

KNOWLEDGE AND ASSOCIATED FACTORS REGARDING HEALTH PROMOTIONAL MEASURES OF INFANT AMONG MOTHERS ATTENDING PEDIATRIC OPD OF UNIVERSAL COLLEGE OF MEDICAL SCIENCES

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ABSTRACT

INTRODUCTION

Infant and child health status depends upon knowledge of mothers regarding health promotional measures. This study aimed to determine knowledge and its associated factors regarding health promotional measures of infants amongst the mothers attending pediatrics outpatient department of Universal College of Medical Sciences Teaching Hospital, Bhairahawa, Rupandehi, Nepal.

MATERIAL AND METHODS

Hospital based cross-sectional study was conducted in Universal College of Medical Sciences Teaching Hospital, Bhairahawa, Rupandehi, Nepal among 414 mothers attending pediatrics outpatient department from September 2019 to March 2020. Bivariate and multivariate logistic regressions were used to explore associations between different factors with health promotional measures.

RESULTS

The mean age and family size was 25.89 ± 4.81 and 5.94 ± 2.48 respectively. A total of 73.2% mothers have good knowledge of health promotional measures. Mothers greater than 20 years (AOR =8.13, CI: 2.16-30.67), Dalit (AOR=0.02, CI: 0.003-0.16), living in rural area (AOR=0.27, CI: 0.08-0.61), family size greater than 5 (AOR =3.99, CI: 1.37-11.59), below SLC education (AOR=0.29, CI: (0.09-0.88) and fathers with SLC and above education (AOR=25.40, CI: 4.54-142.0), fathers engaged in non-agricultural work (AOR =4.78, CI: 1.80-12.68) and birth space of index child greater than two years (AOR =5.88, CI: 1.48-23.55) were significantly associated with knowledge of health promotional measures.

CONCLUSION

Mothers' age, caste, residence, family size, education of parents, occupation of father and birth space of index child were found to be independent associated factors of knowledge. Thus policy makers should provide specific education regarding health promotional measures to both parents focusing rural area. Similarly, local Government needs to subsidize in reducing teenage marriage.

KEYWORDS Health promotional measures, Infants, Pediatric

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INTRODUCTION

Infancy is period of rapid physical, social growth and development.¹ The need of health promotion is vital as infants are dependent and susceptible for cause of risky and vulnerable activities.² Mother is primary for the promotion of health of infant. Health promotion of infants is done through breastfeeding, complementary feeding, immunization, growth monitoring and prevention of accident.¹

Due to the lack of knowledge on how to feed a child, infant and young children in many developing countries are vulnerable to malnutrition.³ A study conducted in Nepal showed that only 35% of the mothers had knowledge about initiation of breastfeeding within first hour of birth, 62% had known about exclusive breastfeeding timing and 81% had knowledge about appropriate time for introduction of complementary feeding and total time for breastfeeding.⁴

Infant mortality rate (IMR) of Nepal is 32 per 1000 live birth in 2016.⁵ More than half of the child deaths are preventable with access to cost-effective interventions of vaccination. Vaccination coverage of world has stagnant at 86% during the past year.⁶ Accident is an unintentional, undesirable, incidental, and unplanned injury, which could have been prevented.⁷

Hence to maintain the proper health status of infant, proper health promotion is necessary. Health promotion of infant depends upon the level of knowledge and practice of mother. Although, there have been a burgeoning literature on various aspects of breastfeeding, complementary feeding, immunization and accidents among infants there are very few studies carried out to investigate the associated factors of knowledge regarding overall health promotional measures of infant. Hence this study aimed to determine knowledge and associated factors regarding health promotional measures of infant among the mothers attending pediatrics OPD of Universal College of Medical Sciences and Teaching Hospital (UCMS-TH) Bhairahawa, Rupandehi, Nepal.

