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IMPACT OF FEMALE SCHOOLING ON UTILIZATION OF MOTHER AND CHILD HEALTH SERVICES: EVIDENCE FROM RURAL AREA OF RANGPUR DISTRICT IN BANGLADESH

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Abstract

Maternal and child health is closely related to general health of a nation. Female schooling is one of the most important determinants of maternal and child health. This study intends to examine the impact of female education on the utilization of mother and child health care facilities. Ever-married women of reproductive age who have at least one surviving child during the last five years preceding the survey date are considered as respondents. Using purposive sampling technique, 240 respondents were selected from rural areas of Pirgachha Upazila under Rangpur District and cross tabulation analysis is used to explore the relationship. The analysis demonstrates that the higher educated females utilize the health services is more than those with little or no education. Therefore, expanding female education may be an effective strategy for significant utilization of mother and child health care facilities.

Keywords: Health care services, Mother & child health care and Surviving child.

Introduction

Maternal and child health is closely related to the general health of a nation. The health of mothers and children has traditionally been considered an important indicator for describing health progress, mortality conditions and indeed the overall socio-economic well being of a country (Islam *et al*., 1996). In Bangladesh, the health care facilities provided by the government are still seriously underutilized (Islam *et al.*, 1996). The utilization of mother and child health services provided through the responsibility of females. Higher the level of education of mother greater is the opportunity of utilization of health programs particularly maternal and child health program. Numerous studies have found almost universal and positive association between female schooling and child survival over the past decade. Therefore, female schooling is one of the most important determinants in the utilization of maternal health care services (Kamal, 2009) and contributes a vital part of child survival (Kabir *et al*., 2001).

The health program of Bangladesh has made remarkable progress in the last two decades as evident from the decline in child mortality rates, under-five mortality rates, and maternal mortality rate (Huq and Tasnim, 2008). The 2007 Bangladesh Demographic and Health Survey (BDHS, 2007) recorded that during the periods 1989-1993 to 2002-2006 health care facilities improved from 4 percent to 15 percent. By medically trained

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providers such facilities progressed from 10 to 18 percent of births, child mortality declined from 50 deaths per 1000 live births to 14 per 1000 live births and over the last three years under-five mortality rates declined about 26 percent (88 per 1000 live births to 65 per1000). The reduction in maternal mortality in the past 15 years is about 22 percent, very close to the target of Millennium Development Goal (MDG) (75 percent reduction between 1990 and 2015). However, the Maternal Mortality Ratio (MMR) is still high (320 per 100,000). Both female education and health care utilization are playing a substantial role for the improvement of these health care services and mortality reduction (World Bank IEG report).

The present study intends to investigate on the utilization of health care facilities provided through Health care programs of GOB by mothers by their level of education. The objectives of the study are

(i) to focus on the situation of mother and child health care opportunities,

(ii) to explore how the level of education of females affect utilization of health care facilities.

The paper is meant for the study area (Pirgachha Upozila of Rangpur district) and does not necessarily reflect the situation of Bangladesh as a whole.

The aim of this study is to explore the relationship of female schooling with mother and child health care services in rural areas. This paper is also designed to provide some suggestion for the policymakers and program planners regarding the potential role of female schooling to improve maternal and child health through enhancing the utilization of health care services.

Materials and Methods

According to nature of the study females of reproductive ages who have at least one surviving child during the last five years preceding the survey date were considered as respondents. A total of 240 respondents were selected adopting purposive sampling method from rural areas of Pirgachha Upazila under Rangpur District. Pirgachha is located at the north corner of Bangladesh. The data were collected using structured questionnaire by direct interview. Frequency distribution and cross tabulation are used to explore the relationship by recoursing Statistical Package for Social Science (SPSS) version 16. Pregnancy and delivery status are investigated by various health related variables. The whole study is based on proportion and percentage distributions.

