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FOREWORD

Greetings from the Editorial Team of the Public Health Research Series!

One more year has passed by and with this we bring out the fourth volume of the Public Health Research Series. We are glad to present to you one more powerful compendium of research papers written by the students of the School of Public Health, SRM University. This time we have an additional paper from outside the School included, thus representing the expanding scope of this Series.

This year we present 15 selected papers which have gone through a thorough internal review. The number of papers have reduced in keeping with greater focus on quality. We have also modified the layout and structure of the Series which the regular readers of the previous volumes can easily discern. We have kept in mind several important critiques that have been presented to us by readers of the previous volumes and have paid attention to those points while preparing this volume.

It is also a happy news for us that this year, we are bringing out a volume with one submission from outside the School of Public Health. This was an invited piece for which the editors are grateful to the authors Dr. Balasubramaniam and Dr. T.K. Sundari Ravindran. We hope that in the coming years more and more external articles will be submitted and will be carried in 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, and Nigeria. 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!

Editorial Team

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Treatment seeking for reproductive health conditions requiring hospitalisation and costs incurred: Experiences of rural women from Tamil Nadu

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Abstract

The study examines factors that determine rural women's choice of hospitals for in-patient reproductive health care services and explores out of pocket expenditure on hospitalisation. Using a cross-sectional household survey of 8444 rural households in twenty sample villages across five districts of Tamil Nadu, the study found that of 11807 women, 49 women were hospitalised for reproductive health conditions during the reference period of one year preceding the date of survey. Of these, 41 women were admitted for reproductive morbidities and the remaining were admitted for abortions and surgical sterilisation. The study found that more than half the women accessed multiple providers for in-patient reproductive health care. Approximately half the women surveyed first contacted a public provider. Among them ten transferred to private hospitals. Poor quality of care and delayed treatment procedures were the main reasons for their transfer. On the other hand, 24 out of the 49 women first visited a private provider and among them seven moved to public facilities. High cost of care in the private hospitals was the predominant reason for their shift. The median out of pocket expenditure of women who used private facilities was Rs8550 which was about 3.4 times more as compared to expenditures incurred by those who accessed public institutions (Rs 2500).

Key words: Reproductive morbidities, Hysterectomy, Hospitalisation, Out-of-pocket expenditure, Public and private hospitals, Source of in-patience care expenses, Tamil Nadu.

Introduction

Tamil Nadu has a high ranking for Reproductive and Child Health (RCH) programme implementation compared to other states in India. During 2001-2010, Tamil Nadu introduced a series of policies that strengthened the functioning of the public health system. In particular, the supply of delivery care services including emergency obstetric care was considerably improved in quantity and quality. The demand for institutional delivery was also increased through Dr. Muthulakshmi Reddy Maternity Benefit Scheme, which provided a substantially higher cash incentive than the Janani Suraksha Yojana to low-income women. The amount was Rs.6000 until the change of government in 2011, and is now Rs 12000. By 2008, almost all (98.3%) deliveries took place in a health facility. Interestingly, despite the increasing number of private clinics and corporate hospitals in the state, only 39% of all deliveries take place in private hospitals

and 61% in public sector facilities (1). However, not much information is available on whether the achievement in maternal health care in terms of increasing public sector use is also true for other sexual and reproductive health services. This study makes a beginning in terms of addressing this question.

Evidence across the world indicates that utilisation of health care services and patients choice of health facilities is influenced by socio-demographic characteristics as well as hospital attributes like availability, accessibility, quality of services and out- of- pocket expenditure on accessing the services.

Many studies in India have found that the utilisation of reproductive health care services is significantly associated with a woman's socio-economic status. However, the direction of the association varies across studies. One study from Karnataka showed that the higher a woman's education and household economic status, the higher the probability of her use of reproductive health care services (2). But a community based study from rural Tamil Nadu observed that illiterate, women from lower socio economic groups ignored their ailments far less frequently than their educated and economically better placed counterparts (3).

Evidence shows that private health facilities are predominantly used for sexual and reproductive health care services (2, 4, 5). This seems to be motivated to some extent by the sensitive nature of several sexual and reproductive health conditions and like abortion and RTI/STI and the need for confidentiality. Recent research has also indicated rural women mostly preferred private hospitals for hysterectomies (6).

Several studies have highlighted that private providers were perceived to be providing better services and public services were rated as poor as a result of longer waiting period, poor attitude of the staff and non availability of medicine and equipment (7,8). One cross sectional study from 1999-2000 in Andhra Pradesh found corruption to be highly prevalent and to be major cause of patient dissatisfaction with public hospitals (9).

Health economics literature clearly shows that out-of-pocket expenditure (OOP) for inpatient care is a heavy burden to households, and that OOP varied significantly between the public and private sectors. A national level survey report highlighted that the average hospitalisation expenses for public and private health facilities in rural areas were Rs.3,238 and Rs.7,408 respectively (10). The report also revealed that a large proportion of out-of-pocket medical expenditure for in-patient care was for purchasing drugs. A recent study from Gujarat found the mean out of pocket expenditure for a hysterectomy in a private hospital (Rs.8678/-) to be more than double that in a government facility (Rs.4140/-) (6).

A research study from West Bengal showed the average annual household spending on in-patient care in a rural area was Rs.4340/- and it accounted for approximately 12 percent of household's total annual expenditure (11). Likewise, a recent research study highlights that India's per capita out-of-pocket expenditure for hospitalisation has almost doubled in five years; from 11.20% in 2005 to 22.47% in 2010. The hospitalisation expenses as a share of overall household expenditure

also increased to 1.9% (2009-2010) from about 1.6% for the same period (12).

Research has shown that out of pocket expenditure for in-patient care forces many households into debt. Borrowing and selling of physical assets are the main source of meeting hospitalisation expenses (13,14). A more recent study from Gujarat reported that most of the public healthcare consumers paid for their in-patient care using their current income and savings. But those using private hospitals were more likely to report selling land or other assets as the primary source of coping mechanism and were more likely to have to borrow money at a higher interest rate (15).

This paper presents an analysis of data collected as part of a larger study that explored factors that determine rural poor women's choice of hospitals for sexual and reproductive healthcare services. The research questions were the following:

- What is the current pattern of utilisation of public and private health facilities for sexual and reproductive health services?
- What are the factors underlying rural poor women's choice of public and private health facilities for hospitalisation of sexual and reproductive health care services?
- What is the out-of-pocket expenditure for sexual and reproductive health services, and how does it vary between public and private hospitals?
- What is the extent of financial burden on households for hospitalisation for sexual and reproductive morbidity and what are the financing strategies deployed by households?

Data was collected on the use of health facilities for pregnancy, delivery and post-partum care and for other sexual and reproductive health conditions. Information pertaining to maternity care has been published elsewhere. This paper presents information pertaining to other sexual and reproductive health conditions.

Materials and Methods

The Study Area

According to the latest census data, Tamil Nadu has a population of 72.1 million, accounting for 6 percent of total population of India (16). Out of 32 districts in Tamil Nadu, we selected five districts purposively for the study. The selected districts are Kancheepuram, Nagapattinam, Cuddalore, Dharmapuri and Kanyakumari. The first two districts have moderate socio-economic and health indicators where both public and private sectors are equally accessed for health care (Table 1). The next two in the list had poor indicators as well as utilisation of public facility is predominant. The last is a district with above the state-average socio-economic and health indicators and utilisation of private sector is high. This is mainly to capture the diversity and differentials in utilising public and private sector. In the selected districts; we gathered information on Primary Health Centres (PHCs) from the deputy director of health services of the respective districts. Information was gathered related to whether the PHCs had in-patient facilities; provided 24X7 delivery care services; and their monthly average patients load.

Using this information we classified PHCs into two groups; "better performing" and "poor performing", on the basis of type of services provided and patient load. Finally, two PHCs were selected randomly in each district, one each from PHCs grouped as "better performing" and "poor performing". Then the number of villages with population and distance to each of the selected PHC were gathered. From the list we selected two villages per PHC for the study; one very close to PHC and the other one far away from the PHC. Thus, in total the research covered 20 villages in five districts, four villages per district. In the selected villages, door to door complete enumeration of hospitalization cases one year prior to the date of survey (for all illnesses as well as sexual and reproductive health care) was carried out. Based on the house listing, interviews were conducted with persons hospitalised for sexual and reproductive health problems. Oral consent was obtained from the study participants. Data was collected using a semi-structured interview format with open-ended questions so the respondents would be able to express their views freely.

Table 1. Socio- Economic and Health Indicators of the Sample Districts and Tamil Nadu

Indicators	Districts					
	Kanniyakumari	Kancheepuram	Nagapattinam	Cuddalore	Dharmapuri	Tamil Nadu
Total Population (in Millions) 2011 (16)	1.9	3.9	1.6	2.6	1.5	72.1
Sex ratio (males/1000 Females) 2011(16)	1010	985	1025	984	946	995
Literacy Rate 2011(16)	92.1	85.3	84.1	79	64.7	73.15
Human development India HDI (2006) (18)	0.763	0.778	0.738	0.709	0.656	0.736
Gender Development Index- GDI (2006) (18)	0.749	0.765	0.723	0.693	0.64	0.722
Percentage of population below poverty line (18)	25.3	17.1	25.8	17.5	27	24
Percentage of women married aged 20-24 years and who married before 18 years (17)	9.4	28	17.6	25.7	43.2	24
Percentage of Institutional delivery(17)	98.9	94.7	98.4	92.3	92	94
Contraceptive prevalence (17)	73	64	54	57	63	61.1
Crude Birth Rate 2007 (19)	17.16	15	11.29	16.25	18.9	16.1
Crude Death rate 2007 (19)	6.9	6	6.4	5.3	5.8	6.5

Table 2 Profile of the women Hospitalised for SRH services

Category	N	Percent
Age		
17-25	6	**12.24**
26-35	19	**38.78**
36-45	11	**22.45**
46 and above average	13	**26.53**
Caste		
SC	25	**50.02**
MBC	15	**30.61**
Others	9	**18.37**
Educational qualification		
Did not have formal Schooling	20	**40.82**
1-5 Years of Schooling	11	**22.45**
6-8 Years of Schooling	9	**18.37**
Above 9 Years of Schooling	9	**18.37**
Occupation		
Agricultural Labourers	11	**22.45**
Other wage workers	8	**16.33**
Cattle rearing	2	**4.08**
Household work	26	**53.06**
Others	2	**4.08**
Total	**49**	**100**

In addition to this, case studies were also collected from those who had been hospitalised for SRH care and from women who had varying (good/not so good) experiences in utilising public and private health care facilities.

In the 8444 households in which house-listing was carried out, 59 persons reported being hospitalised for sexual and reproductive health conditions. Of these, 9 were not available for interview at the time of the survey. Of the remaining 50, one was a man hospitalised for a sexually transmitted infection. We report below on the 49 women who were hospitalised for sexual/reproductive health conditions.

Though our study is cross-sectional and consists of complete enumeration of all women hospitalised for an SRH need in randomly selected villages, the small number of cases on which we report on precludes any generalisation. It is nevertheless useful as the basis for generating hypotheses for further research on this underexplored topic.

Results

Background characteristics of the women

About 50% of respondents were below 35 years of age, 22 % were between 36-45 years old and 28% aged over 45 years. Approximately half the respondents (25/49) belonged to socially marginalised "Scheduled Caste") group, 15 belonged to Most Backward Caste (MBC) and 10 persons belonged to other castes (Table 2). More than 40% had no schooling and only one third had above 6 years of schooling. An overwhelming majority (88%) belonged to landless households. A little more than half (56%) were not working outside the home, 40% were daily wage labourers, and 4% were street vendors.

Table 3 shows that 53% of the women (26 out of 49) underwent a hysterectomy. Prolonged excessive bleeding, severe abdominal pain, tumors in the uterus and uterine prolapse were the main underlying conditions related to hysterectomy. Reproductive tract infection was the second main cause of hospitalisation (7 women), followed by miscarriage (6 women), and six more women were hospitalised for menstrual problems;

Table 3 Source of Hospitalisation by Nature of the Problem

Reasons for Hospitalisation	Source		
	Public Institutions	Private hospitals	Total N
Menstrual Problems	1	5	6
UTI/RTI/STI	4	3	7
Abortions	1	6	7
Hysterectomy	13	13	26
Others	3	-	3
Total	**22**	**27**	**49**

One woman underwent both an abortion and a surgical sterilisation. Of the remaining two; one woman was admitted for breast cancer and the other one was treated for HIV/AIDS. The median age of the women who underwent a hysterectomy was 48 years. Women hospitalised for abortion, sterilisation and treatment for other menstrual problems were below 30 years of age.

Patterns of utilisation of sexual and reproductive health services

More than half the women accessed multiple providers for treatment; 26/49 women visited two or more providers. In total, 23 women accessed a single provider (47%), another 16 consulted two providers (33%) and the remaining 10 women visited three providers (20%). The average number of providers consulted by the study women was 1.6. The average number of providers consulted varied depending on the nature of the problem. Women with a reproductive tract infection consulted an average of two providers each, and women who underwent surgeries consulted 1.8 providers each. Those admitted for menstrual problems and miscarriages/abortion had consulted 1.4 and 1.2 providers respectively.

Patterns and reasons for using multiple providers

A number of interesting findings emerge when examining the pattern of health care utilisation for in-patient sexual and reproductive health care. As seen from Table 4, a little more than a half of the women (25 out of the 49) first contacted a public provider. Of them ten moved to private hospitals and two other made vertical movement within the public sector, from CHC or taluk hospital to district hospitals. Thus, only 13 women underwent treatment at the public health facility that they first contacted. Analyzing the reasons for moving from public to private sector, we found poor quality of care and delayed treatment procedures to be the main reasons.

When I tell them that I am having bleeding they said it would be there for some time and it will be cured. So, I got discharged from the government hospital and went to a private one - HYS 10

First I visited a government Taluk hospital, the treatment was not so good over there so we came back home after two days of treatment. Then I got admitted in a private hospital. - RTI 3

I first went to government hospital and they asked me to stay for one month for the operation. If I stayed there for months, no one was at home to perform my household chores, so I moved to a private hospital for surgery and discharged within a week time - HYS 2

Table 4 Median Expenditure on hospitalisation (In Rupees) by type of Provider

Nature of the problem	Private	Public	Cross Sector move				
	Single provider	Multiple providers	Single provider	Multiple providers	Public/ Private	Private/ Public	Total N
Hysterectomy	25000 (n=3)	21500 (n=6)	9000 (n=7)	17500 ((n=2)	11550 (n=5)	4500 (n=3)	26
Menstrual problem	1167 (n=3)	-	690 (n=1)	-	-	7295 (n=2)	6
RTI/STI	-	10000 (n=1)	1000 (n=1)	-	410 (n=2)	3165 (n=2)	7
Abortions	4617 (n=3)	-	1940 (n=3)	-	10000 (n=1)	-	7
Others	-	-	1400 (n=1)	-	25000 (n=2)	-	3
Total N	**10**	**7**	**13**	**2**	**10**	**7**	**49**

The two women who made a vertical movement in the public sector did so because their problem was not resolved at the lower level. First I went to a taluk level public hospital but there was no cure, so I visited a big government district hospital and stayed there for eight days. - HYS 18

24 out of the 49 women of the study first visited a private provider, among them seven moved to public facilities and another seven moved to other private providers. So, only ten women received treatment at the first private facility that they consulted. High cost of care in the private hospitals

was the predominant reason for moving from private to public providers.

First, I consulted a doctor in private hospital. But I did not have enough money to undergo the treatment. Then, I went to a government hospital and there they removed my 'karupai' (uterus). - HYS 13

A woman who had miscarriage and underwent D&C in a government institution says,

I first visited a private nursing home and the expenses were very high. We were unable to manage it, so we went to a Taluk level public hospital and stayed there for two days for treatment - ABN 4

The seven women who moved on to a second private provider did so because the problem was not resolved.

The private doctor gave me a reference letter and asked me to consult doctors in medical college hospital. Then I went to a private medical college hospital. -HYS 1

Days passed by but there was no relief. Then we visited another private hospital and there my uterus was removed. -HYS 21

It may be noted that the shift from public to private facilities and vice-versa was more for surgeries (hysterectomy and breast cancer) and RTI/STI problems than for other conditions.

Reasons for selecting a private or public provider for hospitalisation

We asked women about their reason for selecting a public or private hospital for hospitalisation and we received varied responses.

Experiences of private hospitals users

Good quality of care in the private hospitals and poor quality of care in the public facilities were the main reason for choosing a private provider. Eighteen out of 27 women who utilised private hospital services provided this as their reason. Close proximity (one woman) and referred by doctor, friends and relatives (2 women) were the other reasons for their selection. Another six women reported that their illness was not resolved in the public hospitals and they subsequently sought out care from a private provider.

The good quality of care that the women mentioned with regards to their private sector care varied from attitude of the providers to the types of services. For example, patients explained how they liked the humane attitude of the private sector doctors and nurses, quick and timely treatment they were given, and the availability of all equipment/ services etc.

Even though I spent money for treatment in private hospital they provided me good care. - HYS 4

I had treatment for irregular periods and they provided good care. - MS 3

Generally, women weighed the pros and cons of using public and private hospitals and expressed that the poor quality of care in the public hospitals forced them to use private hospitals. The poor quality of care in the public sector that they mentioned varied from poor interpersonal relationship of the providers, longer duration of stay to avail the services and fear of using the services as a result of their previous bad experiences. A woman who underwent MTP and surgical sterilisation in a private hospital said:

Generally in public hospitals they won't respect patients and there is also no proper care, so we didn't go there. If I have had the operation in a government hospital I would receive Rs.1000 as an incentive. But I had to face a lot of hardship. ABN 6

Longer duration of stay in public hospitals for diagnosis and treatment was also another important factor for selecting private providers. This was true particularly for surgeries.

If we go to a government hospital they would ask to stay in bed for one or two months and then only they do perform surgery, so I had my operation in a private hospital. - HYS 3

Seven women had prior negative experiences using government hospitals and stated that was their reason for choosing a private provider,

Without giving any information about my health condition the government doctor asked me to go home. On the very next day I was unable to bear my stomach pain I screamed a lot. Then I went to a private hospital and underwent the surgery. - HYS 5

I had continuous bleeding like rainfall and doctors in our nearby government hospital kept repeating tests. I felt like dying. So, at last I consulted a private gynaecologist and she removed my uterus. - HYS 8

Experiences of public facility users

Among government hospital users, lower costs and inability to bear the high out-of-pocket expenses in the private sector due to their poverty, (14/22) were the prime reasons for choice of the facility. Two women each mentioned close proximity and referral by doctors and close relatives as their reason for choosing a public sector hospital. It is worth mentioning that three women noted receiving good quality care in the public facilities as the reason for their selection of the public facilities.

My husband is a fisherman and we don't get regular income. Taking in to account our family situation, we went to taluk hospital for cleaning my uterus after miscarriage. - ABN 2

As I know the cost of treatment at private hospital is expensive and we couldn't afford. We went directly to public hospital. - HYS 7

Seven women first consulted a private doctor and underwent treatment in a public sector hospital because of high out-of-pocket expenses in private hospitals and family poverty. They said they were well aware the quality of care in public hospitals was not good, but they did not have any other options.

First, I consulted a doctor in a private hospital. Doctor said that there are wounds in my uterus and if it is not treated pus would be formed and it would endanger your life. She suggested to remove my uterus. But I did not have enough money to undergo the treatment there. I stayed with my brother for some time and came back home. As my problem got worse, I went to the government taluk hospital and they removed my 'karupai' (uterus). - HYS 13

I first visited a private nursing home with an impression that they will provide good care, but the expenses were very high. We were unable to manage the expenses so we went to the Taluk level hospital and stayed there for two days for treatment.-ABN 4

A woman with HIV in Dharmapuri district who had a bad experience in using a private

hospital also viewed the quality of care in the public facilities to be good.

I had severe fever, my relatives took me to a private hospital, and they spent a lot of money for treatment. They did blood tests and knew my problem (HIV) and they did not inform me. They referred me to neighbouring primary health centre and they did blood tests and took a look at my earlier reports. They only revealed that I have HIV positive. Now, I am regularly visiting the PHC, there they provided good care for me. -RTI, STI 7

Expenditures on Hospitalisation

There is a large financial burden to households from hospitalisation for RH problems. The median expenditure of women who used private facilities for in-patient care was Rs 8550 which was about 3.4 times more when compared to expenditures incurred by those who accessed public institutions (Rs 2500). It also seems that even accessing a public hospital is a high out-of-pocket expenditure. Though women who accessed government hospitals for miscarriages spent the least amount (Rs.750), this is nearly equal to Monthly Per capita Consumption Expenditure (MPCE) of rural Tamil Nadu. According to the latest NSS estimates in (2007-08) Monthly Per Capita Consumer Expenditure (MPCE) of rural Tamil Nadu is Rs. 834. For a hysterectomy women had to incur 6 times of their MPCE in public hospitals. Those using private hospitals were much worse off.

For instance, a hysterectomy operation in a private hospital costs almost 4 times more than (Rs.20000) it would in a public sector facility (Rs.5000), and equates to nearly two years of monthly per capita expenditure. Similarly for miscarriages, a woman spends five times more at private hospitals (Rs.3735) as compared to a public facility (Rs.750).

When examining the details of out-of-pocket expenses it is apparent that doctors' fees and medicines were the major expenses in the private sector. Food and travel for patients were also substantial expenses, in addition to lab charges and room rent. For public sector users, food and travel costs were the prime expenses, and informal charges came third in order of magnitude. Informal charges are the 'under the table' payment given to service providers for performing subsidiary services like cleaning wounds, changing the napkins, removing sutures and assisting to do diagnosis, pulling the wheel chair or stretchers etc. As expected women accessing single provider spent less than those who visited multiple places.

Within the private sector, expenditure for hospitalisation differs noticeably by the nature of the facility. Something unusual that was noted was women who underwent surgery in private nursing home spent relatively more money compared to those who used private medical colleges. Three women hospitalised in private medical colleges reported being charged reasonable amounts for the surgery; Rs.5000/- for private medical colleges and Rs.22,400/- for nursing homes. It was observed that a few private medical colleges in the study area have applied for recognition/registration of medical council of India and they charge part payment mainly to attract patient load.

First I went to a private hospital for treatment. I stayed there for three days. Taking into my financial situation the doctor gave me a reference letter and sent

me to a private medical college hospital. They performed a surgery and removed my uterus. In total I stayed for 20 days and expenses would be around five thousand. - HYS 1

Another woman from other district also says,

I underwent uterus removal operation in private medical college hospital and they collected only part of the amount from us (Half), but their quality was also good. - HYS 2

Source of Hospitalisation Expenses

Since hospitalisation expenses are costly and it is a large and unexpected financial burden to the low income households, a large majority of the women surveyed (43 out of 49) borrowed money to meet the expenses. Predominantly (31 of 49) obtained loans from money lenders and also mortgaged their jewels, vessels and house deed. The interest rate for the loan for every thousand rupees varied between Rs.30-100 per month (36% to 120% per annum) depending on the urgency and the type of money lender. It is important to mention that all the private facility users and women hospitalised for surgeries in the public sector borrowed money to meet expenses.

I had a miscarriage and doctor did D&C (Dilation and Curettage). For that I stayed in the private hospital for two days. The expenses were about Rs.5000. We didn't have such a huge amount to meet the expenses so my husband obtained loan by pawning my jewelry (Gold Chain). - ABN 5

As I accessed private hospital for hysterectomy, the expenses were about Rs.23, 000/. My younger brother had arranged a loan for it and I am still paying the interest. -HYS 16

Women who accessed public health facilities also reported the same pattern of source of health expenditure:

I underwent surgery in a public hospital and the medical expenses were very high. I had taken a loan from money lender for the treatment. - HYS 12

Though I underwent treatment in public hospital, I spent Rs 15,000/-, I borrowed money and I still pay the interest for the same. -HYS 22

A woman admitted for infertility treatment narrated her mental agony and financial difficulties as below:

I underwent treatment at many private hospitals. Despite these, there was no improvement. As a result my husband frequently quarrels with me and there is no peace in my life. I have even pawned my 'thali' (Marriage Chain) to pay for treatment. -OTH 2

Six (of 49) women borrowed money from self-help groups to meet the expenditures. They had to repay the borrowed amount in installments with an interest rate of about Rs.10-15 per month per thousand rupees borrowed: or 12%-18% per annum.

I spent around Rs.20,000 for my uterus operation in a government district hospital. I stayed there for more than a month. The name is government hospital but they demanded money for everything. They even asked money to wash clothes (bed spread), change the napkins, and clean the room, this and that. I took loan from

our self -help group and managed the expenditure. Now I am paying the interest alone, it may take years to repay the loan amount. - HYS 15

Five women managed their hospitalisation expenses by borrowing money from their family friends and relatives. Luckily they only need to pay back the principal amount, not any interest for it.

I felt like killing myself. Looking at my condition my husband borrowed money from relatives and admitted me in G... nursing home in the town. - HYS 4

My sons have borrowed money from their owner [Boss] for the expenses. My youngest son borrowed Rs.10,000 and my eldest son has borrowed Rs.80,000. My younger sister's husband too helped us some extend. - HYS 5

Only six women in the study including two who underwent hysterectomy and four others managed the expenses from their family savings and earnings.

I saved some money for my second daughter's wedding and I took that money for the treatment. Now I need to save money for a year or two so that I can make arrangements for my daughter's wedding. HYS 6

I was hospitalised for three days for RTI problems, though it is a government hospital and we need to spend for food and travel expenses, those expenses were heavy burden to my poor family. Doctor asked to come for follow-up visits after 15 days but I was unable to go. - RTI STI- 4

Discussion

Findings from the analysis show that state government achievement in maternal health care in Tamil Nadu in terms of increasing public sector use is not true for other sexual and reproductive health services. As mentioned in the literature review, the research reaffirms that private hospitals are mostly preferred for treatment seeking of SRH conditions requiring hospitlisation. A little over half of the women (55%) in the study sought treatment from a private hospital. When looking into the actual treatment seeking pattern of these women, it was more complex. For most of the SRH conditions requiring hospitalisation, women consulted more than one provider, either a local private doctor and/or a local PHC, which was the first contact point for many women. Then, based on the preliminary diagnosis and treatment provided, they visited either a taluk or district hospital or a private hospital depending on the family's economic situation, quality of care and other considerations.

While exploring our main research question of what factors influence a woman's choice of hospital, we found a strong relationship between the nature of the facility selected and the anticipated out-of-pocket expenditure and quality of care.

The poor quality of care in the public sector has been highlighted in many Indian studies (8,9). The findings of the current research also highlighted that overall women perceived the quality of care in public hospitals to be poor and the long waiting time forced many women to seek private health care even when they could not afford it. The women who made this choice said that "money could be earned back, but not life", and hence they accessed private hospitals. Women who used public facilities also reported they were unable borrow money for health expenditures in private hospitals and hence had no choice

but to use public hospitals despite the poor quality of services. Thus, the poor quality of care in the public institutions is the one of the major determinants of a woman's choice in a hospital. Hence it is imperative to strengthen the quality of care in the CHC, taluk and district hospitals and the availability of facilities and services in the PHCs.

The second issue is the high cost of care even for accessing public hospitals. Informal payments and having to buy drugs and supplies, paying diagnostic tests outside the public hospitals are becoming a major burden for women from low-income groups and a formidable barrier to access appropriate care in a timely manner. These are issues that merit immediate attention and action.

Thirdly, there was a large out-of-pocket expenditure for using private hospitals for SRH services. For instance a hysterectomy in the private sector costs about Rs.25000/-, which is a heavy financial burden to rural low-income households. A significant number of the women in the study who initially visited a private provider shifted to a public facility after taking into account the largely unaffordable expenses in the private hospitals. Therefore, the high cost of care in the private sector is another important determinant of women's choice of hospitals.

The issues associated with high out-of-pocket expenses have also given rise several other issues. One is the high proportion of hysterectomies among the women in the study, especially in private hospitals. It is important to examine whether all these were essential surgeries. Recent media reports about unnecessary hysterectomies in private hospitals in many states of India (Rajasthan, Andhra Pradesh and Chhattisgarh) raise the possibility of some or many of these reported hysterectomies to be unnecessary procedures. A special article in The Hindu (22nd March 2010) reported that in Andhra Pradesh, after the introduction of Arogyasri (the state government flagship health insurance scheme), a large number of hysterectomy was performed. Most of the surgeries performed were in private hospitals, which were paid up to Rs.60,000/- per hysterectomy from insurance companies (20). A Times of India article on July 2010 (21) and NDTV news also highlighted a medical scandal of a womb removal. They reported most of the women in a tribal village of 125 households in Medak district have had a hysterectomy for routine and easily curable as abdominal pain or white discharge. Importantly, almost all these surgeries were done in private, ill-equipped clinics (22). So, further research is needed to trace the nexus.

Again, our findings are consistent with many earlier studies (10,13, 15) that borrowing money is the primary means that households use to pay for hospitalisation expenses. The current research shows the out-of-pocket expenditure on hospitalisation for SRH conditions was a large financial burden to the households irrespective of the sector. Almost all women who underwent surgeries borrowed money from different sources (loan from money lenders and mortgage of their jewels and house deed) to meet their expenses.

Overall, there is a need to regulate and rationalise costs of in-patient reproductive health services (and all other services as well) in private sector health facilities. For women who need surgical interventions and

other forms of in-patient care, these services need be more widely available in public hospitals without long waiting periods. Public hospitals need to improve their quality of care and specific provisions also need to be made in the state government's health insurance scheme (now meant only for live saving surgeries) for surgeries related to reproductive health conditions carried out in empanelled private health facilities.

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Maternal and Child Health Care in Chhaupadi Pratha, Social seclusion of mother and child after delivery in Achham, Nepal

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Abstract

Background: Chhaupadi is a traditional practice most prevalent in the western region of Nepal based on a variety of beliefs that society has held from generations. Customarily, women after childbirth and during their menstrual periods are considered polluted. Hence, they are kept in seclusion. **Objective:** To explore the maternal and child care practices in Chhaupadi Pratha. **Methods:** A qualitative study was carried out in the study setting through seventeen in-depth interviews and one focus group discussion. Data was analyzed based on thematic approach. **Findings:** Respondents reported that traditional rituals were commonly practiced after child birth than in antenatal and during delivery period. It included isolation of mothers after child birth, dietary prohibition, and change in daily routine activities such as: taking a bath, preparing food for themselves, and bathing their babies until the purification day. The elderly, especially mother-in-laws, along with women's husbands and the women's own beliefs were the main reasons that these practices are still ongoing. Four important themes were categorized from analysis of the data. **Conclusion:** Traditional beliefs are still influencing woman's health in many ways. Despite the fact that government of Nepal has declared chhaupadi as a societal ill and various organizations are working towards the elimination of such practices, it is yet to be completely abolished in Nepalese culture.

Key words: Traditional beliefs and practices, seclusion.

Introduction

Between 1990 to 2006, Nepal has experienced a significant reduction in maternal mortality ratio, dropping from 850 to 281 maternal deaths per 100, 000 live births.(1,2) The maternal mortality ratio, as per the year 2011 is 229 deaths per 100,000 live births, and the country is well on its way to attaining the target of Millennium Development Goal 5, which has been possible through an effort to improve maternal health services.(3,4) However, there are still many challenges to overcome before the target of MDG 5 can be met.(5) Geographical remoteness, long distance to health centers, lack of transportation, family and societal boundaries, and robust cultural beliefs and practices have an undesirable influence on maternal and women's health.(3,6) Some long held traditions and beliefs are at times disadvantageous to both mothers and their newborns.(7)Nepal, being a culturally rich country, it has diverse customs, caste groups, and ingrained

religious beliefs and practices. Chhutt-Achhutt (Caste-based untouchability), Bokshi Pratha (Witch-hunting), Deuki Pratha (offering girl children to temples), Jhuma Pratha (offering second daughters of the family to gumbas), are some examples of customs attributed to religious practice. In most cases, women are the vulnerable victims of such ill-practices. (8) One of the disheartening cultural practices Nepalese women are subject to, particularly those following Hinduism, is "Chhaupadi Pratha" (seclusion of women during menstruation period and after childbirth), most extensively practiced in the western region of Nepal. (9) Locally, the practice is named as "Chhaupadi" in Achham, but it is also referred to as, "Chhue", "Chhaukudi", or "Chueekula". (9, 10)

The western region of Nepal has a long tradition of Chhaupadi practice. Chhaupadi pratha is based on deeply rooted societal belief that considers women and girls unclean and polluted during the postnatal period and menstruation. (11) Considering impure, women and girls are kept in confinement away from their families in a shed built especially for seclusion or in the sheds. (12) Women during child birth and after delivery are separated from the family members for ten to twelve days. (13, 14) Things touched by postnatal mothers are considered as polluted as well. Hence, they are not allowed to touch others, especially male members of the family. During isolation, women are not allowed to consume milk and milk products, such as ghee or yogurt, nor are they allowed other nourishing food items. (15) Instead, they are only permitted to eat flatbread and salt. (9)

Structurally, these sheds or small huts are made up of mud, stone and wood. Most of these sheds have a space where only a person can fit into. They are constricted, with dirty floors and without proper ventilation, or access to water, resulting in poor personal hygiene. Moreover, these sheds are not secure from insects or attacks by wild animals, such as snakes, and neither are they well protected against different weather conditions. (13) A study report stated that bound to deliver in cowsheds, the probability of women giving birth with unskilled assistance is higher, which can result in reproductive health problems, such as uterine prolapse. (11) A 2013 progress report on "Nepal Millennium Development Goals" suggested that traditional practices such as chhaupadi influences maternal and child health care service utilization by women. (2) The reason many women choose to follow such practices is that, they believe any defiance on their part will cause the Gods to get angry and curse the family with misfortune and suffering for a lifetime. Women fear they will be blamed for any mishaps, if they fail to follow social protocol. (16-18) A Country Analysis with a Human Face illustrated that existing socio-cultural customs do more harm than good to women, restricting their daily routine, forcing them work outdoors, live under nutritional deficiencies, and prevents them from imparting proper care to newborns. All of these issues have significant impact on women's health, living, and their ability to exercise their right to use healthcare facilities. (19)

Despite the fact that Chhaupadi pratha has been declared as inhuman and an ill practice by the Supreme Court of Nepal, it is yet to be completely abolished in Nepalese culture. Such ritual practices of isolating women and girls during their natal period, delivery, postpartum, and monthly menstruation put them into dangerous situation. This study attempts to understand the cultural beliefs and current practices regarding maternal

and child care and the influence of such practices on health.

