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Rural Urban Disparities in Prenatal Care Utilization: A Study From Khulna District of Bangladesh

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Abstract

This study attempts to identify the nature of prenatal care through a comparative study between urban and rural mothers living in Khulna district of Bangladesh. Two wards in Khulna City Corporation (KCC) and three villages under Rupsha upazila were purposely selected as the study area of this research. The data were collected from 148 mothers selected through simple random sampling method. Findings reveal that medical check-ups during pregnancy were common among most of the respondents (95.9%) in urban areas while it was much less observed among the rural ones (60.8%). Findings also suggest that respondents' residence was associated with frequency of visiting clinics, taking extra foods during pregnancy and preferred place for medical check-ups during their last pregnancy. Besides, access to reproductive health care services, availability of medical facilities and doctors differed significantly from rural to urban area.

Keywords: Prenatal care, Women, Rural, Urban, Bangladesh.

Introduction

Prenatal care (also known as antenatal care) is a widely used preventive health care service in many of the developed countries now-a-days [1]. The term prenatal care generally refers to the detection, treatment, or preventive measure as well as interventions to address detrimental health issues associated with pregnancy [2]. It is an important issue since pregnancy and childbirth complications are the leading causes of death and disability among women of reproductive age in the developing countries [3]. Bangladesh still records high maternal mortality ratio with 194 deaths per 100,000 births [4] and this largely varies with different socio-economic characteristics among the population. These high mortality rates are underpinned by the fact that 85 percent of women give birth at home most with unskilled attendants or relatives assisting [5]. The low status of women, poor quality, and low uptake of services are some of the reasons for this situation [6, 5]. However, mortality rates are influenced by the residence of the people often and a key issue of concern for different reason [7, 8].

It is evident that management of pregnancy is consistently associated with maternal and neonatal outcomes [9]. It includes all structural and non-structural initiatives which are closely related to socio-economic status, feeding pattern, access to health services, knowledge, attitudes, awareness and so on [10, 11]. Bangladesh, a country with annual birth close to 4 million, still has a high maternal mortality ratio, estimated at 320 per 100,000 live births [12, 13]. Socioeconomic factors such as present age, age at marriage, age at childbirth, education level, work status, economic status, location of the residence,

husband's or family awareness etc are linked with pregnancy management behavior in Bangladesh [4]. These factors largely determine the safety of a woman during prenatal, delivery and antenatal phase.

Bangladesh Maternal Mortality and Health Care Survey (2010) reveal that almost 2.4 million births take place at home annually, especially in the rural areas of Bangladesh and only 4.3 percent of women use SBA (Skilled Birth Attendant) to attend deliveries [7]. Afsana and Rashid (2001) inspect that, in rural Bangladesh the most common obstetric causes of maternal deaths are postpartum haemorrhage, eclampsia, and complications of abortion, obstructed labour, and postpartum sepsis [14]. Young and uneducated pregnant women are at the highest risk of not receiving medical assistance during delivery [15]. Hadi (2009) states that adequate antenatal care and skilled obstetric assistance during delivery is important strategy that significantly reduces maternal mortality and morbidity in Bangladesh [16]. ANC provides avenue to provide pregnant women with information, treat existing social and medical conditions and screen for risk factors. However, it is not enough to receive ANC, since majority of the fatal complications occur during or shortly after delivery [17]. Therefore, it is important that pregnant women have to need skilled obstetric attendance during and after delivery [18, 4].

Bangladesh is one of the developing countries where inferior groups use less health care and there exists a poor-rich inequality in maternity care and maternal mortality [19, 11]. Away from each other rich-poor disparity, social and cultural thinking and practices regarding motherhood and childrearing also have noteworthy influence on maternal health [11]. As a result, these poorest-of-the-poor women suffer a greater burden of ill health including maternal health. They are marginalized compared to national rural average in terms of accessing antenatal care (ANC). Maternal health services have a potentially critical role in the improvement of reproductive health [20]. 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 [21]. Thus Bangladesh faces not only a persistent pro-rich inequity but also a significant rural-urban equity also receiving the health care during pregnancy [22].

