

Mothers' Behaviors in Relation to Pregnancy and Childbirth in Kathmandu, Nepal-A Hospital Based Study

Arun Kumar Koirala*

Department of Health and Allied Sciences, Pokhara University, Nepal

Abstract

Background: Mothers' behaviors are important indicators of child health outcomes during pregnancy and child birth. Behaviors of mother are also associated with numerous interrelating socio-economic and cultural factors and physical environment. The study aim was to assess different behaviors of mothers while pregnant and childbirth.

Methods: Cross-sectional survey was carried out in between July 2016 to June 2017. Data was collected from 255 mothers, who attended to give birth in Helping Hands Community Hospital, Kathmandu, by using interview schedule with face-to-face interview. Descriptive analysis was done and presented in the form of percentage, chi-square test and Fisher's exact test.

Results: In this study, minimum age of 18 years and maximum 41 years mothers with the mean (standard deviation) age was ± 23.35 years. Among the total women, 98% received ANC service while pregnant and 96% received Tetanus Toxoid vaccine. Among the total women, 8.2% of pregnancies were unwanted and in total, about 20% of women band the food items while pregnant. Among the respondents who delivered previous baby, only 70.4% gave birth with assistant of health workers, doctors or nurses. Nearly half of the women (48.5%) preferred home delivery in previous pregnancy and about 86% had more than 2 years gap between previous and current pregnancies. Education status and TT vaccine injected by mothers showed significant difference (Fisher's exact test=0.001, $0 < 0.05$), where as education in relation to ANC checkup, band food items, wanted pregnancy, rest during pregnancy, preference of place for delivery found insignificant.

Conclusion: Mothers' behaviors like ANC visit, receiving TT injection during pregnancy, food beliefs, choosing place of delivery are the important factors for the outcome of the health of both mother and child.

Keywords: Behavior; Pregnancy; Childbirth; Hospital; Nepal

Introduction

Behaviour of mothers associate with different factors such as social, cultural, economical and educational. Because of some behaviour, mothers are not found in access with health care services or facilities while pregnant or after delivery that in due course affects the health of the mothers and their children. Therefore, health of the infants can affect by the mother's behaviors while pregnant and even soon after delivery. A study conducted in Nigeria showed that there was significant association between pregnancy upshots and socio-cultural factors [1]. In a study in Tigray region, Ethiopia, it was seen that about half of the pregnant women among total studied did not visit ANC Clinic for checkup because of lack of awareness, not feeling sick, lack of awareness of the benefits, feeling shame to expose, workload, inaccessible health facility etc. Therefore, almost all (about 96%) women were assisted at home by their relatives or neighbours. As they mentioned, the reason of home delivery were easy labour, no problem of transport and due to far distance to access of health facility [2].

According to the World Health Organization (WHO), each year, 60 million deliveries take place worldwide in which the woman is cared for only by a family member, by an untrained traditional birth attendant or by no one at all [3].

In many low and middle-income countries, mothers do not get assistance of trained health workers for deliveries and still occur at home with no hygienic settings [4].

There are different taboos prevailing in relation to pregnancy and childbirth and differ from society to society. As per prevailed taboos and traditional beliefs, the family members along with mothers show different behaviors. In many societies, some of the food items are band for the pregnant and lactating mothers.

Nepal is also a developing country, rich of socio-cultural practices in society. Hence, the objective of the study was to assess the different factors as socio-cultural, economical and educational factors, etc affecting the behaviours of mothers while pregnant in Kathmandu, Nepal.

Materials and Methods

A cross-sectional study was carried out in Helping Hands Community Hospital, in Kathmandu, Nepal. The study was conducted from July 2016 to June 2017. In this study delivered mothers who gave live birth at Helping Hands Community Hospital and who were willing to participate in the study were taken as inclusion criteria.

In order to get required sample, purposive sampling technique was applied. Nepal Demographic Health survey (NDHS) 2011 reported that 26% of the women gave birth at Government Hospital and 9% women gave birth at non-government hospital. Therefore, researcher used mean percent (18%) of both government and non-government hospital delivery for sample size calculation. Hence, for sample size calculation,

*Corresponding author: Arun Kumar Koirala, Department of Health and Allied Sciences, Pokhara University, Pokhara, Nepal, Tel: +9779849264178; E-mail: arunkoirala@gmail.com

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the researcher used prevalence of community hospital delivery was 18%, margin of error was 5% and alpha was 0.05 and obtained 227 using one proportion for survey formula and added 10% non-response rate, the final sample size was 255.

