

## Association between education and knowledge of maternal health among urban women in Dhaka city, Bangladesh

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### Abstract:

*The maternal mortality rate is very much higher in developing countries of the world and every year a large number of women died because of hemorrhage, sepsis, hypertensive diseases of pregnancy, prolonged labor and complications of abortion. The objective of this study is to explore the association between education and knowledge of urban women regarding maternal health among urban women of Azimpur, Lalbag area in Dhaka city, Bangladesh. The study was a cross sectional study among married women aged between 15 to 49 years old and had at least one pregnancy experience. Study sample size was 240 respondents who were selected by using purposive random sampling method to assess the knowledge on antenatal, delivery and postnatal care. Data were collected by using a structured questionnaire. The study result indicated that higher educated women have higher level of knowledge about maternal health where it had also found that higher educated women received 1-3 antenatal visits almost 88% and had knowledge about eclampsia 92%, severe bleeding 95%, lower abdominal pain 93%, fainting 88%, fever 88%, anemia 92% respectively higher among high educated women compared to low educated women and knowledge about pregnancy test is significantly higher among the respondents of this study and observed that higher educated women were more likely to know about pregnancy test than that of lower educated women. Knowledge about iron and folic acid were 86% among higher educated and 63% among lower educated*

women. On the other hand, delivery in hospital higher between both lower and higher educated group but only 30% of the women from lower and 94% from higher educated women know about excessive bleeding soon after delivery. The overall finding of this study pointed that higher educated women have higher level of knowledge on maternal health among urban women and it is recommended that the maternal health situation will be developed in whole if education can ensure properly for all women. Though utilization of antenatal care services is already high, it has to be further increased through health education and publicity, emphasizing the role of couples.

**Key words:** urban women, maternal health, antenatal care, delivery and postnatal care, Bangladesh

## BACKGROUND

Maternal morbidity caused by the place of delivery where most of the deliveries take place at either woman's husband's house or at the parents' house and these deliveries are often assisted by untrained birth attendants or by elderly relatives.<sup>1</sup> Antenatal care (ANC) and postnatal care (PNC) are significant determinants of maternal health and, particularly, safe motherhood; ANC is an important predictor of safe delivery and provides health information and services that can improve the health of women and infants.<sup>2</sup> Proper (ANC) is one of the important ways in reducing maternal and child morbidity and mortality but many women in developing countries unfortunately do not receive such care<sup>3</sup> and ANC has a positive impact on the utilization of postnatal healthcare services.<sup>4</sup> However, women attending (ANC) clinics were more likely to recognize signs of a difficult pregnancy, to realize the importance of eating a healthy diet, and to indicate tetanus immunization uptake, compared to their non-attending counterparts<sup>5</sup> where women with no formal education have 2 more children than women with at least secondary education, which also affects infant and child mortality and morbidity.<sup>6</sup>

Child Growth chart utilization was better in the urban areas and increasing maternal education increased use of growth chart in urban-rural areas and found both groups of women use multiple sources of treatment more in urban for children, determined by cost, time, perceived severity of illness and type of ailment in urban and peculiarity of illness in rural.<sup>7</sup>

Education was found to have the most powerful influence on the knowledge score of maternal health and it found that knowledge not only transforms, but also empowers women and improves their self-esteem.<sup>8</sup> Women's education, husband's education, wealth quintile, and region of residence were documented as the most important factors associated with maternal healthcare service utilization but the ANC visit was found to be vital in the utilization of safe delivery and postnatal care and living in urban areas; women who had higher level of education and lower parity, and more assets (used as a proxy for income), visited trained healthcare providers more often and were more likely to use healthcare facilities provided by trained personnel at the time of delivery.<sup>9-10</sup> Therefore, the objective of this study is to explore the association between education and knowledge of urban women regarding maternal health at Dhaka city in Bangladesh.

## **MATERIALS AND METHODS**

The study was a cross sectional survey conducted between October 2014 to February 2015 to assess the knowledge on antenatal, delivery and postnatal care among the residents of Azimpur, Lalbag area in Dhaka city. A random sampling selection method was used to select the study sample 240 respondents where married women aged between 15 to 49 years old were invited to participate in the study. Then a structured interview was conducted among 240 women in Azimpur area and women who have at least one child or one pregnancy experience. Data were collected by using a structured

questionnaire. Data editing was carried out by checking and verifying the completed questionnaire at the end of the interview and also end of the whole survey and before analysis. Data analysis was done by using the Statistical Package for Social Science (SPSS) version 16. Frequencies and proportions were calculated to describe the collected data and Pearson chi-square test applied for measuring significance among the dependable and independence variables. Knowledge score was considered as high if the respondents answered correctly more than two-third of the questions and education status was also considered as high of the respondents who had the education level of higher secondary or above. The limitation of this study is time constraint so that the limited number of respondents has been chosen and the research has conducted on urban women in Dhaka city focusing only to the literate women.

