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Predictors and Outcome of Surgical Repair of Obstetric Fistula at a Private Hospital of Dhaka City

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Abstract

Background: Obstetric fistula remains a significant public health issue in low-resource settings, with high prevalence in countries like Bangladesh. The condition often results from prolonged, obstructed labor, compounded by socio-cultural factors such as early marriage, financial constraints, and lack of access to skilled birth attendants. This study aimed to explore the socio-demographic characteristics and surgical outcomes of women undergoing fistula repair at a private hospital in Dhaka, Bangladesh. ***Methods:*** This observational descriptive study included 62 women who underwent obstetric fistula repair between September 2010 and September 2012. Data were collected on socio-demographic characteristics, fistula details, and surgical outcomes through a structured booklet completed at various stages of patient care. Surgical success, complications, and post-operative outcomes were analyzed to identify factors influencing recovery and success rates. ***Result:*** The study found that 100% of participants were married at an early age, with significant financial barriers reported by all. A majority (87.10%) had home deliveries attended by unskilled birth attendants. Surgical repair was successful in 88.71% of cases, with a small proportion (11.29%) of unsuccessful repairs. Residual stress incontinence was noted in 4.84% of participants. The mean hospital stay was 17.52 days, with 95.16% of participants requiring continuous catheterization for 7 to 10 days. ***Conclusion:*** The high success rate of surgical repairs is promising, but the persistence of socio-cultural barriers and residual complications highlights the need for improved access to maternal healthcare and enhanced post-operative care. Addressing these issues is critical for reducing the burden of obstetric fistula and improving outcomes for affected women.

Keywords: Obstetric fistula, surgical repair, socio-demographic factors, Bangladesh, maternal healthcare.

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INTRODUCTION

Obstetric fistula remains a significant public health challenge, particularly in low-resource settings, where access to timely and adequate maternal healthcare is often limited. Defined as an abnormal opening between the vagina and the bladder or rectum, obstetric fistula results primarily from prolonged, obstructed labor, where the sustained pressure of the baby's head on the maternal pelvis causes ischemic necrosis of the surrounding tissues. This condition, which predominantly affects women in developing countries, is not just a medical issue but a socio-economic and psychological burden as well. Global statistics reveal that obstetric fistula continues to affect millions of women, with a high prevalence noted in Sub-Saharan Africa and South Asia, regions characterized by inadequate healthcare infrastructure and cultural practices that often delay access to emergency obstetric care [1,2]. In Bangladesh, obstetric fistula persists as a critical issue, particularly in rural areas where healthcare resources are scarce, and traditional practices such as home births and early marriage are common. The prevalence of this condition in Bangladesh is exacerbated by socio-economic factors, including poverty, lack of education, and cultural norms that

discourage seeking timely medical help during childbirth [3–5]. Surgical repair is recognized as the primary treatment for obstetric fistula, offering the potential to restore continence and significantly improve the quality of life for affected women. The success of surgical interventions has been well-documented globally, with success rates ranging from 70% to 90% depending on various factors, including the expertise of the surgeon, the type of fistula, and the timing of the surgery [6,7]. In Bangladesh, similar success rates have been reported, particularly in specialized centers where experienced surgeons and adequate post-operative care are available. However, the variability in outcomes highlights the challenges that still exist in managing this condition effectively. The success of fistula repair is influenced by several patient-related factors, including age, parity, and socio-economic status, as well as fistula characteristics such as size, location, and the degree of scarring [8,9]. Studies have shown that older women, those with a history of multiple childbirths, and those who present with large, circumferential fistulas or severe vaginal scarring are at a higher risk of unsuccessful repair [10,11]. In Bangladesh, the challenges of surgical repair are compounded by the scarcity of skilled surgeons and well-equipped facilities, particularly in rural and low-resource settings. The complexity of the fistula, previous unsuccessful repair attempts, and the extent of vaginal scarring are significant predictors of surgical outcomes. In a study conducted in Ethiopia, severe vaginal scarring and a history of previous repairs were identified as key predictors of unsuccessful fistula closure, with similar findings reported in studies from Uganda and the Democratic Republic of the Congo [12,13]. These findings underscore the importance of having access to specialized surgical expertise and comprehensive post-operative care, which are often lacking in the Bangladeshi healthcare system. The predictors of surgical outcomes are critical in guiding clinical decision-making and improving patient care. Several studies have identified key predictors of successful fistula repair, including the size and location of the fistula, the degree of vaginal scarring, and the patient's socio-economic status. For instance, a study in Uganda found that large fistulas, circumferential fistulas, and severe vaginal scarring were significantly associated with unsuccessful repair, while another study in the Democratic Republic of the Congo highlighted the importance of early surgical intervention and the availability of specialized care in improving outcomes [14,15]. In Bangladesh, these predictors are influenced by the local context, including cultural practices such as early marriage and home births, as well as the socio-economic status of the patients. The lack of a standardized, evidence-based approach to fistula repair in Bangladesh further complicates the management of this condition, highlighting the need for more localized studies to inform clinical practices and improve outcomes. Despite the significant advances in surgical techniques and the availability of specialized care, gaps remain in the current research, particularly in low-resource settings like Bangladesh. The lack of standardized protocols and the variability in surgical outcomes underscore the need for further research to identify the most effective approaches to fistula repair in these settings. Moreover, the socio-economic and cultural factors that influence the success of surgical interventions need to be better understood to develop targeted strategies for improving access to care and ensuring successful outcomes for all women affected by this debilitating condition. In conclusion, obstetric fistula continues to pose a significant challenge in Bangladesh, particularly in rural and low-resource settings. While surgical repair offers the potential to restore continence and improve the quality of life for affected women, the success of these interventions is influenced by several factors, including the expertise of the surgeon, the characteristics of the fistula, and the socio-economic status of the patient. Addressing these challenges requires a comprehensive approach that includes improving access to specialized care, developing standardized protocols for fistula repair, and conducting further research to identify the most effective strategies for managing this condition in low-resource settings.