There has been little information about prenatal care in less developed rural areas [23] and it is evident that the use of prenatal care in rural area is inadequate [24, 25]. Karen and Pomeranz (2008) states that, the regular cheek-up, intake of nutritious food, working restriction and other practices are not found in Bangladeshi rural areas and generally they go to the traditional birth attendants and allopathic practitioners those who are unskilled [8]. Although pregnancy management in urban areas is a little better, further investigation on how prenatal care can be improved in both rural and urban areas is necessary.

Literature Review

Previous studies suggest that maternal and child health is subject to the quality of pregnancy management and this differs from rural to urban areas of Bangladesh. Chowdhury et al. (2003) suggested that a large number of the maternal death can be attributed to unhygienic and dangerous delivery practices and inadequate pre and postnatal care [26]. Besides, the absence of a proper system of service delivery in the health centers and another one was lack of family support, especially, the mothers-in-law and other elderly women in the family had great influence in prenatal care. The women themselves preferred a female doctor, which sometimes acted as a strong barrier to seek care in both rural and urban Bangladesh.

A study by Koenig et al. (2007) also revealed that Bangladeshi women reported of low but increasing use of antenatal care, as well as low rates of delivery in a health facility or with the assistance of a skilled provider [27]. Although almost half of women reported having one or more complications at the time of pregnancy that they perceived as life threatening, only one in three sought treatment from a qualified provider. More than three-fourths of women with the time sensitive obstacles of convulsions or extreme bleeding either failed to look for any treatment or sought treatment from an untrained provider. The most important cause cited for failing to hunt for care for life threatening complications was concern over medical costs, and pronounced socioeconomic disparities were found for maternal care-seeking behavior in both town and countryside Bangladesh.

It is noted that the use of health services is related to the availability, quality and cost of services, as well as to social structure, health beliefs, and personal characteristics of the users [28]. Findings of this study suggest that female education retains a net effect on maternal health service use, independent of other women's background characteristics, household's socioeconomic status, and access to healthcare services. The strong influence of mother's education on the utilization of health care services is consistent with findings from other studies. Alongside, Ahsan et al. (2006) observed that despite the extensive coverage of healthcare infrastructure across the country, healthcare-seeking, especially in terms of delivery of newborns, was alarmingly low [12]. Only eight percent of the pregnant women attended antenatal care (ANC), and 29 percent chose trained birth attendants such as qualified doctors and nurses, health assistants, family welfare visitor, and assistants, and traditional birth attendants, during delivery. Young and uneducated pregnant women were at the highest risk of not receiving medical assistance during delivery. The study identified area of residence, age, religion, secondary and higher education, and higher socioeconomic status were the significant predictors of choosing safe delivery practices.

Buttiens et al. (2004) observed that access to professional health care during delivery is considered to be critical for maternal mortality reduction [29]. The study is grounded in early identification and proper management of obstetric complications, presence of skilled providers attending deliveries, and ineffectiveness of training traditional birth attendants has drawn attention towards training of professional personnel. Brink and Wood (1998) found that each year 904,400 newborn die in the first few days of life as a consequence of complications in childbirth, and a further 1.02 million babies dies during labor [30, 31]. Their research noted that if more resources were invested into prenatal care services, and midwives were equipped to perform newborn resuscitation, then hundreds of babies and many of their mothers could be saved every year.

Theoretical Framework

A theoretical framework for emphasizing the importance of three different factors i.e. characteristics of the pregnancy management, changes in ANC technology and social norms relating to it is necessary to understand the phenomena properly. The line of enquiry for this study matches with approaches like Suchman's stages of medical and prenatal care, Andersen's model of health and ANC utilization, Young's choice-making model. Suchman's (1965) stages of medical and prenatal care indicates five stages of the individual's decision process in determining whether or not to utilize health care: 1) the individual's symptom experience, including pain, emotion, and recognition of experience as symptomatic of illness; 2) the individual's assumption of a sick role. During this second stage, the individual explores his or her lay belief system for validation of the sick role and for exploration of

treatment options; 3) ANC/medical care contact [32]. During this stage, the individual seeks a professional health care service although the pace at which a person enters this stage is determined by their membership within parochial and cosmopolitan social networks. If a person's social network is parochial, he will tend to delay medical care contact by continuing the first two stages for longer than a person who is a member of a cosmopolitan network; 4) the assumption of a dependent-patient role via acceptance of professional health care treatment. It is possible for this stage to be disrupted when the individual and the professional health care provider have differing opinions of the illness; 5) the individual's recovery from illness. However, for illness which is not curable, a person may assume a chronically ill role [33].