## RESULTS

In this study, 240 respondents were willingly participated where majority of the respondents 46.2% were from the 25-34 age group and 38.3% from the 35-44 age group but only 2.5% respondents were at the age of 45 above. 98.8% respondents were married and 1.2% respondents were widow or divorce. Most of the respondents' education status was higher secondary or above 80.8% and rest of the respondents completed secondary 14.2% and also primary level 4.6% but a negligible percentage 0.4% of women was with no education. It is notable that 75% of women were housewife and only 17.9% women were service holder, 3.4% were garments worker. Majority of the respondents 69.2% were not involved with any income generating activities. Data showed that, 16.2% respondents' income was within the range of TK. 5000-15000, very fewer 0.8% had above TK. 30000, 3.8% respondent had below TK. 5000. In the question of household income, respondents 66.7% were of within the range of TK. 15001-30000, 27.5% had above

TK. 30000 and 5% respondents had below TK. 15000 monthly household incomes. A very high percentage of participants 90.4% were Muslim and rest of them 9.6% were from other religions [Table 1].

**Table 1 Sample Characteristics (n=240)**

Variables	n	%
Respondents' Age		
15-24	31	12.9
25-34	111	46.2
35-44	92	38.3
44+	6	2.5
Marital status		
Married	237	98.8
Widow/ Divorce	3	1.2
Respondents' education		
No education	1	0.4
Primary	11	4.6
Secondary	34	14.2
Higher secondary or above	194	80.8
Respondents' occupation		
Garments worker	9	3.4
House keeper	6	2.5
Service holder	43	17.9
House wife	180	75.0
other	2	0.8
Respondents' income		
No income	166	69.2
>5000	9	3.8
5000-15000	39	16.2
15001-30000	21	8.8
30000+	2	0.8
No response	3	1.2
Household income		
5000-15000	12	5.0
15001-30000	160	66.7
30000+	66	27.5
No response	2	0.8
Religion		
Islam	217	90.4
Others	23	9.6

**Table 2 Knowledge about ANC (n=240)**

Variables	Education		Sig.
	High (n=194)	Low (n=46)	
Number of ANC visit			
1-3 visit	170 (87.6%)	37 (80.4%)	<i>p</i> < .150
4/4+visit	24 (12.4%)	9 (19.6%)	
ANC check up			
First 3 month	151 (77.8%)	28 (60.9%)	<i>p</i> < .056
First 6 month	21 (10.95)	8 (17.4%)	
One month before delivery	22 (11.3%)	10 (21.7%)	
Visit a doctor when			
Only when complication	40 (20.6%)	17 (37.0%)	<i>p</i> < .018
Throughout her pregnancy	154 (79.4%)	29 (63.0%)	

Table 2 shows the knowledge about ANC and 80.4% respondents were from low education reported about 1-3 ANC visit should follow by a pregnant woman where 87.6% reported from higher education but 19.6% low education and 12.4% from high education reported about at least 1 ANC visit should followed. The association between number of ANC visit and education level was not significant ( $p < .150$ ). 60.9% from low education and 77.8% high education reported that ANC check up should be done in the first three months of pregnancy. In the question of when should a pregnant women need to go for ANC care, 63.0% from low education and 79.4% from high education reported that a women should go throughout her pregnancy. 37.0% from low education had reported about only when there was a complication which was much higher percentage than high educated participants 20.6%.

**Table 3 Knowledge about Danger signs of pregnancy (n=240)**

Variables	Education		Sig.
	High (n=194)	Low (n=46)	
Eclampsia			
Yes	178 (91.8%)	34 (73.9%)	<i>p</i> < .002
No	16 (8.2%)	12 (26.1%)	
Severe bleeding			
Yes	184 (94.8%)	35 (76.1%)	<i>p</i> < .000
No	10 (5.2%)	11 (23.9%)	

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Lower abdominal pain			
Yes	180 (92.8%)	38 (82.6%)	<i>p</i> < .037
No	14 (7.2%)	8 (17.4%)	
Fainting			
Yes	170 (87.6%)	28 (60.9%)	<i>p</i> < .000
No	24 (12.4%)	18 (39.1%)	
Fever			
Yes	170 (87.6%)	34 (73.9%)	<i>p</i> < .021
No	24 (12.4%)	12 (26.1%)	
Anemia			
Yes	179 (92.3%)	32 (69.6%)	<i>p</i> < .000
No	15 (7.7%)	14 (30.4%)	

Table 3 shows that respondents with high education had better knowledge about danger signs of pregnancy compared to respondents with low education. Knowledge about eclampsia 91.8%, severe bleeding 94.8%, lower abdominal pain 92.8%, fainting 87.6%, fever 87.6%, anemia 92.3% respectively high among higher educated respondents found in this study and it is noted that most of the women had knowledge about severe bleeding, fainting, and anemia.