Methods

Study setting

The study was conducted in the district of Achham in the Far-Western region of Nepal between June and July 2014. Chhaupadi is one form of traditional ritual mainly followed in the Western parts of the country (11, 13, 15) .Achham is geographically isolated and one of the most remote districts in the country. The Far-Western region lags behind in issues related to development.

Study framework

The study was initiated with an objective to explore the maternal and child health care in Chhaupadi Pratha and its influences. Primarily, conceptual framework was developed focusing on maternal and child care in this pratha. It was planned to study the care given to intranatal and postnatal mothers and their newborns. Several aspects of intranatal care were considered, such as place of delivery, care and support given to the mother, birth preparedness and placental disposal. Postnatal services were also considered including follow up care and support, as well as care regarding complications. Breastfeeding, immunization, bathing and care during illnesses such as respiratory tract infection, diarrhea, and fever were considered as part of care for newborn children.

Sampling

A total of seventeen in-depth interviews were conducted among women with children of less than two years of age, elderly women, men, faith healers, female community health volunteers, and health workers (Table 1). One focus group discussion was carried out with ten reproductive age group women. The interviewees were purposively selected and the sample size was attained based on the interviews conducted till the data saturation was met. A female health worker form the community was approached at first and then the respondents were identified. The purpose of the study was explained to the participants and was inquired for their willingness to take part.

Table 1: Participants interviewed.

S.N.	Types of respondents	Number	Rationale for selecting respective respondents
i.	Women	6	To gain insight to their lived experiences regarding seclusion practices.
ii.	Elderly women	2	To understand the past patterns of practices and beliefs.
iii.	Men	3	To understand decision making to seek health care in favor of female members at home.
iv.	Faith healers	2	To provide further information on the practices and beliefs in the community.
v.	Female community Health volunteers	2	Good source of data providing information on current practices in the community.
vi.	Health worker	2	To understand their point of view on the beliefs and practices from the grassroots.

Qualitative Research Methods

Data was collected by means of in-depth-interviews and a focus group discussion. An in-depth-interview and focus group discussion guidelines were prepared prior to interview and discussion. They were prepared in English and then translated to Nepali. The reason for using IDI for data collection was to gather data on individual perception and their experiences regarding the cultural practice. (20, 21) The focus group discussion was conducted so as to understand the beliefs, and cultural practices of the community. All interviews and the focus group discussion were conducted by the researcher in the Nepali language. After obtaining permission from the respondents, interviews were taped on audio and the focus group discussion was video recorded, along with hand-written notes that were collected for both. The average time period for each interview was about forty to forty five minutes, and the focus group discussion took sixty minutes to complete. Each interview was conducted independently with the participants at their home. For health workers, the interview was done in the health center. The focus group discussion was arranged in one of the respondent's houses where the community usually gathers for meetings and discussions.

Data analysis

From the recordings of in-depth interviews and the focus group discussion, data was transcribed in Nepali and the notes taken were used for support. It was translated to English and typed for further processing. The transcripts were analyzed using a thematic method using a grounded theory approach. From the responses, information was carefully reviewed and open coding was done in a manual form. The emerging themes were listed and further analyzed. The domains were identified and categorization of themes and codes were done under the domains. Eventually, a conceptual framework was developed as a result of coding and analysis of themes.

Ethical consideration

The institutional review board and ethical committee of the University granted approval for the study. Before conducting in-depth interviews and focus group discussion, the purpose of the study was clearly explained to the participants, and they were assured that confidentiality would be maintained. Consent was obtained from each of the participants in verbal and written form prior to in-depth interviews and the focus group discussion. Audio and video recording was done only after documenting the consent from the participants for the same.

Results

Overall, 27 individuals were approached for the study in both the interviews and the focus group discussion. 17 of the respondents participated in in-depth interviews (Table 1) and the remaining 10 in the focus group discussion. Among six women interviewees, one was in the teaching profession while others were home makers. These housewives did not have formal education, but all of them could read and write their names as they had gone through informal education program in the community. The following major domains were derived from the analysis of interviews and discussion:a) Beliefs b) Practices c) Reasons for following practices and d) Health consequences

Beliefs and practices

Interviews with respondents revealed that their belief was related to food, the Gods, luck, taboo, and superstition. As a result, their practices are a reflection of beliefs that have been held in their communities for many generations, which are applied to food, antenatal, delivery, postnatal and child care and during menstruation period.

Taboo

The most common cultural belief demonstrated by the respondents was that women are considered polluted and untouchable after child birth. They have a belief that postnatal mothers should be kept in confinement for elven to twelve days away from the family, and can rejoin the household only after purification, because they are unclean. Almost in every house, a hut has been built for the purpose of stay during isolation. The similar beliefs are very common during menstruation as well. As quoted by one woman:

> "Yes…we should stay (isolated in the sheds), shouldn't we? The world is like this, then… what? Otherwise, it is said that the Gods will curse us, the goddess will get angry. Family members will lose their mind and they will become crazy and mentally ill, fractures and illness will occur."

Antenatal

One of the health workers said that some families believed antenatal mothers are considered untouchable. Hence, they are not allowed around the temple area and water that they touched is considered impure.

> "Well in the upper region (of Achham), women after eight months of pregnancy do not come down from their villages for antenatal checkups. They do not climb down because of the goddess temple on the way. They do not come even for delivery facilities."

Delivery

The group discussion revealed that elderly women, who had gone through delivery, were not even allowed to deliver at home. They delivered their child in a separate shed or a hut, considering women are seen as untouchable during childbirth. One woman explained:

> "If labor pain starts at home then it (delivery) is conducted at home. Sometimes, it is done in a goth (shed) too. If there is a compulsion that it has to be conducted in a goth in the house of the faith healer, then it cannot be done inside the house. In past days, women were considered impure even after delivery, and they weren't allowed to be touched. It's still practiced in some areas."

Postnatal

It is believed that a new mother turns out to be impure after childbirth. She should take a bath soon after the delivery process and follow the bathing rituals until the day of purification. They have to prepare their food themselves and are not allowed to make meals for other members in the family or even touch them. It is usually believed that meals consumed by postnatal mothers should not be exposed to others, as it would have an effect of "evil eye" (harm by evil spirits) and harm the mother's health. The belief that things touched by postnatal mothers were viewed as contaminated is common.

> "We have to stay in a separate room. They (family members) do not allow us to touch things, saying it will make them impure. We are not allowed to consume milk and milk products like ghee for certain days. I didn't eat them for ten days and stayed in that room (showing the room) for same ten days. We have to take a bath every day. We eat oil and rice but no salt is consumed. They said it will defile the kitchen at home, so they separated the place for me to cook and eat."

Traditionally, in care of newborns, the child is given a bath immediately after birth, and daily until the mother is purified. Some women also mentioned that the baby can be bathed when he or she is brought into the home from seclusion. Besides issues related to seclusion after child birth, mothers resuming their periods later on have to stay isolated every month, no matter how old a baby is. The isolation is for five to seven days. A 28 years old respondent, who is a teacher by profession expressed:

> "For my first child (daughter), I went (to the shed for menstrual isolation) after a year. And for my youngest son I also went after a year. I take my son with me….Uhh…that one is the chhaupadi hut (points to the hut). Now, my mother-in-law is staying there."

Food

Majority of the women interviewed mentioned dietary restrictions on salt, milk, and milk products. It is believed that these may lead to infection in the baby's mouth, while salt specifically is thought to cause infection of wound that the mother may have. Instead, the women said that oil and rice (locally referred to as "teley bhat") is the most common food postnatal mothers were given during seclusion. The reason for consuming oil and rice is the belief that it gives energy and keeps the body warm. One 19 years old respondent said:

> "I have to have oil and rice as other foods are not allowed to be consumed, such as green vegetables and milk products. Most of the women eat oil and rice until they are purified. The tradition of giving oil and rice is said to be because it keeps the body warm and provides energy."

Superstitious belief and practices

Interviews with faith healers revealed the belief that a house is purified only after doing some rituals when a postnatal mother prepares to come home after the confinement period. The quarantine is done with belief that it provides security to the family from ruthless happenings. Some of the family members tie fish nets over the door with the faith that it will protect the baby from evil spirits.

> "We sprinkle water on postnatal mother to purify and then postnatal mother is given water to drink. Otherwise we do not drink or touch water given by postnatal mother. Some drink, some do not, especially those who feel drinking water given by postnatal mother makes them sick."

God and luck

Women and the community strongly believe that Gods reside in their home, thus it should be kept clean and pure. One of the interesting things that came out during the interviews and discussion was the

idea that letting a postnatal mother home after childbirth was related to misfortune for family members. They have a belief that the Gods will get angry and it brings depraved luck to the family. Respondents also reported that the survival of mother and child after delivery was based on their fate. An 18 years old respondent said:

> "If these practices are not followed, there is a belief that something evil happens to the family. Deity will be angry."

Menstruation

In addition, all the above rules and restrictions are compulsorily followed by menstruating girls and women, with eleven to fifteen days of isolation in menarche, and for five to seven days every month for subsequent menstruation. Women reported similar kinds of food prohibition, bathing rituals, and seclusion from family members. They are not allowed in nearby temples, to use the public taps, or to touch others. The traditional beliefs and practices are much stricter during menstruation. In fact, the condition is such that that even female health workers had to go through the rituals. One respondent, who is a health worker in the village, mentioned: "What can we say; the condition is that even we have to follow the tradition. We stay in other's home and we are also bound to follow the tradition….."

Reasons for enduring the traditional practices

While conducting the focus group discussion and in-depth interviews, many factors revealed mother-in-laws or older members of the household and the men in the family retain a vital role in preserving the cultural practices. Elderly women who went through traditional practices during childbirth and menstruation tend to impose the same rituals on their daughter-in-laws or the next generation. A 78 years old elderly respondent said:

"I told her (daughter-in-law) to stay there. They must follow what the elders say".

Further, she explained

"It is a period when one bleeds, and how can I let her in home then?"

Some women reported society members would take it seriously if rituals were disobeyed. Women would be blamed by family members and society for any unfortunate happening. Because of this fear, women tend to participate in the rituals. Women have a fear of consequences that might occur if they disobeyed the rituals. They believed it would protect their family from harm. There were some respondents who reported that it was better to follow the custom than inviting trouble and ill fate to family members. The following statements were made during the group discussion:

> "It is good for us (referring to program). But we have to again start to stay in Chhau if we experience evil activities going through our home and to our family members, like frequent attacks by snakes."

> "It has been long time since there has been rainfall now. It's all because of the fact that the goth (sheds) were destroyed. There is no cultivation anymore because of drought."

Health consequences

Responses by some women in this section suggested postnatal mothers and women during periods go through psychological, physical and hygiene related problems. Majority of women shared similar kinds of psychological effects such as stress, loneliness, and feeling isolated and ignored. Some respondents also said swollen extremities, abdominal pain, colds, and urinary tract infections were common problems among women during postnatal isolation period and menses. Furthermore, cough, cold, fever, diarrhea, and pneumonia were the most common reported problems among children.

As mentioned by the woman who is teacher:

> "Yes, that happens. During that time (postnatal period) my baby had pneumonia. They used to bathe baby with cold water. We didn't know that bath should not be given. I also had problems like swelling of hands and legs, suffered from cold because of winter. I could not eat what I wanted to…it was difficult for me to maintain hygiene as well. I used to feel weak and fatigue. I felt pity on myself and my baby ……"

Rituals such as bathing daily until the day of purification are thought to make women clean. However, they have to walk a farther distance to have access to water. The place of stay during isolation is not always hygienic. Furthermore, customary practices besides unavailability of other facilities influenced the place of delivery and health seeking behavior of women.

Changing trends

It was a matter of concern to most of the respondents that changes were taking place gradually in some areas of the district where work is actively being done towards elimination of chhaupadi practices. Most importantly, local people are also involved in awareness programs. Interviews with mothers where women do not pursue such practices anymore in postnatal period or during menses expressed their feeling of "being relieved". During interviews and discussion such issues were aroused.

> "A woman had to live in cow sheds. Shed was not clean for sure. There used to be mud all over, cow dung, urine and ants bites. The environment itself was suffocating and unclean, we didn't like to eat there. You can imagine how hard it had been for us. But now, the condition has improved. Though they are isolated they stay at home in a managed way with proper facilities. At least, they do not get irritated as we did." (Female community health volunteer)

Discussion

Childbirth is a natural process. For families it is a matter of celebration, welcoming a new member home. However, it is surrounded by rituals and beliefs as well. The findings suggest that women in rural Achham continue to abide by the traditional beliefs and practices related to childbirth and menstruation. Childbearing is a relishing moment for a mother, but in context of women residing in this area, it is a challenge. Findings show that the rituals are more common during postnatal period (most practiced for eleven to twelve days after child birth) than in prenatal and childbirth.

Nonetheless, it was also compelled during periods, meaning women resuming menstruation post-delivery also have to follow the custom of isolation as other women and girls.

There is a significant traditional practice associated with maternal and child care wherein women after childbirth are deemed impure and are kept in confinement. One study suggested that mother and child were isolated because they had a belief seclusion protects them from evil soul and acquiring disease. (22) Likewise, a study done in rural Bangladesh stated that maternal care practices were intensely influenced by the beliefs and customs among ultra-poor households. (23) Women had certain food restriction during isolation period. Traditionally, they were barred from consuming salt, milk or any milk products. Instead, women were encouraged to have rice and oil locally referred as "teley bhat". It is believed that consuming restricted food would cause would infection and the baby would develop infections around the mouth. Generally, it is believed rice and oil gives warmth and energy. Similar findings reported in a study conducted in urban slums of Dhaka related to food beliefs where women were prohibited from consuming certain combinations of food to improve breast milk secretion.(22) In contrast, a study among Vietnamese women showed that women believed increased amount of food intake, especially food considered hot, are beneficial for recovery from childbirth .(7) By tradition, mothers have to prepare their meals by themselves while food cooked by postnatal mothers was not consumed by other members in the family, especially in households where the family has a belief that gods reside there. In contrast, a study among thirty-six women in Zamia mentioned that cooking food was not allowed to postnatal mothers.(24) Taking daily bath is compulsory until postnatal mother is purified, for which a specific ritual is performed on the eleventh or twelfth from isolation . A similar practice was reported in a study done in Zambia, where both new mothers and newborns were given a bath immediately after delivery. (24) In contrast to the present study, women in Fujian do not take a shower or wash their hair during the confinement period because of a belief that bathing or washing hair will affect the mother's health in future. (25)

This study indicates that the decision making role is mainly played by the elderly at home, mostly mother-in-laws and then husbands. Similarly, a study in rural northern Ghana stated that grandmothers and mother-in-laws hold the powerful position in making decisions regarding care of newborns. (26) Disobeying the ritual is traditionally viewed as being punished by God. It meant that the deity would get angry and bad events would occur in the family. Hence, women stick with the practices because of the beliefs that a society has held for many years, low decision making power at home, and the suggestion given by mother-in-laws or elderly which were mostly influenced by their experience in similar conditions.

In certain areas of Accham where the Chhaupadi pratha practice is more loosely followed, some families have started keeping new mothers and newborn children in the house, although in separate rooms. However, when discussing about confinement after childbirth, it was seen that old customs are strictly adhered to once the period was taken up again. Women and girls stay for five to seven days of seclusion every month in a shed. Women with babies take their child along with them in the sheds. Such traditional practices, in addition to the physical strain of motherhood, are more likely to be challenging to young mothers.

With the time, changes are occurring in some of the Village Development Committees (VDCs) gradually. Further observations made during the course of this study also suggest that women in recent times are becoming more aware of using health services for delivery purposes. The degree of the seclusion practices and the numbers of followers are reducing, partly due to the efforts being made by various organizations to eliminate Chhaupadi from communities. The sheds are being destroyed slowly, which means that at least mothers and menstruating women can stay inside the house and feel safe. However, the discrimination still exists in some families. Such cultural practices can be seen mostly in rural areas and communities carrying stronger belief. Though women have been shifted from shed they still face the difficulties of delivering at home along with cultural practices being done. Women after childbirth are not yet accepted to mix in the family and period is taken as a serious matter.

Limitation of the study

The intensity and the practice of chhaupadi might differ from one place to another and from families within the pratha (custom). So, it cannot be generalized to all the followers. Nonetheless, the findings in the present study bring in an ongoing scenario of rituals and traditional practices in the study area.

Conclusion

Traditional beliefs and the practices are still influencing women's health in many ways. The existence of such rituals is one of the forms of discrimination present in society. The moment when mothers need proper care, familial and societal support, and healthy diet, they have to go through seclusion and a lot of prohibition. Not all the customary practices followed during prenatal, childbirth, post-delivery and newborn care are beneficial. Such prevailing beliefs can influence the care and practices related to maternal and child health. Many women are going through difficulties and with no doubt the care given to the newborns are also been compromised. Proper care during vital phases of women life: pregnancy, childbirth, postnatal period and menstruation can reduce most of the preventable morbidities and complications a woman may encounter. It is necessary to look at the practices harmful for them and discourage such harmful practices from the community level.

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Infant and Young Child (6- 35 Months) Feeding Practices (IYCF): A Comparative Study of Three States in India

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Abstract

Background: Feeding practices are required to meet nutritional and immunological needs of children at different stages of their growth. **Objectives:** This study aims to assess the current feeding practices of mothers with infant and young children between the ages of 6 and 35 months in the states of Kerala, Tamil Nadu (TN) and Himachal Pradesh (HP) with their unique cultural and social settings. **Methods:** A cross sectional study was conducted in Kerala, TN and HP comprising of a total of 401 respondents, the respondents were studied using a pretested questionnaire covering aspects of infant and young child feeding practices. Their anthropometric measurements were also recorded. **Result:** The prevalence of breast feeding is nearly universal (99%). The prevalence of pre-lacteal feeding still exist among mothers across the states, only 31% of mothers in the study have initiated complementary feeding at the recommended time (at 6 months), early initiation of complementary food (i.e. before 6 months) is high among mothers from Kerala compared to HP and TN, while late initiation (after 6 months) is high among mothers from HP. **Conclusion:** The results of this study shows that there is improvement in the breastfeeding practices of mothers but regarding other indicators of IYCF like initiation of complementary feeding and type of complementary feeding, lot still needs to be done.

Keywords: Breastfeeding, Colostrum, Pre-lacteal feeding, Complementary feeding, Underweight, Stunting, Wasting.

Introduction

Nutrition plays a vital role as a foundation for healthy development of infants and young children. Lack of adequate nutrition contributes to ill-health which leads to decline in nutritional status. Infants and young children suffer the highest risk of disability and death that is associated with malnutrition. Major risks to the health and development of infants and young children are maternal malnutrition and inappropriate breastfeeding and complementary feeding. In 2006 an estimated of 9.5 million children died worldwide before the age of five; of which 35% were due to under nutrition. The major measures of under nutrition in developing countries include stunting, wasting, and micronutrient deficiency. (1) Every year in India, about 60% of all death among children less than 5 years old is associated with malnutrition, which is often associated with poor feeding practice. Over 50 million children below 5 years are wasted, and in low –income countries one in every three suffers from stunted growth. (2) Impaired cognitive development and delayed milestone are often seen in children who are malnourished. Hence malnutrition impairs intelligence, strength, energy and productivity.(3) Infants and young children are at increased risk of malnutrition from six months of age onwards, when breast milk alone is no longer sufficient to meet all nutritional requirements. It is then that complementary feeding is started. However

complementary feeds if given too early (before 6 months) or too frequently, displace breast milk and lead to malnutrition.(2)

One of the key strategy in reducing infant and child morbidity and mortality is through breastfeeding, which equally plays a dynamic role in reducing maternal morbidity and mortality. According to World Health Organization (WHO) and United Nations Children's Fund (UNICEF) all mothers should exclusively breastfeed their children for the first 6 months and thereafter continue to breastfeed for as long as the mother or child desires. After 6 months of life the child can be weaned with appropriate complementary foods.(2,4)

According to National Family Health Survey (NFHS)-3 only 46% of children under 6 months in India are exclusively breastfed, as WHO recommends. In addition, only 55% are put to the breast within the first day of life which means many infants are deprived of the highly nutritious first milk (colostrum) and the antibodies it contains. (5) Thus, this study aims to assess the current feeding practices of mothers with infant and young child between the ages of 6-35months in the states of Kerala, TN and HP with their unique cultural and social settings.

Methodology

Study settings: A community based cross-sectional study was conducted in three different parts of India, which are Mandi district in HP, Vankala municipality of Thiruvananthapuram(TVM) district in Kerala and South Kanchipuram district in TN. These states have some cultural and social settings which make them unique in their own way, Kerala is known for their high literacy level, Kanchipuram district of TN on the other hand is highly industrialized while HP is deep rooted in their cultural practices with lower levels of education and industrial development. Comparing these states will display how feeding practices varies among mothers from different social settings.

Sampling: The prevalence of 55% of exclusive breastfeeding was considered with allowable margin of error 5% and confidence level of 95% for the sample size calculation. The sample size was 400. This was equally distributed between the three states. Multistage random sampling using Probability Proportional to size (PPS) method was followed in all the three states.

Data collection: The study included a total of 401 mothers and infants, with HP and Kerala having a total of 150 samples each and TN a total of 101 samples .A pre-tested questionnaire was used for the study; the questionnaire comprised four parts: socio demographic details, breastfeeding, complementary feeding practices and anthropometric measurement. The standardized questionnaire was administered to the mothers during the door to door survey by trained investigators in their native language. The height or length (using a standardized length scale) and weight of the child (using standardized weighing scale) along with the age in months were recorded and the data was analyzed according to WHO reference standard to estimate malnutrition. Written informed consent was obtained from each mother who participated in the study. Institutional Review Board of the School of the Public Health, SRM University approved the study.

Statistical analysis: The statistical analysis of the data collected was done using statistical package for social sciences (SPSS) version 17.0.(6) The nutritional status of the children was analyzed with the help of the software package WHO-Anthro .(7)

Results

About 249(65%) of the mothers in the study were between the age group (25-35years) in the three states. Around 351(86%) of the mothers got married between the ages of (21-30years) Most of the mothers in the study have had some form of formal education except for 2 (1%) from HP who had no formal education and majority of them 339(83%) were home makers. The background characteristics of the mothers from the three states are shown in Table 1. Table 2 shows the background characteristics of the children in the study. Majority of children 210(53%) in the study belong to the first birth order.

Table 1: Socio demographic characteristics of Mother

Background characteristics	HP(n=150)	Kerala(n=150)	TN(n=101)
Age			
<25 years	78(52%)	50(33%)	16(16%)
25-35 years	69(46%)	95(64%)	85(84%)
>35years	3(2%)	5(3%)	0
Age at Marriage			
15-24 years	145(97%)	129(86%)	77(76%)
25-34 years	5(3%)	21(14%)	24(24%)
Highest level of education obtained			
No formal Education	2(1%)	0	0
Class 12	46(31%)	35(23%)	67(66%)
Diploma/Certificate	17(11%)	8(5%)	4(4%)
Degree	7(5%)	38(25%)	21(21%)
Postgraduate	2(1%)	9(6%)	9(9%)
Others(up to Class10)	76(51%)	60(40%)	0
Employment status			
Full time job	2(1%)	4(3%)	16(16%)
Part time job	3(2%)	2(1%)	2(2%)
Student	1(1%)	1(1%)	3(3%)
Unemployment	119(79%)	143(95%)	77(76%)
Self-employed	25(17%)	0	3(3%)

Table 2: Demographic Characteristics of the Child

Background characteristics	HP(n=150)	Kerala(n=150)	TN(n=101)
Sex of child			
Male	72(48%)	79(53%)	57(57%)
Female	78(52%)	71(47%)	44(43%)
Birth order of child			
1st birth order	77(51%)	78(52%)	55(55%)
2nd birth order	52(35%)	64(43%)	39(39%)
3rd Birth order	10(7%)	6(4%)	7(6%)
4th birth order	8(5%)	2(1%)	0
5th birth order	3(2%)	0	0
Age of child (Months)			
6-15	54(36%)	54(36%)	38(38%)
16-25	51(34%)	57(38%)	37(36%)
26-35	45(30%)	39(26%)	26(26%)

Feeding Practices

Among the 401 children in the study 399(99%) of them had been breastfed. Table 3 shows the details of breastfeeding practice. Nearly 77(20%) of the children in the study have received pre- lacteal feed. Table 4 illustrates the different types of Pre-lacteal feed given by mothers.

About 223(57%) of children in the study have continued breastfeeding up to 11-20months of age. The details of complementary feeding practices in the three states in displayed in Table 5, Approximately 110(29%) of the respondents in the study have initiated complementary food before the age of 6 months among the three states mothers from Kerala 60(41%) have initiated complementary feeding earlier compared to 30(32%) in TN and 19(13%) in HP, the present study shows that 262(69%) of the complementary food given was homemade in the three states of which Mothers from Kerala give less homemade food as compared to HP and TN. The major reason for introducing complementary food across these states was due to increased requirement of the child (50%).

Table 3: Breastfeeding Practices

Breastfeeding Status	HP(n=149)	Kerala(n=150)	TN(n=100)
Initiation time of BF			
Within 24hours	142(94%)	129(85%)	98(97%)
After 24hours	7(6%)	21(15%)	2(3%)
Received Colostrum			
Yes	128(85%)	143(97%)	86(87%)
No	21(15%)	7(3%)	14(13%)
Pre-lacteal Feeding			
Yes	35(23%)	30(22%)	12(14%)
No	114(77%)	120(78%)	88(86%)
Duration of continued BF (In month)			
1-10	41(27%)	32(22%)	26(25%)
11-20	86(58%)	71(47%)	66(65%)
21-30	21(14%)	44(29%)	8(8%)
31-40	2(1%)	3(2%)	1(1%)

Table 4: Type of Pre-lacteal food given by mothers

Food type	HP(n=35)	Kerala(n=30)	TN(n=12)
Donkey milk	0	0	7(10%)
Ghutti	3(2%)	0	0
Gold	0	21(17%)	0
Honey\	32(21%)	6(3%)	0
Sugar water	0	3(2%)	5(4%)

Table 5: Complementary Feeding (CF) Practices

CF Status	HP(n=147)	Kerala(n=147)	TN(n=94)
Initiation time of CF			
<6 month	19(13%)	61(41%)	30(32%)
At 6 month	24(16%)	21(14%)	60(64%)
>6 month	104(71%)	65(45%)	4(4%)
Type of CF			
Homemade	128(87%)	58(39%)	77(82%)
Commercial	0	0	17(18%)
Both	19(13%)	89(61%)	0
Reason For Introducing CF			
Child Initiative	44(30%)	13(9%)	25(25%)
Requirement Increased	67(48%)	62(41%)	55(60%)
Lack Of Breast Milk	24(15%)	48(33%)	14(15%)
Mother Illness	3(2%)	5(3%)	0
Lack Of Breast Milk & Requirement Increased	2(1%)	15(11%)	0
Child Initiative & Requirement Increased	0	4(3%)	0
Child Initiative & Lack Of Breast Milk	4(3%)	0	0
Mother Illness & Lack Of Breast Milk	1(1%)	0	0

Nutritional status of the children

The prevalence of underweight (moderate & severe) in HP, TN and Kerala was 18%, 17% and 7% respectively. For Stunting (Moderate and severe) in HP, Kerala and TN were 20%, 9% and 41% respectively, Prevalence of wasting (Moderate and severe) in HP, Kerala and TN were 9%, 9% and 11% respectively as shown in table 6.

Table 6: Nutritional Status of Children

Nutritional Status	HP(n=150)	Kerala(n=150)	TN(n=101)
Weight for Age(underweight)			
Normal			
Moderate	123(82%)	140(93%)	84(83%0
Severe	24(16%)	7(5%)	10(9%)
	3(2%)	3(2%)	7(8%)
Height for Age(stunting)			
Normal			
Moderate	119(79%)	141(94%)	56(56%0
Severe	24(16%)	8(5%)	15(15%)
	7(5%)	1(1%)	30(29%)
Weight for Height(wasting)			
Normal			
Moderate	136(91%)	136(91%)	90(89%)
Severe	11(7%)	9(6%)	8(8%)
	3(2%)	5(3%)	3(3%)

Breastfeeding practices of the mothers

Early initiation of breastfeeding as per WHO recommendation is important for development of children, the findings of this study reveals that 92% of mothers in the study have initiated breastfeeding within the first day of delivery, the result of this study is comparable with other studies and national level data, though the recommended time for initiation of breastfeeding according to IYCF guidelines is immediately after delivery or within half an hour of delivery. In Kerala even though there is a delay in initiating breastfeeding when compared to HP and TN, there seems to be more mothers breastfeeding for longer periods of time this could as a result of high rate of institutional delivery in Kerala (99%) compared to TN (89%) and HP (43%).(5) With higher rates of medicalization of delivery, there may be a delay in initiation. However due to better literacy and women's empowerment they are breastfeeding for longer duration of time.

In this study pre-lacteal feed was found to be given to 20%, this shows that there is still prevalence of pre-lacteal feed across the nation even after health promotion which could be as a result of cultural practices and belief. The rate is quite higher in HP compared to Kerala and TN which could be due to strong cultural practices, which have reduced in TN and Kerala because of urbanization. The type of pre-lacteal feed given includes donkey milk 10% in TN, gold 17% in Kerala and honey 21% in HP. In

HP it is part of the tradition to feed honey to infants as it is believed that morals of the infants are affected by the person who introduces the feed. Feeding of powdered gold to infants is also a cultural practice in Kerala while in TN though not as much as it is in HP and Kerala it is also a tradition to feed donkey milk to infants. A study in Slum area of Kolkata also corresponds to our findings with pre-lacteal feed to be 31.4 %.(8) Providing other liquids in addition to breast milk in the first six months of life was needless and harmful according to international community.(9)

Colostrum is rich in vitamins, minerals, and immunoglobulin's that protect the child from infections and should not be discarded, the present study findings shows that 10% of the mothers have discarded colostrum which is lower compared to another study in Karnataka(10) where 19% of the mothers have discarded colostrum. Discarding of colostrum may be due to negative influence of the other family members or lack of knowledge about colostrum. This practice is higher in HP compared to TN and Kerala which could be as a result of strong cultural practice in HP. A study in rural Northern Ethiopia indicates that the mother's knowledge and false belief were the main causes for discarding colostrum and pre-lacteal feeding.(8)

Complementary feeding practices

Initiation of complementary feed at the appropriate age is important for the child growth as breast milk alone at that time may not be sufficient to meet their nutritional requirements. It is recommended that complementary food should be introduced at the age of 6 months while continuing to breastfeed.(11) Our finding reveals that 31% of mothers had started complementary feeding at the recommended time which is higher in TN 64% compared to HP and Kerala, 29% of mothers have initiated complementary feeding before the age of 6 months; this is higher in Kerala 41% compared to TN and HP, 40% of them have started later than 6 months which is quite higher in HP 71% compared to Kerala and TN. The reason for early initiation of complementary feeding among mothers from Kerala may be because of high rates of private health care and development .This shows irregularity in initiation time of complementary feeding across the states which could be as a result of improper information to mothers. An intervention study in Delhi shows that only 16.5% of mothers had started complementary feeding at the recommended time which is lesser compared to the present study.(12)

The present study shows that 69% of mothers feed their babies with homemade complementary food though across the states it is lower in Kerala 39% compared to HP and TN. The reason why Kerala gives less homemade food compared to TN and HP could be as a result of easy accessibility to commercial food which could be part of characteristics of urbanization that is seen in Thiruvananthapuram . Present study shows that most of the respondents stated the main reason for introducing complementary food was requirement increases and second reason was child initiation.

Nutritional Status Conclusion

High rate of malnutrition in India are not primarily caused by poverty but also by behavior of delayed initiation of breast feeding, early introduction of water

and liquid (pre-lacteal feed) and delay in complementary food. Regarding the nutritional status of infant and child in the three states shows that there is improvement in stunting, wasting and under-weight in HP, Kerala and TN as the data collected is compare with the data of NFH-3 of these states. This improvement in the nutritional status of children in three states occur as a result of different nutritional program run by government such as Integrated Child Development Services (ICDS) scheme and Mid-day meal program and others. While comparing the nutritional status among these three states, HP nutritional status is slightly lower side. Late introduction of complimentary food could be the reason for decline in rate of length and weight gain. (11)

Conclusion

The results of this study shows that there is improvement in the breastfeeding practices of mothers but regarding other indicators of IYCF like initiation of complementary feeding and type of complementary feeds a lot still needs to be done, providing adequate health education on importance of breastfeeding and proper way of introducing complementary feeding from time to time in a language that is generally acceptable. It is also necessary for the health workers to update their knowledge so as to impact the right knowledge to mothers relating to IYCF guidelines. This will not only help improve the health of the child but in turn make the nation a healthy one.