Data was collected by researcher himself through interview by using interview schedule containing structured and semi structure questionnaire. The questionnaires were first developed in English, in consultation with matron of the same hospital and then translated into simple Nepali language and were pretested among delivered mothers in a non-selected study area and later it was corrected as per necessary.

The survey was considered with different items that were related to socio-demographic, behavioral, biological and determinants of behaviors variables. In addition to those variables, the respondents were asked about their food habits while pregnant. Before enrolment of the respondent, to ensure their participation, verbal consent was obtained. Consent form was developed in the local Nepali language which comprises the objectives of the study, character of respondent's involvement, risk and benefits of the participation in study and confidentiality of the data that will receive. Participants were provided reasonable options for their voluntary participation. Confidentiality of information was assured by removing personal identifiers from the completed questionnaires. Ethical approvals were taken from Helping Hands Community Hospital, Kathmandu and Nobel College Kathmandu affiliated to Pokhara University. National ethical guidelines for research on human subject were followed as developed by Nepal Health Research Council, World Health Organization and World Medical Association (Tables 1-3).

The coded data were entered into Statistical Package for Social Sciences (SPSS) version 16 for further processing and analysis and few data were also verified with Graph-pad software. Descriptive and inferential statistics were performed. Both bivariate and multivariate techniques were applied to identify the factors associated with the likelihood behaviors of mothers. The data was cleaned and cross-

	Frequency (%)	95% confidence Interval
Age		
20-34 Years	162 (63.5)	57.5-69.2
≥ 35 Years	5 (2.0)	.86 - 4.4
<20 Years	88 (34.5)	28.9-40.5
Mean ± SD	23.23 ± 4.18	-
Religion		
Hindu	233 (91.4)	87.3-94.2
Other than Hindu	22 (8.6)	5.8-12.7
Education		
Secondary and above	132 (51.8)	45.6-57.8
Primary and none	123 (48.2)	42.2-54.3
Occupation		
Formal Employment	52 (20.4)	15.9-25.7
Non-formal Employment	203 (79.6)	74.2-84.0
Monthly income of mother		
≤ Rs.5000.00	111 (43.5)	37.6-49.7
> Rs.5000.00	144 (56.5)	50.3-62.4
50 and 75 percentile	5000 NRS and 8000 NRS	-
No. of Child		
≤ 2 Child	234 (91.8)	87.7-94.5
>2 Child	21 (8.2)	5.4-12.3

Table 1: Demographic distribution of mother (n=255).

Characteristics	Frequency (%)	95% Confidence Interval
Tetanus Toxoid Vaccine injected	245 (96.1)	92.9-97.8
Antenatal checkup	250 (98.0)	95.5-99.1
Non-vegetarian	230 (90.2)	85.9-93.2
Iron user	247 (96.9)	93.9-98.3
Band food items while pregnant	50 (19.6)	15.2-24.9
No rest during pregnancy at a day time	115 (45.1)	39.1 - 51.2
Unwanted pregnancy	21 (8.2)	5.5-12.2
Total previous delivery (n=255)	97 (38)	32.3-44.1
>2 years age gap with previous baby (n=97)	83 (85.6)	77.1- 91.3
Preferred home for previous delivery (n=97)	47 (48.5)	38.7-58.2
Assisted in previous delivery (n=97)	91 (93.9)	86.8-97.4
Health worker, Dr. Nurses (n=97)	69 (71.1)	61.4-79.2
Family members and untrained (n=97)	22 (22.7)	15.4-32.0
No assistant in previous delivery (n= 97)	6 (6.1)	2.9-12.8
Preferred home delivery among at previous time		
Illiterate and Primary educated (n=51)	28 (54.9)	41.4-67.7
Secondary level and Above (n=46)	18 (39.1)	26.4-53.6
≥ 2 years age gap with previous baby among		
Illiterate and Primary educated (n=51)	44 (86.3)	73.9-93.5
Secondary level and Above (n=46)	39 (84.8)	71.5-92.7

Table 2: Behaviour and biological characteristic (n=255).

checked daily before and after data entry for its completeness and accuracy. Results are presented in a tabular form in percentage and also applied chi-square test to see the significance where p value of less than or equal to 0.05 is considered to be significant.

Results

Table 1, shows that a total of 255 mothers were included in the study where minimum age was 18 years and maximum age was 41 years and the mean ± SD age of mother was 23.35 ± 4.19. Among the total respondents, 91.4% were from Hindu religion. About half of the respondents (51.2%) had completed either Secondary or above level of education and 1/5th of them were formal employed and more than half (56.5%) of family were earning more than Rs. 5000 per month where about 92% women had one or two children (Table 1).