Results and Discussion

Demographic and Socio-Economic Characteristics

According to our survey report of 240 respondents, 172 respondents live in nuclear family and 68 live in joint family out Table 1 shows that 8.3 percent respondents are of age group 15-19 years, 45.4 percent is of 20-24 years, 30.0 percent is of 25-29 years, 13.8 percent is of 30-34 years, and only 2.5 percent is of 35-39 years. Among of them, 67.5 percent respondents get married at age less than 16 years, 23.3 percent between 16 to 18 years and remaining 9.2 percent above the age of 18. After married, the respondents did not wait a long time to take a child. This study reveals that 7 respondents experienced their first motherhood before age 18 years, 2 respondents between 18 to 20 and only 1 respondent above 20 years of age.

Table 1. Percentage distribution of the respondents according to some Demographic and Socio-Economic characteristics

	No. of respondents	Percentages
Type of family		
Nuclear	172	71.7
Joint	68	28.3
Age of respondents		
15-19	20	8.3
20-24	109	45.4
25-29	72	30.0
30-34	33	13.8
35-39	6	2.5
Age at first marriage		
<16 Years	162	67.5
16-18 Years	56	23.3
>18 Years	22	9.2
Age at first birth		
<18	174	72.5
18-20	40	16.7
>20	26	10.8
Schooling of respondents		
Illiterate	52	21.7
One-five	85	35.4
Six-ten	37	15.4
SSC	36	15.0
HSC	14	5.8
Graduate and post-graduate	16	6.7
Occupation of respondents		
House wife	220	91.7
Job / Service	17	7.1
Labor	3	1.2
Families monthly income		
<5000	83	34.6
5000-8000	78	32.5
8000-12000	52	21.7
>12000	27	11.2
Quality of house		
Kacha	12	5.0
Semi-building	57	23.8
Tin	171	71.2
Quality of sanitation		
Sanitary	104	43.3
Paka	57	23.8
Kacha	43	17.9
No sanitation	36	15.0
Total	240	100.0

Female education and occupation play an important role on MCH (Govindasamy and Ramesh, 1997). But this study found that most of the respondents (91.7 percent) are housewives who are not engaged in any occupation, 7.1 percent is in service, and only 1.2 percent is in labor. Income of family is another important indicator of socio-economic status of a family. This study indicates that family income of 34.6 percent respondents income below TK. 5000 per month. Monthly income of 32.5 percent is TK. 5000-8000, 21.7 percent is TK. 8000-12000 and 11.2 percent is above TK.12000. It means that majority of the families' monthly income is below TK. 5000.

Type of main living house is considered as an indicator of economic position of households. This study reveals that 5.0 percent respondents' main living house is Kacha, 23.8 percent is semi-building and 71.2 percent is made by tin. The survey also shows that 43.3 percent families have sanitary sanitation, 23.8 percent have paka sanitation, 17.9 percent have kacha sanitation and 15.0 percent have no any sanitation facilities. Figure 1 shows the schooling of the respondents in the rural areas of Rangpur district. It indicates that 22.0 percent respondents are illiterate (who never been to school, and can not read or write), 35.0 percent is schooling of from one to five years, 15.0 percent is six to ten, 15.0 percent is SSC, 6.0 percent is HSC and 7.0 percent is Graduate & Post-graduate respondents.