MATERIAL AND METHODS

Study design and source of population

Hospital based cross-sectional study was conducted in pediatrics OPD of Universal College of Medical Sciences-Teaching Hospital, Bhairahawa, Rupandehi, Nepal from September 2019 to March 2020. Mothers having child aged six to twelve months attending pediatrics OPD of UCMS Bhairahawa, Rupandehi, Nepal, who were willing to participate and can speak and understand Nepali language were included in the study. Similarly, those mothers who have severe mental problem, no willingness and did not speak and understand Nepali language were excluded during interview.

Sample size determination and sampling technique

Sample size was calculated using formula $N = Z^2pq/L^2$ ⁸ with 95% level of confidence interval, 5% margin of error and 56.81% mothers fed their children complementary food of appropriate consistency.⁹ Initial sample size was 376. Considering 10% non-response rate, the final sample size was 414. A non-probability purposive sampling technique was used to select mothers of child age six to twelve months attending pediatrics OPD of UCMS-TH at Bhairahawa, Rupandehi, Nepal.

Data collection procedures and validity

Face to face interview was done using semi-structured questionnaire for collecting required data. Questionnaire was translated into Nepali and again retranslated into English language to find misinterpretation. Two-day training was provided to four pediatric residence doctors and one final year bachelor in public health student of UCMS. All the filled questionnaires were reviewed and checked by the principal investigator on regular basis.

Data processing and analysis

Data were entered into Microsoft excel and exported to Statistical Package for Social Science (SPSS) software version 20 for analysis. Characteristics of the sample were described using mean and standard deviation. Bivariate analysis was used primarily to assess the association between dependent and independent variables and those variables found to be associated with bivariate analysis ($p < 0.05$) were entered into the multivariate logistic regression model to identify the associated factors of level of knowledge of health promotional measures.

Measurement of knowledge and practice regarding health promotional measures

Health promotion measures index was made which was categorized as "poor knowledge" and "good knowledge" and cross tabulation analysis was done with independent variables. There were 20 questions related to knowledge regarding health promotional measure of infant. It consists of four sub-scales which comprised of knowledge regarding breast feeding, knowledge regarding complimentary feeding, knowledge regarding immunization and knowledge regarding prevention of accidents. The score of each sub scale was 6, 5, 5 and 4 respectively. The total score for this section was 20. The knowledge score was categorized as: Good knowledge: $\geq 50\%$ of total score and Poor knowledge $< 50\%$ total score.

Ethical consideration and informed consent

Ethical approval was taken from Institutional Review

Committee of UCMS and Teaching Hospital (UCMS/IRC /126/19). Moreover, all the participants were fully informed about the study. Written informed consent was taken from the respondents.

RESULTS

The mean age and family size was 25.89 ± 4.81 and 5.94 ± 2.48 respectively. From a total of 414 mothers more than three-fourth (78%) lived in sub metropolitan city and municipalities. About one-fourth (23.7%) of the infant mothers had received education of secondary and above intermediate level. About half (49.3%) of the infant father had receives education of intermediate and above level. Nearly half (49.5%) of mothers were homemakers. About two-fifth (39.4%) of infant fathers were engaged in small scale business (Table 1).

Table 1. Distribution of socio-demographic characteristics of study population

General Characteristics	Frequency (n=414)	Percentage
Age		
≤ 20 years	58	14.0
> 20 years	356	86.0
<i>Mean age ±SD; 25.89 ±4.81</i>		
Residence		
Urban (Sub metropolitan city and municipalities)	323	78.0
Rural (Rural municipalities)	91	22.0
Family size		
Lesser than equal to 5	228	55.1
Greater than 5	186	44.9
<i>Mean family size ±SD; 5.94 ±2.48</i>		
Education of Mother		
Illiterate and informal class	81	19.6
Primary	44	10.6
Secondary	98	23.7
SLC	93	22.5
Intermediate and above	98	23.7
Education of Father		
Illiterate and Informal class	33	8.0
Primary	41	9.9
Secondary	63	15.2
SLC	73	17.6
Intermediate and above	204	49.3
Occupation of Father		
Agriculture	87	21.0
Small scale business	163	39.4
Service (Government and private)	134	32.4
Wage labor	14	3.4
Foreign labor	16	3.9
Birth space of index child		
Lesser than equal to 2 years	272	65.7
Greater than 2 years	85	20.5