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Cost incurred by patients and caregivers before initiation of Directly Observed Treatment Shortcourse (DOTS) Regimen in urban Pokhara, Nepal

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Abstract

The World Health Organization (WHO) estimated that every year 100 million people get into poverty and other 150 million suffer due to payment made for health service. (1) In low income nations 10% cases entail ruinous costs due to illnesses. (2) In the resource deprived conditions patients and their families are driven to economic burden due to the illness. Studies found that tuberculosis (TB) the disease that occurs disproportionally to the poor put household on risk of impoverishment. A review of health care expenditures reported that total economic burden due catastrophic cost to the household of patients is dominated by the indirect cost elements. (3) A household victimized from the catastrophic payment has to sacrifices other basic needs (such as food, school fees) or sell off assets or to bring upon debt in order to deal with the economic consequences of direct and indirect cost of TB. (4)

In low and middle income countries mean total cost of TB illness varies from $55 to $ 8198. Contribution of both unweighted average direct medical cost and unweighted average non medical cost on total cost was equal. Forgone income due to TB contributes 60 % (range 16-94%) of total cost. Economic cost before the treatment of the TB is equal to the cost after the initiation of treatment. (5) Out of pocket expenditure is the major source of financing for contributing the health care cost in low income countries. Affordability or ability to pay for essential major services like health has been one of the major challenges in developing countries. (6) Beside unaffordable user fees, foregone income of both patients and caretakers has become a great challenge for patients centered health care management. NFHS III India revealed that despite the centralization of the health facilities in cities, intra-urban inequalities are worsening(7).

Despite DOTS approach India with free diagnosis and treatment, South Indian TB patients annually bear more than $ 3 billion as outpocket expenditure. (8) In rural Uganda prediagnosis cost accounts for half of the monetary cost due to significant increase in cost due to foregone income before the diagnosis of TB (9) and the prediagnosis cost has the share of the more than 80% of the total cost of TB in Nigearia. (10)

Nepal has a huge burden of TB and massive investment has been done by different government and non government organization by providing free diagnosis and treatment. There are not many studies which assess the economic burden of TB from the patients' perspective. The patients'

cost is an integral function of health care financing system and access to diagnosis is reflected by the pre-diagnosis cost. (11) The objective of this study was to figure out direct out-of-pocket expenditures and indirect costs due to foregone income and differentiate it based on prediagnosis and diagnosis phase of TB treatment process of confirmed patients in Pokhara, a urban setting of western Nepal.

Materials and Methods

Data Collection:

The data used was collected through interview from a survey of all eligible patients from 12 DOTS centre under Urban DOTS Program in Pokhara, Nepal. The data was collected form 70 patients using the structured questionnaire and through observation of TB card of the patients. Data was collected while the patients were visiting the DOTS centre for getting the drug. All the definitions used in this study are described in Table 1.

Study Setting:

The study area Pokhara, headquarter of Western Development Region of Nepal has land area of 55.22 square kilometer with the population of 264,991. (12) In Pokhara the treatment of TB is exclusively through the DOTS approach. The treatment is provided through 12 DOTS centres: 1- Private Hospital, 2- Private Clinics and 1-District Public Health Office DOTS, 1-Health post and others through Municipality wards offices. The Urban DOTS Centre coordinates the services of all these centres.

Study design

The study design was Institution based descriptive cross-sectional on TB patients in the intensive phase of treatment at health facilities in Pokhara Sub-metropolitan city. It was carried out between June and July 2014.

Participants

List of the patients and the respective 12 DOTs centre were obtained from the district Public health office of Kaski District and all the eligible patients were interviewed.

Inclusion criteria:

-TB patients aged 15 years and older

-Only patients on Intensive phase of treatment were included in order to minimize the recall bias.

Exclusion criteria

- Currently hospitalized patients

Development of the questionnaire:

The Tool to Estimate Patients' Costs questionnaire that has been developed by KNCV Tuberculosis Foundation was adopted for this study. (13) The questions that obtained information about the cost before the initiation of treatment were also included in the questionnaire.

Data analysis:

Data Analysis was done through SPSS version 16. Normality of the variables was assessed by using Shapiro-Wilk test. Due to the limited sample size and violation of assumption of Parametric test, Non-Parametric Statistics were used for the analysis of data. For evaluation the total cost before the initiation of treatment among different groups Mann Whitney U test and Kruskal Wallis H test were used.

Table 1: Definitions Used in Study(10):

Sn	Variable	Definition
1.	Pre-diagnosis Cost	Defined as the cost incurred between the onset of symptoms and the diagnosis of TB
2.	Diagnosis Cost	Defined as the cost incurred at the time of diagnosis of the disease
3.	Direct Cost	Out of Pocket cost for the payment of the health services and those incurred on the way during the access of health services. This includes Administrative cost, Test Cost, Radiological cost, drug cost, Travel cost, Food cost and Accommodation cost.
4.	Indirect Cost	Foregone income due to illness and monetary value of the time spend while undertaking the health services.
5.	Coping Cost	Cost incurred by patients or household to cope with the health services cost by borrowing money or selling household assets. And is estimated adding (if both events occur otherwise the value of single event) interest paid for the borrowing and the loss incurred due to sell off assets.
6.	Patients Cost	The cost incurred by the patients for rendering the health services
7.	Guardian Cost	The cost incurred by the Guardian/caretaker for helping the patients
8.	Poor patients	The patients whose total annual income is equal or less than median annual income of the patients ($2495) is called poor patient. The patients whose total annual income is more than the median annual income of the patients is called Non-Poor patients.
9.	Poor Household	The household whose total income is less or equal to median annual income of the households ($3120) is Poor household. The household whose annual income is more than the median annual household income is non Poor Household.
10.	Total cost before the initiation of Treatment	Cost before the initiation of DOTS treatment. It is estimated by summing Prediagnosis and Diagnosis cost.

Results

Table 2: General Characteristics of Patients

Variables	Total n (%)
Gender	
Male	46 (65.7)
Female	24 (34.3)
Age in Years	
≤35	42(60)
>35	28(40)
Migrants	

Yes	34 (48.6)
No	36 (51.4)
No. of family Member	
≤4	43 (61.4)
>4	27 (38.6)
Education level	
No formal Education	7 (10)
Primary/Lower Secondary	33 (47.1)
Secondary/Higher Secondary	22 (31.5)
Graduate and Above	8 (11.4)
Occupation	
Sales/services	16 (22.8)
Agriculture	5 (7.2)
Household	7 (10)
Production/construction	21 (30)
Other (Students and Unemployed)	21(30)
Patients Income Group	
Poor patient	35 (50)
Non-Poor Patients	35 (50
Household Income Group*	
Poor Household	31(44.3)
Non-Poor Household	39(55.7)
Primary Earner	
Patient	37 (60)
Others	33 (47)
Medical Insurance	
Yes	0 (0)
No	70(100)
Type of TB	
Smear Positive Pulmonary TB	36 (51.4)
Smear Negative Pulmonary TB	9 (12.9)
Extra Pulmonary TB	25 (35.7)
HIV Status	
Yes	3 (4.3)
No	67 (95.7)
First Contact for health services	
Government	23 (33)
Non-Government	47 (67)
Diagnostic Centre*	
Government	40 (57.1)
Non-Government	30 (42.9)
Hospitalized*	
Yes	15 (21.4)

No	55 (78.6)
Traditional Healer	
Yes	3 (4.3)
NO	67 (95.7)
Delay	
No Delay	35(50)
Delay	35(50)
Number of Health Service Provider	
One	22 (31.4)
More than One	48 (68.6)
Frequency of Visit to Health Service Provider	
One	21 (30)
More than One	49 (70)
Coping Mechanism	
Household Income and Savings	55 (78.6)
Borrowing along with Household income and saving	12 (17.1)
Selling of assets with borrowing and household income and saving	3 (4.3)

All total 70 eligible patients in intensive phase of Urban DOTS of Pokhara were interviewed for the study. Table 2 provides the socio-demographic and clinical characteristics of the patients.

The study includes higher proportion (65.7%) of male, 40% of patients were more than 35 years of age and nearly half of the patients were migrants. Only one third of patients after the initiation of symptoms have visited government health facilities and majority of the patients (57.1%) have been correctly diagnosed as TB patients from governmental health institute and more than one fourth patients have to be hospitalized for the diagnosis of TB.

When asking about the number of provider 68.6% reported that they visited more than one health care provider (hospitals, clinics, Health post) and 70% of the patients visited more than one time for the health care services before treatment phase.

Similarly 60% of the patients were primary income earner for the family, 44.3% patients were form poor household and used household saving and their income for health expenditure. Majority of patients (78.6%) used household income and saving where as the remaining patients borrowed money from others (neighbors, friends, financial institutes) along with household income and saving for coping with the cost of TB before initiation of treatment. Furthermore 4.3% claimed that they sold assets along with borrowing and usage of household saving and income.

Table 3: Association of characteristics of Patients and Total cost prior to initiation of DOTS Regimen

Variables	Median Total Cost	Mann Whitney Test Statistics	P-value
Gender			
Male	56.82(36.16-173.90)	467	0.301
Female	118.2(40.89-395.46)		
Age in Years			
≤35	62.36(34.54-350.35)	553	0.686
>35	96.20(38.85-282.10)		
Migrants			
Yes	56.812(36.16-173.90)	511	0.241
No	209.17(33.12-392.70)		
No of family Member			
≤4	118.97(40.48-349.47)	479	0.227
>4	51.06(29.97-300.70)		
Education level			
No formal Education	60.18(7.87-107.00)	3.341*	0.343
Primary/Lower Secondary	67.44(35.87-305.73)		
Secondary/Higher Secondary	159.39(39.44-416.55)		
Graduate and Above	216.67(24.01-391.69)		
Occupation			
Sales/services	56.20(19.06-319.86)	.593	0.968
Agriculture	247.60(8.62-415.95)		
Household	60.18(38.25-241.98)		
Production/construction	92.03(42.76-420.60)		
Other	78.37(37.39-373.06)		
Primary Earner			
Patient	100.39(39.36-337.90)	579	0.722
Others	67.44(33.49-327.00)		
Type of TB			
Smear Positive Pulmonary TB	59.82(30.33-291)	3.056*	0.213#
Smear Negative Pulmonary TB	219.4(65.12-974.06)		
Extra Pulmonary TB	117.58(38.67-320.36)		
HIV Status			
Yes	1812.90(40.61-2862.00)	47	0.131
No	82.22(35.57-300.70)		
Traditional Healer			
Yes	621.62(54.25-2862.00)	45	0.116#
NO	82.23(35.58-300.80)		

Patients Income Group			
Poor patient	56.34(31.40-241.98)	496	0.171
Non-Poor Patients	145.64(40.96-413.51)		
Household Income Group			
Poor Household	51.056(23.94-118.97)	395	0.014
Non-Poor Household	211.03(40.61-413.51)		
Delay			
No Delay	56.34(20.97-349.37)	533	0.354
Delay	165.77(40.96-326.23)		
First Contact for health services			
Government	92.03(38.26-287.42)	367	0.70
Non-Government	182.23(19.36-353.30)		
Diagnostic Centre*			
Government	50.12(130.34-154.07)	301	<0.001
Non-Government	274.76(63.34-577.14)		
Hospitalized*			
Yes	413.52(353.40-730.89)	45	<0.001#
No	51.06(29.98-165.77)		
Number of Health Service Provider			
One	33.80(15.29-290.73)	331	0.013
More than One	132.30(48.82-352.32)		
Number of Visit to Health Service Provider			
One	40.97(15.29-333.27)	373	0.070
More than One	119.97(46.65-337.80)		
Coping Mechanism			
Household Income and Savings only	57.27(29.66-264.69)		
Borrowing and Household saving	215.20(54.98-742.67)		
All	350.30(100.38-2862.00)	8.704*	0.013#

Fisher Exact Test P-value.

Table 3 illustrates the role of the characteristics of the patients in determining the total cost of TB before the diagnosis of TB. There is no statistical difference in the median total cost before the initiation of DOTS by socio-economic characteristics of the patients: Gender, age, migrant status, educational status, occupational status, and primary earner of the family and patients income groups. The household income affected the median total cost with non-poor households spending more than the poor households (P-value=0.014, Mann-Whitney U value=395). The median cost of the

patient ($ 211.03) from non-poor family was significantly greater than the median cost ($ 51.056) of the poor family. Similarly health seeking and medical characteristics of the patients: Type of TB, HIV status, delay, contact with traditional healer, institute for first contact after symptoms and number of visit for seeking health services did not play significant role in determining the total cost before the initiation of treatment. As far as hospitalization is concerned there was a significant difference in the median cost of hospitalized and non-hospitalized patients. (P-value<0.01, Mann-Whitney U Value=45). The median cost for hospitalized and non-hospitalized patients was $413.52 and $52.06 respectively. Similarly the cost for patient that have visited more than one health care provider ($33.80) was statistically higher than patients those who have visited only one provider ($=132.30) (P-value=0.0013, Mann-Whitney U value=331). Coping mechanism of the patients have a significant impact on the total cost. The cost of the patients who used household income and saving for seeking diagnosis was only $ 57.27 where as the patients who have borrowed money along with using household was $ 215.20. The median cost of the patients who sold household assets along with borrowing and using household income and saving was $ 350.30.

Table 4: Total patients' and Guardian costs on Prediagnosis and Diagnosis phase of TB care and summary

	N	US (Dollar)	Median Percentage out of Total Annual Household Income
Median Pre-diagnosis Cost			
Patients Direct Cost	49	57.90(23.06-140.80)	
Guardian Direct Cost	23	2.49(1.38-13.37)	
Patients Indirect cost	34	37.38(7.45-89.36)	
Guardian Indirect cost	23	2.37(0.72-3.49)	
Total Pre-diagnosis Cost	49	74.61(23.87-165.70)	2.75(1.03-4.93)
Median diagnosis Cost			
Patients direct Cost	70	6.29(0.62-131.80)	
Guardian direct Cost	49	0.40(0.21-46.80)	
Patients Indirect Cost	70	7.1(4.28-14.84)	
Guardian Indirect Cost	49	0.63(0.37-3.72)	
Median Total Diagnosis Cost	70	15.38(5.20-187.50)	0.53(0.26-3.51)
Coping Cost other than household saving and Income	15	4.12(0.62-16.42)	0.13 (0.01-0.057)
Median Total Economic Cost	70	87.13(36.16-332)	3.45(0.99-9.09)

Only 49 patients had undergone Pre-diagnosis test which illustrated that 70-49=21 patients had been diagnosis as TB on their first visit to health institute. The Pre-diagnosis cost direct cost of the patients was $ 57.9 followed by Pre-diagnosis cost of the Guardian with only $ 2.49. Similarly the patients direct Pre-diagnosis median cost was $ 37.38 where as Guardian Indirect cost was $2.37. Altogether total pre-diagnosis median cost was $ 74.61 with 2.75 median percentage of total household annual income.

At the time of diagnosis median direct cost paid by patients was $ 6.29 whereas median direct diagnosis cost paid by Guardian was $ 0.40. Similarly median indirect diagnosis cost bore by patients and Guardian worth$7.1 and $0.63. The total median Diagnosis costs attributed worth $ 15.85 and shared 2.75% as the median percentage of total household income. All together 15 patients had to cope with cost by borrowing and selling assets. The median value of coping cost was $ 4.12. It median percentage of the income sacrificed for coping with the cost is 0.13 % of total household annual income.

In aggregate median total cost for the patients before the initiation of DOTS regimen accounted $ 87.13. The median percentage of the income that patients had lost for the disease before the initiation of DOTS was 3.45%.

Discussion

This study demonstrates the burden faced by TB patients before initiation of DOTS regimen. Unlike other studies it segregated the cost before commencement of DOTS regimen into Pre-diagnosis and Diagnosis cost. The study shows that the medical and non-medical costs for the diagnosis of the disease are mandatory in Nepal. Although National TB control program mention diagnosis cost of TB as free (14) but study indicates that patient incur certain direct expenditure even in governmental health institute. When the diagnosis is done through DOTS centre of District public health office patients are charged Rs 10 (around $ 0.1) as a ticket charge. But when the patients undergo diagnosis through other government and other private health centers then they have to pay for administrative charge, and medical charge as in other disease.

In study almost 70% patients had to visit the centre more than one time for the diagnosis of disease where as about 68% patients have visited more than single health provider till the diagnosis of disease. This shopping around for the diagnosis, rendering private health care, and other medical and travel cost are the determinants for high cost of disease. (15) In matters relating to health seeking behavior, 67% people visited private health care provider first after symptoms were perceived. But majority of patients were correctly identified as TB patients only after visiting the government institute. It indicates the better quality of government health institute regarding diagnosis of TB. Nearly half of the patients were migrants. And there was no significant contribution of migration status of patients to the health expenditure. But it's important to consider that there are several ways in which migrants have to bear the brunt of living cost at greater scale than do inhabitant of the local area where treatment is being sought. These living costs for migrants go beyond loss of income and medical cost. They

include higher cost of food, rent, traveling cost etc which could not be captured in this survey.

In India patients pay considerable amount before reaching the free diagnosis and treatment service provided through government institute. Before initiation of treatment patients among governmental health organization paid at least Indian Rs 200 (around $3.279) while patients among Private organization paid 6.5 times more than patients at governmental health facility.(16)

TB patients faced substantial cost before and during the diagnosis of the disease. Guardians also sacrificed certain amount through direct cost and loss of income while rendering the health services for patients. Generally the priority of cost measurement in disease treatment process is focused on direct medical cost. The monetary value of prediagnosis indirect cost was equivalent to 65% of patients direct medical cost. But diagnosis indirect cost was found to be higher than diagnosis direct cost. Indirect cost in the study was found be of significant value due to the inability to work and loss of work time while rendering the services. It manifests that indirect cost rendering health services have the significant role on cost acceleration during pretreatment phase. In Uganda higher work lost was found before the diagnosis of TB. (17) Patient income doesn't determine the pretreatment cost. But due to disease income of patients is affected by productivity loss and raise in amount foregone. More than 50% of work day's loss due to TB occurred during pre-treatment phase and was reported as indirect indicator for patients delay for getting appropriate diagnosis. (16)

Beside using household Income and saving, study identified that 25% patients have to borrow money or sell household asset or both as coping mechanism. It is the sign that household might undergo severe debt and lose of assets till the effective treatment of disease. According to Ramachandran R et.al, in Tamil Nadu 67% of rural household 75% of urban households went on debt due to TB. In Bangladesh, household has to sell the assets followed by the credit creation due to loan as the response to the medical expense of the disease. Coping mechanism makes household more vulnerable to long term implication like future shocks, infant mortality and morbidity due to reduced food consumption and obstruct the economic recovery of the household.(18)

In Nigeria age group, HIV status and income status of the patients have contributed significantly to the pretreatment cost which is not found in this study and the study in Kenya. (10,19) Unlike the finding in Nigeria, this study demonstrates that non-poor household paid less than poor household during the rendering of proper diagnosis of disease. (10)

Household expenditure on health is not only the indicator for the economic prosperity of the household; it also indicates the people's access to health care. The study found that median annual income of the household of the patients was $3120 and spent 3.34% of it till the identification of disease. Similarly, median annual income of the patients was $2495 and median expenditure till the effective diagnosis of TB $ 87.43. In Bangladesh proportion of the expenditure for only patients for effective diagnosis was higher than of cumulative cost of patients and guardian in this study. The average total loss before effective treatment was

$245 where as the annual household income was $780. (20)

This study has some limitations. Due to the cross sectional nature of the study patients have to recall the past events of the cost. Most of the patients were employed in informal sector and do don't have any fixed level of income. As the cost calculation and loss of the time value of money are based on the self-reported response by the patients, there is a concern of significant recall bias. Due to limited number of the participants there is the question of rigor of the statistical analysis. Based on the availability of more infrastructure and relatively higher per capita income of the people in this study area the people as economically advantageous. So the inference drawn from this study may not be applicable to other urban setting of the country.

The study identified significant economic burden on patients and households by prediagnosis and diagnosis cost produced by TB. In order to reduce the burden the authors appeal for introduction of social security schemes like medical insurance, compensations of medical and non-medical cost for migrants, poor, marginalized and other vulnerable communities. In addition to this, government should also focus on passive case finding techniques that reduce patients delay and frequencies of shopping around the health centers for the effective diagnosis of TB.

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Prevalance, perpetrators and reasons of elder abuse in Bhubaneswar, Odisha 2014

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Abstract

Introduction: Elder abuse has been recognized as a growing problem in India as the older population size of the country is increasing rapidly. Being one of the most vulnerable segments of the society, they are facing lot of problems in their day to day life, which takes the form of elderly abuse. In this respect care of elderly people is very much necessary to maintain their rest of life. **Objective:** The objectives of the study were to find the prevalence of elderly abuse among the elderly, to identify the perpetrators of the abuse of elderly, the reason of abuse and to find out their view about the solution of this problem. **Method:** A descriptive cross-sectional study was conducted in Bhubaneswar, Odisha. A semi structured questionnaire was used to collect the data from 272 elderly respondents, Data were analyzed in SPSS version 16 and the descriptive statistics were reported. **Results:** The study found that the prevalence of elderly abuse is 31% and among 31% of abuse cases sons of the victims were the major perpetrators (46%). Economical dependency of the abuser was the main reason for elderly abuse and 49% of the elderly respondent suggested that creating awareness among the young mass and educating them about our social norms and value would be a possible solution to reduce the prevalence of the elderly abuse.**Conclusion:** This study found that economical dependency of abuser as an important cause for elderly abuse which is due to unemployment of young mass and and also they are forgetting their social norms and values which lead to older abuse. As per elderly respondent sensitize the young mass towards the importance of elderly in the society would help to reduce this problem.

Keywords: Elderly Abuse, Perpetrators, Reason of abuse, Prevalence , Unemployment

Introduction

Old age is associated with declining physical and mental status as well as reduction in social commitment. It is a social construct rather than biological stage. So the onset of old age varies from country to country. In most of the developed countries it is defined that the person more than 65 years of age as an older person where as in developing country like India, the person who is of the age 60 or above defined as older person or elderly (1). In India the proportion of older people is growing gradually from last three decade 6.7% (1991), 7.4% (2001), 8.0%(2011). In Odisha, the proportion of older population was 8.1% of total population in 2001 where as it becomes 9.3% in 2011 which is higher than the national average.(2) It is estimated that by 2050 there will be 19% of elderly in total population in India(3). With increasing proportion of elderly population, needs and problems of elderly are also increasing. Tradi-

tional norms and values of Indian society were designed in such a way that it automatically fulfills the needs of the elderly with respect to social, psychological and economic security. But from past three decade, Indian society has been influenced by the new liberal capitalist economic structures and institutions, employment structures, educational and health services due to which there are metamorphic changes in the structure and function of Indian Family. Changes in structure and function of family is creating dysfunctions in the family like lack of cohesion, adaptability and negative communication patterns which leads to domestic violence and abuse.

There are many rules and regulations to prevent domestic violence and abuse against elderly in India. There is a particular relevance to old age social security in the article 41 of directive principles of state policy of Indian constitution. Hindu adoption and maintenance act 1956 imposes an obligation on both son and daughter to maintain their parents. In 1991 Govt. of India has formed a policy named National policy for senior citizen 1991. As old age abuse is increasing from last three decades a law named "Maintenance and Welfare of parents and senior citizens act 2007" has been formed. As per the act, a maintenance application form can be filed by parents and senior citizens above 60 years when they are either mistreated or not cared by their children or relatives(4). Even after all these laws by Government of India, elderly abuse and neglect are increasing in society because many of them are not aware about these laws.

Elder Abuse is defined as a single or repeated act or lack of appropriate action occurring within a relationship where there is an expectation of trust, which causes harm or distress to an elder person. Elder abuse is a public health issue now a day as it leads to decrease in quality of life of the older person. (5)

The statistics on elder abuse reported its prevalence as 4% to 6% of the elderly population however the statistics are so low because elders are afraid of reporting abuse & most elders become silent sufferers and won't reveal it as it becomes a matter of family honor for (them(6)(7)

The perpetrators of older abuse incidents are 51% partner or spouse, 49% another family member, 13% care giver, and 5% close friend or neighbor(8).This result has showed that older abuse is more a family problem which have impacts on society rather than a societal concern. Recent Studies have deconstructed the WHO definition of abuse into five different categories of abuse against elderly: Psychological, Physical, Sexual, Economic and Neglect(9). The literature suggests that the abuse perpetrated against older is not only in one form but also some time it covers a combine type of abuse(10). According to earlier Studies, elders who are subjected to abuse are decreasing in emotional and mental wellbeing and in physical wellbeing; while those who are abused financially are also severely impacted in their financial, .(medical and life style needs(11

With population of elderly in Odisha being 9.6% which is higher than national average, there is a need to study about elder abuse in Odisha. There is a general assumption on Elderly Abuse that it does not exist and is a western metro centric phenomenon which does not exist in small town like Bhubaneswar. So it is also important to study whether the general assumption of the people is either .true or a matter of under the carpet

This study would be helpful to understand the prevalence & extent of abuse of elderly

across city which would help the NGOs and GOs for formulating an effective mechanism in place to address the issue of elder abuse. This study explored the nature and extent of abuse along with the main perpetrators of abuse and awareness on measures to prevent abuse along with action taken by older after being abused. It also explored the reasons .for not taking action by victims

Methodology

The study was a descriptive cross-sectional study conducted at Bhubaneswar, Odisha in 2014. Data was collected by using a semi structured questionnaire. The sample size 272 was calculated with 23% prevalence of elderly abuse (Help Age India), 95% Confidence interval (Z=1.96) and marginal error (d) of 0.05. The sampling strategy followed was multistage simple random sampling technique where 4 wards were taken randomly. From each ward, 3 urban areas and one slum area selected. From each area randomly 17 respondents were selected. Written consent was obtained from all the respondents before administering the questionnaire. Data were analyzed in SPSS version 16 and reported as .descriptive statistics

Results

Table 1: General Charecteristics of the Elderly Respondents

Characteristics	Category	(%) n
AGE		
to74 years 60	60 to74 years	(69%)189
to 84 years 75	75 to 84years	(29%)79
more than 84 years	more than 84 years	(2%)4
GENDER		
Male	Male	(67%)181
Female	Female	(33%)91
MARITAL STATUS		
Married	Married	213(78%)
Widow/Widower	Widow/Widower	59(22%)
EDUCATIONAL STATUS		
Under matric	Under matric	(73%)199
Matric	Matric	(10%)27
Intermediate	Intermediate	(4%)11
Graduate	Graduate	(11%)30
Postgraduate	Postgraduate	(2%)5
OCCUPATION		
Self employed	Self employed	(30%)82
Laborer	Laborer	(27%)73
Retired professional	Retired professional	(20%)54
Unemployed	Unemployed	(19%)52
Skilled worker	Skilled worker	(4%)11
MONTHLY INCOME		
Less than 1000 INR	Less than 1000 INR	(46%)125

INR 1001-5000	1001-5000 INR	(27%)73
INR 5001-10000	5001-10000 INR	(10%)27
and above 10001	10001 and above	(17%)47
HOUSE OWNERSHIP REGISTERED		
Own name	Own name	(38%)103
Spouse name	Spouse name	(25%)68
Children name	Children name	(7%)19
Unauthorized land	Unauthorized land	(29%)79
Rented	Rented	(1%)3

Based on the study, 69% of the respondents are in the age group of 60-79 age group which is known as young- old age by WHO followed by 29% in the middle- old age group(80-84) and only 2% are in old -old age group.73% of the respondents are under matriculation followed by 11% graduated respondents.30% of the respondents are self employed followed by 27% laborer and 20% retired professional.46% of the elderly respondents having monthly income below 1000 INR where as only 17% having more than 10000 INR income per month. 38% of elderly respondents are currently staying in their own house where 29% of elderly reported that the houses they reside are unauthorized land.While exploring the perception of elderly about abuse and its prevalence, all the respondents opined that elder abuse is prevalent in the society, 53% think that the prevalence is high, while 30% think that it is moderately prevalent and 17% think it has low prevalence. Neglect (94%), Economic exploitation (58%), Disrespect (88%) and Verbal abuse (76%) are perceived to be the most common types of abuse prevalent in society by the elderly. 49% of the respondents suggested that "Sensitize children and strengthen intergenerational bonding", 33% that "Formation of law" and 18% "to make elderly economic independent" as the desirable solutions to reduce the prevalence of elderly abuse in the society.

Regarding awareness about Redressed Mechanism, 72% of elderly respondents aware about police help line and only 13% respondents knew about the Maintenance and welfare of parents and senior citizen act 2007(MWPSC) where only 13 % also knows about both the mechanism. But 33% of elderly respondents had no idea about any type of redressed mechanism which was a remarkable point. While assessing the awareness of Various old age pension schemes/yojnas, 89% of the elderly are aware about Madhu Babu Pension Schemes where as only 10% are aware about Indira Gandhi National Oldage Pension Schemes and Indira Gandhi National Widow Pension Schemes. While exploring the Sources of Getting Awareness about redress mechanisms and Government Schemes among those elderly who are aware about the redressed mechanism and Government schemes 75% know from Television, 38% know from peer groups and relative, 17% know from news paper and 15% know from Radio.

Among all the older respondents 31% of the elders admitted to having personally experienced abuse. A higher percentage of females (36%) reported abuse than male (28%). According to the elders respondents who are facing abuse, neglect (94%), disrespect (88%), verbal abuse (76%), economic exploitation (58%), beating (54%) are the major type of abuse they have been facing

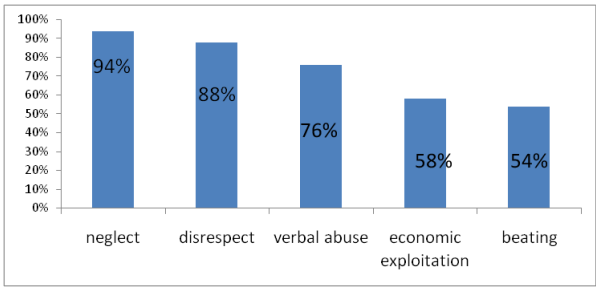

Figure : 1 Different Types of Abuse Faced by Elderly

Elders who had experienced abuse were asked about the abuser. The Son (46%) and the daughter in law (30%) were emerged as the topmost perpetrators.

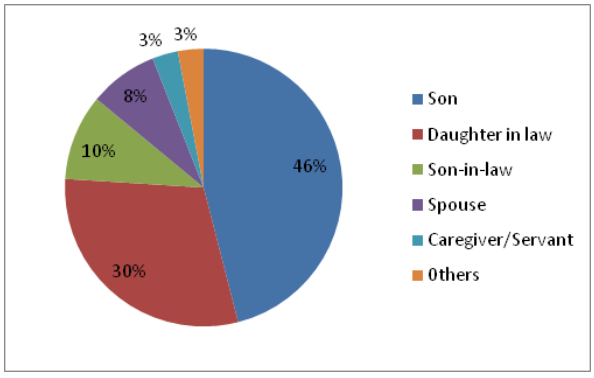

Figure: 2 Perpetrators of Abuse

According to the victims economic dependency of the abuser (40%) was the main followed by economic dependency of the victims (26%), lack of adjustment (13%), Emotional dependency(11%), Increase longevity(8%) and caregivers' stress (2%).

Figure :3 Reasons for abuse as per the elderly who have experienced abuse

Considering the Consequences after being abused , 40% of elderly victims has done self injury to their body, 23% has used alcohol and drugs like substances 9% left the house,3% has attempted suicide where as 25% has no reaction after being abused. While exploring the Reporting mechanism of elder abuse, Out of 84 respondents who have experienced abuse only 11 reported to anybody against the abuse where as remaining 73 elderly are not disclosing it with others. Among those who reported, 55% of elderly reported to their spouse where 27% to community leader and 73% elderly who reported about abuse answered that they had the confidence on the ability of the person whom they reported but there was no result after reporting and only 27% among them informed that the problem aggravated after reporting. Among 73 respondents who have not reported ever after experiencing the abuse 80 % said maintaining confidentiality and 34% said fear of retaliation as the major reasons of not reporting.

While asking about their suggestion about the prevention mechanism, 49% of respondent suggested that education to young towards intergenerational bonding is the best effective measure to prevent elder abuse where as 33% suggested formation of law and 18% to make elderly economically independent.

Discussion

There is no Government survey or research data about elderly abuse. According to the national level NGO Help Age India report on Elderly abuse the prevalence of Elderly Abuse in India is 22% in 2012 where as it is 23% in 2013 and 50% in 2014.(12) This sudden increase from 2013 to 2014 is questionable. This study found that the elderly abuse has increased 8% from 2013 but not as high as reported. The report of help age India showed that the main cause of elderly abuse is their economical dependency on family. Taking this in view Government of India and Government of Odisha has implemented Indira Gandhi National Old age Pension Schemes and Madhu Babu Pension Yojna which have very small or no impact. The current study found that the reason of older abuse is not elderly's economical dependency but the eco-

nomical dependency of their children those are unemployed and economically dependent on the elderly. So unemployment of young mass is the main cause and also they are forgetting their social norms and values which lead to older abuse

As per Census 1991, 2001 and 2011 the child sex ratio(0-6 years age group) of Odisha is gradually declining 967, 953 and 934 respectively which indicates female foeticides and their strong perception about boy children as their care takers during old age. The current study reveals that son is the main perpetrator of elderly abuse hence making their perception a misconception. Reporting elderly abuse is a subject often pushed under the carpet. Most elders become silent sufferers as it becomes a matter of family honor for them. Since many elders live with their abusers, complaining against them often worsens the matters as a result of retaliation. The degradation of our value system leads to increase in the prevalence of elderly abuse. There is a need, not only to sensitize the children about the social norms and value system but also to make them realize the importance of elders .towards the benefit of the society

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Study on occupational health status of women working in cashew factories in Kollam district, Kerala

Soumya Dev, Kalpana Kosalram

Introduction

Employment is measured to be a vital indicator of women's achievements in the financially viable sphere. In the organized and industrialized sectors employment of women has increased quickly. Employment is a security for women to solve familial and social problems. Employment gives monetary stability to women. Economic status paves the way for social status. Cashew nut preservation and process is a labor intensive industry which generates more than three lakh employments directly. (1)The estimated area under cashew cultivation all over India is around 732 lakh hectares(2)and the production of the crop has ranged between 4 – 5 lakh tones per annum. The present installed capacity to process cashew nuts in the country is over 8 lakh tones. (2) The most important feature of the cashew industry is that it has produced job opportunities for many all across India. Among these jobs 95 percent are women hailing from socially and economically backward communities at rural areas of various states.(1)

Cashew processing involves the renovation of raw cashew nuts to cashew kernels. The foremost stages of dispensation include scorching or steaming the unprocessed nuts to smooth the progress of elimination of the rigid outer shield, shelling or cutting the outer shield, detaching the pelt of the kernel and grading the kernels based on class. The majority of the employees in the industry are occupied in de-shelling, peeling and grading activities.(3) A lower percentage of human resources are engaged in roasting, cutting, drying, and administration, office work, packing, loading and unloading. The number of days of service increased and at present many of the factories is able to offer employment round the year. The business offers very low remuneration.