Table 2 shows the behaviours and biological characteristics, where about 90% women were Non-vegetarian. Most of the women (96.1%) found vaccinated with TT injection while pregnant and 98% got Antenatal checkup and iron user were about 97%. While pregnant about 20% women band some of the food items like Green vegetable, pumpkin, meat, Egg, Lentils/beans, as they believed that these may cause adverse effect in pregnant women and also nearly half (45%) did not take rest. Some of pregnancies (8.2%) were found unwanted. Among the mother who had previous child (97, 38%), about 86% had more than 2 years' gaps between pregnancies and nearly half of the women (48.5%) preferred home delivery in previous pregnancy. Among total previous delivery about 94% mothers were assisted and among previous delivery 71.1% assisted by health workers, doctors and nurses, 22.7% by family members and 6.1% women did not take any assistant. In relation to education status and place of previous delivery, about 55% of Illiterate and primary educated women gave birth at home. Likewise, about 40% of secondary level educated and above preferred home delivery. Among the total respondents who had previous baby, about 85% of women with secondary level and above education kept ≥ 2 year gap between previous baby and the time of delivery of the current

Mother educational status vs injected TT vaccine during pregnancy		
Education Level	Injected	Non Injected
Secondary up to higher primary and none	132	0
	113	10
Fisher's exact test=0.001, $p \leq 0.05$		
Mother educational status vs Antenatal checkup during pregnancy		
Educational level	Checked	Not Checked
Secondary up to higher	132	0
Primary and none	118	5
Fisher's exact test=0.25, $p \geq 0.05$		
Income level of mother vs Antenatal checkup during pregnancy		
Income level	Yes	No
>5000 per month	109	2
≤ 5000 per month	141	3
Fisher's exact test=1.000, $p \geq 0.05$		
Religion of mother vs band food item during pregnancy		
Religion	Yes	No
Hindu	47	186
Non-Hindu	3	19
Fisher's exact test=0.583, $p \geq 0.05$		
Mother educational status vs band food items during pregnancy		
Educational level	Band	Not band
Secondary up to higher	24	108
Primary and none	24	97
$\chi^2=0.552$, $p \geq 0.05$		
Mother educational status vs wanted pregnancy		
Educational level	Wanted	Not wanted
Secondary up to higher	123	9
Primary and none	111	12
$\chi^2=0.394$, $p \geq 0.05$		
Mother educational status vs rest in pregnancy		
Educational level	No rest	Rest
Secondary up to higher	58	74
Primary and none	57	66
$\chi^2=0.067$, $p \geq 0.05$		
Income level vs rest in pregnancy		
Income level	No rest	Rest
Income >Rs. 5000	43	68
Income \leq Rs. 5000	72	72
$\chi^2=0.095$, $p \geq 0.05$		
Mother educational status vs place of previous delivery preferences (n= 97)		
Educational level	Home	Health facility
Secondary up to higher	18	28
Primary and none	28	23
$\chi^2=0.120$, $p \geq 0.05$		
Education status vs age gap with previous baby (n=97)		
Educational level	≥ 2 years	<2 years
Secondary up to higher	39	7
Primary and none	44	7
χ^2 test =0.835, $p>0.05$		
Income level vs age gap between two babies (n=97)		

Income level	≥ 2 years	<2 years
>5000 per month	35	2
≤ 5000 per month	48	12
Fisher's exact test =0.072, $p \geq 0.05$		

Table 3: Determinants of behaviour of mothers among 255 respondents.

baby, which is almost same percentage of women with primary or non-educated (86.3%) (Table 2).