Regarding knowledge of breast feeding more than four-fifth (93.2%) of the infant's mother knew feeding only breast milk is breast feeding whereas nearly one fourth (24.2%) of the

infant's mother knew breast feeding should be done within one hour of birth. Likewise, more than three-fifth (65%) of the infant's mother knew complementary feeding is the transition from exclusive breast feeding to family food whereas less than three fourth of the infant's mother knew that mashed cereals should be best in introducing complementary feeding and more than one-fourth (27.1%) of the infant's mother knew that complimentary feeding should be given three to four times for infant. Similarly regarding immunization more than four-fifth (85.3%) of the infant's mother knew that immunization provides immunity and protects against diseases and about half (51.4%) of the infant mothers knew correctly about immunization schedule provided for <1-year infant. On the other hand, more than four-fifth (90.8%) of the infant's mother knew about common accident for <1-year baby whereas about half (53.6%) of the infant mothers knew that keeping everything in mouth is development facts leading to ingestion injury (Table 2).

Table 2. Distribution of knowledge regarding health promotional measure among mothers of infant

Knowledge regarding health promotional measures	Number (n=414)	Percentage
Breast feeding		
Knew feeding only breast milk is breast feeding	386	93.2
Aware that breast milk is best nutrient for < 6 months baby	357	86.2
Knew breast feeding should be done within 1 hour of birth	100	24.2
Knew colostrum feeding is necessary for every child	352	85.0
Knew exclusive breast feeding should be done for 6 months	249	60.1
Knew breast feeding should be continued for up to 2 years	182	44.0
Complementary feeding		
Aware about complementary feeding	391	94.4
Knew complementary feeding is the transition from exclusive breast feeding to family food	269	65.0
Knew that complementary feeding should be started after 6 months	222	53.6
Knew that mashed cereals should be best in introducing complementary feeding	290	70.0
Knew that complimentary feeding should be given 3 to 4 times for infant	112	27.1
Immunization		
Heard about immunization	413	99.8
Knew that immunization provides immunity and protects against diseases	353	85.3
Knew correctly about immunization schedule provided for < 1 year infant	213	51.4
Knew DPT vaccine should be start within 45 days	249	60.1
Knew time intervals for DPT+ Hep B+ Hib B and Polio	216	52.2
Prevention of accidents		
Knew that fall, ingestion, injury and burn are common accident for < 1 year baby	376	90.8
Aware about prevention of ingestion injury among infants	303	73.2
Knew that keeping everything in mouth is development facts leading to ingestion injury	222	53.6
Knew that child should not be left alone in order to prevent from fall accidents	317	76.6

About three-fourth (73.2%) of the mothers of infants have good knowledge regarding health promotional measure (Table 3).

Table 3. Distribution of mothers of infant knowledge grading on health promotional measures

Characteristics	Frequency (n=414)	Percentage
Poor knowledge	111	26.8
Good knowledge	303	73.2
Total	414	100.0

Table 4 showed socioeconomic, socio-demographic and child related factors associated with knowledge level of health promotional measures. Those variables which were found statistical significant with *p* value lesser than equal to 0.05 in bivariate analysis, were entered into the multivariate regression analysis model which identified age of respondents, ethnicity, residence of living, family size, mother's education, father's education, father's occupation and birth space of two child as associated factors with knowledge level of health promotional measures. Mothers who were greater than 20 years were 8.13 times more likely (AOR=8.13, CI=2.16-30.67) to have good knowledge regarding health promotional measures. The odds of having good knowledge regarding health promotional measures were less among mothers who were from Dalit caste (AOR=0.02, CI=0.003-0.16) and who live in the rural area (AOR=0.27, CI=0.08-0.61). Mothers having >5 members in the family were 3.99 times more likely (AOR=8.13, CI=1.37-11.59) and having educational backgrounds below SLC level were 0.29 times less likely (AOR=0.29, CI=0.094-0.88) to have good knowledge regarding health promotional measures. However, the odds of having good health promotional measures were high among fathers who were from SLC and above backgrounds (AOR=25.40, CI=4.54-142.0), engaged in other than agriculture work (AOR=4.78, CI=1.80-12.68) and whose index child had birth space of greater than two years (AOR=5.88, CI=1.48-23.35) (Table 4).