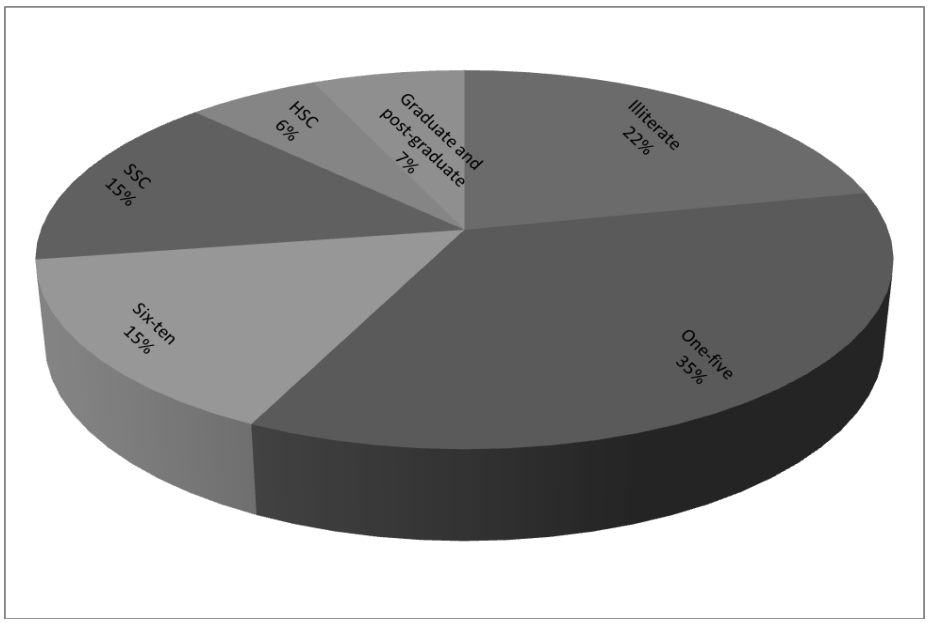

Fig.1. Pie diagram shows percentage distribution of the schooling of respondents in the rural areas of Rangpur district

Mother and Child Health Care Situation

It has found that 1 respondent out of 2 respondents in rural area has regular checking up their health, 3 out of 5 has taken iodine, iron and vitamin tablet, and 3 out of 10 could not memorize that whether these tablet have taken or not during pregnancy period. Most of the respondents (94.2 percent) have received tetanus injection at the time of their last

pregnancy. The result also shows that 92.5 percent respondents did normal work, and only 3.8 percent did hard work during their pregnancy period.

Table 2. Percentage distribution of the respondents according to Mother and Child health Care Utilization.

Mother health care utilization		Child health care utilization	
Variables	No. of respondents	Variables	No. of respondents
Health check up during pregnancy		Last child's health check up after birth	
Regular	50.0 (120)	Regular	67.9 (163)
Irregular	16.7 (40)	Irregular	22.9 (55)
No check up	33.3 (80)	No check up	9.2 (22)
Work during pregnancy		Taken vitamin A capsule	
High	3.8 (9)		
Low	3.8 (9)	No	8.3 (20)
Normal	92.5 (222)	Yes	91.7 (220)
Medicine during pregnancy		Vaccine after last child birth	
Iron tablet(1)	0.4 (1)		
Vitamin tablet(2)	7.9 (19)	Take all vaccine	91.2 (218)
1+2+iodine salt	63.8 (153)	Take 2 vaccine	5.9 (14)
Do not know	27.9 (67)	Take 3 vaccine	2.9 (7)
Tetanus injection during pregnancy		Breast feeding last child	
No	5.8 (14)	Yes	99.2 (238)
Yes	94.2 (226)	No	0.8 (2)
Consult with somebody during pregnancy and delivery		Careful to feed last child	
No	28.3 (68)	Yes	76.2 (183)
Yes	71.7 (172)	No	23.8 (57)
Service provider during child delivery		Feeding iodine by doctor's suggestion	
Doctor	14.6 (35)	Yes	55.8 (134)
Skilled wet-nurse	51.2 (123)	No	44.2 (106)
Unskilled wet-nurse	34.2 (82)		
Postnatal Care			
No	39.2 (94)		
Yes	60.8 (146)		

Note: Figures in parenthesis indicates the number of respondents

There are 7 respondents out of 10 consult somebody during pregnancy and child delivery. More than 50 percent respondents have taken health services from skilled nurse, only

14.6 percent from medical doctors, and 34.2 percent from unskilled nurse during their last delivery. After delivery, 3 respondents out of 5 have taken health care services. This study has also found that 7 respondents have regular checked up their last child's health after birth, 9 mothers out of 10 have given all vaccine to their child. Similar results have found in case of taking vitamin A capsule. Almost all (99.2 percent) respondents have breast feed their last child. There are 76.2 percent respondents who were careful to feed their last child and 55.8 percent gave iodine by doctor's suggestion. It is also found that women of both urban and rural areas are more likely to utilize mother and child health care services, presumably because health community centers are easily available to them and the health workers provide their services at home.