The study showed about 4% who were illiterate or had primary level education, had not injected Tetanus toxoid vaccine during pregnancy. Education status and TT vaccine injected by mothers showed significant difference (Fisher's exact test=0.001, $p<0.05$). Among the total women, only 2% had not gone under Antenatal check up while pregnant. Education status and Antenatal check up by mother showed insignificance (Fisher's exact test=0.25, $p>0.05$), likewise, income level was also found insignificant to antenatal checkup (Fisher's exact test=1.000, $p>0.05$). This study showed that in relation to religion and band food items by pregnant women had no any significant difference (Fisher's Exact test=0.583, $p \geq 0.05$), likewise educational status and band food items also did not show any significant difference ($X^2=0.552$, $p \geq 0.05$). Among the total women, 8.2% pregnancies were unwanted. While studying on Level of Educational status in relation to wanted pregnancy, no any significant difference ($X^2=0.394$, $P>0.05$) was found. In total, about 45% women did not take rest at pregnancy period. In relation to occupation 24% , 31.2% , 4.7% and 1.6% of respondent, whose occupation were labour, service, house wife and farmer respectively, did not take rest while pregnant. Mothers' educational status in relation to taking rest during pregnancy did not found any association ($X^2=0.067$, $p \geq 0.05$). Likewise, income also had no association with rest in pregnancy ($X^2=0.095$, $p \geq 0.05$). Among the respondents who delivered previous baby, 6.1% of them gave birth without any-one assistant, 22.7% gave birth with the help of untrained persons (6.2% from family members and 16.5% from untrained birth attendants) and only 71.1 % gave birth with assistant of health workers, doctors and nurses. In chi-square test, the education level and preference of place of delivery was found to be insignificant ($X^2=0.120$, $p>0.05$) and in relation to education and gap between two babies, showed insignificance ($X^2=0.835$, $p>0.05$). Likewise, level of income and age gap between two babies was also found to be insignificant (Fisher exact test=0.072, $p \geq 0.05$).

Discussions

The study indicates that the proportion of pregnant women in the study area who take TT injections is very high (96.1%), but is still not 100% despite various measures taken by different authorities against tetanus. A study conducted in Gujrat, India, in 2013, showed that 95% reported received TT vaccination and a study conducted in rural north India in 2012, showed that 73% of mothers had not received TT [5,6]. This study showed that Education status and TT vaccine injected by mothers showed significant difference (Fisher's exact test=0.001, $p<0.05$) which is found same in a study conducted in Karbala city of Iraq in 2012/2013 with probability value ≤ 0.05 [7].

This study showed that almost all women (98%) had gone for antenatal checkup while pregnant. Education status and Antenatal check up by mother showed insignificance (Fisher's exact test=0.025, $p>0.05$), also the income level did not show the significance for Antenatal checkup (Fisher's exact test=1.000, $p>0.05$), which seems different than other studies. A study conducted in Ethiopia in regard to education, showed that mothers with 5-12 years of education (OR=3.18,

95% CI: 1.85-5.47) were more likely to attend ANC than non-educated and grade 1-4 mothers [7]. Study conducted in India, also revealed that the high income households mothers were significantly associated with ANC checkup ($X^2=21.37$, $p \leq \infty$) [8]. Similarly in Mid Nepal, a study showed that women from high income families were three times more likely to receive ANC services than women from low income [9].

Though this study showed about 20% of women band food items while pregnant, however, in relation to religion and food taboos or band food items by antenatal mothers showed no any significant difference (Fisher exact test=0.583, $p \geq 0.05$). Similarly, in relation to educational level and band food items did not show any significance difference ($X^2=0.552$, $p \geq 0.05$). A study conducted in 2012, in Shashemene District, Ethiopia, showed roughly half (49.8%) of the mothers avoided some food items while pregnant. Nearly two fifth (38.3%) of pregnant women practiced fasting during pregnancy mostly the meat and milk containing food items in orthodox religion in Ethiopia [10]. A study conducted in Andhra Pradesh, India, showed that about 4/5th (82.1%) of the total number of interviewed women had believed on some of the food items that were to be restricted to pregnant women. All respondents had false beliefs on certain foods, which would give rise to negative effects on health of pregnant women. About 3/5th (64.2%) women believed that consumption of papaya, sesame, coconut water, fermented rice and food and other heat producing food stuff could cause abortion during pregnancy. Likewise, 1/5th (20%) women believed that taking food like green plantains, cluster beans, mushrooms, fruits, fowls' eggs during pregnancy could cause diarrhoea, indigestion, delivery of hairy covered skinny baby, risk of having twins etc. [11]. Likewise a study conducted in Tamilnadu, India in 2015/2016, showed that almost half (49.8%) of the mothers avoided one or more food items while pregnant [12].

This study showed that 8.2% pregnancies were unwanted and there was no significant difference found in relation to educational status and unwanted pregnancy ($X^2=0.394$, $p \geq 0.05$). A study conducted in 2014 in Rural Bangalore found 21.15% pregnancy as unwanted [13]. Likewise, in Nairobi, Kenya, a study showed that 24% of women had unwanted pregnancy [14]. Likewise, a study conducted in Ethiopia in 2015, showed 27.1% as unintended pregnancy [15]. That study showed that there was no any significance difference in relation to education level of mothers, which is same as in the study conducted in Nairobi, Kenya, but a study conducted in Kwango District of Congo in 2016, found association between educational status and unwanted pregnancy (AOR, 3.4, CI, 1.21-9.90) [15,16].