Table 4. Factors associated with knowledge level of health promotion in bivariate and multivariate analysis

Characteristics	Knowledge Level (%)		<i>p</i> -value	^a COR 95% CI	^b AOR 95% CI
	Poor knowledge	Good knowledge			
Age of respondents					
≤20 years	22 (37.9)	36 (62.1)		1	1
>20 years	89 (25.0)	267 (75.0)	0.039*	1.83 (1.024-3.28)	8.13 (2.16-30.67)
Ethnicity					
Brahmin/Chhetri	22 (15.2)	123 (84.8)		1	1
Madeshi	18 (20.2)	71 (79.8)	<0.001*	0.71 (0.36-1.40)	1.13 (0.37-3.43)
Dalits	21 (75.0)	7 (25.0)		0.06 (0.02-0.15)	0.02 (0.003-0.16)
Newar	5 (21.7)	18 (78.3)		0.64 (0.22-1.92)	0.53 (0.08-3.31)
Janjati	17 (28.8)	42 (71.2)		0.44 (0.21-0.91)	0.52 (0.12-2.21)
Muslim	28 (40.0%)	42 (60.0)		0.27 (0.14-0.52)	0.35 (0.05-2.72)
Residence					
Urban	74 (22.9)	249 (77.1)		1	1
Rural	37 (40.7)	54 (59.3)	0.001	0.43 (0.27-0.71)	0.27 (0.08-0.61)
Religion					
Hindu	78 (23.5)	254 (76.5)		1	1
Non Hindu	33 (40.2)	49 (59.8)	0.002*	0.46 (0.27-0.76)	0.44 (0.07-2.90)
Size of family					
≤5 members	47 (20.6)	181 (79.4)		1	1
>5 members	64 (34.4)	122 (65.6)	0.002*	0.50 (0.32-0.77)	3.99 (1.37-11.59)

Mother's Education					
Illiterate and informal	48 (59.3)	33 (40.7)		1	1
Below SLC	45 (31.7)	97 (68.3)		3.14 (1.78-5.53)	0.29 (0.094-0.88)
SLC and above	18 (9.4)	173 (90.6)	<0.001*	13.98 (7.25-26.98)	1.09 (0.25-4.73)
Father's Education					
Illiterate and informal	27 (81.8)	6 (18.2)		1	1
Below SLC	53 (51.0)	51 (49.0)	<0.001*	4.33 (1.65-11.36)	2.16 (0.38-12.20)
SLC and above	31 (11.2)	246 (88.8)		35.71 (13.67-93.28)	25.40 (4.54-142.0)
Father's Occupation					
Agriculture	44 (50.6)	43 (49.4)		1	1
Other than Agriculture	67 (20.5)	260 (79.5)	<0.001*	3.97 (2.41-6.54)	4.78 (1.80-12.68)
Live with					
Parents	97 (25.4)	285 (74.6)		1	1
Relatives	14 (43.8)	18 (56.3)	0.024*	0.44 (0.21-0.91)	1.17 (0.37-3.68)
Sex of latest child					
Male	44 (19.7)	179 (80.3)		1	1
Female	67 (35.1)	124 (64.9)	<0.001*	0.46 (0.29-0.71)	0.47 (0.20-1.12)
Birth space (index child)					
≤2 years	74 (27.2)	198 (72.8)		1	1
>2 years	11 (12.9)	74 (87.1)	0.007*	2.51(1.26-4.99)	5.88 (1.48-23.35)
Food security					
≤6 months	94 (34.4)	179 (65.6)		1	1
>6 months	17 (12.1)	124 (87.9)	<0.001*	3.83 (2.18-6.74)	2.63 (0.85-8.16)