Andersen (1968) developed a model of health and ANC utilization which looks at three categories of determinants: 1) predisposing characteristics. This category represents the tendency to utilize health care services in antenatal period. It implies that an individual is more or less likely to use health services during pregnancy which is based on demographics factors, social structure, and beliefs of health services benefits. It relate in this sense 'an individual who believes health services are useful for treatment is likely to utilize those services; 2) enabling characteristics. This category includes resources found within the family and the community in general. Family resources consist of economic status and the location of residence while community resources include access to health care facilities and the availability of personnel for assistance; 3) need based characteristics [34]. The third category includes the perception of need for health services, whether individual, social, or clinically evaluated perceptions of need in pregnancy noted by Wolinsky (1988) [33, 34].

The third theoretical proposition of this study complies with Young (1981) who mentioned of a choice-making model based on his ethnographic studies of health services utilization in pregnancy period [34]. This model includes four components that are most essential to the individual's health service choices: 1) perceptions of gravity which includes both the individual's perception and their social network's consideration of illness severity in pregnancy; 2) the knowledge of a home treatment which says if a person knows of a home remedy that is efficacious, they will be likely to utilize that treatment before utilizing a professional health care system. Again, the home remedy knowledge is based on lay beliefs; 3) the faith in remedy [35]. This component incorporates the individual's belief of efficacy of treatment for the present illness. An individual is unlikely to utilize the prenatal care if he does not believe in its effectiveness; 4) the accessibility of ANC Accessibility incorporates the individuals' evaluation of the cost and availability of those services. Young suggests that access may be the most important influence on health care utilization during pregnancy. This study attempts to assess the whether the factors like disparity of access and availability in pregnancy management varies significantly among rural and urban residents.

Methods and Materials

The study was carried out in two wards (a small administrative unit in urban areas) under Khulna City Corporation (ward no. 10 and 14) and three villages under Rupsha upazilla (Srifaltala, Paler Hat and Chandansree village) under Khulna district in Bangladesh. The wards were considered as the urban area and villages as rural in this study. The study area was selected purposively considering the access and availability of sampling frame. There was a variation in population characteristics in the study area that was considered as well. For data collection, several criteria were set i.e. the respondents will be married women aged between 15 to 45 years, have at least one living child and the maximum age of the

child was two years. The age limit for last child born was set so that misinformation regarding pregnancy could be minimized as they had recall from recent past. A sample of 148 respondents was selected from a population of 603 was selected using sample size calculation formula for definite population. The respondents were selected through simple random sampling method using the sampling frame afterwards. A semi-structured interview schedule was developed for data collection and pre-tested upon ten respondents before the actual survey. Following survey research design, the data were collected through face-to-face interviews during August to November, 2016 by the researchers. Thereafter, data were coded and entered into a database system using software named Statistical Package for the Social Sciences (SPSS). Both descriptive and inferential statistics were used for univariate and bivariate analyses.

Findings

Socio-demographic Characteristics of the Participants

The socio-demographic profile of the participants provides a brief outlook for a comprehensive understanding about the respondents. Age is an important indicator for pregnancy management and it is related to the level of maturity and experiences. Among the respondents of urban areas, half belonged to the age group of 28 to 32 years, followed by 40.5 percent in the age group of 18 to 22 years in rural areas (Table 1). The mean age of the respondents in urban area was 29.2 years while the mean age of the respondents in rural area was 25.2 years. Participants of both urban and rural areas were predominantly housewives. Among urban respondents, 81.1 percent had the higher studies but in rural areas, 71.5 percent had secondary level. Findings suggest that the average income was higher among urban respondents. However, among the urban respondents, the mean years of marital age were 22.3 whereas it was 16.9 years for rural respondents. The age at first marriage was much lower in rural area in comparison to the urban ones in this study while higher age at first pregnancy was more common among urban respondents than the rural ones.