**Table 4 Knowledge about pregnancy test (n=240)**

Variables	Education		Sig.
	High (n=194)	Low (n=46)	
Blood screening for HIV			
Yes	180 (92.8%)	32 (69.6%)	<i>p</i> < .000
No	14 (7.2%)	14 (30.4%)	
Blood Pressure Examination			
Yes	179 (92.3%)	29 (63.0%)	<i>p</i> < .000
No	15 (7.7%)	17 (37.0%)	
Blood Sugar level			
Yes	143 (73.9%)	43 (93.8%)	<i>p</i> < .000
No	51 (26.1%)	3 (6.2%)	
Urine test for bacterial infection			
Yes	172 (88.7%)	36 (78.3%)	<i>p</i> < .057
No	22 (11.3%)	10 (21.7%)	
Fetal growth			
Yes	182 (93.8%)	35 (76.1%)	<i>p</i> < .001
No	12 (6.2%)	11 (23.9%)	

Anemia evaluation			
Yes	179 (92.3%)	33 (71.7%)	<i>p</i> < .000
No	15 (7.7%)	13 (28.3%)	

Table 4 shows that knowledge about pregnancy test was significantly higher among the respondents of this study and observed that higher educated were more likely to know about pregnancy test than lower educated women. 93.8% from higher educated respondents know about blood sugar level and fetal growth test but knowledge about blood screening for bacterial test and blood pressure examination was significantly lower among the lower educated respondents.

**Table 5 Knowledge about ANC Services receive (n=240)**

Variables	Education		Sig.
	High (n=194)	Low (n=46)	
Iron and Folic Acid			
Yes	167 (86.1%)	29 (63.0%)	<i>p</i> < .001
No	27 (13.9%)	17 (37.0%)	
TT Vaccination			
Yes	171 (88.1%)	41 (89.1%)	<i>p</i> < .543
No	23 (11.9%)	5 (10.9%)	
Hygiene			
Yes	175 (90.2%)	39 (84.8%)	<i>p</i> < .207
No	19 (9.8%)	7 (15.2%)	
Take enough food			
Yes	180 (92.8%)	44 (94.7%)	<i>p</i> < .376
No	14 (7.2%)	2 (5.3%)	
Rest			
Yes	177 (91.2%)	43 (93.5%)	<i>p</i> < .442
No	17 (8.8%)	3 (6.5%)	

Table 5 shows that knowledge about iron and folic acid receive were 86.1% among higher educated and 63% among lower educated respondents. 37% of lower educated and 13.9% from higher educated didn't know about iron and folic acid that they should receive ANC. Knowledge about Tetanus toxoid (TT) vaccination, hygiene, took more food and rest were almost similar receiving trends between two groups.



**Table 6 Knowledge about delivery (n=240)**

Variables	Education		Sig.
	High (n=194)	Low (n=46)	
Delivery in the hospital			
Yes	175 (90.2%)	43 (93.5%)	<i>p</i> < .358
No	19 (9.8%)	3 (6.5%)	
Assistance during delivery			
Doctor	173 (89.2%)	41 (89.1%)	<i>p</i> < .584
SBA	21 (10.8%)	5 (10.9%)	

Table 6 shows that knowledge about delivery in hospital higher between both lower educated group 93.5% and higher educated group 90.2% but 89.1% from lower and 89.2% from higher educated reported a doctor should assist during delivery and 10.9% and 10.8% were reported, a SBA should assist during delivery respectively between two groups.

**Table 7 Knowledge about PNC (n=240)**

Variables	Education		Sig.
	High (n=194)	Low (n=46)	
Need to go for PNC visit			
Yes	166 (85.6%)	41 (89.1%)	<i>p</i> < .359
No	28 (14.4%)	5 (10.9%)	
Timing PNC Visit			
15 Days	126 (65.2%)	30 (66.0%)	<i>p</i> < .525
If there is a problem	68 (34.8%)	16 (34.0%)	

Table 7 shows that 89.1% from lower and 85.6% from higher educated group knew about that need to go for PNC after delivery. Respectively 34.8% and 34.0% from both groups thought that a woman needs to go for PNC visit only when there was a problem but 65.2% from lower and 66% from higher educated respondents knew that PNC visit should have within 15 days.