The establishment of cashew factories provided employment chances to women who were previously disempowered, home bound and financially dependent on their husbands. Identifying issues and problems in the occupational health of women in cashew factories remains a challenge. This study was conducted to find the burden of occupational diseases, factors associated with them and the safety measures adopted by the cashew workers. The main objectives of the study were to find the prevalence of physical morbidities among female cashew factory workers, to assess the perception about their own health, to find out the influence of their working environment, practice of personal protection equipments and economic condition on their health.

Methodology

The study was conducted using a cross sectional descriptive design among 240

female cashew factory workers from 4 different factories across Kollam district in Kerala state between June 10th and July 15th 2014 through face to face interviews. For a 50% assumed prevalence of morbidity among these workers, for a 95% confidence limit and 7% allowable error, the sample size was calculated to be 195 and rounded off to 200. Including a 20% oversampling for non-response, the total sample size was 240. The main strategy followed for the sampling was multi stage systematic sampling which involved selecting 60 respondents each from the 4 factories; 20 each from peeling, de-shelling and grading works. A semi structured questionnaire was administered to the participants individually by the researcher. The questionnaire contained demography (age, marital status, and education level), working conditions (type, working hour, wage, facilities available), hazards &use of Personal protective equipment measures, health problems and treatment seeking behavior; all together constituting 17 questions. The collected data were carefully classified, tabulated and used Multinomial analysis, Likert Scaling Technique(1) and Garrett Ranking Technique(1) to generate the following results.

Result

A total of 240 participants were approached for the study and all of them consented to participate. A verbal informed consent was obtained from each participant before administering the questionnaire. The characteristic of the study participants is shown in Table 1.

Table.1: Characteristics of the female cashew factory workers

Characteristics	Category	Frequencies	Percentage
Age group of the workers	18-30	15	6.3
	30-40	66	27.5
	40-50	98	40.8
	50-60	61	25.4
Marital status	Married	186	77.4
	Unmarried	10	4.2
	Divorced	10	4.2
	Widow	34	14.2
Educational status	Non formal	12	5.0
	Primary	34	14.1
	Middle	54	22.5
	High school	131	54.6
	Higher secondary	9	3.8

Based on the study there is 8 man-hours of work daily with a piece wage system. The working place is well lighted and well ventilated. There are facilities like child care rooms in the work place. Majority of the workers have 5 to 10 years of work

experience. The percentage of respondents with work experience listed here in a descending order are 5 -10 (29.2%), 10 – 20 (28.6%), 20 – 30 (24.2%), > 30 (13.8%), 1 -5 (3.8%), <1 (0.4%).

The working conditions of cashew industry workers are analyzed with the help of Likert Scaling Technique(1), the table 2 shows the comparison on the working conditions in government owned factories and private factories. From the comparison it seems the private factories are focusing to provide most of the required facilities to their employees compared to the government owned factories.

Table.2:Opinion about working conditions in government factories and private factories

Working conditions	Categories	Government factories	Private factories
Insurance			
	Very good(5)	5	23
	Good(4)	99	61
	Moderate(3)	15	25
	Bad(2)	1	3
	Very bad(1)	0	8
	Total	**468**	**448**
	Rank	**I**	**V**
Medical facilities			
	Very good(5)	9	36
	Good(4)	83	47
	Moderate(3)	22	27
	Bad(2)	6	8
	Very bad(1)	0	2
	Total	**455**	**467**
	Rank	**II**	**IV**
Toilet			
	Very good(5)	3	43
	Good(4)	39	48
	Moderate(3)	15	27
	Bad(2)	7	1
	Very bad(1)	56	1
	Total	**286**	**491**
	Rank	**III**	**III**
Drinking water			
	Very good(5)	2	42
	Good(4)	9	38
	Moderate(3)	14	28
	Bad(2)	46	4
	Very bad(1)	49	8
	Total	**229**	**506**
	Rank	**IV**	**I**

Canteen			
	Very good(5)	0	60
	Good(4)	3	29
	Moderate(3)	14	20
	Bad(2)	16	9
	Very bad(1)	87	2
	Total	**179**	**496**
	Rank	**V**	**II**

The Cashew factory workers are facing many problems which have been analyzed with the help of Garrett ranking technique. (1) This technique is used to evaluate the problems faced by the individuals and they were asked to rank their problems according to the magnitude of the problem. They are having very low wages which is the main concern. The next concern was the various diseases that occurred in the women and this was followed by poor working conditions, long working hours and lastly the lack of government support. Table 3 demonstrates the ranking for the problems faced by the workers. Among the respondents, only 28.3% were using Personal protective equipment measures and that too, majority among them were using traditional Personal protective equipment measures like dry wheat flour, castor oil, ash etc.

Table 3: Problems faced by the workers

Sl.no:	**Problems**	**Percentage(Garrett mean score)**	**Rank**
1	Very low wages	77.1	I
2	Disease affected	69.6	II
3	Poor working conditions	33.8	III
4	Long working hours	16.7	IV
5	No government support	6.7	V

Majority of the workers complained of musculoskeletal disorders followed by palpitation, skin diseases, respiratory diseases, eye problems and leucorrhea. Figure 1 shows the prevalence of various diseases among the workers in various sections of the cashew factory. Majority of them utilized the ESIC medical facilities and rest used other government and private health centers.

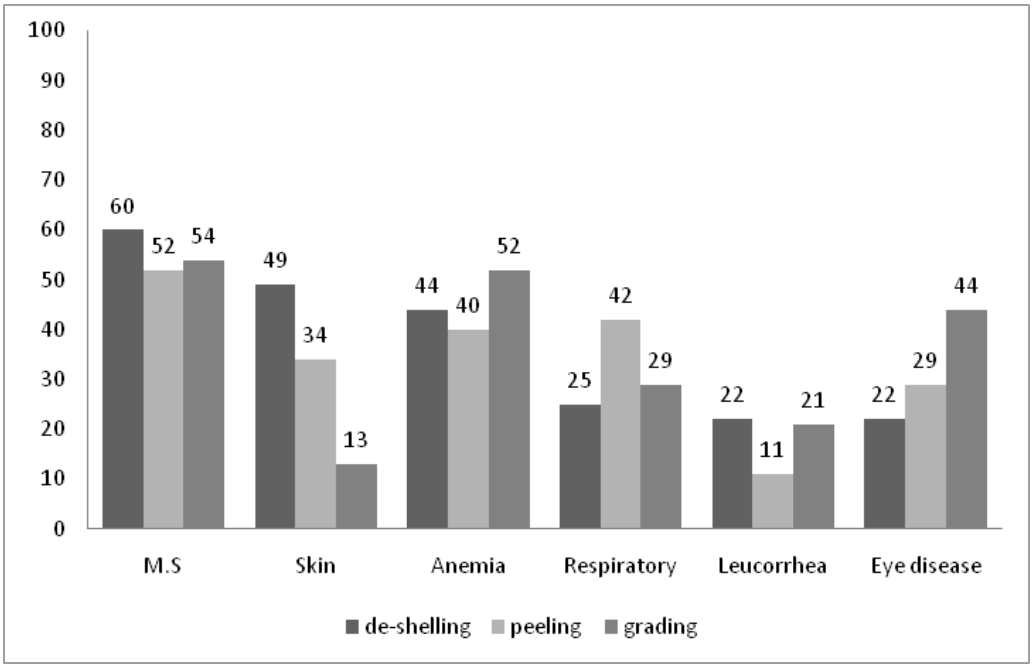

Figure 1: Disease of the de-shelling, peeling and grading workers

Considering the satisfaction level among the respondents, in government sector retirement benefits got the top rank and in private sector regular works tops. But in both sectors, wages ranked the least. This analysis was done using Likert scaling technique. Over all satisfactory level among the respondents are listed here in the descending order starts with somewhat satisfied (45%), very satisfied (28.7%), not too satisfied (14.6%) and not at all satisfied (11.7%)

Table 4: Association of various characteristics with perceived health status

Characteristics	**Poor health status OR (CI at 95%)**	**Moderate health status OR (CI at 95%)**
Age 18-30yrs	0.029* (0.003-0.338)	0.026*(0.003-0.222)
30-40yrs	0.028* (0.004-0.194)	0.189(0.037-0.966)
40-50yrs	0.287 (0.048-1.729)	0.673(0.123-3.689)
50-60yrs ®		
Work type		
De-shelling	0.989(0.082-12.003)	0.843(0.102-6.976)
Peeling	4.174(1.069-16.290)	1.771(0.607-5.165)
Grading®		

Diseases		
Musculoskeletal		
Yes	1.369(0.299-6.269)	0.895(0.246-3.257)
No®		
Anemia		
Yes	3.730(0.547-25.430)	1.486(0.276-8.009)
No®		
Skin		
Yes	0.597(0.159-2.247)	0.862(0.311-2.389)
No®		
Respiratory		
Yes	8.911*(2.571-30.884)	6.033*(2.371-15.352)
No®		
Eye		
Yes	0.983(0.102-9.443)	0.540(0.071-4.076)
No®		
PPE		
Yes	2.884(0.272-30.607)	2.065(0.269-15.866)
No®		

.Reference category was excellent health status

Reference category ®

Significant 95% CI *

From the above table 4, age was found to be an important predictor to estimate the health status. Age within 18 – 30years are 97% less likely to have poor health status when compared to 50 – 60 years. Age within 18 – 30years are 97% less likely to have moderate health status when compared to 50 – 60 years. Age within 30 – 40years are 97 % less likely to have poor health status when compared to 50 – 60 years. Those who are having respiratory diseases are 9 times more likely to have poor health status, and 6 times more likely to have moderate health status when compared to those who are not having respiratory diseases. Majority of the workers are affected with Musculo skeletal disorders irrespective of their work type.

Discussion

The main objectives of the study were to find the prevalence of physical morbidities among female cashew factory workers, to assess the perception about their own health and to find out the influence of their working environment, Personnel protective

Equipment measures and economic condition on their health. The result of the study shows that 95% of the women workers are affected with various diseases; and most of them are affected with musculo skeletal disorders. It also shows that the workers were having high health seeking behavior. But to the surprise, 71.7% of the workers were not even bothering about the Personnel protective Equipment measures.

Few suggestions for the better working environment in cashew factories are arranging regular health checkups, which should include eye-check up. Every cashew industries should provide Eyewear, masks, gloves, oils and soaps to safeguard the women workers health. And also the factory should arrange education of Women Workers regarding the hazards and the importance of Personnel protective Equipment measures. The industry should modify the wages system in order to meet the present condition of expense.

The study was limited with certain constraints like difficulty in getting permission from the factory authorities, time restraints in the organizations and lack of co-operation from the workers because of their busy schedule.

One study opines that the socio-economic status of the cashew workers will be improved only if adequate measures are taken to overcome their problems. In order to improve the benefit level of workers, It also suggested various good things related to wages and incentives in cashew factories.(2) Another study opines that when compare to other processing industries, the income of the cashew nut workers are low. It also shows that due to the burden in the family the women are working in cashew nut industry even after marriage. Except for gender and marital status, the study didn't find any significant relationship between demographic factors and socio economic factors.(4)

A study about the relevance of Women workers in Cashew nut Labor Markets mentions the issues troubling the Cashew Industry Women Workers. It also analyzes the lives of female cashew factory workers, their working conditions and the changing power and gender relations within the industry and society in Kerala. The study suggested fixing the minimum wages for the women workers and also mentioned about different personal protective equipment measures to safeguard the health of cashew workers.(1) Another study concluded various methods of cashew nut processing which are both hazardous to the environment and to the workers those who are involving in the process. The study mentioned that the most significant occupational hazards in processing cashew nuts are due to the caustic oil secretion. It can burn the skin and produce noxious fumes when heated.(5)

A study on the problems and potentials of cashew industries in Kerala, mentioned that if the workers are getting continuous employment, they are willing to work with low wages.(3) Another study explains about the occupational diseases of women workers and the working environment and also mentioned about women unpaid work.(6) A similar study observes the growth and performance of cashew nut production in the various states in India.(7)

The study focuses light to the problems facing by the employees in various working environment. Majority of the problems are health related, though can be solved using

proper health care measures they have to follow during their working hours. This can be achieved with the help of proper guidance and also with regular health checkups. Then about the working condition, which can be maturized with strict instructions to implement the right measures in the factories by the authorities.

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Assessment of nutritional status and developmental milestones among children under 4 years of age in Sahariya tribes, Shivpuri, Madhya Pradesh

Akshay Sharma, Alex Joseph

Abstract

Undernutrition among children is estimated to be contributing most to the global burden of diseases. It is one of the important reasons for ill health and child mortality. **Objectives:-**To assess the nutritional status, breast feeding practices, and developmental milestone among children less than 4year of age in Sahariya Tribes, Shivpuri district (M.P). **Materials and Methods:-** A cross-sectional study was conducted in villages inhabited by Sahariya tribal community in Shivpuri district(M.P.). Age, weight, height, and MUAC of the children were screened and socio-demographic characteristics as well as breast feeding history where collected by a semi- structured questionnaire. Checklist of developmental milestones was used to screen the children for development. **Results:-** The overall prevalence of malnutrition in the community was found to be high i.e 62% underweight, 61% stunting, 39%wasting, and 38% low MUAC. Initiation of breast feeding for the newborn baby within an hour of delivery was 17% among 0-5 month, 7% among 6-11 month and 22% among 12-23 month children. All the mothers interviewed reportedly fed colostrum to the newborn. The delay in developmental milestones were higher (57%) among the age group of 0-2 month and followed by the age group 12-17 months children (40%), 24-35 months children (40%), 36-47 months of children (37%), 3-5 months children (30%), 18-23 months children (30%), and 6-11 months children(16%). **Conclusion:-** This study found a high prevalence of undernutrition among children below 4 years of age in the Sahariya tribes. There was no association between malnutrition and developmental delay in this tribal population.

Key words:- Malnutrition, Nutrition assessment, Development Milestones.

Introduction

Undernutrition among children is a matter of public health importance as it leads to increased morbidity and mortality among children. (1) Malnutrition is one of the major public health problems of the world which accounts for more than one third of the all child deaths globally. (2) Malnutrition includes both under and over nutrition problems. Marginal dietary intake, unhealthy dietary practices compounded by repeated infections leads to a vicious cycle of malnutrition, infection and immunity among children in developing countries like India.

In the developing countries 30% of infants, children, adolescents, adults and elderly suffer from single or multiple forms of malnutrition. Out of 10 million deaths among children less than 5 years old 49% are associated with malnutrition and the

remaining 51% is associated with infection and other causes. (3) Malnutrition during child hood can lead to failure in growth and development; This can lead to school dropouts, poor school performance and reduced productivity.

Malnutrition is one the major public health problem in developing countries like India. Almost half of children under five year of age 48% are stunted and 43% are underweight. The proportion of children who are severely undernourished (more than three standard deviation below the median of the reference population) is also notable-24 percent stunted and 16 percent underweight. Wasting is also a serious problem in India, affecting 20 percent of children under five year of age. Inadequate Nutrition is a problem throughout India, but the situation is a considerably better in some states than others. Among schedule tribe children in India 53.9% are stunted, 24.7% are wasted, and 54.5% are in underweight category. The mortality in the tribal children had been found to be more in relation to their share of the total population in rural areas.(5)

Madhya Pradesh is one of the socio-economically and demographically backward states of India with a poverty rate of 32.4% as estimated by National Sample Survey 2004-2005. According to the reports of NFHS-3 (2005-06), the prevalence of underweight (<Median – 2SD of WHO child growth standards) among under five year children in the State of Madhya Pradesh is higher than other states. According to National family health survey-3 Madhya Pradesh report underweight 60%, stunting 50% and wasting 35%. (5)

According to National Nutrition Monitoring Bureau (NIN) surveys in Shivpuri (M.P) (2011), the prevalence of underweight (57.8%), wasting (31%) and that of stunting was (51%). (7)

Due to different linguistic, cultural and geographical environment, the diverse tribal world of MP has been largely cut off from the mainstream of development (6). Sahariya in Chambal division, which constitutes 2.7% of total tribal population in MP, is one of the primitive tribes. According to Dimensions of Nutritional Vulnerability: Assessment of Women and Children in Sahariya Tribal Community of Madhya Pradesh in India report Underweight, stunting and wasting among under five children were 59.1%, 57.3% and 27.7% respectively(9). This study was conducted to assess the nutritional status of children less than 4year of age, to assess the breast feeding practices of mothers of children less than 4year of age and to assess the development milestone of children less than 4year of age.

Materials and Methods

Study area and sampling:

The community based crossectional descriptive study was carried out following multistage random sampling from the villages of Shivpuri districts. The survey was carried out in the 10 Villages randomly chosen from the randomly selected Satanwada (Shivpuri rural) district. Children less than 4 years of age were randomly selected from the list maintained by the ANM. Assuming the prevalence of 60% underweight (NFHS-

3) and margin of error 13% with 95 % confidence interval the sample size was calculated to be 150. The total 150 children less than 4 years of age were observed for the milestones of development and the physical anthropometric measurement were recorded as per the standard procedures.(11)

Data collection:

Socio-economic profile, household (HH) information and information on breast feeding practices were collected at HH level from all selected HHs consenting for survey using an interviewer administered questionnaire. Under four year children present at the HH during the time of the survey were assessed for nutritional status using the anthropometric measurements. Standard techniques were used to assess height/length, weight and MUAC. Stature was assessed using anthropometric rod/ infantometer (in case of infants) and weight was taken using Salter scale. MUAC was assessed by using a fibre reinforced measuring tape. Percent distribution of children according to weight for age, height/ length for age, weight for height/length and MUAC for age as per the standard deviation (SD) (12) was carried out. Lower and upper SD levels were considered to be flag limits for extreme or potentially implausible *Z* score values; weight for age *Z* score (WAZ), height/length for age *Z* score (HAZ), weight for height *Z* scores (WHZ) and MUAC Z score. All flagged Z scores were rechecked for data entry errors after which they were excluded from the final analysis. Screening children for development milestones was assessed as per the status of development milestone achieved. The details of milestones achieved age wise was recorded as illustrated(13). A semi-structured questionnaire was used to collect information on background characteristics of the household along with anthropometric records of the child. Checklist of developmental milestones was used to screen the child for milestone development status. Different developmental milestones for each age category were assessed based on the standard checklist. A combined Score was calculated and summed mainly based on four options for each milestone - Regularly = 100; Often=50; Sometime = 30; and Rarely = 10. Then the combined score of each child was neutralized and categorized.

By using the neutralized score, each child was categorized into four different category namely first quartile (76-100%), second quartile (51 to 75%), third quartile (26 to 50%), and fourth quartile (0 to 25%) of development.

Statistical analysis

Statistical analysis was carried out using SPSS windows version 16, Descriptive analysis regarding HH socio-economic profile were performed. The anthropometric data on children (0- <4 years) were analyzed using WHO Anthro software.

Results

Table1: Socio-Demographic characteristics of the study population**:-**

A total 150 respondents were included in the study from Shivpuri district in Shariya tribes. Out of the 150 respondents totally interviewed 83(55%) were male and 67(45%) were female. About 85% of the fathers of the children were literate and

Table1: Socio-Demographic characteristics of the study population:-

Characteristic	Category	Frequency	Percentage
Gender	Male	83	55
	Female	67	45
No. of children in family	1	31	21
	2	56	37
	3	28	25
	4 and above	25	17
Father's Education	Non formal education	23	15
	Literate	127	85
Mother's Education	Non formal education	79	53
	Literate	71	47
Father's Occupation	Owner Cultivator	37	25
	Other labors	111	74
	Business and services	2	1
	Unemployed	0	0
Mother's Occupation	Owner Cultivator	1	1
	Other labors	109	73
	Business and services	0	0
	Unemployed	40	26
Family Income	1000-4000	48	32
	4001-7000	70	47
	7001 and above	32	21

53% of the mothers illiterate. Majority of the fathers were laborers (74%) followed by a small minority of owner cultivators (25%). A majority of (47%) the father income was between 4000-7000 per month These details are shown inTable1.

Information on breastfeeding feeding practices obtained from mothers of children <24 months, is provided in Table 2**.** Initiation of breast milk for newborn baby within an hour of delivery was done among 17% of 0-5 month babies, 7% of 6-11 month and 22% of 12-23 month babies. All the mothers interviewed reportedly fed colostrums to the newborn.

According to the WHO(8) reference standard 62% were underweight, 61% stunted, 39% wasted & 38% had low MUAC Table-3. The study also found that the prevalence of underweight was higher (73%) among the age group of 12-23 month children, where as the prevalence of stunted was found to be higher (67%) in 24-35 month children and the wasting was found to be highly prevalent(47%) in 0-11 month as shown in Figure-1.

The study revealed that the proportion of the children in the 3rd and 4th quartile (not achieved the milestone) are higher (57%) among the age group of 0-2 month and followed by the age group 12-17 months children (40%), 24-35 months children (40%), 36-47 months of children (37%), 3-5 months children (30%), 18-23 months children (30%), and 6-11 months children(16%). This is shown in Figure-2.

Table 2: Practice of breastfeeding

Characteristic	**Categories**	**Age 0-5 months (n=17)**	**Age 6-11 months (n=13)**	**Age 12-23 months (n=60)**
Initiation of breastfeeding after delivery	<1 hour	5 (17%)	2 (7%)	13 (22%)
	1-24 hours	11 (37%)	10 (33%)	44 (73%)
	After 24 hours	1 (3%)	1 (3%)	3 (5%)
Colostrum feeding	Yes	100%	100%	100%
	No	0	0	0
No. of times mother gave breastmilk to baby per day	< 6 times	3 (10%)	5 (17%)	14 (23%)
	6 -10 times	6 (20%)	3 (10%)	22 (37%)
	>10 times	8 (26%)	5 (17%)	24 (40%)
Duration of exclusive breastfeeding (6 months)	Mother's milk	11	5	32
	Non human milk	6	8	28

Table3: Anthropometric indicators of children (<4 years) in the tribal population of Sahariya

Anthropometric Indicator	Category	Frequencies	Percentages
Weight for Age (n=150)	Normal	57	38
	Moderate Underweight	33	22
	Severe Underweight	60	40
Height for age (n=150)	Normal	59	39
	Moderate stunted	22	15
	Severe Stunted	69	46
Weight for height (n=150)	Normal	92	61
	Moderate Wasted	31	21
	Severe Wasted	27	18
MUAC for age (n=133)	Normal	83	62
	Moderate Wasted	37	28
	Severe Wasted	13	10

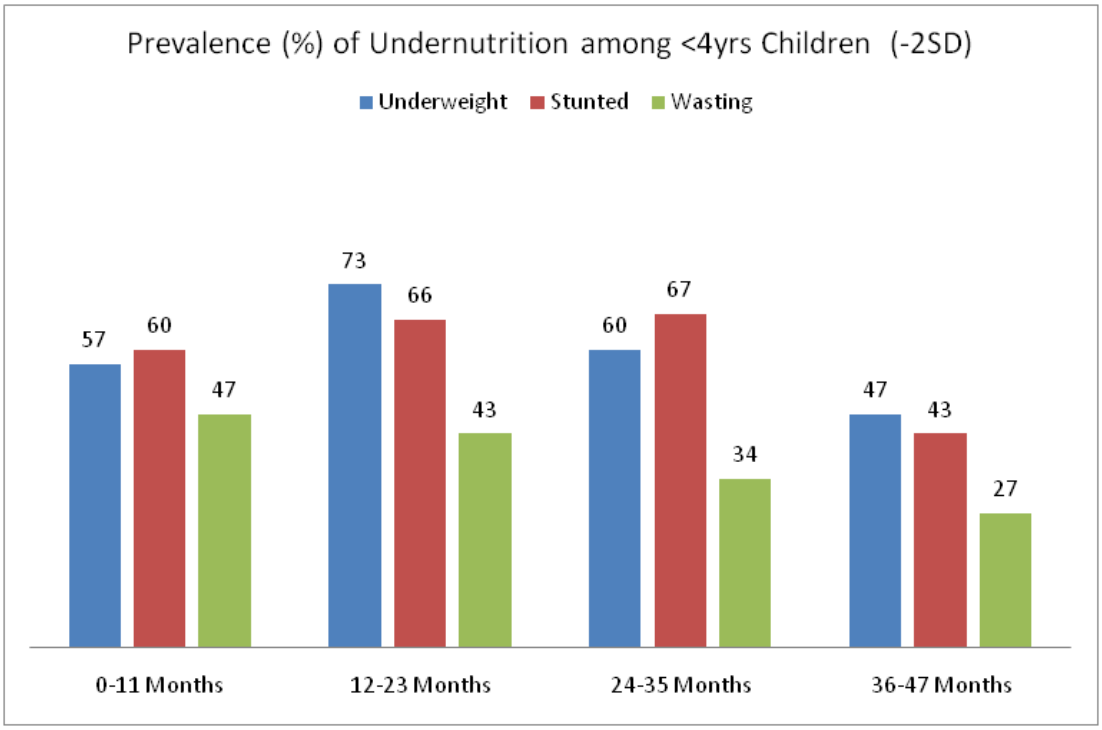

Figure 1

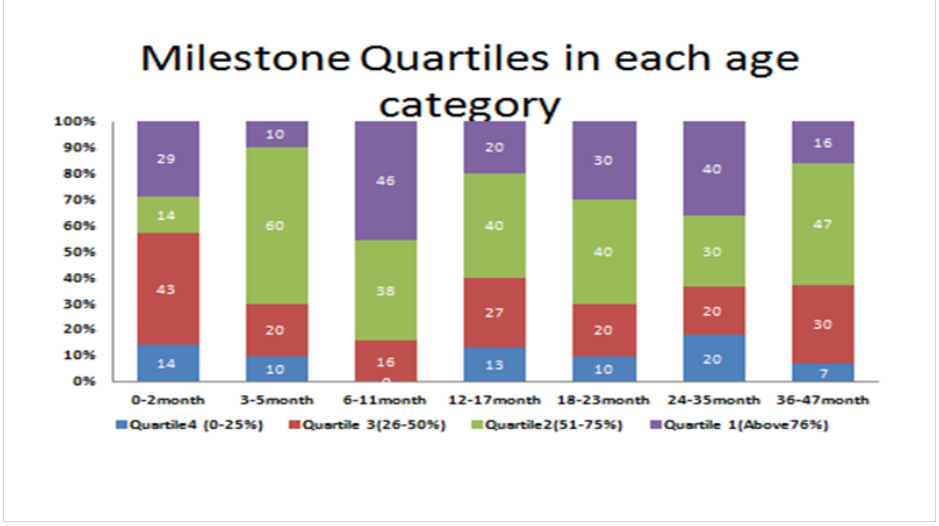

Figure 2

Discussion

In keeping with the findings of previous studies and surveys this study also showed a high prevalence of malnutrition among the children under 4 years of age in the Shivpuri district. (7,9)

Breastfeeding was high among these tribal mothers. About 22% of the mothers reportedly initiated breastfeeding within one hour after delivery which is higher than that reported by NFHS-3 (16%), while 72% of mothers initiated between 1-24 hours. In the present study, the prevalence of underweight among the child of 6-11 month is 2 times more than among the children of 0-5 months and the prevalence are gradually decreasing as the age of the children is increasing. The prevalence of wasting is gradually decreasing as the age of the children is increasing. The low MUAC prevalence of the present study is low as compare to the previous study (9).

There are many programs run by the government of India to improve the nutritional status in such tribal region. This study indicates high prevalence of malnutrition (Stunting, wasting, and underweight) in the Shariya tribes of Shivpuri district. In spite of many programs run by the government the nutritional status among tribal children is poor as compare to their rural counterparts.(7)

Nutritional status of infants and young children is not only a vital health issue,but it is also central to sustainable growth and development of the child(10). The current prevalence in the district is higher than that reported for the stateand is becoming progressively worse.The study revealed that no significant association between nutritional statusand different socio-economic variables or breast feeding practice or developmental milestones.There is a need for further well designed studies of association between nutritional status and developmental milestones.

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Assessment of The Bauchi State Agency for the Control of HIV/AIDS, Tuberculosis, Leprosy & Malaria's (BACATMA) Tuberculosis control programs to further strengthen Tuberculosis control in Bauchi State

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Abstract

Objective: To assess the performance of the tuberculosis control program of BACATMA and compare it with international standard proposed by the World Health Organization.**Methods:** All data collected by the BACATMA between 2008 and 2014 were consolidated and analyzed to understand its performance. Six parameters; Relapse Rate, Treatment completed Rate, Mortality Rate, Treatment Failures Rate, Default Rate, Success Rate, were used in the assessment. Also, BACATMA's TB Success parameter was compared with WHO National TB Success (Nigeria). **Results:** Relapse and default rates declined from 10 – 5% and 4% - 1% respectively over the period of observation. Also the trends of mortality rate and failure rate were maintained below 1 per 100000 and 5% respectively. However, WHO mortality of Nigerian data is 143 per 100000. Success rate has been 80% on average throughout the period of observation. **Conclusion:** Base on these parameters, it could be inferred that BACATMA program is satisfactory according to their trends and WHO data of Nigeria.

Introduction

Tuberculosis (TB) has been a major public health concern worldwide.(1) TB disease is one of the leading causes of death associated with infectious disease globally.(1) One- third of the world's population is infected with Mycobacterium tuberculosis infection.(1) It is second only to HIV/AIDS as the greatest killer worldwide.(1) In 2012, 8.6 million people fell ill with TB and 1.3 million died from TB.(1) Over 95% of TB deaths occur in low- and middle-income countries.(1) In 2012, an estimated 530 000 children became ill with TB and 74 000 HIV-negative children died of TB.(1)

Nigeria is ranked 10th among the 22 high-burden TB countries in the world.(2) WHO has estimated that 210,000 new cases of all forms of TB occurred in the country in 2010, equivalent to 133/100,000 population.(2) There were an estimated 320,000 prevalent cases of TB in 2010, equivalent to 199/100,000 cases. (2) There were 90,447 TB cases notified in 2010 with 41, 416 (58%) cases as new smear positives, and a case detection rate of 40%. (2) Eighty three percent of cases notified in 2009 were successfully treated.(2) The main goal of Nigeria's TB program is to halve the TB prevalence and death rates by 2015(2).

This concern has led to the establishment of multiple tuberculosis control agencies worldwide. Some of these agencies are owned by the government while others are nongovernmental, some are for profit, while others are not. It is important to assess these agencies performance with respect to tuberculosis control. Without assessing and evaluating these agencies, and comparing them to an international standard, their performances and efficiencies shall not be up to the mark. With these in mind, this study

is tailored to assess a government agency's (The Bauchi State Agency for the Control of HIV/AIDS, Tuberculosis, Leprosy & Malaria) performance in tuberculosis control and to compare it with international standard (World Health Organization (WHO).

Operational defintions:
Cohort: is the cohort of new and registered tuberculosis case, which during follow up, produces the variables, Relapse, Treatment Failure, Cured, Treatment completed, Died, Smear Negative and Defaulted.

WHO Nigeria Mortality rate: Mortality (excludes HIV+TB) + Mortality (HIV+TB only)

94 + 49 = 143 per 100000

$$\text{Failure Rate} = \frac{\text{No. of TB Patients who failed treatment in the cohort}}{\text{Total number of TB patients in the cohort}} *100$$

$$\text{Relapse Rate} = \frac{\frac{\text{No. of TB Patients with relapse in the cohort}}{\text{No. of TB Patients who failed treatment in the cohort}}}{\text{Total number of TB patients in the cohort}} *100$$

$$\text{Default Rate} = \frac{\text{No. of TB Patients who defaulted}}{\text{Total number of TB patients in the cohort}} *100$$

$$\text{Treatment Success Rate} = \frac{\text{No. of TB patients who got cured or completed treatment in the cohort}}{\text{Total number of TB patients in the cohort}} *100$$

$$\text{Mortality Rate} = \frac{\text{No. of death due to TB}}{\text{Total Number of population}} *100000$$

Methods

Setting:

Map of Nigeria showing Bauchi (shaded in yellow) (3)

The agency (BACATMA) was established by the act of the state house of assembly and assented by the executive governor, Dr Malam Isa Yuguda on the 9th April 2008 and amended.(4) It brought together 3 control programs which are HIV/AIDS, TBL and Malaria.(4)

Its functions include planning and coordinating activities of various response frameworks and facilitates engagement of all tiers of government and all sectors on issues of the programs in the state.(4) It also support research activities, mobilize and disburse resources, monitor and evaluate all interventions related to HIV/AIDS, TBL & Malaria in the state.(4) Finally, it provide/coordinate linkages with relevant national global committees/institutions and capacity building.(4)

The objectives of the agency are to prevent and control HIV/AIDS, TBL & Malaria in the state, support and provide medications to those infected by the diseases, strengthen the capacity utilization of all stakeholders in the fight against the diseases, strengthen monitoring and evaluation system(4).

Study design

Secondary data analysis of all the data collected from the Agency, which is data from establishment of the agency to the last data collected, that is from the quarter January 2008 to January 2014.

Data sources/ measurement:

All data were collected from BACATMA. BACATMA collects summarized data, according to the variables mentioned below, every 3 months (quarter) of the year from the state's hospital in all the 20 local government of Bauchi State, namely; Giade, Shira, Jama'are, Katagum, Itas/Gadau, Zaki, Gamawa, Damban, Tafawa Balewa, Dass, Toro, Bogoro, Ningi, Warji, Ganjuwa, Kirfi, Alkaleri, Darazo, Misau and Bauchi.