Table 1: Socio-demographic Characteristics of the Respondents

Variables	**Residence (n=148)**	
Age (In Year)	**Urban**	**Rural**
18-22	3 (4.1)	30 (40.5)
23-27	22 (29.7)	17 (23.0)
28-32	37 (50.0)	21 (28.4)
33-37	12 (16.2)	6 (8.1)
Occupation		
Housewife	38 (51.4)	45 (60.7)
Student	15 (20.3)	11 (14.9)
Govt. Service	8 (10.8)	3 (4.1)
Private Service	9 (12.2)	5 (6.8)
Day Labor	4 (5.3)	10 (13.5)
Educational Status		
Primary	1 (1.4)	9 (12.2)

Secondary Level	13 (17.5)	53 (71.5)
Higher Studies	60 (81.1)	12 (16.3)
Monthly Income (in BDT)		
≤ 12000	5 (6.8)	24 (32.4)
12001-18000	5 (6.8)	14 (18.9)
18001-24000	10 (13.5)	26 (35.1)
24001-30000	27 (36.5)	5 (6.8)
30001 ≥	27 (36.5)	5 (6.8)
Marital Age		
15-17	5 (6.8)	55 (74.3)
18-20	8 (10.8)	15 (20.3)
21-23	37 (50.0)	2 (2.7)
24-26	24 (32.4)	2 (2.7)
Age at First Pregnancy		
15-18	5 (6.8)	53 (71.6)
19-22	9 (12.2)	19 (25.7)
23-26	51 (68.9)	2 (2.7)
27-30	9 (12.2)	0 (0.0)

Values in Parenthesis are Percentages

Nature of Pre-natal Care

Pre-natal Care is the care that a woman receives during throughout her pregnancy by doctors, midwives and other medical interventions. It includes routine check-ups in primary, community and hospital environments with high-quality care and information regarding biological nutritional status of the pregnant women for health maintenance and improvement. Table 2 reveals that majority (95.9%) of urban respondents took prenatal checkups and their mean times to visit the clinic were 6.02 while 60.8 percent of rural respondents received antenatal check-ups and their average times to visit the clinic were 4.10. The results of association tests indicate that most of the respondents of urban areas were conscious about pregnancy and childbirth and they have the access to modern health services than the rural respondents. But in terms of taking vitamin and iron tablet, majorities of urban and rural respondents took it ($p>.05$).

Bangladesh has markedly increased the proportion of mothers who have received tetanus toxoid (TT) immunizations. Nationally, the proportion of women receiving a TT immunization during their pregnancy rose from 8% in 1995 to 71% in 2000 [36]. In urban areas, most of the respondents (93.2%) had received TT vaccination and 79.7 percent of the rural respondents had received it. The association test results indicate that immunization rate is increases in both urban and rural areas. On the contrary, comparatively more urban respondents seek ultrasound ($p<.01$). That modern access to health services, modern treatment, diagnosis and management are adequate in urban areas than the rural ones. A pregnant woman needs to boost her nutrient intake, rather than her kilojoule intake [37]. They have to take about 300 extra calories a day especially later in pregnancy; those calories should come from nutritious foods so they can contribute to baby's growth and development [38]. However, more than 90

percent of the urban respondents took extra food during their gestational period. On the other hand, 40.5 percent of rural respondents did not take extra food.