Impact of Female Schooling on Utilization of Maternal Health Services

Consistently strong and positive relationship between utilization of mothers' health services and female education is quite evident from data in Table 3 and Figure 2. It shows that only 15.4 percent illiterate women check up their health regularly during pregnancy compared to 38.8 percent with one to five years of schooling, 75.7 percent, six to nine, 80.6 percent SSC, 71.4 percent HSC and 75.0 percent with graduate and post-graduate level of education. On the other hand, slightly more than half (51.9 percent) illiterate women do not check up their health during pregnancy whereas, such tendency decreases with increase of female education.

Again from table 3 and figure 2, we observe that during pregnancy period, 15.4 percent illiterate women do more work than normal. On the other hand, 84.6 percent illiterate women use to do normal work during pregnancy. 98.8 percent women with one to five years of schooling do normal work, 91.1 percent women with perform six to nine years of schooling, 97.2 percent with SSC level, 85.7 percent with HSC level and 81.2 percent with graduate and post-graduate levels do normal work during pregnancy.

Only 17.3 percent illiterate women take iron tablet, vitamin tablet and iodine salt during pregnancy compared to 58.8 percent women of one to five years of schooling, 78.4 percent with six to nine years of schooling. It is noticeable that 73.1 percent illiterate women could not memorize or do not know about iron tablet, vitamin tablet and iodine salt. Similar results found in taking tetanus toxoid injections for different levels of maternal education. For example, 80.8 percent illiterate women have received tetanus toxoid injections, compared to 95.3 percent women of one-five years schooling and 100 percent above class six.

In this study, only 1.9 percent illiterate women have received services from doctors during delivery, compared to 4.7 percent women with one to five years of schooling, 13.5 percent six to nine, 25.0 percent SSC, 35.7 percent HSC and 68.8 percent graduate and post-graduate levels of education. On the other hand, a large amount of illiterate women (84.6 percent) received services from unskilled birth attendants during delivery, 35.3 percent having one to five years of schooling, 21.6 percent six to nine and zero percent SSC and above received services from unskilled birth attendants. This indicates that the rates of receiving service during delivery period from doctors are decreased with the increasing rate of female educational level. It is known that the maternal schooling reflects a higher standard of living and access to financial and other resources because educated women are more likely to marry wealthier counterpart (Schultz 1984).

The differentials in utilization of postnatal-care services are even more marked between illiterate and educated women. Only 11.5 percent illiterate women have received postnatal care compared to 54.1 percent with one to five years of schooling, 81.1 percent, six to nine, 94.4 percent SSC and 100 percent HSC and above. Similarly, only 25.0 percent illiterate women has consulted with somebody during pregnancy and child birth compared to 69.4 percent having one to five years of schooling, 97.3 percent six to nine, 94.4 percent SSC and hundred percent HSC and above.