The points of entry into the program's TB Care are through; General Out-patient Department (GOPD), Accident and Emergencies (A and E), and the Medical Specialist Clinic. In order to capture all the patients, a comprehensive list containing all TB patients within the study period was obtained from the Agency's (BACATMA) TB director as softcopy. The data collected were of the variables new case, Relapse, Treatment Failure, Cured, Treatment completed, Died, Smear Negative, Defaulted and Extrapulmonary TB. Diagnosis of patient as a TB case is based on the BACATMA Guidelines for TB. Base on these variables, the parameters Smear Negative-Positive Ratio , Cured Rate, Relapse Rate, Pulmonary-Extrapulmonary TB Ratio, Treatment completed Rate, Mortality Rate, Treatment Failures Rate, Default Rate and Success Rate were calculated.

Results: TB Parameters %

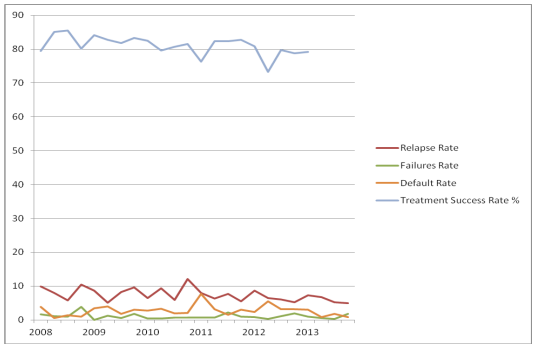

Figure 1; Graph displaying trends of BACATMA TB parameters from 2008-2013

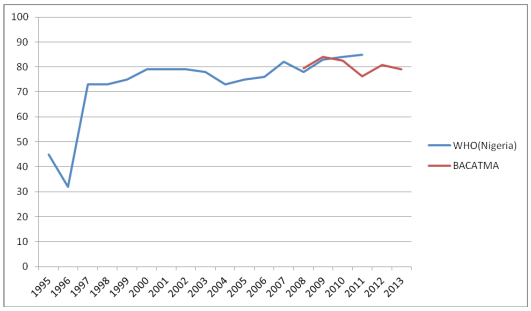

Figure 2; Graph comparing BACATMA TB Success Rate with WHO Nigeria National TB Success Rate

From figure 1 above, relapse rate started at about 10% and declined to about 5%. Failure rate was maintained below 5% throughout the program. Cure rate started about 70% and rises to 80% as of last data collected in 2013. BACATMA's mortality rate was less than 1 per 100000 over the period of observation .Default rate started at about 4% and declined to about 1% as of last data collected in 2013. The most important parameter, which is the Success Rate, is about 80% on the average throughout the period of observation.

Discussion

In this study, BACATMA TB control program was assessed via its secondary data of TB variables. In the assessment, important indicators were considered, such as success, mortality, relapse, default and failure rate . The important findings are success rate of 80%, mortality rate of below 1 per 100000 population, and relapse, default and failure rates were all maintained at less than 10% throughout their trends. The Agency's achievement of high success rate, low mortality, default, relapse and failure rates tells that it is efficient and satisfactory. Figure 2 shows that the trends of the agency's success rate is almost the same with WHO Nigerian achievement of success rate. Also its achievement of mortality rate below WHO Nigerian data of 143 Per 100000. (5) This shows BACATMA mortality rate achievement is even less than WHO Nigerian data . Overall, BACATMA TB control is good when compared with WHO data for Nigeria.

This achievements are attributed to the agency's aggressive actions towards the program, such as routine awareness and campaign through the media, flyers and programs, which as a result more people come for checkup. In this way, TB were detected early and treatment are initiated on time. Also, it makes TB drugs and TB test (Sputum AFB) readily available, accessible and free. Lastly, these services are decentralized where by TB patients need not travel far distance to get these services, they are available in all the primary healthcare facilities of each the local governments.

BACATMA TB control program could be made better by continuously undergoing annual assessments in order to monitor its activities. Nationally, each state should have their own agency for TB control program because the program when handled by the ministries of health tends to receive less attention as many integrated programs has to be managed by these ministries.

However, BACATMA run three control programs; the HIV/AIDS, Malaria, and Tuberculosis and Leprosy control program. Being assessed as effective and satisfactory in tuberculosis control program doesn't declare the overall agency's performance. For the agency's overall performance, the other two control programs need to be assessed as well.

Nigeria as a whole has Tuberculosis and Leprosy Control Program (NTBLCP)), which was officially launched in 1991 with a mandate to coordinate TB and Leprosy Control activities in the country and reduce the burden of both diseases. This review focuses

on the TB control component of NTBLCP of Nigeria. The NTBLCP is structured along the three tiers of government *i.e.* Federal, State and LGAs. Its activities are supported by development partners. Prominent among these are WHO, Global Fund to fight AIDS, TB and Malaria (GFATM), International Union Against Tuberculosis and Lung Diseases (IUATLD) and United States Agency for International Development (USAID). There is a National TB training centre in Zaria (a prominent city in Nigeria)which is responsible for development of human resource, training guidelines and operational research relating to TB. The basic strategy of NTBLCP remains the provision of free DOTS to all persons with active TB. Supportive strategies are outlined in the new Strategic Plan (2010-2015) which has the following components: Improving key indicators such as case detection Rate (CDR) and Treatment Success (TSR) via quality assured bacteriology, Pursuing high quality DOTS expansion and enhancement, Addressing TB/HIV co-infection, Controlling Multidrug resistant TB (MDR-TB), Provision of laboratories and quality assurance services, Increased and sustained funding for TB control, Engaging people with TB and affected communities *via* ACSM and Involving all care providers through PPM. The analysis of NTBLCP activities will focus on these components.(6)

As with all studies, this study also has its limitations and challenges. Data were only collected in a summarized form, making exploration of research impossible. Control and possession of data is by the director alone and getting appointment with him is very difficult.

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Prevalence Of Respiratory Symptoms among Cement Factory Workers Of Ariyalur District In Tamilnadu

A.Krishnaveni, Alex Joseph

Abstract

Objective: To assess the prevalence of respiratory symptoms and its associated factors among cement factory workers in Tamilnadu. **Methods:** Analytical, Cross sectional study was conducted in two cement factories in Ariyalur district of Tamilnadu.205 Participants were selected by Simple random sampling procedure. Information on personal and work characteristics, Respiratory symptoms and use of personal protective equipments among workers were collected using pretested Questionnaire. Data were analyzed using SPSS version 17.0. **Results:** Prevalence of Respiratory symptoms among cement factory workers in Tamilnadu was 57.6%. Smoking habit was significantly associated with Chronic cough (OR=9; 95%CI=3.7-21.9) and Dyspnea (OR=3.7; 95%CI=1.6-8.5). Workers exposed to cement dust for 5–10 years were having less (73%)respiratory symptoms compared to those exposed more than 20 years ($p<0.05$). Workers exposed to cement dust for 10-15 years were having 60% less Respiratory symptoms compared to those exposed more than 20 years ($p<0.05$). **Conclusion**: Cement factory workers are at high risk of developing respiratory symptoms, possibly caused by cement dust exposure independent of smoking habit.

Key words: Cement factory, Prevalence, Respiratory symptoms, Dust exposure, Smokers, PPE.

Introduction

"An Ounce of Prevention is Worth a Pound of Cure" – as Benjamin Franklin said, it is essential to prevent the factory workers from occupational diseases. Cement factories produce airborne pollution in the form of dust, gases and noise during all stages of manufacturing process. Worldwide, the impacts of cement dust are limitless and the impacts on the Cement factory workers are even high. Generally exposure to cement pollution has been linked to a number of different health illness.

Cement factory workers were highly affected by chest tightness and chronic bronchitis particularly those who were working in packing, loading and storage departments than other department workers. Percentage of restrictive and respiratory diseases among cement factory workers who were smokers

was higher than the non-smokers.[1] High number of buccal mucosal cell micronuclei induction was possible in case of long term exposure to cement dust and that might cause adverse health impact.Occupational exposure to cement dust has been produced an increase of DNA damage.[2]Poor compliance of Occupational safety and hygiene practices were associated with greater risks of respiratory morbidity.[3] High level of air pollution around cement industry, adverse health impacts and over production of nitrogen species as well as Reactive oxygen species in subjects residing around cement pollution affected area.[4]There was no significant difference in the lung function of the directly cement exposed groups and the maintenance group, but the physically more active cement loaders showed higher lung function values than the maintenance workers in Nigeria.[5]

The number of studies related to respiratory problems in cement factories were low in India, especially the studies focussing the use of personal protective equipments .**(**PPE) in cement factories in Tamilnadu

The main Objective of the study was to estimate the prevalence of respiratory symptoms among cement factory workers and the associated factors. The study also assessed the association of duration of exposure and smoking habit with respiratory symptoms. The study also explored the practice of use of PPE during their work, need for PPE and also evaluated the relationship between poor lifestyle such as smoking, tobacco etc. .to the chronic respiratory symptoms

Method

Analytical cross sectional study was conducted in two factories which were randomly selected out of 6factories from Ariyalur district, Tamilnadu from june 15 to july15, 2014.Numbers of Permanent Employees are higher in that factories which is suitable to study the chronic respiratory symptoms. For prevalence of 46.3% respiratory disease estimated from Maiharcity, Madhya Pradesh, India[6], 95% confidence limit and 5% allowable error, the sample size was calculated as 203 which was rounded off to 205. The respondents were selected using Simple random Sampling from the employee roll list. Full time workers(minimum 6hrs/day) with at least 1 year of work experience were included. Workers with a past medical history (before joining the job) of serious respiratory illness [asthma/ COPD/TB] heart problems, chest injuries(during the study),Workers from transport and procurement departments were excluded from the study. The dependent variables are Non chronic Cough, Chronic Cough, Non Chronic Phlegm, Chronic Phlegm, Dysnea, Wheezing and Chest tightness. The independent variables are duration of exposure, age, job type, education, personal habits (smoking, Alcohol, Tobacco consumption). Data was analysed in SPSS software version 17. The significant association between various factors and respiratory symptoms resolute by Chi Square & Fisher's exact test. Binomial logistic regression was used to control the confounder.

Results

Table1:Characteristics of study population

CHARACTERISTICS	CATEGORY	FREQUENCY	PERCENTAGE
Age group	18-25	26	12.7
	25-35	50	24.4
	35-45	44	21.5
	45-55	63	30.7
	55-60	22	10.7
Education	No Schooling	13	6.3
	Primary	13	6.3
	Secondary	36	17.6
	Higher Secondary	69	33.6
	Diploma & above	74	36.2
Monthly Income	<15000	106	51.7
	15000-20000	57	27.8
	>20000	42	20.5
Completed years of Service	1-5	53	25.9
	5-10	34	16.6
	10-15	36	17.6
	15-20	29	14.1
	>20	53	25.8
Type of work	Production workers	73	35.6
	Cleaners	16	7.8
	Maintenance workers	67	32.7
	Admin Staffs	49	23.9
Smoking Status	Current Smokers	27	13.2
	Ex-Smokers	28	13.7
	Non Smokers	150	73.1
Tobacco consumption	Yes	38	18.5
	No	167	81.5
Alcohol consumption	Yes	80	39
	No	125	61

Numbers in each category out of total workers [n=205]. (%) – Proportion of independent variable among the [n] numbers.

Table.1 showed that majority [41.4 %) of the participants were above 45 years. The reason being non recruitment of the newer and permanent workers for the past 15 years by the factories. 51% of the respondents had secondary or higher secondary school education levels. 48.3% of the participants were earning above15000 INR per month as salary. 40% workers were having more than 15 years experience in cement factory. Majority were Production workers followed by Maintenance workers**.** 73% of the workers were ever smokers and about 13% were current smokers. Alcohol use among the respondents was 39 percent. Tobacco use among them were 18.5 percent.

Table2: Prevalence of respiratory Symptoms among cement factory workers

Respiratory Symptoms	%(n)
1.Non Chronic Cough	22.9(47)
2.Chronic Cough	16.1(33)
3. Non Chronic Phlegm	18.5(38)
4. Chronic Phlegm	12.7(26)
5. Dyspnea	29.3(60)
6. Wheezing	8.8(18)
7. Chest tightness	12.5(26)

Table 2 showed that the prevalence of any form of cough among workers was 39% high compared to other respiratory symptoms. The prevalence of any form of Phlegm was 31.2%. Regarding Compliance of PPE among the workers, boots were used during entire working time(6-7hours) by all the workers who responded. The compliance with regard to regular facemask usage was seen among 55.6% of the workers. Helmet was practiced regularly by 24% and occasionally by 76% of the respondents.

Table 3: Prevalence of respiratory symptoms on the basis of Duration of exposure, type of work , substance consumption & using face mask

Characteristics	Category	Frequency	Percentage
Duration of exposure in years	1-5	53	35.5
	5-10	34	88.8
	10-15	36	72.2
	15-20	29	65.5
	>20	53	64.2
Type of work	Production workers	73	64.4
	Cleaners	16	62.5
	Maintenance workers	67	49.3
	Admin Staffs	49	53
Substance consumption	Current Smokers	27	74
	Ex-Smokers	28	64
	Non Smokers	150	53.3
	Tobacco consumers	38	61
	Alcohol consumers	80	56.3
Face mask	Regular users	114	56.1
	Occasional users	91	59.3

From Table.3 the prevalence was high among those who were exposed for cement dust for 5-10 years(88.8%) followed by 10-15 years(72.2%) and also high among Production workers (64.4%) followed by Cleaners(62.2%). Prevalence was high among current smokers(74%) compared to non smokers(53.3%).Prevalence of 56.1% among regular users and 59.3% among occasional users of Face mask in this study.

Table 4: Association of respiratory symptoms with duration of exposure, education, job type and smoking habit

Respiratory Symptoms	Significantly associated Variables	p value
Chronic Cough	Duration of Exposure	0.020
	Smoking habit	0.000
Chronic Phlegm	Duration of Exposure	0.000
Dyspnea	Duration of Exposure	0.000
	Smoking habit	0.030
	Education	0.020
	Job type	0.040
Wheezing	Duration of Exposure	0.020
	Smoking habit	0.050
Chest tightness	Duration of Exposure	0.010

All the Respiratory symptoms were significantly associated with duration of the cement exposure variable. Dyspnea was associated with Duration of Exposure, Smoking habit, Education, type of the job in the factory. (Table 4)

Table 5: Association between respiratory symptoms and smoking habit

		CHRONIC COUGH		TOTAL
		YES	NO	
SMOKERS	YES	14	13	27
	NO	19	159	178
	TOTAL	33	172	205

p value<0.001Chi square value=29.432, Phi value= 0.379
OR = 9, CI=3.692, 21.997

		DYSPNEA		TOTAL
		YES	NO	
SMOKERS	YES	15	12	27
	NO	45	133	178
	TOTAL	60	145	205

p value<0.01, Chi square value=10.380, Phi value= 0.225,
OR = 3.7,CI=1.609, 8.481

Smokers were 9 times more likely to have Chronic Cough than Non-smokers. The strength of association between Chronic cough and smoking habit was 38%.Smokers are 3.7times more likely to have Dyspnea than Non-smokers.

Table 6: Binomial Logistic Regression for respiratory symptoms on the basis of education, work experience, type of work & smoking habit

	B	S.E.	Wald	df	Sig.	Exp(B)
Experience years			8.274	4	.042	
1 to 5 years	-.833	.473	3.098	1	.078	.435
5 to 10 years	-1.327	.501	7.029	1	.008	.265
10 to 15 years	-.929	.525	3.132	1	.047	.395
15 to 20 years	-.904	.448	4.079	1	.073	.405
Constant	.714	.423	2.851	1	.091	2.042

Type of work and education are not significantly contributing for respiratory symptoms. From Table.6 it was seen that Workers exposed to cement dust for 5-10 years were 73% less having the Respiratory symptoms compare to the reference group(>20 years). Workers exposed to cement dust for 10-15years are 60% less having the Respiratory symptoms compare to the reference group(>20 years).

Discussion

The prevalence of Cough in the present study is 39 percent. The corresponding figures found in the cement factories of the Iran, Morroco, UAE, Ethiopia and Jordon regions were 32,56,30,25 and 18.7 percent.[7,8,9,10,11] Similar study from South India cited higher prevalence(56%). The prevalence of Phlegm in the present study is 31.2 percent. The prevalence was comparable with cement industry studies in south india(37.8%).[3] Similar studies from Iran(26.1%), UAE(25%) cited lower and Morroco(52.5%) shown high prevalence.[7,9,10]

The prevalence of Dyspnea in this study is 29.3% .This was higher than those reported by other studies;17%,17.5%,21% from Iran, Jordon, UAE and lower than reported in Ethiopia(47%).[7,8,9,12]

The prevalence of Wheezing is 8.8%.This result was matched to the similar study from UAE(8.3%).[7] This was lower than those reported by other studies;14.3%,16%,24% and 28.4% from Morroco,Jordon,Ethiopia and Iran.[8,9,10,11] 12.5% is the prevalence of Chest tightness in this study.

Duration of exposure to the cement dust and Smoking plays important role for prevalence of respiratory symptoms among workers. Smoking is associated significantly with Chronic cough & Dyspnea. Tobacco and Alcohol consumption were not associated with Respiratory symptoms in this study. Prevalence of respiratory symptoms was high among workers those who were exposed to cement dust for more than 10 years and high among production workers followed by

Cleaners. Though almost all the workers had PPE, the prevalence is still high among them.

According to this study, the prevalence of Respiratory symptoms among cement factory workers those using PPE in Tamilnadu was 57.6%.Cement factory workers are at high risk of developing respiratory symptoms caused by cement dust exposure. The prevalence of self-reported symptoms of cough, dyspnea, chest tightness and wheeze among slum population in pune, India were correspondingly 27,15,7 & 4percent which is 39, 29, 12.5 & 8.8percent in our study.[13] Cement factory workers are at high possibility of getting the respiratory symptoms compare to other people. Supply of effective PPE & enforce their usage during working condition should needed among cement factory workers. Proper ventilation like Exhaust fan should be placed in their working place in order to reduce the dust exposure. Avoiding smoking habit and other .poor lifestyle behaviours also recommended

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Study of knowledge, attitude and practices regarding hygiene among abattoir workers in Kano state metropolitan, Nigeria

Junaid.YM, M Bagavandas

Absract

Background: The most important issue in all meat-processing plants is maintenance of proper hygiene and an abattoir has been defined as a premise approved and registered by the controlling authority for hygienic management of meat products for human consumption.

Objective: To evaluate the level of knowledge, attitude and practice (KAP) regarding hygiene among abattoir workers.

Method: A descriptive cross sectional design was conducted among 170 abattoir workers in Kano metropolitan area in Nigeria. Abattoir workers, chosen by stratified random sampling, were interviewed using a semi-structured questionnaire to assess their knowledge, attitude and practice of hygiene during the period of July to August 2014.

Result: Descriptive statistics and multivariate analysis were used to analyze the level of KAP its association with other factors. Majority of the respondents (97%) received training regarding hygiene in abattoir and 75% of them stated that the training was done when the need arises. About 52% of the respondents exhibited the practice of washing their hand before starting the work. There is an association between knowledge, attitude and practice with regard to hygiene practice in abattoir (p<0.05).Factor analysis also showed that practice and attitude goes together, workers with higher age and working experience has a poor practice and knowledge but workers with lower age has a good attitude, better knowledge and good practice.

Conclusion: There is increase in knowledge, attitude and practice of hygiene among abattoir workers, but there is need to increase the level of hygiene in the abattoir premises. It also shows that workers with good attitude have a better practice but such an association with knowledge is not necessary. However there is need to increase the level of knowledge on hygiene practices among abattoir workers in order to reduce the incidence of diseases and sickness in the state.

Keywords: Abattoir, Hygiene, Practice, Attitude, Knowledge.

Introduction

Food-borne diseases are recognized as a major human health problem and occurs commonly in both developed and under developed countries particularly in African countries, because of poor food handling and sanitation practices, inadequate food safety laws, weak regulatory systems, lack of financial resources to invest in safer equipment and lack of education for food-handlers. (1) Of the foods intended for human's consumption, those of animal origin tend to be most hazardous unless the principles of food hygiene are employed. Despite all these problems, there is very little information concerning the true level of exposure of specific populations to potential hazards, especially in the case of bacterial diseases that are transmitted by consumption of meat and meat products. (2) Bacterial contamination of meat products is an unavoidable consequence of meat processing. (3) Although there is very little data regarding hygiene practice among abattoir workers in the Nigeria, a few studies conducted in different parts of the world have shown the public health importance of several bacterial pathogens associated with foods of animal origin. (1,4-7)

The US Centers for Disease Control and Prevention revealed that in every year there is outbreaks of food borne diseases which resulted from foods of animal origin had caused approximately 76 million illness, 325,000 hospitalizations and 5000 deaths each year. (1) Hence, it is very important to have a clear understanding of the interaction on prevailing food safety, knowledge and practices of food handlers in order to reduce food borne outbreaks. (4) According to Gordon-Davis one of the major risks of food contamination originates from the working practices of food handlers and disease-causing micro-organisms present in or on the food handler's body are subsequently transported from the food handler to the food during the handling process. (8)Because meat is such a highly perishable food stuff and the abattoir, is such a labor-intensive working environment, the knowledge and level of training of the meat handlers regarding personal and general hygiene is of particular importance to ensure the health and safety of the consumer. (9)

Kano state located in North-western Nigeria and the most populated of the Nigerian federation, the current population of the state is more than 9,401,288million people. (10) There is an increased demand for foods of animal origin in the state.

There is little published study conducted to explore the knowledge, attitude and practice of hygiene among abattoir workers in the world. Hence this study presents data on a survey that assesses the knowledge, attitude and practice of hygiene among abattoir workers in Kano metropolitan Nigeria.

Materials and Methods

Study Area:

The study was conducted in Kano state metropolitan in June to July, 2014. There are 2,163,225 people as 2006 national population census living within the metropolitan which has a total area of 499km^2. (11) Kano state

situated at 11^0 30'00 North latitude and 8^0 30 East longitude at an altitude of 2300 meters above the sea level. (12)

Kano state is a predominantly Hausa Fulani state ethnic groups and it consists of wooded savanna in the south and scrub vegetation in the north and is drained by the Kano-Chalawa -Hadejia river system. Majority of the people in the state are farmers producing crops such as millet, rice, cassava, date palms, fruits, vegetables, sorghum, wheat, sweet potato, sugarcane, groundnut, cotton etc. Kano state rainfall usually ranges from three to five months with a temperature of 26°C to 33°C. (13)

Study design:

This was a cross-sectional descriptive study mainly based on quantitative questionnaires to answer questions on knowledge, attitude and practice with regard to hygiene among abattoir workers. Knowledge, attitude and practice were determined by the use of structured interview and through direct observations of the hygienic status and practices by abattoir workers. The target population constituted all the people working in abattoir. The abattoir involved were three metropolitan abattoirs, namely Kano main abattoir, Bachirawa abattoir and Yar akwa abattoir. Individual verbal consent was obtained from the respondents prior to data collection and permission for data collection was taken from Ministry of Agriculture and natural resources through the Director Veterinary service Kano state. The study was approved by the Institutional Review Board of the School of Public Health, SRM University.

Data collection:

A self administered questionnaire for this study was prepared which consists of four parts; the first part to collect information about the socio demographic characteristics of the respondents such as; age, marital status, years of working experience, and educational level, the second part consists of question covering the aspects of practices which include; hand washing, wearing of protective cloth, cleaning of protective cloth, method of pest control, methods of meat preservation and storage, the third part covered the aspect of knowledge that involves; training and frequency of the training and the last part consists of attitude of the respondents toward hygiene that include; agree hygiene is part of their responsibilities, frequency of training can improve hygiene, agree improper storage might be harmful to health and their response on wearing of protective cloth can reduces the risks of diseases. The questionnaire was designed in English. On an average 15 minutes were spent to interview each respondent. Total sample size of 230 samples was calculated using $n= z^2(pq)/d^2$but only 170 data was collected and analyzed. Stratified random sample were used to select the respondents in which the workers are stratified based on the type of service they render in the abattoir ;Eviscerations, Flaying, Admin staff, Public health duty, Hide and skin, Bleeders and Sectioning. The number of samples drawn from each stratum were calculated and assigned using proportional allocation $n_h=n/N *N_h$ where n_h is the stratum sample size, n is the sample size, N is the total population and n_h is the stratum size.

Statistical analysis

Data were analyzed through Statistical Package for Social Sciences version 17.0. (14) Descriptive statistics such as means and frequencies were used to present the level of knowledge, attitude and practice of hygiene among workers, factor analysis were used to examine the association between knowledge, attitude, practices regarding hygiene, and correspondence analysis were used to examine whether the level of education of abattoir workers influenced the frequency of cleanliness of protective clothing.

Result

Demographic characteristics of the respondents.

Table 1 demonstrates the socio-demographic characteristics of respondents. Out of 170 respondents interviewed, majority of the workers (62%) were within the age group of 21-40, almost all the respondents (97%) received training regarding hygiene in abattoir by the public health personnel within the abattoir when the need arose. Majority of the respondents are married (67%). About 43% and 32% attended secondary school and primary school respectively, 17% completed tertiary education and only 7% with no formal education. Out of 170 respondents involved in this study 62% of the respondents had <10 years working experience, 10% have been in the sector for almost 15 years, 15% had more than 20 years of working experience.

Table 1. Demographic characteristics of respondents.

Characteristic	Demographic characteristics	Number (%) n=170
Age	<20	9(5.3)
	21-30	48(28.2)
	31-40	58(34.2)
	41-50	32(18.8)
	>50	23(13.5)
Marital status	Married	114(67)
	Single	56(33)
Educational level	Primary	55(32.4)
	Secondary	71(41.8)
	Tertiary	29(17.1)
	No formal education	13(7.6)
Working experience	<10	105(61.8)
	11-15	18(10.6)
	16-20	21(12.4)
	>20	26(15.2)
Service	Admin staff	18(10.6)
	Bleeders	35(20.6)
	Flaying	53(31.2)

	Public health duty	15(8.8
	Evisceration	31(18.2)
	Splitting	7(4.1)
Training	Hide and skin Yes No	11(6.5) 165(97.1) 5(2.9)

Practices regarding hand hygiene pest control, methods of meat preservation and storage of the workers in the abattoir.

Table2. Shows the practices performance regarding hand hygiene, 52% of the respondents washed their hands before starting the work, 47% washed their hand sometime before the work. 96% of them washed their hand all the time after the work and 84% of the respondents wash their hands using water and detergent, 9% used only water and 7% used warm water and detergent. About 84% of the respondents used chemical as a method of pest control, 49% use cool room to store their meats, 39% store at room temperature and 91% of the workers are using refrigeration as a method of meat preservation.

Table2. Practices regarding hand hygiene pest control, methods of meat preservation and storage of the workers in the abattoir.

Characteristics	Categories	Number (%) n=170
Hand washing before the work	All the time	89(52.4)
	Sometime	80(47.1)
	Not at all	1(0.6)
Hand washing after the work	All the time	164(96.5)
	Sometime	6(3.7)
	Detergent and water	144(84.7)
Method of hand washing	Warm water and detergent	11(6.5)
Pest control	Yes	167(98.2)
	No	3(1.8)
Method of pest control	Chemical method	143(84.1)
	Biological method	24(14.7)
	Don't know	2(1.2)
Method of meat storage	Room temperature	67(39.4)
	Cool room	84(49.4)
	Refrigerator	19(11.2)
Method of meat preservation	Smoking	10(5.9)
	Salting	5(2.9)
	Refrigeration	115(91.2)

Practices regarding nature of protective clothing, cleaning of the cloth and method of cleaning of instrument by the workers in the abattoir.

In Table3 out of the 170 respondents, 79% of the workers are using overalls, 87% are using boot, 55% used glove and only 4% are using nose mask. About 71% of the workers wash their cloths on daily basis, 24% twice a week, 3% once a week and 2% washes their cloths irregularly. 64% of the respondents clean their instrument using water and detergent, 22% used warm water, and 9% used only water and 5% use hot water and detergent.

Table3. Practices regarding nature of protective clothing, cleaning of the cloth and method of cleaning of instrument of the workers in the abattoir.

Characteristics	Categories		Number (%) n=170
Nature of protective cloth	Overall	Yes	135(79.4)
		No	35(20.6
	Boot	Yes	145(88.9)
		No	25(14.7)
	Glove	Yes	95(55.9)
		No	75(44.1)
	Nose mask	Yes	8(4.7)
		No	162(95.3)
Cleaning of the protective cloth	Daily		122(71.8)
	Twice a week		41(24.1)
	Once a week		4(2.4)
	Irregular		3(1.8)
Method of cleaning of instrument	Only water		15(8.8)
	Water and detergent		110(64.7)
	Hot water		39(22.9)
	Hot water and detergent		6(3.5)

Knowledge regarding training and frequency of training in the abattoir.

Figure 1 demonstrates the level and frequency of training by the public health personnel in the abattoir, 97% of the respondents received training regarding hygiene in abattoir by the public health personnel, in which 75% of the workers said the training is done when the need arise

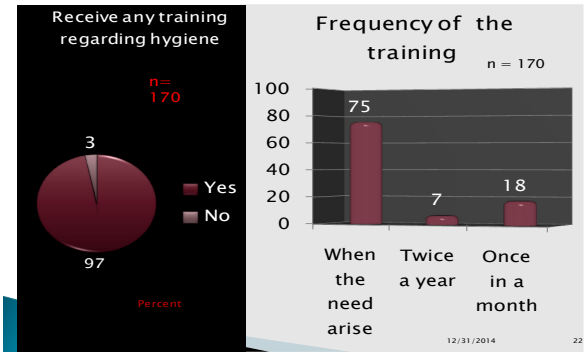


Figure 1.Level and frequency of training

Attitude of workers towards hygiene in abattoir

Figure2 shows the attitude of the workers toward hygiene practice in abattoir, majority of the respondents reported positive attitudes regarding hygiene in abattoir.98% stated that, hygiene was an important part of their job responsibilities, most of them 97% agree that, wearing of protective clothing can reduce the risk of diseases, 85% agree that frequent training by public health personnel can improve hygiene in abattoir and almost all the respondents agree that improper storage of meat might be harmful to health.

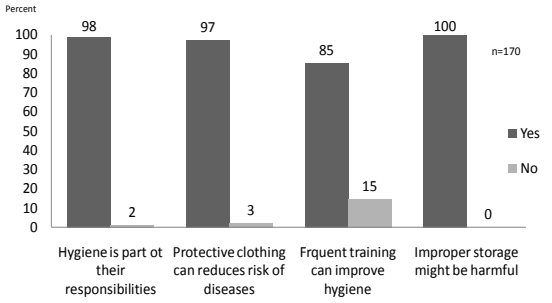


Figure2 Attitude of workers towards hygiene

Comparison of the knowledge, attitude and practice on hygiene.

Table 4 describes the factor analysis which shows that, there is significant correlation between knowledge, attitude and practice ($p<0.05$), but practice and attitude goes together while knowledge goes separately, hence a worker with good attitude would have a better practice but knowledge is not necessarily correlated.

Table 4: Factor analysis of knowledge, attitudes and practices on hygiene among abattoir workers

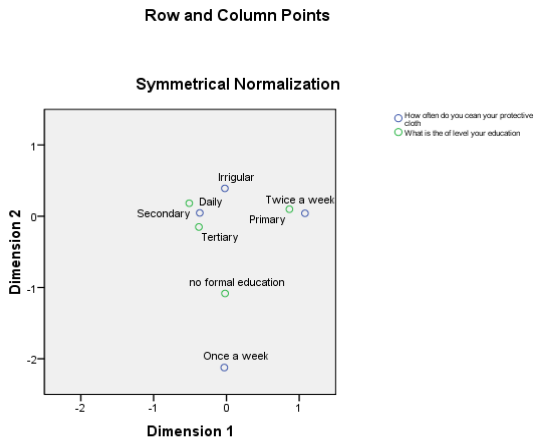
Component $p<0.05$			
	Component		
	1	2	3
Mean score for practice	.754	-.283	-.592
Mean score for attitude	.742	-.358	.566
Mean score for knowledge	.601	.798	.044

Association between level of education and frequency cleanliness of protective cloths

The correspondence analysis in the Figure 3 shows that , there is an association between the level of education and frequency cleanliness of protective cloth ($p<0.05$), the proportion of the respondents that completed the secondary school and tertiary institution goes with workers that washes their cloth on

daily basis, however, workers that completed only the primary school are those that wash their cloth twice a week, hence as the level of education increased the frequency of cleanliness of protective cloth increase and the hygiene practice also increase.

Figure 3



Discussion

The aims of the study are to evaluate the level of knowledge, attitude and practice among abattoir workers and to examine relationship between knowledge, attitude and practice regarding hygiene in abattoir. Personal and general hygiene, training of the abattoir workers, method of pest control and methods of meat preservation and storage were included in this study. About 97% of the workers agree they received training when the need arises. But according to Soultos N et al regular training of meat handlers regarding the basic concepts and requirements of personal hygiene plays an integral part in ensuring safe products to the consumer. (15)

Majority of the respondents reported positive attitudes that, hygiene is part of their responsibilities (98%) this is also supported by a previous study in which the respondents (76.9%) stated that hygiene and safe food handling was an important parts of their job responsibilities. (16) Most of them (97%) agree that, the use of protective clothes can reduce the risk of diseases and cross contamination. Almost 85% agree with statement that frequent training can improve hygiene practices within the abattoir. All of them stated that improper storage of meat might be harmful. However, in the previous study, food handlers might be aware of the food safety attitudes they should have, but 63.0% of their respondents admitted that they seldom practice such positive attitudes. (17) This proved that although most of the abattoir workers in this survey gave positive answers but they might not practice it when handling meat.

