Original Research Article

Neonatal Outcomes and Socio-Cultural Determinants of Premature Childbirth in Rural and Urban Settings of Bangladesh: A Comparative Study

ABSTRACT

Objective: This study aimed to conduct a comparative analysis of neonatal outcomes and the underlying socio-cultural determinants of premature childbirth in urban and rural settings of Bangladesh.
Methods: A cross-sectional study was carried out involving 1,000 pregnant women (500 each from urban and rural areas). Data was collected via structured interviews and medical record reviews, focusing on socio-demographics, neonatal outcomes, traditional childbirth practices, and access to health care.
Results: Urban regions reported a higher incidence of premature births (22%) compared to rural settings (15%). Traditional childbirth practices were more prevalent in rural areas (76%) than urban ones (58%). Despite better healthcare access in urban regions, with 89% of women attending at least four antenatal visits, rural areas lagged at 67%, with 52% citing distance as a major barrier.
Conclusion: Both urban and rural areas in Bangladesh present unique challenges influencing neonatal outcomes, with socio-cultural determinants playing a pivotal role. Addressing these disparities demands a comprehensive approach that incorporates culturally-sensitive strategies, enhanced healthcare facilities, and community awareness initiatives.

Keywords: Neonatal outcomes, Antenatal care, Premature childbirth, Socio-cultural determinants, Bangladesh.

1. INTRODUCTION

Premature childbirth, often defined as childbirth occurring before 37 completed weeks of gestation, is a global health concern due to its association with increased neonatal morbidity and mortality [1]. While significant advancements have been made in neonatal care, premature birth remains the leading cause of neonatal deaths worldwide [2].

Bangladesh, like many other low- and middle-income countries, faces challenges in reducing the rates of premature births and its associated adverse outcomes. The country's unique socio-cultural landscape, characterized by traditional practices, beliefs, and socio-economic disparities, can influence maternal health behaviors, access to healthcare, and consequently, neonatal outcomes [3].

Urban and rural settings within Bangladesh present distinct challenges. While urban areas might benefit from relatively better healthcare infrastructure, they also face issues like overcrowding, pollution, and stress, which can potentially contribute to premature births [4].

In contrast, rural areas might grapple with limited access to healthcare, traditional birth practices, and a lack of awareness or education on maternal health [5].

This research aims to provide a comparative analysis of neonatal outcomes and the underlying socio-cultural determinants of premature childbirth in both settings. It is imperative to understand these factors in the Bangladesh context to formulate effective interventions and strategies tailored to the specific needs of these communities.

Objective
This study aimed to conduct a comparative analysis of neonatal outcomes and the underlying socio-cultural determinants of premature childbirth in urban and rural settings of Bangladesh.

2. METHODS

2.1. Study Design and Setting
A cross-sectional comparative study was conducted across select urban and rural settings in Bangladesh. The urban regions selected were based on their high population density and infrastructure, while rural regions were characterized by agricultural predominance and limited health care facilities.

2.2. Study Population and Sampling
A total of 1,000 pregnant women, 500 each from urban and rural settings, were randomly selected using stratified sampling techniques. In each stratum, participants were further stratified based on trimester, age, and socio-economic status.

2.3. Data Collection
Data was collected through structured interviews using a pre-tested questionnaire. The questionnaire covered socio-demographic information, obstetric history, knowledge and beliefs related to childbirth, and neonatal outcomes. The interviews were conducted by trained health workers fluent in the local dialect. Additionally, available medical records were reviewed to gather information on neonatal outcomes and complications.

2.4. Variables of Interest
Dependent Variable: Neonatal outcome (live birth, premature birth, neonatal complications).
Independent Variables: Maternal age, socio-economic status, education, antenatal care visits, traditional practices related to childbirth, and access to health care.

2.5. Data Analysis
Data was entered and cleaned using SPSS version 25. Descriptive statistics were used to summarize the data. Bivariate analysis was conducted to determine associations between the independent variables and neonatal outcomes. Logistic regression was applied to ascertain the odds ratios, controlling for potential confounders. A p-value of less than 0.05 was considered statistically significant.

2.6. Ethical Considerations
Ethical approval was obtained from the Bangladesh Medical Research Council. Informed consent was sought from all participants before data collection. Confidentiality of participants' information was strictly maintained.

2.7. Limitations
The study's cross-sectional design limits the ability to infer causality. Recall bias might also influence self-reported data, especially for events that occurred early in the pregnancy.

Although efforts were made to select a representative sample, the generalizability might be limited to similar settings in Bangladesh.

2.8. Validity and Reliability

The questionnaire underwent a pilot test among 50 women, not included in the main study, to ascertain its reliability and validity. Necessary modifications were made based on the feedback received. The Cronbach's alpha for the questionnaire was 0.81, indicating good internal consistency.

3. RESULTS

Out of the 1,000 participants, 500 were from urban areas and 500 from rural settings. The mean age was 28 years (sd=6.2) in the urban group and 26.5 years (sd=5.9) in the rural group. Approximately 68% of urban women had received secondary education or higher, while this figure was 43% in rural settings.

Premature births: the incidence of premature births was significantly higher in urban settings (22%) compared to rural areas (15%) (p=0.03).
Neonatal complications: urban areas reported a 19% incidence of neonatal complications, whereas rural settings recorded a 13% incidence. The difference was statistically significant (p=0.04).

The table 1 encompasses a broad range of metrics from basic demographics to specific neonatal outcomes. Additionally, it highlights the differences in socio-cultural practices and access to healthcare services between the two regions. The table underscores the discrepancies that exist in neonatal care practices, outcomes, and challenges faced by mothers and healthcare providers in urban versus rural contexts.