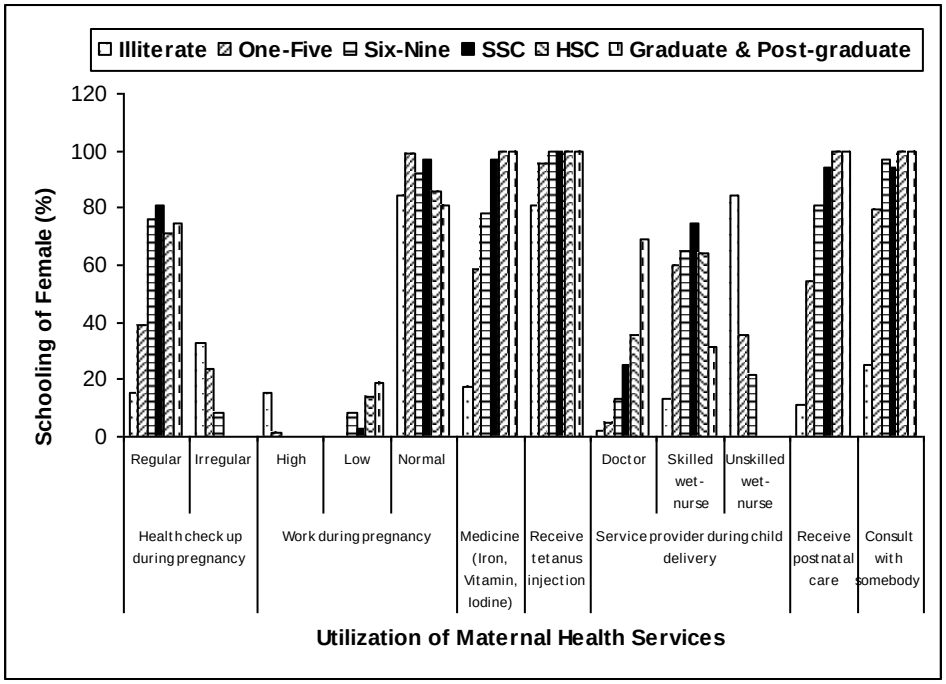

Fig. 2. Graph showing percentage distribution of female schooling and utilization of maternal health services

Table 3. Percent distribution of Mothers by their level of Education and Utilization of health Services

	Mothers education level						
	Illiterate	One-Five	Six-Nine	SSC	HSC	Graduate & Post-graduate	Total
Health check up during pregnancy*							
Regular	15.4 (8)	38.8 (33)	75.7 (28)	80.6 (29)	71.4 (10)	75.0 (12)	50.0 (120)
Irregular	32.7 (17)	23.5 (20)	8.1 (3)	0.0 (0)	0.0 (0)	0.0 (0)	16.7 (40)
No check up	51.9 (27)	37.6 (32)	16.2 (6)	19.4 (7)	28.6 (4)	25.0 (4)	33.3 (80)

Continued

Work during pregnancy*							
High	15.4 (8)	1.2 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	3.8 (9)
Low	0.0 (0)	0.0 (0)	8.1 (3)	2.8 (1)	14.3 (2)	18.8 (3)	3.8 (9)
Normal	84.6(44)	98.8(84)	91.9(34)	97.2(35)	85.7 (12)	81.2 (13)	92.5 (222)
Medicine during pregnancy*							
Iron tablet(1)	0.0 (0)	1.2 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.4 (1)
Vitamin tablet(2)	9.6 (5)	7.1 (6)	21.6 (8)	0.0 (0)	0.0 (0)	0.0 (0)	7.9 (19)
1+2+iodine salt	17.3 (9)	58.8(50)	78.4(29)	97.2(35)	100 (14)	100 (16)	63.8 (153)
Do not know	73.1 (38)	32.9(28)	0.0 (0)	2.8 (1)	0.0 (0)	0.0 (0)	27.9 (67)
Tetanus injection during pregnancy*							
No	19.2 (10)	4.7 (4)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	5.8 (14)
Yes	80.8 (42)	95.3(81)	100 (37)	100 (36)	100 (14)	100 (16)	94.2 (226)
Service provider during child delivery*							
Doctor	1.9 (1)	4.7 (4)	13.5 (5)	25.0 (9)	35.7 (5)	68.8 (11)	14.6 (35)
Skilled wet-nurse	13.5 (7)	60.0(51)	64.9(24)	75.0(27)	64.3 (9)	31.2 (5)	51.2 (123)
Unskilled wet-nurse	84.6 (44)	35.3(30)	21.6 (8)	0.0 (0)	0.0 (0)	0.0 (0)	34.2 (82)
Postnatal Care*							
No	88.5 (46)	45.9 (39)	18.9 (7)	5.6 (2)	0.0 (0)	0.0 (0)	39.2 (94)
Yes	11.5 (6)	54.1(46)	81.1(30)	94.4(34)	100 (14)	100 (16)	60.8 (146)
Consult with somebody during pregnancy and delivery*							
No	75.0 (39)	30.6(26)	2.7 (1)	5.6 (2)	0.0 (0)	0.0 (0)	28.3 (68)
Yes	25.0 (13)	69.4(59)	97.3(36)	94.4(34)	100 (14)	100 (16)	71.7 (172)