In Kano state abattoir, there is no clear division of slaughtering process into stunning, slaughtering/bleeding, skinning, evisceration, chilling/hanging, cutting/deboning and frozen delivery as well as preventive mechanism installed for rodents and insects control. According to Roberts and de Jager, abattoir is one of the food industries that contribute to the problem of possible food-borne diseases and potential health hazards associated with food unless the principles of food hygiene are implemented. (18) This fact is also supported by this study finding where there is a gap in the training of the abattoir workers on handling of meat and maintaining hygienic status in their working area, because the training is normally done when there is a particular need.

Since the aims of wearing overalls is to protect both the food products and the meat handler from cross contamination, overalls should be suitable to wear over other clothing. (19) However, this study showed that 21%

of the abattoir workers did not wear overall and 44% do not wear glove they all handled food with their bare hands and handling of foods with bare hands may also result in cross contamination, hence introduce microbes on safe food. Since meat handlers is one of probable sources of contamination for microorganisms, it is important to take all possible measures in order to reduce or eliminate such contamination. (20)

However, this study found that, 7% of the respondents wash their hands with warm water and soap. According to WHO the effective requirement of hand washing includes washing of hands in hot soapy water before preparing food and after using the bathroom, changing diapers and handling pets. (21) This study finding shows that 71% of the respondents wash their clothes every day after the work. Sneed et al showed that if food handlers take serious note on the cleanliness of their hand, body, and clothing, this will help in preventing incidence of cross-contamination from occurring. (22) Only 12% of the respondents used refrigerator as means of meat storage.

This study finding also revealed that, there is an association between level of education and frequency of the cleanliness of protective cloths (P<0.05). According to Askarian et al(2004) there is no differences between the staff who attended an educational course with those who did not. (24) This was supported by several studies and indicates that although training may increase the knowledge of food safety; this does not always produce a positive change in food handling attitudes.

Conclusion

The study revealed there is high level of knowledge, attitude and practice of hygiene among abattoir workers, but there is a need to increase the level of hygiene in the abattoir premises. It also shows that workers with good attitude have a better practice but knowledge is not necessarily associated, however there is need to increase the level of knowledge on hygiene practices among abattoir workers in order to reduce the incidence of diseases and sickness in state.

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A study on awareness, attitudes, and practices related to avian influenza among poultry workers in Dawakin Tofa local government, Kano state, Nigeria

Yusha'u Umar, R. Thilagavathi

Abstract

Introduction: Avian Influenza (H5N1) is a highly fatal, acute illness in animals and humans and people who are in close contact with poultry are at high risk for getting the infection. **Objectives:** The aim of this study is to explore the existing awareness, attitude, and practice related to Avian Influenza among poultry workers in Dawakin Tofa local government in Nigeria. **Methods:** The study was a descriptive cross-sectional study design, in which the data were collected using a structured questionnaire administered in face to face interview among the poultry workers in the selected poultry farms and live birds markets. **Results:** A total of 196 poultry workers from 25 poultry farms and 3 live birds markets were interviewed. Their average age was 32.98.5, and the median duration of working experience was 6 years (range 1-25 years). Majority of the participants (95.9%) had been aware of Avian Influenza, and mass media being their primary source of information (80%). Awareness for modes of transmission and preventive practices varies among the respondents. Exploratory Factor Analysis revealed three factor structure in which, years of experience, age, marital status, and awareness scores falls in one component, whereas daily working time and level of education formed in another component, while attitudes and practices merged in a separate component. **Conclusion:** This study found that awareness and attitudes of avian influenza are good among the study participants possibly due to the previous public awareness campaign for preparedness and preventive measures against Avian Influenza in the country. \

Key words: Avian Influenza, Poultry workers, Attitudes, Awareness, Practices, Nigeria.

Introduction

The first Avian Influenza (H5N1) case reported in African countries was from Nigeria, where it occurred in a poultry farm in Kaduna state, one of the 36 states of Nigeria, in 2006. (1-3) The epidemic continues to spread to other parts of the country and in 2007 Nigeria reported the first human case of Avian Influenza. Kano state in Nigeria experienced an epidemic of Highly Pathogenic Avian Influenza (bird flu) subtype H5N1 in three different years from 2006 to 2008, in which many poultry farms were affected, leaving heavy economic damage to farmers and the government. (4)

At the time of epidemic period, 32 of the 36 state including the federal capital territory accounted a total of 1,654 suspected outbreaks cases, where 27 states and

FCT reported 299 confirmed cases out of the 1,654 to be H5N1 positive. (3,5) Avian Influenza virus remains a global problem for the poultry industry, looking at the fast outbreaks in the world. (6)

In 1997 during a poultry epidemic of bird flu in Hong Kong SAR china, the first human case of H5N1 virus subtype a highly pathogenic Avian Influenza was reported. (7-8) Since re-emergence in 2003 and 2004, ''this avian virus has further spread throughout the globe and has become very difficult for poultry industry in some countries, causing millions of poultry infection, many human cases and human deaths'' (4) The total cumulative confirmed human cases of Avian Influenza H5N1 reported from 2003 to 2013 were 468, out of which 282 deaths. (9)

The present circulation of H5N1 in poultry, continues to create a problem to public health, as the disease agents have the ability to cause fatal disease in human at the same time may have the ability to change in to a form that is more easily transmissible among humans. (10)

The concerned authorities are expected to provide public health strategic interventions planning and implementation for successful prevention and control of Avian Influenza (AI) (11).

A well structural plan was developed and is being implemented by world health organization (Avian influenza control programme) in 2006 responding to the epidemic, and to educate healthcare workers on diagnosis, detection and prevention of AI spread (11). People who are in close contact with infected poultry, such as families with backyard flocks and poultry workers in wet markets or live animal markets are at high risk for contracting AI infection.

The present study investigation is important, because members of the public often misunderstand their risk of health problems. Therefore, the objectives of this study are to assess the awareness, attitudes, and practices related to Avian Influenza among the high risk groups and to evaluate the effects of several demographic variables on such outcomes of interest in Dawakin Tofa Local government, Nigeria.

Materials And Methods

Study Design and Area

A Descriptive cross sectional study was conducted from 1st June to 30th of July 2014, in one of the local government in Nigeria. Dawakin Tofa local government, Kano state, is among the 774 Local Government Areas in Nigeria. The local government is located in the North-western region of the country on the coordinate $12^{0}06'10"N$ $8^{0}19'53"E$. It has a total human population of 247,875 (12) and a land mass area of approximately 479 square Kilo metre, of which 80% is rural. The local government bordered by Ungogo and Minjibir local governments to the northeast, Bichi and Bagwai LGAs to the west and Tofa LGA to the south. Poultry farming is one of the fastest growing sectors in the local government, and may experience the avian influenza outbreak like the previous years. This local government was selected due to its significant contribution in poultry farming in Kano state.

Poultry workers were selected to participate in the study due to their high risk and prolonged direct contact with poultry in the farms or live birds markets.

Study Variables

The study contained four domains mainly: Demographic and vital information, Awareness, Attitude and Practice measures. Demographic characteristics that we collected from the participants in the study are poultry workers age, level of education, years of working experience, daily working time and types of work in poultry industry. Awareness test domain focussed on collecting information on awareness of AI, source of information, modes of transmission, and preventive measures. While Attitudes test collected information pertaining to thought about AI whether is a serious and/or preventable disease, scores for fear of contracting AI among the study group. Practice measures test measured participants on preventive practice having choices in their response as always, sometimes and not at all.

Study Questionnaire

The data sources were measured using a structure questionnaire, obtained from a study on AI conducted in Italy and then modified to suit our study. The final questionnaire had 18 questions covering information about the domains: demographic and vital information, awareness, attitudes, and practice measures.

Sample Size and Sampling Technique

Assuming 50% prevalence of awareness, attitude and practice regarding A.I, since there was no similar previous study in the local government.

$n=z^2 (pq)/d^2$

Where: Z = Confidence interval, d= margin of error, p= Prevalence and q= 1 – prevalence.

Z=95% critical value 1.96, d=7% and p= 50% we did arrive at a value of n=**196** participants. 3 live birds markets and 25 poultry farms were selected using snow ball sampling technique; while convenient sampling was employed to select the participants from each farm and live birds markets.

Statistical Analysis

Data were obtained from the filled questionnaire and entered into computer using excel soft ware version 2007. The data were then imported into SPSS version 16; it was then cleaned and validated. Frequencies for all the variables were obtained; means and standard deviations were computed for the continuous variables. Awareness, attitudes, and practices scores were computed by addition of scores from the variables regarding to respective score. Multiple linear regression and exploratory factor analysis was employed to analyze the data.

Results

A total of 196 poultry workers were interviewed, with a range of 4 to 7 workers interviewed on each farm and 10 to 20 workers on live birds market. The average age of respondents was 32.9±8.5 years; 90% of the respondents were male. More than half the respondents were married, while the majority (89%) had attended at least a primary school Table 1.

Table 1. Demographic Characteristics

Variables	Categories	Frequency n= 196 (%)	Percentage
Gender	Male	176	90
	Female	20	10
Marital status	Married	103	52
	Single	80	41
	Others	13	7
Age distribution	15 - 24	29	14.5
(years)	25 - 34	85	43
	35 - 44	57	29
	45 - 54	24	12
	55 to above	1	0.5
Level of education	No formal education	22	11
	Primary	31	16
	Secondary	65	33
	High school	78	40

The median duration of work for the respondents was 6 years, with a range from 1 to 25 years. The most common types of poultry-related work performed by the respondents were feeding of poultry 96(49%), supervision 72(37%), collecting eggs 70(36%), sweeping/packing of poultry droppings 50(26%), sells and slaughter poultry 45(23%), guard poultry environment 24(12%). Nearly all the respondents 188(96%) had heard about avian influenza infection; with the majority 150(80%) reporting mass media (television, radio and newspapers) as their main source of information Table 2. Knowledge of transmission of the disease varied: (72%) knew that the disease could be transmitted from animal to human, and (82%) knew it could be transmitted from animal to animal, and through contact with saliva and secretion from infected bird's account (84%). Only (21%) suggested the possibility of human to human transmission. Regarding awareness of preventive measures, (97%) knew that washing hands with soap and water, (96%) knew wearing a facemask, (96%) hand glove, outer garment (67.9%), boots or boot covers (76%), and eye protection (66%) are measures that may prevent the spread of the disease. Other preventive measures reported by respondents were washing and disinfecting surfaces/body (90%).

The majority of respondents (69%) agreed that avian influenza is a serious and preventable disease. On a scale of 1 (no fear of getting disease) to 10 (fear of getting disease), the median rating of fear of getting the disease was 5 (range 1 to 10), (87%) had fear of Avian Influenza.

Table 2. Sources of information reported by poultry workers

Source of information	Frequency n=188(%)	Percentage
Mass media	150	80
Health professional	87	46
Employer	64	34
Friend/Family member	27	14

Regarding preventive practices, (80%) reported that they always wash their hands, whereas (66%) used facemask, (30%) used hand gloves, (30%) used boots or boot covers, while only (7%) used eye protection all the time. However, only (30%) reported wearing outer protective garments always.

Exploratory factor analysis was employed to explore the structure through summarization and data reduction, the variables included in the analysis are awareness scores, attitudes scores, practices scores, age, marital status, level of education, years of working experience and daily working hours. Principle components and varimax were used as extraction and rotation methods and 60% of variance was explained by the extracted factors (table 3).

Table 3. Exploratory factor analysis

Variables	Factors			Communalities
	1	2	3	Extraction
Years of working experience	**0.810**	-0.017	-0.145	0.448
Age	**0.743**	-0.333	-0.230	0.589
Marital status	**0.670**	0.155	-0.270	0.609
Awareness score	**0.544**	0.379	-0.091	0.716
Daily working time	0.154	**-0.727**	0.144	0.546
Level of education	0.272	**0.663**	-0.303	0.605
Attitudes score	0.089	0.091	**0.757**	0.678
Practice scores	0.230	0.358	**0.654**	0.573

Bartlett's chi square = 216.670 P <0.05, KMO statistic = 0.532.

Discussion

The finding from the data on poultry workers demographics showed that poultry workers were generally young adults and majority were male.

Though many people are aware of AI, awareness of the infection, its modes of transmissions, and appropriate preventive measures was incomplete. This is similar to the findings of previous studies (14;16).

Years of experiences and sources of information especially mass media found to be good predictors for awareness as found in a previous study. (14)

Majority of the respondents had a fear of AI. Most of the participants for this study said

Avian Influenza is a serious and preventable disease, which is similar to the study (14).

In agreement with the findings of previous studies (14;15), wearing personal protective equipments was not a regular practice among the poultry workers. In multiple linear regression uses of outer garments, Hand gloves, Face mask, washing hands regularly, washing hands with soap and water or disinfectant, and washing and disinfecting surfaces and poultry equipments were found to play major roles in predicting practice among the study group. This finding is also similar to the study conducted in Italy and study conducted in Nigeria reported washing hands with soap and water was a good standard of preventive practice. (14,15)

The most important finding of the factor analysis is that those with higher attitudes also have better practices with respect to AI. Most of the farms were not registered with the LGA Agriculture Department, as well as state ministry of agriculture, because of which is not possible to select poultry farms by simple random sampling. Records were not kept properly on many of the poultry farms and live bird markets visited; hence it was difficult to obtain a list of workers from which to recruit study participants.

Conclussion

This study found that awareness and attitudes of avian influenza are good among the study group, whereas preventive practices were inadequate among the same population. Effort should be made by the concerned authorities and institutions to further educate the poultry farmers regarding the endemic of AI and importance of using preventive practices in dealing with it.

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Profile of Vesico Vaginal Fistula Patients receiving treatment at Laure Fistula Centre in Murtala Muhammad specialist hospital Kano State, Nigeria.

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Abstract:

Introduction: Vesico vaginal fistula is an abnormal link between the bladder and vagina which leads to continuous discharge of urine through vaginal vaults. The objective of this study is to assess the profile of patients with vesico vaginal fistula (VVF) in a tertiary referral center. **Material and Methods:** The study was conducted using a semi structured interview schedule among patients with VVF in Murtala Muhammad Specialist Hospital and Social Welfare Centre in Kwalli, Nigeria during the period of June-July 2014. **Results:** A total of 196 patients were included in the study both in the hospital and social welfare centre. Their mean age was 27.5 7.9 years (range 15 – 43years). About 15 % of the participants were below the age of 18 years and 46% were between 19-30 years of age . Only 25% had primary leaving certificate and 68% were illiterate. Among the women with VVF obstructed labor was reported by75%, labor for more than 2 days was reported by 35%. About 78% of these women with VVF had delivered in the hospital. **Conclusions**: Women with VVF in the tertiary care facility and social welfare center were belonging to the lower education levels and were relatively younger thus leading to a great social burden of the disease among the young.

Keywords : Profile, Vesico Vginal Fistula, Obstructed labor, Kano State.

Introduction

The World Health Organization (WHO) had identified vesico vaginal fistula as "the single most devastating consequence of deserted childbirth".(1) The fistula is the consequence of pressure exerted by the fetal head in the pelvis during prolonged labor which intercept the blood flows to nearby tissues in the mother's pelvis, hence resulting in Vesico vaginal Fistula and or Recto vaginal Fistula.(2) The vast majority of fistula are cause by obstructed labor, prolonged labor in which fetus cannot deliver vaginally, despite strong uterine contractions.(3) The VVF patients were characterized by extreme poverty , illiteracy, unemployment and early marriage. A vesico vaginal fistula patient has social, physical and emotional illness of devastation.

Poverty, malnutrition, poor health facilities and early marriage are the main causes of VVF. Poverty is the main social risk factor which undermine women's access to health care facilities, access to education, and in turn result in early marriage (4). Poverty also reduces women's access to timely obstetric health care facilities. Woman with less education find it difficult to know when to start childbearing.(4)

Vesico vaginal fistula has been a problem to women worldwide, this abnormality occurs as a result of childbirth, economic and socio-cultural factors such as *yankan gishiri,*(literally means salt cut is cultural practice found exclusively among the Hausa/ Fulani tribes living in Northern Nigeria and southern part of the Niger Republic). Although *yankan gishiri* does not fit the classical term of female genital mutilation (FGM), this practice is quite mutilating and leads to the devastating condition of urine leakage. (5) The practice is still commonly employed among Hausa, Fulani, and Kanuri tribes of northern Nigeria. The traditional cut made with a razor blade or knife through vaginal introitus is sometimes superficial, but still may result in fistula formation.(6) In most cases of VVF, delivery usually occurs at home with the assistance of unskilled birth attendant, while in some occasions the attendant delay making a referral to an emergency obstetric facility. (7) Many hospitals and clinics do not have enough skilled personnel to offer prompt and efficient surgical treatment for obstetric case. Prompt response may either be delayed due to the lack of facility, late diagnosis, or incorrect action.

The WHO has estimated that more than 2 million women worldwide are living with the problem of fistula, mostly in Africa and Asia, with an addition of 50,000 – 100,000 new cases every year. (8) In Africa alone , a recent estimate suggested that at least 33,000 new cases occur each year in sub-Saharan Africa including Nigeria, Sudan, Ethiopia, Chad and Ghana.(9) Every year around 7.3 million girls under the age of 18 years gives birth in developing countries. The number of pregnancy is higher with 19 % become pregnant before the age of 18 years. (10) About 70,000 adolescents in developing countries die annually of causes related to pregnancy and childbirth. (10) Nigeria demographic health survey (NDHS) estimated the prevalence of fistula in the southern Nigeria ranges from 0.2 % and 0.5 % of reproductive age women, and in the northern Nigeria ranges between 0.3 % and 0.8 %. (11) Northern Nigeria's most devastating yet less spoken prevalence of approximately 20,000 new cases annually is a disaster. In Nigeria as a whole out of an estimated 200 cases,70% occur in northern Nigeria. (12) This study was conducted to understand the profile of patients who attend the Murtala Muhammad Specialist Hospital and Social Welfare Centre in Kwalli, Nigeria for treatment of VVF.

Methodology

Kano is a city in Nigeria and is the capital of Kano state in Northern Nigeria, in

the Sahelian geographic region south of the Sahara. Kano state had total area of 20,131sq.km and is the most populous state in the northern part of the country estimated to have a population of more than 11 million people based on survey during 2011. Its Metropolitan population makes it the second largest city in Nigeria. The Kano urban area comprises of six local government areas (LGAs) with a population of about 2,163,223. The study population includes VVF patients admitted, diagnosed and repaired at Laure fistula centre of Murtala Muhammad Specialist Hospital, outpatient and those waiting at Social Welfare Centre in Kwalli. Majority of the women were from forty four local government area of the state during the period of June and July 2014.

All women in the hospitals diagnosed with VVF and consenting to participate in the study were interviewed between the period of June and July 2014. Data were collected using semi structured interviewe questionnaire. The questionnaire had three parts comprising of demographic part, facility utilization and risk factors associated with VVF section. The questionnaire was administered to VVF patients with the aid of trained resource person/research assistant. Totally 196 patients were identified from the hospital outpatient/admitted units and social welfare centre during the study period. All the enrolled subjects were referred from the 44 local government areas of the state and its environs during the period of the study to the Murtala Muhammad specialist hospital.

Informed Consent forms for enrollment of subjects was formulated as per the directions of Kano state hospital management board and ethical committee. Written informed consent was obtained from each participant before the interviews. All information were collected and information was confidentially secured. The analyses were based on the descriptive statistics in which means, frequency, percentage of all demographic variables and other socio-cultural variables were obtained using statistical analysis package (SPSS) version 17.0.

Results

A total of 196 VVF patients were included in the study both in the hospital and social welfare centre, their mean age was 27.5 7.9 years (range 15 – 43). Among them 115 (59%) of the participant were in the age group of >25 years. Those aged < 18 years at the time of marriage were 152 (78%). VVF among age group 19-30 years was high with 90(46%). Of all the participants 50 (25%) possessed primary school leaving certificate while 113(68%) were illiterate. Of the participants 178 were currently married (91%). This information in shown in Table 1. Labor for 2 days was present in 69 (35%). This is shown in Figure 1. As seen in Figure 2, obstructed labor as cause to VVF was 147(75%). Hospital delivery was seen in 153(78%) and this is shown in Figure 3.

Table 1: Demographic profile of the study population.

Variable	Categories	Numbers(%) n= 196
Age distributions	<18 years	30 (15)
	19-24 years	51 (26)
	>25 years	115 (59)
Age at marriage	<18 years	152 (78)
VVF Among age group	<18 years	29 (15)
	19-30 years	90 (46)
	>30 years	77 (39)
Educational status	Primary certificate	50(25)
	Secondary certificate	13 (7)
	Post secondary	0 (0)
	Not acquired any formal education.	133 (68)
Marital status	Married	178 (91)
	Divorce	18 (9)

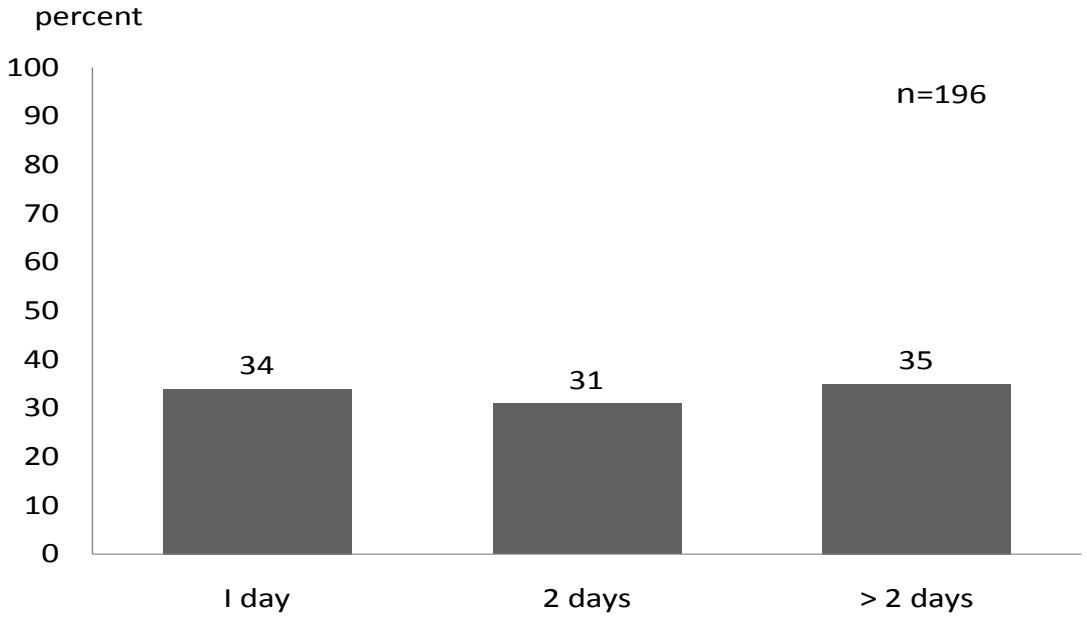

Figure 1: Labor duration

Discussion

This study showed (78%) of the cases were married at the age of less than 18 years. This may explain that girls were married early and explain the reason why illiteracy is high , and why there was no ability to attend regular antenatal check-up. (13) More than half of the study population 51% were at the age group of 19-24 years which is consistent with a study done on 309 patient in Ethiopia , where 65% of the women were below 25 years of age. (14)

Majority of the women in the study population were illiterate (68%) which is consistent with studies from Sudan and Niger republic in which the rates are 75% and 95% respectively among VVF patients. This result were higher than the finding of another study done in Kenya in which 61% of the cases were illiterates. (15) This justifies the link between the level of the education and health problem a women might face. It is noteworthy that no woman in the current study population had tertiary level of education.

This study reveals that 75% of the women had fistula because of labor related causes and 25% was as a result of Caesarean section and in another study in 11 sites in 5 countries (Uganda, Guinea, Niger, Nigeria, and Bangladesh) showed obstructed labor was the main cause of VVF (73%). (15) In the current study 16(35%) of the participants had labor duration for more than 2 days , while a similar case study done in Uganda shows that 46% had more than 2 days of labor. (16) The limitation of this study is that there was no comparison group hence association between VVF and its risk factors cannot be detected. Further studies using case control methodology can evaluate the various risk factors for VVF.

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Satisfaction of pregnant woman and mothers regarding Maternal and Child health care services provided by selected CHC's in Sultanpur district, Uttar Pradesh, India

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Abstract

A quantitative descriptive cross sectional study was conducted on patient satisfaction with ANC, PNC, FP and child health care services among mothers attending selected CHC's in Sultanpur district, Uttar Pradesh, India. Total of 201 mothers were interviewed during the period of 15th June to 15th July 2014. Sampling technique is Non-probability convenience sampling and the sample size according to formula n=pq/ is 195. A semi structured questionnaire was used as data collection tool. Results were presented in frequency and percentage, and chi-square test was applied for overall satisfaction levels of ANC, PNC, FP and child health care services. The results showed that majority of the respondents were housewives and having secondary level education. The study revealed that 66% of the respondents were satisfied with registration services and most of them are satisfied with the facilities. About 78 respondents had come for Antenatal Care services, in which 52% are dissatisfied with the overall ANC services, reasons were given as non-availability of IFA tablets and waiting time. There was a significant relationship (p-value <0.05) with overall satisfaction on PNC and educational status and with overall satisfaction on child health care services and educational status of the mothers. This study was CHC based and showed majority of mothers were satisfied in terms of provider's support and facilities. However, being a quantitative study over a short period, the study may not reflect all dimensions of the situation.

Keywords: Mothers' satisfaction levels, satisfaction about registration in CHC, satisfaction on facilities, ANC services, PNC services, Family planning services, Child health care, satisfaction on service providers.

Introduction

MCH services are the basic foundations for any health care provider all over the world. MCH services comprise of all activities such as ANC, Natal Care, PNC, FP, child health care and all the complications associated during and after these stages. The government along with many non-governmental organizations is focusing on healthy mother and healthy child approach at every level, and these services play a pivotal role. India's MMR has improved from 254 (SRS 2004-06) to 212(SRS 2007-09) and 178(SRS 2010-2012) through successful

efforts focused on enhancing quality of care for mother, which is accomplished through the implementation of various health programs like the NRHM (2005-2012) and the RCH Programme in different phases, with improved human resources, financial support and increased number of PHC's, and FRU's(1).

The Government of India is actively operationalising the PHC's and CHC's for 24hours and 7days services in a week to increase the number of institutional deliveries(2;3). There are multiple causes which lead to maternal and child deaths and these can be better explained in 3 delays model, which comprises of Delay in deciding to seek care, Delay in reaching the appropriate health care facility, Delay in receiving quality care inside an institution, which in turn depends on the attitude of the service providers and the service provision in the institution(4). The hospital market has today changed from a sellers' market to a buyers' market, where the patient is all-important(5). Quality assessment studies usually measure one of three types of outcomes: medical outcomes, costs, and client satisfaction(6). Hence this research topic is focusing on Mother's satisfaction, which is recognized as an important parameter for assessing the quality of Maternal Health care services.

Mother's satisfaction with the healthcare services largely determines their compliance with the treatment and thus contributes to the positive influence on health. Satisfaction regarding the attitude of service providers is expected to affect treatment outcome and prognosis (7;8). There is a need to analyze the health care system as often as possible to maintain the standards and quality of service provision (8-11). Measuring satisfaction with the citizen's own country as a whole has to be done, but not with the health system as a unique entity(12). This research topic is not going in to natal care because the tool for this research is an exit interview for the services that mothers got on the same day, from selected CHCs in Sultanpur district only. Main objective of this study is to assess satisfaction levels of pregnant woman and mothers towards MCH services provided by CHC's during the study period. Rationale of the study is focused on the assessment of satisfaction levels of pregnant woman and mothers' about the service providers and services rendered at CHC's which can help in organizing and providing better ANC, PNC, FP and Child Health Care services.

Literature Review

Consumer satisfaction studies began in Sweden in 1990's with an aim to improve quality of the services and increase efficiency and effectiveness of the process. Various satisfaction studies are conducted in the time being. A qualitative analysis Study showed that nearly two third of the sample selected for the study perceived the services to be excellent or good regarding their awareness, convenience, utilization and satisfaction. About 22.5% felt it was satisfactory and 16.0% thought it was poor or very poor(13;14). A longitudinal study showed, mothers' satisfaction of ANC services was 51.49% and PNC services was 22.64 %, only 18.53% participants received counselling for hospital delivery in all the five visits(15).

In respect of satisfaction, another study showed responses of the clients as satisfactory (54.31%), good (23.56%) and poor around 20% on maternal and child health services. About 63.06% to 73.94% expressed their responses as satisfactory and good regarding the assessment of doctors and it was significant(16). A study in Bengal revealed that 76.6% of the

respondents were highly satisfied with the provider's support and 57.8% were highly satisfied with the facilities which showed a significant relationship(17). A Study in Egypt showed results as 16% of mothers visited the MCH for their immunization, ARI was 6.9%, immunization of the child was 6.1%, diarrhea of the child was 7.1% and for follow up was 2.2% in which 83.2% of attended mothers feel easy accessibility(18). A study conducted in Lucknow had showed that the accessibility was difficult in 42% patients and waiting time more than 30 min for 62.5% of those attending the tertiary level health facility(19).

Only CHCs were chosen because of inadequate human resources in the PHCs which lead the public to go to CHCs. In order to meet the minimum sample size CHCs were chosen. As per the Chief Medical Officer, Sultanpur district, who had given permission for conducting this research, CHCs at two High Priority blocks and two non-High Priority blocks Bhadayan, Dubeypur and Lambhua, Dostpur respectively were chosen for data collection.

Methods

A quantitative descriptive cross sectional study was conducted among mothers attending MCH services at purposively selected CHC's, Sultanpur, Uttar Pradesh during the period of one month June to July 2014. The semi structured questionnaire regarding study variables was used for this survey. The questionnaire consists of 5 parts, *socio demographic characteristics*, *access to the hospital*, Availability of Service *Related to facilities*, *Related to services in ANC, PNC & Family planning* and Satisfaction level of Pregnant woman and Mothers *"Towards service providers"*. The method of collecting data was face to face "Exit interview". There were 37 questions in the questionnaire tool, questions related to the satisfaction levels were collected based on the 5 Point Likert-scale of satisfaction and measured using 3 point Likert-scale, as the responses for some options are coming zero. Questions about available services-related to facilities and questions related to the service providers were scored from three to one. Simple descriptive statistics and frequencies were computed for the variables and chi-square statistical analysis by using SPSS 16 statistical analysis.

Questionnaire tool was pre tested for reliability among 15 respondents at CHC Akhand Nagar (15^{th} -17^{th} June 2014). CHC Lambhua(18^{th} -24^{th} June 2014) number of mothers interviewed were 54, CHC Badhaya(25^{th} -1^{st} July 2014) number of mothers interviewed were 53, CHC Dosthpur(2^{nd} -8^{th} July 2014) number of mothers interviewed were 56, CHC Dubeypur(9^{th} -15^{th} July 2014) number of mothers interviewed were 38. The total respondents were 201 women of reproductive age group (15-49 years), who came to take MCH services (excluding delivery care services) at the selected CHC's during the period of data collection. Non-probability convenience sampling technique was used. Selected Sample size was calculated by using the formula: n=pq/, Where Z= 1.96, P= 0.5, q= 0.5, d= 0.07; n= 3.84× 0.5× 0.5/0.0049 = 195.

Results

Minimum age of the respondents is 18 years and maximum age of the respondents is 32 years, with the median age of 25 years. 82% of the respondents belong to Hindu religion, remaining belong to Islam and Christian. 57% of the study populations were having children, and all those are mothers of the children.

Table 1: Demographic Characteristics of the study population

Characteristics	Category	Frequencies(195)	Percentage
Educational status	Non formal	51	26%
	Primary school	48	25%
	Secondary school	68	35%
	Tertiary(university, polytechnic)	28	14%
Nature of work	House wife	176	90%
	Employee	18	9%
	Service	1	1%
Husbands occupation	Self employed	117	60%
	Employed	71	36%
	Un employed	7	4%

Table-1 shows the other demographic characteristics of the study population, which reveals that 35% of the respondents have attended secondary schooling, 90% are housewives and 60% of their husbands are self-employed. Table-2 tells the accessibility of the study population to their respective CHC's, economically accessible CHCs as 74% respondents spent only 20rupees or less than that, 42% visited the CHCs by bike/cycle, for 80% respondents it has taken less than 30 minutes and 60% are guided by ASHA/AWW for institutional care.

Table 2: Accessibility to the particular CHC

Characteristics	Category	Frequencies (n = 195)	Percentage
How respondents know about the particular CHC	Family/Relatives	60	31%
	Friends/Neighbors'	18	9%
	ASHA/AWW	117	60%
Transport to the CHC on that day of visit	On Foot	38	20%
	Rickshaw	19	10%
	Auto rickshaw	40	21%
	Ambulance	17	9%
	Bike/Cycle	81	42%
Time taken to reach CHC	Less than 30minutes	157	80%
	More than 30minutes	38	20%
Travelling fare in rupees to reach CHC	0-20rupees	144	74%
	21-40rupees	29	15%
	41-60rupees	8	4%
	61-80rupees	1	1%
	81-100rupees	13	6%

Fig-1: satisfaction on facilities available at CHCs:

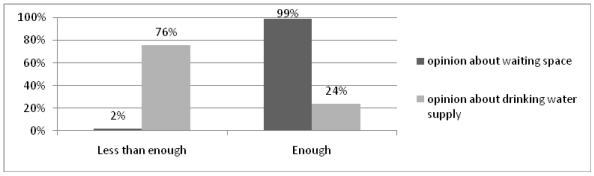

Fig-1 and 2 shows the satisfaction on facilities availed at CHCs. Regarding the facilities at the CHC of the total 195 sample, 99% are satisfied about the waiting space, 24% felt that drinking water supply is enough, 61% felt that cleanliness of the toilet is not maintained, and 36% felt that it had taken more time to visit their respective service provider.