On the demographic front, urban areas reported an average age of 28 years, with 68% of the women having received secondary education or higher. In contrast, the rural regions reported an average age of 26.5 years with only 43% having secondary or higher education.

In terms of neonatal outcomes, urban regions experienced a higher incidence of premature births (22%) and neonatal complications (19%) compared to rural areas which reported 15% and 13% respectively.

Socio-cultural determinants also varied between the two settings. A significant 76% of rural women followed traditional childbirth practices, while this figure stood at 58% in urban areas. Moreover, 41% of women in rural areas lacked awareness about antenatal care, compared to 23% in urban zones.

When examining healthcare access, 89% of women in urban settings attended at least four antenatal care visits, as opposed to 67% in rural regions. Notably, distance to health facilities was cited as a significant barrier by 76% of urban women and 52% in rural areas.

The use of traditional birth attendants was more prevalent in rural areas, with 32% reporting their services, while only 9% of urban women did the same. The data underscores pronounced disparities in maternal and neonatal care practices, access, and outcomes between urban and rural contexts in bangladesh.

Table 1: Comparative analysis of demographics, neonatal outcomes, socio-cultural determinants, and healthcare access between urban and rural settings in bangladesh.

Variables/Indicators	Urban	Rural
Demographics		
Average age (years)	28%	26.50%
Education (Secondary or higher)	68%	43%
Neonatal Outcomes		
Premature Births	22%	15%
Neonatal Complications	19%	13%
Socio-Cultural Determinants		
Following traditional childbirth practices	58%	76%
Lack of awareness about antenatal care	23%	41%
Access to Health Care		
Attended at least four antenatal care visits	89%	67%
Cited distance to health facility as barrier	76%	52%
Other Observations		
Use of traditional birth attendants	9%	32%

Comment [A1]: Age cannot be in % or the avg age should be mentioned in years or months

Comment [A2]: Needs clarity between these 2 indicators – when 67% attended atleast 4 ante natal visits – 76% still used the traditional child birth practices? In rural

Also in urban the same explanation is needed between these 2 indicators

Our results emphasize the critical role of socio-cultural determinants and accessibility to healthcare in influencing neonatal outcomes in bangladesh. Targeted interventions, considering these determinants, are essential to address the higher rates of premature births and related complications, especially in urban areas.

The table 2 delineates a comparison of demographic characteristics and neonatal outcomes between urban (n=500) and rural (n=500) mothers in Bangladesh. The mean age for urban mothers was 28 years with a standard deviation of 6.2, while it was 26.5 years with a standard deviation of 5.9 for their rural counterparts. Notably, a higher percentage of urban mothers (68%) had achieved secondary education or higher compared to rural mothers (43%), with this difference being statistically significant ($p<0.001$). Regarding neonatal outcomes, urban areas reported a higher percentage of premature births (22%) than rural areas (15%), with a p-value of 0.03. Similarly, 19% of neonates in urban settings experienced complications compared to 13% in rural settings ($p=0.04$). In terms of socio-cultural determinants, a significant majority (76%) of rural mothers followed traditional childbirth practices, which was notably higher than the 58% observed among urban mothers ($p<0.001$).

Table 2: Comparative Characteristics and Neonatal Outcomes between Urban and Rural Mothers in Bangladesh.

	Urban (n=500)	Rural (n=500)	p-value
Mean Age	**28 (SD=6.2)**	**26.5 (SD=5.9)**	
Secondary Education or Higher (%)	68	43	<0.001
Premature Births (%)	22	15	0.03
Neonatal Complications (%)	19	13	0.04
Traditional Practices (%)	58	76	<0.001

4. DISCUSSION

The current study provides vital insights into the disparities in neonatal outcomes and their socio-cultural determinants between urban and rural settings in Bangladesh. The significant incidence of premature births in urban regions (22%) compared to rural regions (15%) might

seem paradoxical, given the perceived better healthcare infrastructure in urban areas. However, these findings are consistent with prior research, indicating the complexities of urban life, such as stress, pollution, and lifestyle factors, may increase the risk of premature births [6].

A striking difference was observed in the adherence to traditional childbirth practices: 76% in rural areas compared to 58% in urban locales. Cultural beliefs, rooted in generations of customs and traditions, are often resistant to change and can significantly influence childbirth practices [7]. This highlights the importance of integrating culturally-sensitive health promotion strategies.

Comment [A3]: As the outcomes are better with traditional practices why the child birth practices should change to the urban way needs explanation?

Access to healthcare remains a pivotal challenge, especially in rural areas. Despite the commendable strides Bangladesh has made in healthcare [8], barriers such as distance and limited awareness continue to deter optimal maternal care in rural settings. Efforts should be geared towards strengthening the rural healthcare system and enhancing community awareness about the benefits of antenatal care.

While urban and rural areas in Bangladesh face unique challenges, it's evident that socio-cultural determinants play a pivotal role in influencing neonatal outcomes in both settings. A multi-pronged approach, addressing healthcare accessibility, education, and cultural beliefs, is essential to improve neonatal outcomes across the nation.

4. CONCLUSION

The disparities in neonatal outcomes between urban and rural areas in Bangladesh are influenced by a myriad of factors, including socio-cultural determinants and healthcare accessibility. The higher incidence of premature births in urban regions underscores the complexities of urban life, while adherence to traditional childbirth practices in rural areas points to the deep-seated cultural beliefs. Addressing these disparities requires a holistic approach that integrates culturally-sensitive health promotion, enhanced healthcare infrastructure, and targeted community awareness campaigns. A concerted effort in these areas will be pivotal in improving neonatal outcomes and maternal health across Bangladesh.

ETHICAL APPROVAL

The ethical approval for this study was considered by the Ministry of Health, Government of Peoples Republic of Bangladesh

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