Note: Parenthesis indicates the number of respondents and * $\rho<0.001$

Impact of Female Education on Utilization of Child Health Services

The relationship between female education and the child health care services is shown in Table 4 and Figure 3. It is seen that female education is strongly related to utilization of child health-care services, and this relationship is consistent for child's health checks up after birth, taking vitamin A capsule, taking iodine by doctor's suggestion and care to feed their last child. This educational difference in utilization of child health-care services is marked when comparing illiterate women with those who have at least completed primary education.

Cross tabulation results show that only 17.3 percent illiterate women regularly check up their child's health after birth, compared to 63.5 percent with education one to five years of schooling, 94.6 percent six to nine, 97.2 percent SSC and 100 percent HSC, graduate and post-graduate levels. On the other hand, 38.8 percent illiterate women do not check up their child's health after birth, 5.9 percent one-five years schooling and 2.8 percent SSC.

In our study area, 100 percent illiterate, and graduate & post-graduate respondent have taken all vaccine for their last child and the respondent of others educational category have not taken hundred percent. It means vaccinations of children are not associated with mother's educational status. The result differs from the study of Govindasamy and Ramesh (1997). In this case, mother's occupation has significant effect on vaccination of children. Though vitamin A capsule feeding reveals the statistically significant result it is almost same with vaccination. Again, we observe that breast-feed of the last child is not statistically significant with mother's education level. It is because mothers' physical condition as well as occupation also related with breast-feeding of child.

The differentials in careful feeding are even more marked between illiterate and educated women. Only 23.1 percent illiterate women carefully feed their child compared with 81.2 percent one-five years schooling, 97.3 percent six-nine and 100 percent SSC and above. Similarly, a few percent (7.7) illiterate women feeding iodine by doctor's suggestion compared with 47.1 percent one-five years schooling, 70.3 percent six-nine and 94.4 percent SSC and 100 percent HSC and above.

