostly poor there is maximum utilization of government service.

Maximum people doing strenuous occupation suffer from backache and the association is significant. So age, BMI and strenuous work are correlated with back ache. Disability due to backache is high. Being chronic disease it causes severe to crippled morbidity due to LBA. Perception is also a factor which decides the level of disability. This study shows that if a person's perception is poor or fair about his/her own health then there is more chance of that person having LBA. This also means that most people having LBA perceive themselves as having poor or fair health.

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