**Table 8 Knowledge about Postnatal Danger Sign (n=240)**

Variables	Education		Sig.
	High (n=194)	Low (n=46)	
Excessive Bleeding			
Yes	183 (94.3%)	32 (69.6%)	<i>p</i> < .000
No	11 (5.7%)	14 (30.4%)	
Lower Abdominal Pain			
Yes	179 (92.3%)	37 (80.4%)	<i>p</i> < .022
No	15 (7.7%)	9 (19.6%)	
Foul Smelling vaginal discharge			
Yes	164 (84.5%)	25 (54.3%)	<i>p</i> < .000
No	30 (15.5%)	21 (45.7%)	
Headache			
Yes	172 (88.7%)	33 (71.7%)	<i>p</i> < .005
No	22 (11.3%)	13 (28.3%)	
Fainting			
Yes	180 (92.8%)	34 (73.9%)	<i>p</i> < .001
No	14 (7.2%)	12 (26.1%)	
Dizziness			
Yes	158 (81.4%)	32 (69.6%)	<i>p</i> < .060
No	36 (18.6%)	14 (30.4%)	

Table 8 shows that 30.4% of the respondents from lower and higher educated 94.3% respondents knew about excessive bleeding soon after delivery. A significant number of respondents 30.4% from lower educated didn't know about excessive bleeding but 54.3% and 84.5% respondents respectively from lower and higher educated group know about foul smelling vaginal discharge. 92.7% respondents from higher educated knew about fainting. On the other hand, 30.4% respondents from lower educated didn't know about dizziness.

**Table 9: knowledge score (n=240)**

Variables	Education		Sig.
	High (n=194)	Low (n=46)	
Knowledge Score			
High	179 (92.3%)	37 (80.4%)	<i>p</i> < .022
Low	15 (7.7%)	9 (19.6%)	

Table 9 shows the relation between knowledge score and education level where among the higher educated majority (92%) women had higher level of knowledge about maternal health but among the lower educated women there were 80.4% women who had higher level of knowledge about maternal health and the situation was significantly associated.

## DISCUSSION

Maternal health services have a potentially critical role in the improvement of reproductive health. The use of health services is related to the availability, quality and cost of the services, as well as to social structure, health beliefs and the personal characteristics of the users.<sup>10</sup> It was observed by this study that the respondents living in urban areas, who had higher levels of education and lower parity, and more assets, visited trained healthcare providers more often and were more likely to use healthcare facilities provided by trained personnel at the time of delivery. On the other hand, utilization of maternal health services is associated with improved maternal and neonatal health outcomes<sup>11</sup> where it revealed in this study that the urban educated women received more the maternal health care services compared to less educated women living in urban areas. However, this is a reflection of the fact that, irrespective of their needs, only people from higher economic or educational groups can afford to seek healthcare from trained personnel in Bangladesh as well as predisposing and enabling factors appear to have a strong association with women's healthcare utilization during pregnancy.<sup>10</sup> By another study, the significant variables for an early visit to antenatal care are the woman's level of education; being pregnant with the first baby; and number of visits to antenatal care and being young age under 20 years also correlated with early timing of the first antenatal visit.<sup>12</sup> To the sum, it identified that the maternal health situation was comparatively much better among the

women who had higher education compared to those who had lower education among the women at Dhaka city in Bangladesh.

## **CONCLUSION**

The result of this study indicated that education was found to have the most powerful influence on the knowledge score of maternal health where it is assumed that knowledge is not only transforms, but also empowers women and improves their self-esteem. On the other hand, it is pointed that the knowledge of antenatal care, delivery care and postnatal care were found being satisfactory in urban areas because of having higher education level, which is resulted higher maternal health knowledge among the urban women in Dhaka city, Bangladesh; but also it found that the maternal knowledge was very poor among the women who had lower education. The overall finding of this study pointed that higher educated women had higher level of knowledge on maternal health in urban areas and it is recommended that the maternal health situation will be developed in whole if education can ensure properly for all women. Though utilization of antenatal care services is already high, it has to be further increased through health education and publicity, emphasizing the role of couples. However, to build up community awareness about ANC, delivery care and PNC information, education and communication activities should be improved on ANC, delivery and PNC through community campaign and mass media. There is a need to motivate women to use of maternal care services, which should be available in all of the government health set-ups.

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### **Conflict of Interest**

The author declared that there is no conflict of interest.

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