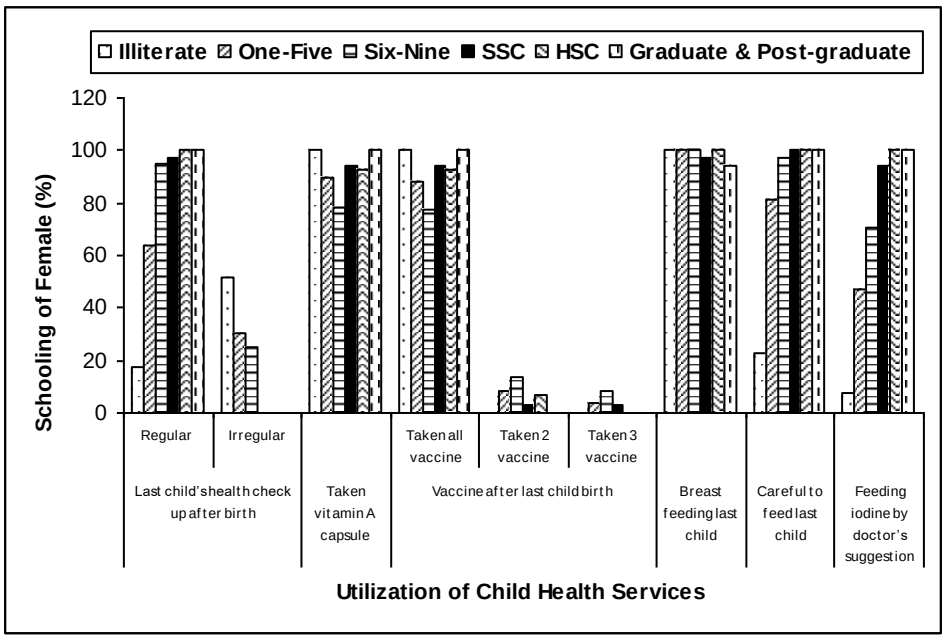

Fig.3. Figure showing percentage distribution of female schooling and utilization of child health services

Table 4. Association between Female Education and Utilization of their Child Health Services

	Mothers education level						
	Illiterate	One-Five	Six-Nine	SSC	HSC	Graduate & Post-graduate	Total
Last child's health check up after birth*							
Regular	17.3 (9)	63.5 (54)	94.6 (35)	97.2 (35)	100 (14)	100 (16)	67.9 (163)
Irregular	51.9 (27)	30.6 (26)	5.4 (2)	0.0 (0)	0.0 (0)	0.0 (0)	22.9 (55)
No check up	30.8 (16)	5.9 (5)	0.0 (0)	2.8 (1)	0.0 (0)	0.0 (0)	9.2 (22)
Taken vitamin A capsule**							
No	0.0 (0)	10.6 (9)	21.6 (8)	5.6 (2)	7.1 (1)	0.0 (0)	8.3 (20)
Yes	100 (52)	89.4 (76)	78.4 (29)	94.4 (34)	92.9 (13)	100 (16)	91.7 (220)
Vaccine after last child birth***							
Take all vaccine	100 (52)	88.2 (75)	77.8 (28)	94.4 (34)	92.9 (13)	100 (16)	91.2 (218)
Take 2 vaccine	0.0 (0)	8.2 (7)	13.9 (5)	2.8 (1)	7.1 (1)	0.0 (0)	5.9 (14)
Take 3 vaccine	0.0 (0)	3.5 (3)	8,3 (3)	2.8 (1)	0.0 (0)	0.0 (0)	2.9 (7)
Breast feeding last child							
Yes	100 (52)	100 (85)	100 (37)	97.2 (35)	100 (14)	93.8 (15)	99.2 (238)
No	0.0 (0)	0.0 (0)	0.0 (0)	2.8 (1)	0.0 (0)	6.2 (1)	0.8 (2)
Careful to feed last child*							
Yes	23.1 (12)	81.2 (69)	97.3 (36)	100 (36)	100 (14)	100 (16)	76.2 (183)
No	76.9 (40)	18.8 (16)	2.7 (1)	0.0 (0)	0.0 (0)	0.0 (0)	23.8 (57)
Feeding iodine by doctor's suggestion*							
Yes	7.7 (4)	47.1 (40)	70.3 (26)	94.4 (34)	100 (14)	100 (16)	55.8 (134)
No	92.3 (48)	52.9 (45)	29.7 (11)	5.6 (2)	0.0 (0)	0.0 (0)	44.2 (106)

Note: Parenthesis indicates the number of respondents and; * $\rho<0.001$; ** $\rho<0.01$ and *** $\rho<0.10$

Conclusions

This study mainly focuses on the utilization of maternal and child health services through examining the relationship of female schooling with the mother and child health care services. The result has revealed that the higher the level of maternal education greater is influence on better utilization of mother and child health care. Because, higher educated mothers are more conscious than those with little or no education. This study finding suggests that to continue investment in female education especially in rural areas, which are crucial for achieving reduction in child mortality and morbidity and most possibly have an impact on maternal mortality reduction. In a setting where illiteracy is high, improving access to health facilities should go hand in hand with educated women.

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