This study revealed that nearly half (45.1%) pregnant women did not take rest during pregnancy. In relation to educational status and rest in pregnancy, there was no any significant difference found ($X^2=0.067$, $p \geq 0.05$), likewise, in relation to income, no significant difference was found. ($X^2=0.095$, $p \geq 0.05$). A study conducted in Bangladesh, showed that even though 4/5th women perceived the need of rest during pregnancy, only about 29% practiced rest [17].

In this study, among total 97 previous deliveries, 28 women (28.8%) delivered their babies without assistant of health workers and among them, 6.1% gave birth by themselves without any assistance. Nearly half (48.5%) of the women in their previous delivery had preferred home for delivery. Study showed that the education level and preference of place of delivery was found to be insignificant ($X^2=0.120$, $p \geq 0.05$). A study conducted in Bangladesh revealed, though 4/5th (80.6%) of women perceived that the home delivery is a risk, more than 3/5th (66.8%) delivered at home [18]. Similarly, in a study conducted in Tigray, Region, Ethiopia, 95.9% of women were assisted at home: By their

mothers (or other elderly women who were relatives or neighbours) [2]. Likewise, Zambia demographic health survey report showed that more than half (52%) delivery occurred at home and about 1/4th (23%) of births were assisted by traditional birth attendants and 5% women delivered babies without any assistance [19]. In a study conducted in Ayasit, Afar Ethiopia, near about 3/4th (71.0%) of the women delivered in their homes and among them, majority (75.4%) delivered without skill birth health workers due to the reason of no health problem and feeling of no need to attend delivery care centre, some due to far distance living from health facility and some had experienced poor quality of services in health facilities, also due to no female health workers at the health facilities [20].

In a study conducted in rural Punjab, place of delivery was correlated with the education status, where 80% women who were uneducated selected home for delivery, whereas, 40% of educated from primary to graduate or above selected health institution. ($\chi^2=116.16$, d.f.=4, $p<0.001$, significant) [21]. Similarly institutional deliveries were found significantly increased for each additional level of maternal education in a study conducted in Uganda [primary: OR 1.59 (1.42, 1.78), secondary: OR 3.37 (2.88, 3.94), post-secondary: OR 10.4 (6.28, 18.1)] [22]. Likewise, a study conducted in Ayssaita, Afar, Ethiopia in 2016, showed that women's educational status played role as a predictor for home delivery, that showed uneducated women were 2.8 more likely to deliver in their home than formally educated (AOR=2.83, 95 % CI=1.1-7.5) [20].

This study showed that about 85.6% women kept gap ≥ 2 years between two babies. Among total 97 women who gave birth previous babies, 51 were Illiterate or primary educated and 46 were Secondary level or above. Among total Illiterate or primary, 86.3% and among secondary level and above 84.8% were spacing ≥ 2 years between two babies. But, in relation to education and spacing between two babies found no significant ($X^2=0.835$, $p \geq 0.05$), likewise, it is also not associated with income level (Fisher exact=0.072, $p \geq 0.05$), but, study conducted in Saudi in 2005/2006 showed that the spacing between babies was found significantly longer intervals (2.54 and 2.67 years respectively) in mothers who had formal education than those who had no formal education (log rank test=22.13, $p<0.0001$) [23]. Similarly, a study conducted in Zimbabwe showed the education of women significantly associated with the length of birth interval (beta -2.76, SE 1.38, $p=0.046$) [24].

Limitation

In this cross-sectional study design limited the causality conjecture of the study variables.

Conclusion

Mothers' behaviours whilst pregnant and delivery are the important factors for the outcome of the health of both mother and child. Superlative utilization of ANC services was observed in this study, but still low institutional deliveries were observed. Though education status of mother showed significant difference in taking TT injection while pregnant, mothers did not choose health institution for delivery as expected. Therefore, prerequisite of proper counseling and advice during each ANC visit is seen important to cultivate behaviours of pregnant women for the institutional delivery with the assistance of health care attendants. This study also gave emphasis to move around on the role of health education and promotion activities during each Antenatal visit that need to be strengthened to cultivate positive behaviors on nutritional practices too. The current strategy of child delivery at health post level should be carefully reconsidered.

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