Fig-2: satisfaction on cleanliness of the toilet:

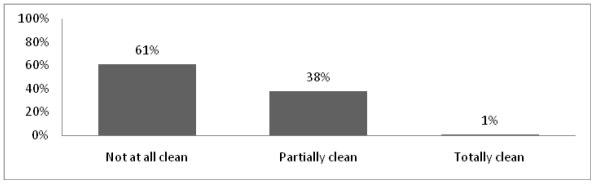

Table-3: Overall Satisfaction on ANC, PNC, FP and Child Health Care Services

Characteristics	Category	Frequencies	Percentage
Overall satisfaction with registration (n = 195)	Dissatisfied	31	16%
	Neutral	35	18%
	Satisfied	129	66%
Overall satisfaction on ANC (n = 78)	Dissatisfied	46	59%
	Neutral	29	37%
	Satisfied	3	4%
Overall satisfaction on PNC (n = 40)	Dissatisfied	0	0
	Neutral	12	30%
	Satisfied	28	70%
Overall satisfaction on FP (n = 14)	Dissatisfied	0	0
	Neutral	0	0
	Satisfied	14	100%
Overall satisfaction on Child health care (n = 112)	Dissatisfied	9	8%
	Neutral	53	47%
	Satisfied	41	37%

Total Sample size will not come as 195 here because the study respondents had visited CHC for more than one service.

Table-3 gives the frequencies and percentages on overall satisfaction. About 66% of the study respondents are satisfied with the registration process in the CHC's. Total 78 respondents had come for Antenatal Care services, in which 59% are dissatisfied for the overall Antenatal Care services, reasons were given as non-availability of IFA tablets and waiting time. In 195 sample size 40 respondents had

come for Postnatal Care services, 70% of the respondents are satisfied with the overall Postnatal Care services. Total of 112 mothers had brought their children for child health care services, in which 37% satisfaction levels had seen. For family planning services all the 14 respondents were satisfied with the overall Family planning services provided. The association between educational status and nature of work of mothers with the satisfaction on the facilities and services availed at their particular CHC's by using chi-square statistical analysis was explained in Table-4. The results revealed that both overall satisfactions on PNC and Child health care services are significantly associated with the educational status of the mothers.

Table-4: Factors associated with satisfaction levels

Satisfaction levels	P- value	
	Educational status of mothers	Nature of work of mothers
Satisfaction on registration process (n=195)	0.27	0.06
Overall satisfaction on ANC services (n=78)	0.62	0.73
Overall satisfaction on PNC services (n=40)	0.00**	0.66
Overall satisfaction on Family planning services (n=14)	0.95	0.89
Overall satisfaction on Child Health care services (n=112)	0.00**	0.59

Significant value is set as p<0.05**

Respondents Satisfaction levels towards service providers were divided into 5divisions; those are towards Doctors, Nurses, Lab technicians, Pharmacists and supportive staff as explained in Table-5. In case of Doctors and Nurses satisfaction levels are measured in terms of respect, attention, and privacy given to the mothers. Total of 132 mothers approached doctor in their visit, in which 89% are satisfied with the respect given by them, 88% told that doctors had given attention to their problem and only 31% of the mothers got privacy during their examination. Total of 109 mothers had visited nurses in the CHC, in which 83% are satisfied with respect given by them, 89% felt that nurses had responded attentively, 27 % felt that privacy was maintained during their examination. Among 79 respondents visited Lab technicians for the lab tests, 67% felt that they responded nicely and 59% had didn't get any explanation prior to the lab tests. There were 88 respondents who visited pharmacy in their particular CHC's, in which 69% got nice response from the pharmacists in the counter and 56% had not at all got any dosage clarification. Only 22 mothers had got interacted with the supportive staff in which 86% of the mothers are satisfied with their services.

Table-5: Satisfaction levels towards service providers

Service provides in the CHC			Frequencies	Percentages
Doctors	Opinion about doctors giving respect	Not nicely	13	10%
		Nicely	118	89%
		Very nicely	1	1%
	Opinion about doctors giving attention	Not attentively	8	6%
		Attentively	116	88%
		Very attentively	8	6%
	Opinion about doctors giving privacy	No	10	8%
		Partially	81	61%
		Fully	41	31%
Nurses	Opinion about nurses giving respect	Not nicely	17	16%
		Nicely	91	83%
		Very nicely	1	1%
	Opinion about nurses giving attention	Not attentively	5	5%
		Attentively	97	89%
		Very attentively	7	6%
	Opinion about doctors giving privacy	No	45	41%
		Partially	35	32%
		Fully	29	27%
Lab technicians	Opinion about lab technicians giving respect	Not nicely	25	32%
		Nicely	53	67%
		Very nicely	1	1%
	Opinion on lab technicians giving explanation about lab tests	Not nicely	47	59%
		Nicely	30	38%
		Very nicely	2	3%
Pharmacists	Opinion on pharmacists about responding at pharmacy counter	Not nicely	27	31%
		Nicely	61	69%
	Opinion on pharmacists about giving dosage clarification	Not at all	49	56%
		Partially	36	41%
		Fully	3	3%
Supportive staff	Opinion on supportive staff towards pregnant woman	Not nicely	3	14%
		Nicely	19	86%

Discussion

This study was carried out to describe patient's satisfaction on ANC, PNC, Child health Care and Family planning services provided in the selected CHC's of Sultanpur District, Uttar Pradesh. Uttar Pradesh state is having higher Maternal Mortality Ratio (MMR) that is 390 according to the SRS 2007-2009, and declined to 292 according to SRS 2010-2012(1). which has been possible by concentrating on the health service provision, improving the Health facilities and increasing the service providers in the Health centres. Patient satisfaction is an outcome variable that has been an important part of program evaluation. So this study will help the health managers for balancing effectiveness and efficiency by which they can get feedback for continuous improvement.

Most of the study respondents were House wives. Literacy rate of the mothers is 74%. Most of the respondents felt CHC is transport and economically accessible. The result of this study had shown that 39% of the mothers are satisfied with the overall ANC services and 63% are satisfied with PNC services. Another longitudinal study conducted in Wardha, Maharashtra had shown mothers' satisfaction of ANC services was 51.49% and PNC services was 22.64 %(15). This study had given results of 89% satisfaction on doctors giving respect to mothers, 55% are satisfied with the attention given by doctors and 31% are satisfied with the privacy given to them while examination. In respect of satisfaction, another study shown responses of the clients as, 63.06 to 73.94% expressed their responses as satisfactory and good regarding the assessment of doctors and it was significant. 73.31% expressed "satisfactory" response on the quality of services given by nursing staffs(17).

Based on the results 59% are dissatisfied with the overall ANC services in the CHC's, the major reasons for this is given as non-availability of facilities like IFA tablets and waiting time for the visit. Explanation for the lab tests were not given for 59% of the study respondents and 56% had didn't get any dosage clarification at the pharmacy counter. Study results had shown that, these three aspects have to be concentrated and *Mother-Service providers'* interpersonal communication is important and to be maintained properly to gain mothers satisfaction and revisits to the Health centers. The level of Mothers satisfaction is deficient in several areas and needs improvement for the achievement of optimal health. Maintaining basic amenities, giving respect, privacy and paying attention towards their problems, availability of logistics and facilities at every Health Centre has been proven to affect many indicators of health, and this has to be done for the country as a whole.

Research limitations for this study: 1) Present study was a Quantitative research study and it was limited in quantifying only the subjective experience of the respondents. 2) Subjective experience about the satisfaction levels of the services they got in the CHCs may change based on the respondents perception. 3) Exit interview was done for collecting the data hence delivery care services was not included to see overall MCH services.

Acronyms: ANC (antenatal care), PNC (postnatal care), FP (family planning), CHC's (community health centres), PHC's (primary health centres), FRU's (first referral units), MCH services (Maternal and Child Health care services), OPD (outpatient department)

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Practice and Prevalence of Tobacco Users Among Young Adults Male, a Comparative Community wise Cross Sectional Study in Bihar & Tamil Nadu.

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Abstract

Introduction & Background: The World Health Organization estimates there were 100 million premature deaths globally due to tobacco use in last century. India is the second largest consumers of tobacco products and the third largest producers of tobacco in the world. There is a strong link of tobacco use with the incidence of cancer. Tobacco is consumed in both smoking and smokeless forms e.g. Cigarettes, Bidis, Cigars, Khainis, Guthka, Pan Masala, Hookah. Every second adult uses smokeless tobacco in Bihar and its prevalence is the second highest among all the other states in India. **Methods:** A Cross Sectional Descriptive Study was done in Warisnagar Block, Samastipur District and Tiruvannamalai block, Tiruvannamalai District. A face-to-face questionnaire survey of 200 adults in between the age of 15-30 years was taken In Bihar and Tamil Nadu, were analyzed with respect to the Practice and Prevalence of tobacco that effects to health. **Results:** The prevalence of tobacco users in Bihar is (69%) and Tamilnadu is (28%) where as 88% of adults reporting smokeless tobacco in Bihar and in Tamilnadu 21% but only smoking form of tobacco is 60% . Both form of tobacco(Smoking & Smokeless) users are 12% in Bihar and 19% in Tamilnadu. Due to Peer Pressure 98% (Bihar) and 74% (Tamilnadu). Most of the participants which all are tobacco users are started at the age group between 16 to 25 years . About 99%(Bihar) and 97% (Tamilnadu) believed that tobacco use causes cancer, followed by Pulmonary Disease 85% (Bihar) and 98% (Tamilnadu). Most of the respondent believed the use of tobacco is injurious to health and same as they think quitting tobacco will reduce the getting illness whereas 92% (Bihar) and 97% (Tamilnadu) respondents are accepted passive smoking is injurious to health. Majority of people 62% (Bihar) and 72% (Tamilnadu) attempt to quit tobacco use. **Conclusion:** The fairly high levels of awareness of health effects from tobacco use in Bihar and Tamil Nadu, 63% (Bihar) and 21% (Tamilnadu) of tobacco users had no .intentions to quit even people know its harmful and is a major source of cancer

Introduction

In World - wide Tobacco use in any form is one of the most common substance abuse among adults especially in Males. Tobacco use is a major preventable cause of premature death and disease, currently leading to over six million deaths each year worldwide which is expected to rise to over eight million deaths yearly by 2030. (1)

Tobacco is the second largest cause of death

in the world. A developing country like India the weight of tobacco use is very high, Rural population is abuse tobacco more than the Urban Population. India is the second largest consumers of tobacco products and the third largest producers of tobacco in the world.(2) There is a strong link of tobacco use with the incidence/ Prevalence of cancer. Tobacco is consumed in both smoking and smokeless forms e.g. cigarettes, bidis, cigars, khainis, guthka, paan masala, hookah, etc. Smoking increases the incidence/ Prevalence of clinical tuberculosis and is the cause of half of male tuberculosis deaths in India. (3) Nearly half of cancers among males and one-fourth of cancers among females are due to frequent use of tobacco. People who use tobacco are at risk for several cancers. Smokers are at risk for mouth (oral), larynx, and lung cancers, and other serious diseases, such as heart and lung diseases, circulatory disease, and stroke. Those who use tobacco that they put in their mouth are at greatest risk for mouth cancer. Mouth cancer is one of the most common cancers in India due to the use of tobacco.(4)

According to WHO estimates, 194 million men and 45 million women use tobacco in smoked or smokeless form in India. (2) In India by weight 20% of the tobacco consumed is consumed as cigarettes, 40% consumed as bidi and the rest in smokeless forms that is 40%. Almost 30 percent of the Indian population older than age 15 uses some form of tobacco. Men use more smoked tobacco than smokeless tobacco. Women are more likely to use smokeless (chewed) tobacco. (Tobacco use in India: An evil with many face)

Background and Literature review

Global Adult Tobacco Survey India revealed that more than one-third (35%) of adults in India use tobacco in some form or the other. Among them 21% adults use only smokeless tobacco, 9% only smoke and 5% smoke as well as use smokeless tobacco. The prevalence of overall tobacco use among males is 48 percent and that among females is 20 percent. Prevalence of smoking among males is 24 percent whereas the prevalence among females is 3 percent. The extent of use of smokeless tobacco products among males (33%) is higher than among females (18%). The prevalence of tobacco use among all the states and Union Territories ranges from the highest of 67% in Mizoram to the lowest of 9% in Goa.(1)

Nearly two in five (38%) adults in rural areas and one in four (25%) adults in urban areas use tobacco in some form. Among both males and females, the prevalence of cigarette smoking is higher in urban areas but the prevalence of all other smoking products is higher in rural areas. The prevalence of each of the smokeless tobacco product is higher in rural than urban areas, however, gutkha is almost equally prevalent in both urban and rural areas.(1)

In Bihar the percentage of Current tobacco use any form in Adults(age 15 years and above) is 53.5% in that 66.2% of males and 40.1% of females. Current tobacco smoking is 14.2% in that 20.3 % of males and 7.8% of females. Current cigarettes smoking is 5.9 % in that 11.0% of males and 0.4 % of females. Current bidi smoking is 8.4% in that 10.2% of males and 6.5% of females.

Current users of smokeless tobacco is 48.7% in that 62.2% of males and 34.6% of females. (1)

In Tamilnadu the percentage of Current tobacco use in any form in adults (age 15 years and above) 16.2% in that 24.0% of males and 8.4% of females. Current tobacco smoking is 9.6%, 19.1% of males and 0.1% of females. Current cigarette smoking 6.0 %,12. 0% of males and 0.1 % of females. Current bidi smoking is 5.3% ,10.6% of males and 0.0% of females. Current users of s smokeless tobacco is 8.1%, 7.7% of males and 8.4% of females. (1)

The purpose of the study is to find out the practice and prevalence of tobacco use among young adults (15-30 years) in Warsinagar block (Bihar) and Tiruvannamalai block (Tamilnadu). These two are the places where the males are prone to addict to tobacco habits in the young age.

Methodology & Study Population

Study Design

A descriptive cross sectional comparative study was conducted in two different communities in India Samastipur District,Warsinagar block (Bihar) and Tiruvannamalai block, Tiruvannamalai district (Tamilnadu)

Study Area

Samastipur is one of the the districts of Bihar in India.which is spread over an area of 2904 sq. kms bounded on the north of Bagmati River. The people of Samastipur mainly speak Hindi. The district comprises of 4 sub-divisions and 20 Community Development Blocks, Warisnagar is one of them, It has 1248 villages.(1)

The census 2011 shows the Population Density in the District is 1465 per sq.km. And the total population is 4.25 million. Literacy rate in 2011 census is 63.81, out of which Male are 73.09 & Female 53.52 respectively. the population residing in the Rural area is 96.54% and Urban area population is 3.46%. (2)

District is rich in agriculture, because of its fertile plain. Tobacco, maize, rice and wheat are the main crops. (3)

Tiruvannamalai is one of the district in Tamil Nadu in India. Which is spread over a area of 6191 sq.kms(1). The people of Tiruvannamalai mainly speaks Tamil. The census 2011 shows the Population Density in the district is 398 people per sq.km and the total population is 2,464,875. Literacy rate in 2011 census is 74.21, out of which Male are 83.11 & Female are 65.32. The population residing in the Rural area is 79.92% and Urban area population is 20.08%.(2)

The district comprises of 4 Municipalities, 7 Taluks and 18 Blocks, Tiruvannamalai Block is one of them, it has 69 village panchayats (1).

Study Population

The study was done among 200 young adults (male) in 6 villages under 6 different Panchayats in Warsinagar block (Bihar) and in 13 village panchayats in Tiruvannamalai block (Tamilnadu) during the month of June 2014. The information was needed

to be collected from a target group, young adults male because of more exposure to the use Tobacco products. so the survey information was collected from the young adults male alone. who all are in the age of 15 - 30 years other are not interviewed.

Sample Method

In research methodology the size of sample was 200 (3.84*66*34/6.6*6.6 = 197 (200), for a 95% confidence interval & 6% margin of error. The Prevalence 66% is taken for the sampling is based on the Prevalence of Tobacco use among males adults in Bihar reported by Global Adult Tobacco Survey 2010. The tool that is used is Semi Structure Questionnaire and Sample Technique is Multi Stage Sampling. Procedure used to select samples are in the sequence of District-Block-Panachayats & Village. In a Warisnagar Block total number of villages is 70 and out of 70 we selected randomly 6 village panchayats. In Tiruvannamalai block having 69 village panchayats in that 13 village panchayats selected randomly. The respondent of every panchayat selected conveniently.

Study Instrument

In data collection a 34 questionnaire were prepared and these were divided mainly into four parts. The first part consisted of general questions which was socio-economic and demographic characteristics of all the respondents participated in the interview. The second part had sub divided into three parts tobacco use, reason for consuming & consumption behavior which was answered only by the respondents using any form of Tobacco products. Third part had Awareness Based Questions to assess the level of awareness about the ill health effect of Tobacco use which was answered by all the respondents and the last part of this questionnaire had quit tobacco based questions.

Data Collection

The questionnaires were constructed in English and it was orally translated in local language by interviewer while at the time of interview. Interviews were conducted in Hindi, Maithili and Urdu in Bihar and Tamil in Tamil Nadu that is preferred by the respondent. The study topic is about the life style behaviour so each respondents are interviewed individually for 20 mintues without involving family members or friends for respondent privacy and assured of strict confidentiality.

Results

A total of 200 target group were interviewed the results of both states are arranged as per the four division questionnaire, Warisnagar Block (Bihar) and followed by results of Tiruvannamalai Block (Tamilnadu)

Demography

In Bihar out of 200 respondents 36% belongs to the age of 26-30 years of age & 31% were 15-20 years of age. Among them general are 36% ,OBC are 34% and SC is 30%. (Table.1)

In Tamilnadu 55% respondents are belongs to 15 - 20 years of age groups among most of them are caste SC 44 % and followed by MBC 31%. (Table.1)

Table.1 Demographic status of Respondents

Charactristics	Bihar Percentage	Tamil Nadu Percentage
AGE		
15 - 20 years	31	55
21 - 25 years	33	31
26 - 30 years	36	14
CASTE		
General	36	14
SC	34	44
OBC	34	6
ST	0	5
MBC	0	31
EDUCATION		
Can't Read & write	32	0
Primary	19	7
Middle	12	17
Secondary	15	21
Higher Sec.	13	25
Graduate	7	17
Diploma	0	12
Other	2	1
OCCUPATION		
Student	22	44
Unemployed	0	10
Labor	37	21
Driver	8	8
Farmer	14	1
Painter	0	3
Other	19	13
MARITAL STATUS		
Unmarried	39	84
Married	61	16

Tobacco use

The study results of current tobacco users in Warisnagar block (Bihar) is 69% in that most of them are using tobacco for last between 1 - 5 years(82%). 88% respondent are using only Smokeless form of tobacco and rest of 12% are using both smoking and smokeless form. In Smoking form Bidi is more 82% and Cigarette 18%, In smokeless form using of Khini is more 68% and Gutka 30%. (Table.2)

In Tamilnadu 28% current tobacco most of them are using tobacco for last between 1 - 5 years (56%). Smoking form of tobacco users are 60%, smokeless tobacco 21% and 19% using both form of tobacco. Cigarette is most using Smoking form of tobacco 62% followed Bidi 38%. Khaini is most form of smokeless tobacco using 96% and Gutka 4%.

Table.2. Characteristics of Tobacco use

Chacterstics	Bihar (Percentage) (N=200)	Tamil Nadu (Percentage) (N=200)
Current tobacco users	69	28
Non users	31	72
Form of Tobacco using	**(n=138)**	**(n=57)**
Smoking only	0	60
Smokeless only	88	21
Both	12	19
Smoking Form	**(n=17)**	**(n=45)**
Cigarette	18	62
Bidi	81	38
Smokeless Form	**(n=138)**	**(n=23)**
Khaini	68	96
Gutka	30	4
Others	2	0
Years Tobacco Using	**(n=138)**	**(n=57)**
1 - 5 years	82	56
6 - 10 years	16	30
10 - 15 years	2	11
16 - 20 years	0	3
Age started to Use Tobacco	**(n=138)**	**(n=57)**
6 - 10 years	1	9
11 - 15 years	11	24
16 - 20 years	40	53
21 - 25 years	47	12
26 - 30 years	1	2

Consumption Behavior

The study results of current tobacco consumption behavior of the respondents in Warisnagar block (Bihar) is 88% of respondents consuming a less than 5 either cigarette or bidi per day.

Discussion

There are so many studies are done in the use of tobacco, similarly a comparative study was done in Warisnagar block, Samastipur district Bihar, & Tiruvannamalai, Tamil Nadu.This study will help to compare these states/ blocks tobacco users out of which form of tobacco is consumed more and also highlight the reasons for consuming tobacco and awareness about consequence of tobacco products among the target group. The study mainly consisted on young male in rural area of both place.

In Bihar tobacco users in Waris Nagar block is high as (69%) where as in Tamil Nadu, Tiruvannamalai, block is only (28%). So In Bihar majority of the respondent start to used tobacco in the age of 21-25 year i.e. (47%) while in Tamil Nadu tobacco users are started using any form of tobacco at the age group of 16-20 year i.e. (53%).In both Bihar and Tamil Nadu, Peer pressure influence to start the tobacco using (98%) and (74%).Our study also looked at the practice & Prevalence of tobacco uses in the rural area of villagers, it shows that Smokeless form of Tobacco use is more in Bihar and Smoking form of Tobacco use is more in Tamil Nadu.

Majority of the respondents are can't read and write in Bihar i.e. (32%) while (22%) are students & in Tamil Nadu have minimum primary level i.e. (7%) and (44%) are students

that use tobacco. The study also show that marital status of respondent in Bihar is (39%) un-married & (61%) are married While in Tamil Nadu (85%) Un-married & (15%) are married.The finding from this study shows the greater difference in both the places, Prevalence of Tobacco users in Bihar is (41%**)** more than Tamil Nadu.

A previous study on tobacco use shows overall tobacco use among adults (15 years or above) was 74.1 % for males and 45% for females. Among male tobacco users, 42.6% were only smokeless tobacco users and 31.6% were smokers (some used smokeless tobacco as well),whereas, among females 21.7% were smokeless tobacco users and 23.4% were smokers.(1)

It should be noted that almost smoking was in the form of bidi and mostly smokeless tobacco use in the form of khaini. For smokeless tobacco, there are easily availability in the village due to heavy production in the districts and several new industrially manufactured products that are heavily advertised and intensely marketed. It appears that the advertising and marketing of smokeless tobacco products has played a key role in changing of tobacco use patterns.

The study was completely based on self-reported tobacco (Smoking & Smokeless) use status. For selection of sample only select those people who live permanently in a village and not include those who reside out side or the once who are away from home for longer duration and hence at higher risk / use of tobacco.

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Morbidity pattern and treatment seeking behavior of Indian male migrant laborers in Kathmandu, Nepal

Anupam Ray, Anil Kumar Indira Krishna

Abstract

Background: Nepal and India share an 'open' border as per the agreements of a bilateral treaty signed in 1950. According to the treaty, Nepalese and Indians can travel and work across the border and are to be treated at par with the native citizens. Recently Kathmandu is seeing a higher influx of laborers migration; because of increase in activities in infrastructure and construction sectors, as well as due to shortage of local laborers. Migrant laborers are susceptible to various health and occupational hazards. **Objectives**: Objective of the study was to assess the health problems, to understand the treatment seeking behavior and to estimate the average cost of health expenditure among Indian male migrant laborers in Kathmandu, Nepal. **Methods:** Cross-sectional descriptive study was conducted at three places of Kathmandu, Banesor, Kalanki and Kalimati between the month of June and July 2014.The respondents were chosen on convenient or snow bowling sampling technique. The sample size considered for this study was 150, which was calculated using the formula $(z)^2pq/d^2$. **Results:** Of 150 Indian male migrant laborers interviewed 63% belongs to (18-30) yrs age group. More than half of migrant laborers (58%) were from Bihar state and most of them were illiterate. A large fraction of the laborers were employed as vegetables vendors (32%), 13.30% were barbers, 12% car mechanics, 9.3% were cooks and electricians, 8.7% were carpenters and 6.7% painters. Major morbidity in past six months included 64.87% respiratory infections, 57.65% musculoskeletal problems, 35.13% headache, 34.23% fever and 30.63% gastrointestinal infections. Poor pattern of treatment seeking behavior was seen among 33% of Indian migrants. The average total cost of health care expenditure during hospitalization is 1207(NRs) where direct cost 868(NRs) is higher than indirect cost 340(NRs). The average health care expenditure of Indian male migrant laborers was NRs 200 per month. Chi square models indicate there was a significant association between type of occupation of migrant (skilled & unskilled) and morbidity status ($P < 0.05$) and also association between monthly income of migrant's laborers and place of seeking treatment. (P value =0.00, C.I. 95%). **Conclusion:** The study identified major occupational morbidities and poor pattern of treatment seeking behavior. Relevant policies for migrants should come forward to incorporate the Indian male migrant laborers in Kathmandu.

Key Words: Indian male migrant laborers, morbidity profile, treatment seeking behavior, average cost of health expenditure

Introduction

Migration is a process of social change during which a person moves from one cultural setting to another in order to settle for a longer period of time or permanently. (1) Migration is a population movement of persons who leave their country of origin, or the country of habitual residence, to establish them either permanently or temporarily in another country and Internal, the movement of people from one area of a country to another for the purpose or with the effect of establishing a new residence.(2)

Reasons for migration can be divided into push factors (driving the individual out of the country of origin) and pull factors (attracting the individual towards the recipient country). Push factors include war, poverty, hunger etc., while pull factors include employment opportunities and political and religious freedom.(3) These factors affect both the nature of the migration and the migrants' health. There are large differences in both the reasons for migrating and the conditions related to the migration. Laborer migrants are skilled and unskilled. Migrants are vulnerable when their health is concerned, as they are exposed to a number of health risks before, during and after migration.(4)

Background

According to United Nations estimates, 120 million of the approximately 175 million migrants worldwide are migrant workers and their families. Legal and illegal workers have a different status and therefore varying levels of access to basic social services. The majority of migrant workers are men, more women and children are becoming international migrants. Laborers mobility has become a key feature of globalization and the global economy .World Bank estimating that more than $350 billion of that total was transferred to developing countries in the form of remittances.

Nepal and India share an 'open' border as per the agreements of a bilateral treaty signed in 1950. According to the treaty, Nepal's and Indians can travel and work across the border and are to be treated at par with the native citizens. Indian male migrant laborers also migrating towards Nepal, especially in Kathmandu are from border area like Bihar, Uttar Pradesh and west Bengal. The migrant laborers are special target population as they face many health issues such as mental health problems, depression and chronic diseases, such as diabetes and hypertension. Potential work related health problems faced by these migrant laborers are musculoskeletal disorders, respiratory problems, dermatitis, eye problems.(5) Due to poor sanitation facilities they

are prone to communicable diseases .Overtime work also leads injury and burn. Low socio-economic status, poor access to health care services, treatment seeking behavior and languages and culture barriers also contributes to the existing health problems in the population.

Most of the migrants often have to deal with poverty, marginality and limited access to social benefits and health services, especially during the early stages of insertion into a new environment(either inside or outside their country of origin or return).(2) Low-skilled and seasonal migrant workers are often concentrated in sectors and occupations with high levels of occupational health risks. Discrimination and xenophobia are

major problem of the international migrant laborers.(5) Indian male migrant laborers in the Kathmandu have been increasing over the past decades but study related to their health problems is very less.

As the studies on Indian migrant laborers are limited, this study may help us to find the burden of health problems and factors associated with treatment seeking behavior adopted by the Indian male migrant laborers in Kathmandu. This study will be major step a for further research and could describe the morbidity profile of Indian male migrants and the need for addressing this problem to enable these migrant laborers to live in a healthy and productivity life.

Objective of the study is to assess the health problems among Indian male migrant laborers, to understand the treatment seeking behavior and to estimate the average cost of health expenditure.

Methodology

A cross-sectional descriptive study was conducted at three place of Kathmandu, Banesor, Kalanki and kalimati between the month of June and July 2014.The respondents were chosen on convenient or snow bowling sampling technique. The sample size considered for this study was 150, which was calculated using the formula (z) $2pq/(d^2)$.The prevalence 5% considered with an error of margin 8% and confidence level of 95%.

The data was analyzed using Statistical packages. Frequencies and percentages were determined for analysis. Chi square was performed to determine associations between different variables. The baseline study population comprised of all Indian male migrant laborers, who have been working in the past working in the Kathmandu for period of 1 yrs or more.

The survey questionnaire covered general demographic details, health problems, treatment seeking behavior and cost of expenditure of health care. The participants were asked to recall and report instances of any form of general health problems in the past 6 month, also subjects were asked to report any form of injury which occurred in the past six month or more of their work. The general health problems include respiratory morbidity which included those who have one or more symptoms (cough, breathlessness, persistent cold, sore throat or shortness of breath), musculoskeletal problems includes those who have body aches such as back pain and neck pain etc which occurred in the past 6 months, gastro-intestinal infections includes those who have one or more symptoms(loose stools, melena, gastric pain more than 6 hours), skin infections includes those who have one or more symptoms(itching ,patches, scaly skin and blisters),headache, fever, burn, non communicable disease who have (hypertension, diabetes, asthma) which occurred in the past 6 months.

The study was passed though the institutional ethical review group of the school of public health, SRM University and consent was obtained from the participants.

Results

A total 150 participants were included in the study from Kathmandu from 3 places (Banesore, Kalimati and Kalanki).

Table-1: Back ground Characteristics of Study Population

Background Characteristics	Frequency	Percentage
Age of the participants		
Less than 18	3	2
18-30	94	62.66
More than 30	53	35.33
Marital status		
Married	86	57.3
Unmarried	64	42.7
Education qualification		
Illiterate	57	38
Primary	56	37.3
High School	26	17.3
Higher Secondary	11	7.3
State of origin of the respondents		
Bihar	87	58
U.P	33	22
West Bengal	16	10.7
M.P	14	9.3
Type of occupation		
Vegetables Vender	48	32
Barber	20	13.3
Car mechanic	18	12
Cook	14	9.3
Electrician	14	9.3
Carpenter	13	8.7
Welder	13	8.7
Painter	10	6.7
Monthly income		
Less than 10000	118	79
More than 10000	32	21

The age of the participants varied from a lower age limit of 16 years to an upper limit of 64 years. Majority of the Indian male migrant laborers were in the age group of 18-30 years of age (62%) and also one point noted was 2 % were in the age group of less than 18years of ages. Out of the 150 participants totally interviewed in Kathmandu city 57 %(86) were married and 42 % (64) were unmarried.

A majority of 38% of the migrant laborers was illiterate, 37% of the labors had completed their primary schooling, 17% completed their high school (8-10) and 7% completed their higher secondary (11-12).

A predominate number of the Indian migrant laborers originate from Bihar (58%), 22% from U.P, 11% from West Bengal and 9% from M.P. Majority of laborers that were interviewed were from Bihar and U.P and most common reason stated earn money and better job in Kathmandu as reported by the their friends and relatives.

A large of fraction of the laborers were employed as Vegetables vender (32%), 13% were Barber, 12% car mechanic,9% were cook and also electrician, 8% carpenter and 6% painter.

A majority of 79% of the migrant laborers monthly income was less then Rs 10000 and 21% were more than Rs 10000.A most of them (66%) laborers were working (8-12) hours per day and (80%) migrant laborers living with friends. 68% of the were skilled laborers and 32% unskilled laborers.

Table-2**Morbidity profile of th:e Study Population**

Morbidity	**Frequency**	**Percentage**
Respiratory infections		
Musculoskeletal problems	72	64.86
Headache	64	57.65
Fever	39	35.13
Skin infections	38	34.23
Gastro-intestinal infections	19	17.11
Injury	34	30.63
Burn	9	8.1
Hypertension	4	3.6
Diabetes	9	8.1
Other ailments	11	9.9
	5	4.5

Table-2 shows the distribution of morbidity pattern or health problems among Indian male migrant laborers. 111 participants illness in past six month included in the study out of 150.

64% suffered from respiratory infections, 57% suffered from musculoskeletal problem, 35% suffered from headache, 34% suffered from fever, 30% suffered from gastro-intestinal problem, 17% suffered from skin infections, 8% suffered from injury during the work,3% suffered from burn during the work, 8% suffered from hypertension,10% suffered from diabetes and 4% suffered from other ailments such as vomiting ,depression, stress, numbness and giddiness.

Only 5% of the laborers reported that they were provided medical support by the employer in case of injury or health problems and 5% of migrant laborers had medical insurance which provide by their Contract Company and employee.

Table-3:**Type of provider seeking utilized by the study Population**

Provider utilized	Frequency	Percentage
Public hospital	32	37.2
Private hospital	26	30.23
Self medication	24	28
Alternatives	4	4.65

Table 3 Show that out of 111 respondents illness in past six months, only 77% sought treatment for their recent illness. Among the 86 respondents who took treatment 29% got inpatient treatment and 71% treated as outpatient's treatment in past six month.

Also out of 111 respondent's illness in past six months, 23 % of Indian migrant laborers not sought their treatment because of lack of money and busy time.

Table -4: Health care expenditure of participation

Characteristics	**Average costs** 1 dollar=(NRs 98)
Expenditure during hospitalized(n=38)	1207(NRs)
Direct cost	868(NRs)
Indirect cost	340(NRs)
Health care expenditure per month(n=150)	200(NRs)

Out of 150 respondents 25% of the Indian male migrant laborers were hospitalized in the past one year. The average total cost of health care expenditure during hospitalized is 1207.The total median cost for IPD was NRs 868 included (Hospital administration, drug, pathology, x-ray) and indirect cost was NRs 340 included (Food, transportation and loss of working days). The average health care expenditure of Indian male migrant laborers was NRs 200 per month.