*Significant at *p*<0.05, 1=Reference category, ^a Crude odds ratio, ^b Adjusted odds ratio

DISCUSSION

Age of respondents, ethnicity, residence of living, family size, mother's education, father's education, father's occupation and birth space of two children were associated factors of good knowledge of health promotional measures in this study. About three-fourth of the infant mothers had good knowledge on health promotional measures, however another study conducted in Nepal found lower portion of the mothers had good knowledge.¹⁰ This disparity might be due to divergence scoring system for measuring the health promotional measures.

The present study revealed that less than one-fourth of the respondents knew that breast feeding should be done within an hour of birth, however another study done in Nepal found higher portion of the mothers were aware about the time of feeding colostrum.¹¹ Majority of the mothers, in this study knew that colostrum feeding is necessary for every child, in contrast to this another study conducted in Kathmandu, Nepal found that lower proportion of the women knew colostrum is nutritious for new born babies.¹¹ This difference might be due to progression of educational supplies as compared to previous time. Three-fifth of the respondents have knowledge on duration of exclusive breastfeeding which is in line with the study done in Nigeria,¹² however another study conducted in Dhaka, Bangladesh found higher proportion of the mothers have good knowledge on duration of exclusive breastfeeding.¹³ Less than half of the mothers knew that breastfeeding should be continued for up to two years which is inconsistent with the several other studies such as study done in India¹⁴ and Dhaka, Bangladesh.¹³

Most of the mothers in this study were aware about

complementary feeding which is in line with the study conducted in Nepal.¹⁵ About two-third of the respondents in this study knew that complementary feeding is the transition from exclusive breast feeding to family food which is in line with the study conducted in Nigeria.¹⁶ In this study more than half of the respondents knew about the recommended time for starting complementary feeding which is in line with the study conducted by Aggarwal A, et al¹⁷ however several other studies such as study conducted in Nepal^{18,19} and Nigeria¹⁶ found higher portion of the mothers knew that complementary feeding should be started at six months of age.

Most of the respondents in this study have heard about immunization which is in line with several other studies such as study done in Indonesia²⁰ and Ethiopia.^{21,22} Majority of the respondents in this study knew that immunization provides immunity and protects against diseases which is supported by the study conducted in Pakistan.²³

Majority of mothers were aware that fall, ingestion, injury and burn are common accident for lesser than one year baby which is inconsistent with study conducted in Nepal.²⁴ More than three-fourth of the respondents in the present study knew that child should not be left alone in order to prevent from fall accidents, in contrast to this study most of respondents in the study done in Nepal were aware that lack of supervision can cause home accident to infants.²⁴

In this study, age of the respondents was statistically significant with knowledge of health promotional measures which is in accordance with the study conducted in Nigeria where knowledge of complementary feeding was associated with mothers' age.¹⁶ The present study found education of mother was associated with knowledge of health promotional measures which is in accordance with the study done in Bangladesh where mothers' education is associated with a knowledge score of breastfeeding.¹³ Residence of living in this study was statistically significant with knowledge of health promotional measures which is inconsistent with the study done in Pakistan where residence of living was not significantly associated with knowledge of complementary feeding.²⁵

CONCLUSIONS

Age of mother, caste, residence, family size, education of mother and father, occupation of father and birth space of index child were found to be independent associated factors of knowledge of health promotional measures. In this context, it is recommended that administrators and policy makers should provide specific education regarding health promotional measures to both the parents focusing on rural area. Similarly, local Government needs to subsidize in reducing teenage marriage.

CONFLICT OF INTEREST

There is no conflict of interest.

List of abbreviations

AOR: Adjusted odds ratio; CF: Complementary feeding, CI: Confidence interval; COR: Crude Odds ratio; SD: Standard Deviation; SLC: School leaving certificate; SPSS: Statistical package for the social sciences, UCMS: Universal College of Medical Sciences.

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