Table 2: Prenatal Care and Rural-urban Differentials

Variables	Residence (n=148)		Pearson's χ^2	Fisher's Exact Test	p value
Prenatal Check-up	**Urban**	**Rural**	26.953	-	.000
Yes	71 (95.9)	45 (60.8)			
No	3 (4.1)	29 (39.2)			
Frequency of Visiting Clinic					
1-3 times	2 (2.7)	29 (39.2)	53.904	57.254	.000
4-6 times	44 (59.5)	37 (50.0)			
7-9 times	28 (37.8)	8 (10.8)			
Took Vitamin and Iron Tablet					
Yes	70 (94.6)	64 (87.8)	2.108	-	.147
No	4 (5.4)	10 (12.2)			
Receive (TT) Vaccination					
Yes	69 (93.2)	59 (79.7)	5.781	-	.016
No	5 (6.8)	15 (20.3)			
Seek Ultrasound					
Yes	70 (94.6)	50 (67.6)	17.619	-	.000
No	4 (5.4)	24 (32.4)			
Took Extra Food					
Yes	70 (94.6)	44 (59.5)	25.812	-	.000
No	4 (5.4)	30 (40.5)			

Values in Parenthesis are Percentages

Service Factors Associated with Prenatal Health Care

Maternal health education is a powerful and significant determinant of safe motherhood in Bangladesh. Maternal health services have potentially critical role of the improvement of reproductive health [37]. More than 60 percent of urban respondents generally went private clinic for health care for that they states in their admitted hospitals, the supply of medication was enough ($p<.01$). Nevertheless, majority (70.3%) of the rural respondents went govt. run hospitals and more than 40 percent of participants said not enough supply of medication (Table 3). The results of association test illustrates that most of the rural respondent went govt. hospital because of low costs, free medicines, low costs of medical checkups etc. However, most of the patients in rural areas states that they did not get free medication even in government hospitals. Besides, the supplied medicines do no reach the patients for some corrupt staffs. These medicines are sold illegally to the nearby drug stores. On the contrary, most of the urban and rural respondents depict irregular presence of doctors in hospital as well. Despite living in urban areas, 78.4 percent of the respondents did not get any maternity services from NGOs (Non-governmental Organizations), whereas more than 50 percent of rural respondents received services from

various NGOs. This possibly happened because several NGOs ran their activities for the wellbeing of the poor people.

Table 3: Access to Health Care Services and Rural-urban Differentials

Variables	Residence (n=148)		Pearson's χ^2	Fisher's Exact Test	p value
Preferred Health Care Medium	**Urban**	**Rural**	63.683	71.065	.000
Government Hospital	22 (29.7)	52 (70.3)			
Private Clinic	48 (64.9)	3 (4.1)			
Community Clinic	4 (5.4)	19 (25.6)			
Supply of Medicine					
Low	40 (54.1)	4 (5.4)	46.334	50.654	.000
Moderate	8 (10.8)	11 (14.9)			
High	21 (28.4)	34 (45.9)			
Don't Know	5 (6.8)	25 (33.8)			
Presence of Doctors in Hospital					
Regular	6 (8.1)	8 (10.8)	0.411	0.441	.814
Irregular	51 (68.9)	51 (68.9)			
Occasional	17 (23.0)	15 (20.3)			
Receive Maternity Services from NGOs					
Yes	16 (21.6)	40 (54.1)	16.547	-	.000
No	58 (78.4)	34 (45.9)			

Values in Parenthesis are Percentages

Discussion

The present study attempts to investigate the how prenatal care varies from rural to urban areas in Bangladesh. The variation occurs due to different socio-economic and other underlying factors. It is a developing country where inferior groups use less health care and there exists a poor-rich and rural-urban inequality about maternity care [2]. Nevertheless, social and cultural thinking and practices regarding motherhood and childrearing also have noteworthy influence on maternal health. Findings reveal that age composition of the respondents is associated with the two places of living because in rural areas most of the women become pregnant at the very early ages ($p<.01$). Among the urban areas, majority (81.1%) of the respondents had the higher studies but in rural areas, more than 70 percent had completed secondary level. Findings indicate that comparatively higher household income (monthly) in urban areas is found than the rural ones, which has significant impact on pregnancy management.