Table-5: Association between type of occupation and morbidity status

Morbidity	Frequency (%)	Chi-square value	P - value	Type of occupation (%)
Respiratory infections	72(64.86)	3.85	0.14	Skilled 66 Unskilled 34
Musculoskeletal Problem	64(57.65)	9.24	0.01	Skilled 61 Unskilled 39
Fever	38(34.23)	6.65	0.03	Skilled 58 Unskilled 42
Skin infections	19(17.11)	2.04	0.36	Skilled 74 Unskilled 26
Gastro-intestinal infections	34(30.63)	2.48	0.28	Skilled 74 Unskilled 26
Injury	9(8.1)	3.06	0.21	Skilled 89 Unskilled 11
Hypertension	9(8.1)	2.06	0.35	Skilled 67 Unskilled 33

Table-5 shows that type of the occupation i.e. unskilled and skilled laborers .In this study unskilled migrant laborers was only vegetables vender and rest was skilled laborers. Chi-square test was done for the find out the relation between the type of occupation and health problems. There was association between the type of occupation of Indian migrants and musculoskeletal disorder. (P value =0.01)

There is association between monthly income of migrant's laborers and place of seeking treatment. (P value =0.00, odds ratio 1.07, C.I. 95%).Respondents those whose monthly income below NRs 10000 their seeking treatment towards self medication or alternatives services better than those income more than 10000. In this study it was found that respondents whose monthly income was good had better treatment seeking behavior

but those who had less income had poor treatment seeking behavior .There was also association between monthly income of the respondents and the health care expenditure in month(P-value=0.00).Respondents those who more income from occupation more prone to average health care expenditure.

There was a significant association between type of occupation of migrant and morbidity status ($P < 0.05$) like musculoskeletal problem and fever.

Discussion

Studies are very much limited in the field of morbidity pattern of Indian male migrant in Kathmandu, as much lesser in Nepal. This is 21st century increasing need of migrants as laborers in the employment market. Therefore this study was conducted to find the health problems, their treatment seeking behavior and estimation the average cost of health expenditure in Kathmandu so that it would provide understanding about the illness and treatment seeking behavior.

Morbidity pattern, treatment seeking behavior and average cost of health care expenditure among the Indian male migrant laborers.

The study shows that due to the open border between India and Nepal, people can travel and work across the border and are to be treated at par with the native citizens.

The highest morbidity (78.37%) migrant laborers are due to a various respiratory infections. Gurav et al have reported respiratory problems in 4.86% of workers.(7) The higher prevalence in this study may be due to higher exposure to dust during the working hours consisting of majorly unskilled workers. out of these, (57.65%) half of the migrant laborers had suffered from musculoskeletal which was consistent with other studies as Mohopatra reported that 40%.(8) In this study the prevalence of musculoskeletal disorder is high due to more mountain trail and roads.

In the study, 35% migrant laborers were reported to have fever, and 34% had headache problem due to overtime working hours(more than 10 hours) and cold climate in Kathmandu. This study reports 8.1% migrant laborers had some form of injury at working site. Xiumen et al which showed 23.5% of the laborers suffered from fatal injuries at the constructions site. Skin problems such as fungal infection, contact dermatitis, and eczematous rash were found in 17.11 % of the migrant laborers. Shortage of water in Kathmandu valley may also affects in personal hygiene which lead skin allergy. Some workers (30.63%) in this study had gastrointestinal problems such as loose motions, abdominal pain, constipation, and loss of appetite, as workers are exposed to chemical agents, parasitic agents, or infective agents at the work and residential place during the interview. Hypertension was found in 3.4% of the workers. It is nearly same as the national prevalence of hypertension (3.55-5.99%) reported by Gupta et al (9)

The seeking of the medical services was (77%) among the migrant laborers, with treatment seeking behavior and majority of 37.% sought their treatment in public hospital. Only 5.% of the migrant laborers have medical insurance provide by the company. 62.% migrant preferred to go dispensary to take drugs and 11% took from peers pressure.25% of migrants laborers hospitalized in past one year. During hospitalized, average direct expenditure is 867(NRs) and indirect (340 NRs) which paid by themselves. It was also noted that the level of literacy is very low. This study has shown the pattern of health

problems among migrant laborers which will contribute to further development of health promotion strategies for Indian migrant laborers.

The symptoms provided by them self reported and lab diagnosis and medical examination could not carried out to prove the existence of the health problems .Other limitations that should be considered in the study while making recall bias.

Conclusion

As we saw earlier the number of Indian migrant laborers is increasing as Kathmandu. In this situation there is need to understand the health problems and treatment seeking behavior of the Indian migrant laborers. Most of the Indian migrant had health problems in past six months (respiratory infections, musculoskeletal problem, gastrointestinal infections ,fever, headache and skin infections).Majority of the migrant visited in the public hospital to sought their treatment in Kathmandu. The average total cost of health care expenditure during hospitalized is 1207(NRs) where direct cost 868(NRs) is higher than indirect cost 340(NRs). The average health care expenditure of Indian male migrant laborers was NRs 200 per month. Relevant policies for migrants should come forward from to incorporate the Indian male migrant laborers in Kathmandu. This study is an initial step in the understanding about health problems and treatment seeking behaviors of the Indian male migrant laborer in Kathmandu, Nepal.

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Utilization of Maternal Health Care Services in Western Hilly Region of Nepal A Community-Based Cross Sectional Study

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Abstract

Background: Despite the Government of Nepal's efforts the utilization of maternal health services is inadequate. **Objective:** The aim of study was to assess the utilization and factors associated with maternal health services in western hilly rural area of Nepal. **Methods**: A descriptive cross-sectional study was conducted in five village development committees (VDCs) of Achham district, far-western Nepal in June-July 2014. A total of 150 mothers having children aged below 12 months were interviewed using a semi-structured questionnaire. **Result:** The proportion of mothers who completed at least 4 ANC visit was low (38.7%) and the mothers who had primary to higher level of education were more likely to have at least 4 ANC visit. Nearly half (48%) of the mothers used institutional delivery service (IDS). Mothers from the household with higher monthly income, from the VDC where institutional delivery service was available, who were residing near the IDS and who completed recommended numbers of ANC visits were more likely to use institutional delivery service. Very few (8.7%) mother completed 3 Postnatal Checkups and no factors were significantly associated with postnatal checkup. **Conclusion:** The overall utilization of maternal health services was found to be low and seems to be influenced by education, income, access to health facility and availability of maternal health facility in the community. There is a need to assess if influencing the social determinants will improve utilization of maternal health services.

Introduction

Globally, an estimated 289 000 maternal deaths occurred in 2013, and developing countries account for 99% (286,000) of the global maternal deaths. (1) The MMR in developing regions was 14 times higher than in developed regions. (2) Presently, the maternal mortality ratio is estimated to be 170 per 100,000 live births in Nepal and the target of 134/100,000 MMR has been set by the Nepal Health Sector Program-II for 2015. (1,3) Hemorrhage, eclampsia, complication related to abortion, obstructed labour and puerperal sepsis are the leading causes of maternal death. (4) Various studies have revealed that the enormous degree of the maternal mortality can be reduced through the utilization of maternal health services. (5-6)

Ministry of Health and Population of Nepal has been executing the safe motherhood initiative with a range of complementary interventions. (7) Despite these efforts, significant numbers of mothers are still not utilizing these services. (8-12) According to Nepal Demographic and Health Survey (NDHS) 2011, about 15% of women had not received any antenatal care for the last live birth and only 50.1 % women receive the minimum recommended number (at least four ANC visits) of antenatal visits, a huge proportion of the mother (65%) delivered at home and only 45 percent of women received postnatal care. (12)

Previous studies have found that factors influencing the utilization of maternal health care are proximity to the health facility, travelling time to the nearest health facility, and economic status of the house hold. (13,14,21,22,24) Moreover, mothers from Brahmin/Chhetri ethnicity and Joint family are more likely to have more ANC visits. Utilizing health institutions for delivery depend upon the factors like four or more ANC visits, history of adverse pregnancy outcomes and higher education of mother. (9,10,17) Husband's participation in antenatal health education appeared to increase postnatal visits. (11) On the other hand, factors like lack of awareness, poor mass media exposure and less ANC visits were found to be significant barriers to utilizing postnatal care. (15) Availability of health facility in the community and the physical accessibility to the facility has positive influence on the use of maternal services. (16) However, the studies to explore such factors have seldom been conducted in the context of hilly rural area of Nepal. Therefore, this study aimed to assess the utilization pattern of the maternal health service and the factors associated with it in Far western hilly region of Nepal.

Methods

The study was conducted in Achham district of Far-Western Development Region of Nepal. This hilly district is one of nine districts that have been categorized by the Government of Nepal (GoN) as backward areas due to their remoteness. (18) According to the National Population and Housing Census 2011, Achham has total of 48318 households with the total population of 257, 477. (19) Out of all 12 Health Posts, Kuchi Health Post was randomly selected as study area, which consists of five Village Development Committees. Very few studies on maternal health are carried out in such hilly rural settings and none have been conducted in this area of the country.

The study design was cross-sectional and descriptive. The study population comprised married women of the reproductive age group (15–49 years old), residing in the study areas, who had a live child aged below 12 months. The list of the eligible mothers was obtained from the immunization register records of the respective Health post and Sub health posts. Sample size for the study was calculated [$n= z^2*(1-p)/d^2$] using available statistics: Proportion of ANC coverage (P = 89.7) in far western hilly areas of Nepal in the year 2011 at 95% confidence interval, 5% allowable error (d). Thus, a total of 150 mothers were included in the

study. The sample population was selected using stratified random sampling from the list of immunization records. House-to-house visit was done with the assistance of Female Community Health Volunteers (FCHV) to locate all eligible women, and data collection carried out at the same time by personal interview using a semi structured questionnaire.

The semi-structured questionnaire was developed and pre-tested in 10 non-participating mothers. Information related to respondent's socio-demographics; economic status; distance from the nearest birthing centre; obstetric history and use of maternal health services were collected. Approval for carrying out the survey was obtained from District Health Office, Achham. Verbal informed consent was obtained from each respondent before administration of questionnaire. The study protocol was approved by the Institutional Review Board of School of Public Health, SRM University.

Statistical Analysis

Data were entered and analyzed using the Statistical Package for Social Sciences; version 16.0 for Windows. Firstly, bi-variate (Pearson's chi-square test) analysis was performed to examine the nature of the association between different outcome and explanatory variables. The Odds Ratio with 95% Confidence Interval was calculated to measure the strength of the association. In bi-variate analysis, all variables significant at $p<0.1$ level of significance were subject to multivariate analysis. Binary logistic regression analysis was applied to ascertain the factors that best explain and predict the utilization of selected three maternal health services. Level of statistical significance for interpreting the multivariate analysis was set at $p<0.05$. Further descriptive analysis with reference to the utilization status of different maternal health services (antenatal services, delivery services and postnatal services) was also performed. All three outcome variables were categorized and coded into dichotomous variables: Antenatal care visit status (No/<4 ANC visits and At least 4 ANC visits); Place of delivery (Home and Health facility); and Postnatal checkup status (Done or Not done).

Results

Description of Individual, Household, Socio-economic and Health Service Factors

Majority of the mothers' in the study were between the age group of 17 and 20 years. About 80% of the mothers were multiparous. Proportions of mothers who had previous history of complication of labour were 46.6%. About 57% of the mothers were from nuclear families while 43% belonged to joint families. Study population comprised of different ethnic background: Chhetriya 37.3%, Brahmin 30% and Dalit 32.7%. More than one third of the household had less than 5000 Nepalese rupees of monthly income. These details are shown in Table 1.

Utilization of Maternal Health Services and Associated Factors

A large proportion (91.4%) of the mother visited health facility for ANC but just over one third (38.7%) of mothers had at least

Table 1: Description of Individual, Household, Socio-economic and Health service related information

Variables	Categories	Number (%)
Individual Factors		
Age Group (In Years)	Less than 23 23 – 28 29 – 34 35 and Above	58 (38.7) 46 (30.7) 30 (22.0) 13 (8.7)
Education of Mother	Can't Read & Write Informal Education Primary & Lower secondary Secondary & Higher	64 (42.7) 45 (30.0) 20 (13.3) 21 (14.0)
Occupation of Mother	Labour Intensive Occupation Non-Labour Intensive Occupation	138 (92.0) 12 (8.0)
Age at Marriage (In Years)	Less than 17 17 - 20 21 and Above	22 (14.7) 120 (80.0) 8 (5.3)
Parity	Primipara Multipara	32 (21.3) 118 (78.7)
Previous History of Complication of Labour (N=118)©	Yes No	55 (46.6) 63 (53.4)
Household and Socio-economic Factors		
Type of Family	Nuclear Joint	86 (57.3) 64 (42.7)
Ethnicity	Brahmin Chhetriya Dalit	45 (30.0) 56 (37.3) 49 (32.7)
Household Monthly Income (In NRs.)	Less than 5000 5000 – 9999 10000 and Above	50 (33.3) 51 (34.0) 49 (32.7)
Mass Media Exposure to get Information About Maternal Health	Radio Not at All	68 (45.3) 82 (54.7)
Health Service Factors		
Institutional Delivery Service in V.D.C.	Available Not Available	100 (66.7) 50 (33.3)
Time to Reach Nearest Birthing Centre (In Minutes)	Less than 60 60 and Above	73 (48.7) 77 (51.3)

©Number of observation in this particular variable (primiparas had been excluded as they were extraneous to the question).

NRs. = Nepalese Rupees

V.D.C = Village Development Committee

Table 2: Description of Maternal Health Service Utilization		
Variables	**Categories**	**Number (%)**
Antenatal Care Services		
Antenatal Care Visit Status	No ANC Visit Less than 4 ANC Visits At least 4 ANC Visits*	13 (8.7) 79 (52.7) 58 (38.7)
Blood Pressure Measured During ANC Visit (N=137)©	Yes No	130 (94.9) 7 (5.1)
Blood Sample Test For PMTCT Screening (N=137)©	Yes No	114 (83.2) 23 (16.8)
Received Advice for Institutional Delivery During ANC Visit (N=137)©	Yes No	116 (84.7) 21 (15.3)
Informed About Danger Signs of Pregnancy During ANC Visit (N=137)©	Yes No	100 (73.0) 37 (27.0)
Tetanus Toxoid (T.T.) Vaccination Status	Not Received Received	5 (3.3) 145 (96.7)
Total Days of consumption of Iron Tablets During Pregnancy	Not Taken Less than 180 At least 180*	8 (5.3) 95 (63.3) 47 (31.3)
Consumption of Intestinal Parasite Drug (Tablet Albendazole) During Pregnancy	Yes No	146 (97.3) 4 (2.7)
Delivery Care Services		
Place of Delivery	Health Institution Home	72 (48.0) 78 (52.0)
Received Cash Incentive# For Transportation (N=72)** (Only For Institutional Delivery)	Yes No	62 (86.1) 10 (13.9)
Tablet Misoprostol## consumed (N=78)*** (Only For Home Delivery)	Yes No	27 (34.6) 51 (65.4)
Safe Delivery Kit Used (N=78)*** (Only For Home Delivery)	Yes No	2 (2.6) 76 (97.4)
Postnatal Care Services		
PNC Checkup Status	No checkup Less than 3 Checkups At least 3 Checkups*	119 (79.3) 18 (12.0) 13 (8.7)
Total Days of Iron Tablets Consumed during Postnatal Period	Not taken Less than 45 Days At least 45 Days*	46 (30.7) 62 (41.3) 42 (28.0)
Consumption of Vitamin 'A' Capsule (1 capsule) in Postnatal Period	Yes No	111 (74.0) 39 (26.0)

©Number of observations in this particular Variable (Mother with no ANC visit had been excluded as they were extraneous to the question)
*Recommended by WHO and National Safe Motherhood Program Nepal
**In Institutional Delivery
***In Home Delivery
#Under Safe Motherhood Incentive Program (SDIP) Scheme
##For the prevention of postpartum hemorrhage in home delivery
PMTCT = Prevention of mother to child transmission of HIV
IDS = Institutional Delivery Service

4 ANC visits and about 8% of the mothers had no ANC. Majority (52%) of the mothers delivered at home. Only one in five mothers had postnatal checkup and 8.7% of mothers had recommended number (at least 3) of postnatal checkups.

Description of Maternal Health Service Utilization

Of the 91.4% of the mothers, who visited health facility for ANC, small proportion (5.1%) reported that their blood pressure was not measured. Blood sample for the PMTCT screening was not taken from 23 (16.8%) mothers during ANC visits. About 84.7% of the mothers reported that they were given advice for institutional delivery and more than one quarter (27%) of the mothers were not informed about danger signs of pregnancy during ANC visits. About 5.3% mothers had not received Tetanus Toxoid (T.T.) vaccine. Only 31.3% mothers consumed Iron tablets for at least 180 days while 5.3% percent did not consume Iron tablets at all. More than half of the mothers (52%) delivered at home and about 86% of mothers who delivered at health institution received cash incentive for transportation under SDIP scheme. The rate of consumption of Misoprostol tablet (34.6%) and use of Safe delivery kit (2.6%) was found to be low among home deliveries.

Overall, 20.7% of the mothers had PNC and only small proportion of mothers (8.7%) had recommended number of PNC within 7 days after delivery. During postnatal period, only 28% mothers consumed Iron tablets for recommended days (at least 45 days) while 30.7% percent did not consume Iron tablets and consumption of vitamin 'A' capsule (74%) was also low among the postnatal mothers. These details are shown in Table 2.

Factors Associated with Different Maternal Health Service Utilization

Factors Associated with Antenatal care visit

The mothers who had secondary or higher level of education (Adjusted OR: 28.822; 95% CI: [3.244 - 256.079]), who had primary or lower secondary level education (Adjusted OR: 6.130; 95% CI: [1.416 - 26.528]) and who had informal education (Adjusted OR: 3.265; 95% CI: [1.072 – 9.949]) were more likely to attend at least four ANC visits than mothers who could not read and write. When compared to mothers of different monthly household income status, the mothers from the household with more than 10,000 Nepalese rupees monthly income (Adjusted OR: 6.502; 95%CI: [1.950-21.687]) and mothers from the household with 5000<10,000 Nepalese rupees monthly income (Adjusted OR: 3.583; 95%CI: [1.071 - 11.994]) were more likely to attend at least four ANC visits than the mothers from the household with less than 5000 Nepalese rupees monthly income. This information is shown in Table 3.

Factors Associated with utilization of Institutional Delivery Service

With increasing the household monthly income, the odds of using IDS also increased, which was as high as four times for mother with monthly household income of 5000 < 10000 Nepalese rupees compared to those with less than 5000 Nepalese rupees of monthly household income (Adjusted OR: 4.060; 95% CI: [1.256- 13.124]). Similarly, mothers from the VDC where IDS was available (Adjusted OR: 6.817; 95% CI: [1.136 – 40.905]) were more likely to use IDS compared to the mothers from the VDC where IDS was not available. Mothers who could reach the nearest IDS with in less than 60 minutes (Adjusted OR: 3.554; 95% CI: [1.317 – 9.594]) were more likely to use IDS than the mother who couldn't reach with in less than 60 minute. Mothers who had 4 or more ANC visits (Adjusted OR: 6.050; 95% CI: [1.976 – 18.522]) were more likely to use IDS compared to the mothers who paid no ANC visit at all, which are shown in Table 4.

Factors Associated with Post Natal Checkups

None of the independent variables studied were significantly associated with postnatal checkup as shown in Table 5.

Table 3: Factors Associated with At least Four Antenatal Care Visits

Variables	Category	At least 4 ANC Visits	No and <4 ANC Visits	P Value (Pearson's)	Unadjusted Odds Ratio with 95% CI	P Value	Adjusted[a]Odds Ratio with 95% CI
Age of Mother (In Years)	Less than 23	28 (48.3%)	30 (51.7%)	0.050	**	0.179	5.850 (0.445-76.905)
	23 – 28	16 (34.8%)	30 (65.2%)			0.368	2.991 (0.275-32.495)
	29 – 34	13 (39.4%)	20 (60.6%)			0.133	6.208 (0.572-67.384)
	35 and Above	1 (7.7%)	12 (92.3%)			Ref.	1.000
Education of Mother	Secondary & Higher Education	18 (85.7%)	3 (14.3%)	<0.001	**	0.003	28.822* (3.244-256.079)
	Primary & Lower Secondary Education	12 (60.0%)	8 (40.0%)			0.015	6.130* (1.416-26.528)
	Informal Education	16 (35.6%)	29 (64.4%)			0.037	3.265* (1.072-9.949)
	Can't Read & Write	12 (18.8%)	52 (81.2%)			Ref.	1.000
Occupation of Mother	Non-Labour Intensive Occupation	9 (75.0%)	3 (25.0%)	0.007	5.449 (1.409-21.069)	0.444	0.412 (0.043-3.977)
	Labour Intensive Occupation	49 (35.5%)	89 (64.5%)			Ref.	1.000
Age at Marriage (In Years)	21 and Above	6 (75.0%)	2 (25.0%)	0.095	**	0.239	5.775 (0.311-107.141)
	17 – 20	44 (36.7%)	76 (63.3%)			0.337	0.536 (0.150-1.915)
	Less than 17	8 (36.4%)	14 (63.6%)			Ref.	1.000
Parity	Primipara	17 (53.1%)	15 (46.9%)	0.058	2.128 (0.965-4.694)	0.825	0.851 (0.204-3.550)
	Multipara	41 (34.7%)	77 (65.3%)			Ref.	1.000
Ethnicity	Chhetriya	32 (57.1%)	24 (42.9%)	0.002	**	0.386	1.681 (0.519-5.447)
	Brahmin	13 (28.9%)	32 (71.1%)			0.391	0.577 (0.165-2.026)
	Dalit	13 (26.5%)	36 (73.5%)			Ref.	1.000
Type of Family	Joint	31 (48.4%)	33 (51.6%)	0.034	2.053 (1.051-4.008)	0.533	1.336 (0.537-3.319)
	Nuclear	27 (31.4%)	59 (68.6%)			Ref.	1.000
Household Monthly Income (In NRs.)	≥10000	32 (65.3%)	17 (34.7%)	<0.001	**	0.001	8.715* (2.331-32.580)
	5000 <10000	18 (35.3%)	33 (64.7%)			0.038	3.583* (1.071-11.994)
	<5000	8 (16.0%)	42 (84.0%)			Ref.	1.000
Mass Media Exposure to get information about maternal Health	Radio	40 (58.8%)	28 (41.2%)	<0.001	5.079 (2.493-10.350)	0.678	1.239 (0.451-3.407)
	Not at All	18 (22.0%)	64 (78.0%)			Ref.	1.000
History of Complication of Labour During Previous Delivery©	Yes	21 (38.2%)	34 (61.8%)	0.464	1.328 (0.621-2.839)		NA
	No	20 (31.7%)	43 (68.3%)				

Nagelkerkes R-Square =0.495, Chi-Square= 68.106, p value = <0.001

***p<0.05**
****** **Not Applicable**
©Primipara mothers were excluded from the analysis as they were irrelevant to the context
[a]Adjusted for: age of mother, education of mother, occupation of mother, age at marriage, parity, ethnicity, type of family, Household monthly income, mass media (radio) exposure to get information about maternal health.
Ref,= Reference Category
NA = Not Available in the Model Derived
NRs = Nepalese Rupees

Table 4: Factors Associated with utilization of Institutional Delivery Service

Variables	Category	Delivery at Health Institution	Delivery at Home	P Value (Pearson's)	Unadjusted Odds Ratio with 95% CI	P Value	Adjusted[a] Odds Ratio with 95% CI
Age of Mother (In Years)	Less than 23	34 (58.6%)	24 (41.4%)	0.058	**	0.619	1.706 (0.207-14.055)
	23 – 28	18 (39.1%)	28 (60.9%)			0.931	1.091 (0.153-7.796)
	29 – 34	17 (51.5%)	16 (48.5%)			0.478	2.003 (0.295-13.615)
	35 and Above	3 (23.1%)	10 (76.9%)			Ref.	1.000
Education of Mother	Secondary & Higher	18 (85.7%)	3 (14.3%)	0.001	**	0.790	0.738 (0.079-6.907)
	Primary & Lower Secondary	12 (60.0%)	8 (40.0%)			0.095	0.735 (0.158-3.422)
	Informal Education	18 (40.0%)	27 (60.0%)			0.427	0.610 (0.180-2.065)
	Can't Read & Write	24 (37.5%)	40 (62.5%)			Ref.	1.000
Occupation of Mother	Non-Labour Intensive Occupation	10 (83.3%)	2 (16.7%)	0.011	6.129 (1.295-29.015)	0.276	3.917 (0.335-45.749)
	Labour Intensive Occupation	62 (44.9%)	76 (55.1%)			Ref.	1.000
Age at Marriage (In Years)	21 and Above	6 (75.0%)	2 (25.0%)	0.127	**		NA
	17 – 20	53 (44.2%)	67 (55.8%)				
	Less than 17	13 (59.1%)	9 (40.9%)				
Parity	Primipara	22 (68.8%)	10 (31.2%)	0.008	2.992 (1.302-6.875)	0.162	2.806 (0.661-11.907)
	Multipara	50 (42.4%)	68 (57.6%)			Ref.	1.000
Ethnicity	Chhetriya	34 (60.7%)	22 (39.3%)	0.037	**	0.437	0.605 (0.170-2.149)
	Brahmin	16 (35.6%)	29 (64.4%)			0.496	1.873 (0.307-11.430)
	Dalit	22 (44.9%)	27 (55.1%)			Ref.	1.000
Type of Family	Joint	34 (53.1%)	30 (46.9%)	0.278	1.432 (0.748 – 2.742)		NA
	Nuclear	38 (44.2%)	48 (55.8%)				
Household Monthly Income (In NRs.)	≥10000	33 (67.3%)	16 (32.7%)	<0.001	**	0.104	2.964 (0.799-11.000)
	5000 <10000	30 (58.8%)	21 (41.2%)			0.019	4.060* (1.256-13.124)
	<5000	9 (18.0%)	41 (82.0%)			Ref.	1.000
Mass Media Exposure to get information about maternal Health	Radio	47 (69.1%)	21 (30.9%)	<0.001	5.103 (2.54 – 10.24)	0.298	1.789 (0.598-5.350)
	Not at All	25 (30.5%)	57 (69.5%)			Ref.	1.000
History of Complication of Labour During Previous Delivery©	Yes	31 (56.4%)	24 (43.6%)	0.004	2.99 (1.40 – 6.38)		NA
	No	19 (30.2%)	44 (69.8%)				
Institutional Delivery Service in V.D.C.	Available	60 (60.0%)	40 (40.0%)	<0.001	4.75 (2.22 – 10.18)	0.036	6.817* (1.136-40.905)
	Not Available	12 (24.0%)	38 (76.0%)			Ref.	1.000
Time to reach Nearest Birthing Centre	<60 Minutes	51 (69.9%)	22 (30.1%)	<0.001	6.18 (3.05 – 12.55)	0.012	3.554* (1.317-9.594)
	≥60 Minutes	21 (27.3%)	56 (72.7%)			Ref.	1.000
Antenatal Care Visit Status	≥4 ANC Visits	47 (81.0%)	11 (19.0%)	<0.001	11.451 (5.139-25.516)	0.002	6.050* (1.976-18.522)
	No/<4ANC Visit	25 (27.2%)	67 (72.8%)			Ref.	1.000
Informed about Danger Signs of Pregnancy#	Yes	64 (64.0%)	36 (36.0%)	<0.001	9.185 (3.500-24.105)		NA
	No	6 (16.2%)	31 (83.8%)				
Received counseling about IDS during ANC Visit#	Yes	67 (57.8%)	49(42.2%)	<0.001	8.204 (2.289-29.406)		NA
	No	3 (14.3%)	18 (85.7%)				

Nagelkerkes R-square = 0.583, Chi-square= 86.238, p value = <0.001

***p<0.05**
**** Not Applicable**
©Primiparous mothers were excluded from the analysis as they were irrelevant to the context
#Mothers with no ANC visit were excluded from the analysis as they were irrelevant to the context
[a]Adjusted for: age of mother, education of mother, occupation of mother, parity, ethnicity, Household monthly income, mass media (radio) exposure to get information about maternal health, institutional delivery service in VDC, time to reach nearest birthing center, antenatal care visit status.
NA = Not Available in the Model Derived
NRs = Nepalese Rupees
Ref. = Reference Category

Discussion

By realizing the fact that maternal morbidities and mortalities can be best prevented and reduced through the proper and adequate utilization of maternal health services, the maternal health programs have been given a privileged priority in Nepal. The present study has highlighted a number of predisposing and enabling factors that influence the utilization of maternal health care services.

Utilization of ANC Services

The WHO and National Safe Motherhood Program of Nepal, both have been recommended at least 4 ANC visit during antenatal period. (3) The present study showed that majority of the rural mothers had only one ANC visit (91.4%) and about one third (38.7%) had at least four ANC visits, which was lesser than the national average. (3,12) This study also found that the education of mother and household income were associated factors with the ANC visits. The association with maternal education is consistent with several previous studies conducted in rural Nepalese context. (10,17,20) Educated mothers are more likely to have better knowledge and understanding on available health services in order to make their own decision regarding their health. So, the illiterate mothers need to be more focused and policies should be aimed at improving female education to enhance the use of ANC services. The association of ANC visit with household income found in this study is similar to previous similar studies. (21,22,24) Although the Government of Nepal provides maternal health services free of cost, poor people might not be able to pay for many indirect costs which they may face throughout utilizing maternal health services. Apart from receiving ANC, it should be ensured that every pregnant woman receive information and undergo screening for complications as a routine part of all antenatal care visits. This study showed utilization of some ANC services like measurement of blood pressure; PMTCT screening; information on danger signs of pregnancy; advice for institutional delivery; T.T. vaccination; Iron tablet and intestinal parasite drug consumption were found to be higher than the national average. (12)

Utilization of Delivery Services

The present study showed nearly half the mothers had used institutional delivery service (IDS), which is higher than the national average. (12) And the study also revealed that the factors like household monthly income; availability of IDS in VDC; time to reach nearest IDS; and ANC visit status were significantly associated with the institutional delivery. Mothers from the household with monthly income of 5,000 to less than 10,000 Nepalese rupees (NRs.) were more likely to use IDS than the mothers from the household with monthly income of less than 5000 NRs., and the result was identical to previous findings. (21,22,23) Since, this study revealed the fact that availability of IDS in VDC also boosts the extent of use it; it has also been documented in previous studies also. (25) Thus establishing IDS in each VDC is likely to increase utilization of the services. Various studies have shown as the finding of the present study that the utilization of institutional delivery service can be

influenced by the time to reach nearest health facility. (9,14) Mothers who could reach the birthing centre with in less than 60 minutes were more likely to use IDS than the mothers who couldn't reach with in less than 60 minute. The issues of accessibility in terms of time to reach the health facility need to be addressed by ensuring proximity of the health services to the rural population. ANC visit status also had significant association with institutional delivery in this study, women who had attended at least 4 ANC visits were more likely to use IDS for delivery and the finding was consistent with several previous studies. (9,14,21) So it could be inferred that frequency of institutional delivery can be amplified by enhancing the recommended ANC visits coverage in the community as well as the quality of ANC need to be assured. The proportion of beneficiaries of Safe Delivery incentive program (SDIP) Scheme among institutional deliveries and consumption of Misoprostol tablet and use of safe delivery kit among home deliveries was found to be lesser than the national average and previous study findings. (3,7,12,26)

Utilization of Postnatal Care Services

The National Safe Motherhood Program has been recommended at least three postnatal checkups within 7 days after delivery and iron tablet for 45 days and 1 capsule vitamin 'A' should be consumed by postnatal mother following delivery. This study had shown that the utilization of above mentioned services were lesser than the national average and findings of the previous studies. (10,12,15) Since the study found no influencing factor for PNC, the reason behind that could be poor perceived need for PNC and poor awareness about PNC across all groups of mothers.

Since, the study is cross sectional, the recall bias might have affected the study and despite identifying the association, establishment of temporal relation is hard to expect. Though, study tried to cover all aspect of maternal health services in the context of Nepal but some important independent supply side quality related variables and demand side socio-economic variables were disregarded by the study. Regardless of these facts, the offered findings of the study provide a depiction of maternal health service utilization in Far-Western hilly region of Nepal.

Conclusion

The overall utilization of maternal health services was found to be low and seems to be influenced by education, income, access to health facility and availability of health facility in the community. The utilization of maternal health services can be enhanced through interventions focusing the vulnerable poor and illiterate community, ensuring the proximity of the services and establishing maternal health services in each community. Moreover, there is a need to assess if influencing the social determinants will improve utilization of maternal health services.

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Guidelines for preparing the manuscript.

Abstract

Structured abstracts are preferred for original research and systematic reviews. The abstract should provide the context or background for the study and should state the study's purpose, basic procedures (selection of study subjects or laboratory animals, observational and analytical methods), main findings (giving specific effect sizes and their statistical significance, if possible), principal conclusions, and funding sources. It should emphasize new and important aspects of the study or observations. Articles on clinical trials should contain abstracts that include the items that the CONSORT group has identified as essential (http://www.consort-statement.org/? =1190).

Because abstracts are the only substantive portion of the article indexed in many electronic databases, and the only portion many readers read, authors need to be careful that they accurately reflect the content of the article. Unfortunately, the information contained in many abstracts differs from that in the text (7). The format required for structured abstracts differs from journal to journal, and some journals use more than one format; authors need to prepare their abstracts in the format specified by the journal they have chosen.

The ICMJE recommends that journals publish the trial registration number at the end of the abstract. The ICMJE also recommends that, whenever a registration number is available, authors list that number the first time they use a trial acronym to refer to either the trial they are reporting or to other trials that they mention in the manuscript.

References

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Tables capture information concisely and display it efficiently; they also provide information at any desired level of detail and precision. Including data in tables rather than text frequently makes it possible to reduce the length of the text.

Type or print each table with double-spacing on a separate sheet of paper. Number tables consecutively in the order of their first citation in the text and supply a brief title for each. Do not use internal horizontal or vertical lines. Give each column a short or an abbreviated heading. Authors should place explanatory matter in footnotes, not in the heading. Explain all nonstandard abbreviations in footnotes, and use the following symbols, in sequence:

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