A pregnant woman is supposed to have regular check-ups with a midwife or a doctor who specializes in pregnancy and birth [2, 39]. Regular antenatal check-ups are a key strategy for reducing maternal mortality, but millions of women in developing countries do not receive it and this situation is very crucial in Bangladesh [2, 3]. According to the World Health Organization (WHO), to achieve the full life-saving potential for women and babies, four visits are required during pregnancy [39, 40]. Among the four recommended visits, the first one is advised at 8-12 weeks, the second one at 24-26 weeks, the third one at 32 weeks, and the fourth one at 36-38 weeks of the pregnancy [40, 41]. But in

developing countries, women are usually reluctant to visit clinic, select the place of delivery and skilled personnel at delivery until they faced serious complications [42, 43]. In this study, most of the respondents of urban areas were found conscious about pregnancy and childbirth and they have the access to modern health services than the rural respondents.

Both urban and rural respondents in this study were conscious about medication at the time of pregnancy that no association found between taking vitamin and iron tablet and respondents' places of living. Tetanus is an important causes of death among neonatal in Bangladesh. It is a fatal disease caused by unhygienic conditions at childbirth. It is preventable through vaccination that given to the mother during pregnancy [44]. In urban areas, most of the respondents (93.2%) had received TT vaccination during their pregnancy period. On the other hand, 79.7 percent of the rural respondents had received it. It is evident from Pearson's χ^2 test, received tetanus toxoid vaccination during pregnancy do not varies between urban and rural areas ($p>.05$). Because both urban and rural areas the immunization rate are increases. According to WHO (2015), three trimesters of pregnancy ultrasounds is important [41]. First trimester of pregnancy (weeks one to 12), ultrasounds may be done to: confirm pregnancy, check the fetal heartbeat, determine the gestational age, estimate a due date, check for multiple pregnancies etc [41]. In the second trimester (12 weeks to 24 weeks) and the third trimester (24 weeks to 40 weeks or birth), an ultrasound may be done to: monitor the fetus' growth and position, determine the baby's sex etc. [31]. Thus finding reveals that comparatively more urban respondents seek ultrasonography than the rural respondents.

There is an increasing rates of delivery with a skilled attendant, and well-equipped facility, which is responsible to reduce the maternal mortality [45]. It is evident from the findings of this study that urban people are more conscious about selecting their delivery personnel. Findings suggest that decision makers of the delivery places varies between rural and urban areas which evident from the results, respondents in urban areas are more educated and self-dependent so that they can took decisions of selecting their delivery places. Likewise, more than 80 percent of the urban respondents received medical care after delivery and for that majority (81.1%) of the participants did not face any postpartum complications.

It is evident that a large number of women in Bangladesh experience life-threatening complications during pregnancy and childbirth [24]. Ashan et al., (2006) observed that despite the health reforms of recent years in Bangladesh, young and uneducated pregnant women are at the highest risk of not receiving medical assistance during delivery [12]. Kramer (2010) states that the rich have access to health care and medicine, while the poorest now know that treatment is available, but they cannot do anything, because of higher costs and poor utilization of public health care [46]. The results imply that rural respondents generally went govt. hospitals which provided limited services but private clinic provided available services that the urban respondents prefer to go. It is alleged that in our country, the patients are regularly deprived of the health facilities due to a number of irregularities and corrupt practices [47, 48]. Medicine and other medical equipment are not supplied in the hospital according to the amount needed. In our country, patients are supposed to get free medicines and medical apparatus in the government hospital. The overall findings display a vivid contrast in both the nature and trend of prenatal care among the rural and urban mothers.

Conclusion

Prenatal care is essential for both women and children. To reduce the health risks for mothers and children, it is important to increase deliveries by skilled providers with adequate medical supervision. Access to safe antenatal, delivery and postnatal care for the woman and the newborn is, therefore, crucial in reducing maternal and child deaths. This study attempts to address the disparity of access and affordability issues between rural and urban residents in relation to pregnancy management. Findings indicate that the pattern of pre-natal and post-natal care (both urban and rural areas) is mainly based upon socioeconomic issues like economic solvency, level of consciousness social practices. Health services are closely also related to economic factors and social customs as well. Most of the rural respondents would generally visit government hospitals because of low service cost, free medicine and other issues. But necessary services are often absent in those places. Government needs to pay more attention to rural areas for ensuring better reproductive health of the pregnant women and the newborn while continuing quality services in urban areas in association with non-government bodies.

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