METHODS

This study employed an observational descriptive design, focusing on women diagnosed with obstetric fistula who sought treatment at the MAAM's Fistula & Birth Trauma Hospital from September 2010 to September 2012. A total of 62 patients were included in the study. These patients were assessed both pre-operatively and post-operatively to gather comprehensive data on socio-demographic characteristics, fistula characteristics, and surgical outcomes. Data collection was conducted meticulously through a prescribed booklet, which was filled out upon the patient's entry into the hospital and continued through the pre-operative, operative, and post-operative periods, including follow-up visits. The booklet served as a standardized tool to ensure that all relevant clinical and demographic information was systematically recorded for each patient. This included detailed records of socio-demographic factors such as age, marital status, parity, and socio-economic background. Additionally, clinical data regarding the characteristics of the fistula—such as its size, location, and degree of scarring—were meticulously documented. The assessment of surgical outcomes was performed using both immediate post-operative evaluations and follow-up assessments to determine the success of the repair and identify any complications, such as residual incontinence or fistula recurrence. This structured and continuous data collection approach ensured that the study captured a holistic view of the patient's journey from admission to post-surgical recovery, providing a robust dataset for analysis of the predictors and outcomes associated with obstetric fistula repair.

RESULTS

Table 1: Distribution of baseline socio-demographic characteristics among the participants (N=62)

Variable	Frequency	Percentage
Early marriage	62	100.00%
First childbirth age (15-18 years)	16.41±2.85	
Home delivery by unskilled birth attendant	54	87.10%
Blamed 'misfortune' for their misery	57	91.94%
Blamed husband/mother-in-law for not seeking healthcare	13	20.97%
Financial constraints for coming to hospital	62	100.00%
Illiterate	48	77.42%
Literate	14	22.58%

The socio-demographic characteristics of the 62 participants revealed significant insights into the background factors contributing to obstetric fistula among the study population. Notably, every participant (100%) reported being married at an early age, with the average age at first childbirth falling between 15 and 18 years. The overwhelming majority of participants (87.10%) had delivered their children at home under the care of unskilled birth attendants. A strong belief in misfortune as the cause of their condition was prevalent, with 91.94% attributing their suffering to bad luck. Additionally, 20.97% of the women blamed their husbands or mothers-in-law for not seeking timely healthcare, reflecting the influence of familial decisions on their access to medical care. Financial constraints were a universal barrier, with all participants (100%) reporting difficulty in affording hospital care. The educational background of the participants showed a high rate of illiteracy, with 77.42% of the women unable to read or write, while only 22.58% were literate.

Table 2: Distribution of surgical outcomes among the participants (N=62)

Outcome	Frequency	Percentage
Successful repair	55	88.71%
Unsuccessful repair	7	11.29%
Residual stress incontinence after repair	3	4.84%

The surgical outcomes for the 62 participants demonstrated a high rate of success in fistula repair. Specifically, 88.71% of the women (55 out of 62) underwent successful surgical repairs, indicating a favorable outcome for the majority of the participants. However, 11.29% (7 participants) experienced unsuccessful repairs, underscoring the challenges that remain in treating this condition. Additionally, 4.84% of the women (3 participants) who had successful fistula closures continued to suffer from residual stress incontinence post-repair, highlighting the complexity of achieving complete continence even after successful surgery.

Table 3: Distribution of surgical procedure details among the participants (N=62)

Surgical Detail	Frequency	Percentage
Operative time (1-1.5 hours)	19	30.65%
Operative time (1.6-3 hours)	38	61.29%
Operative time (>3 hours)	5	8.06%
Spinal anesthesia used	56	90.32%
Conversion to general anesthesia	6	9.68%
Repair route (vaginal)	62	100.00%

The surgical outcomes for the 62 participants demonstrated a high success rate, with 88.71% of the women achieving successful repair of their obstetric fistula. However, 11.29% of the repairs were unsuccessful, highlighting the challenges still present in managing complex cases. Additionally, 4.84% of the participants experienced residual stress incontinence following the repair, indicating a need for continued post-operative care and possibly further surgical intervention in these cases. Regarding the surgical procedures performed, the majority of the operations (61.29%) lasted between 1.6 and 3 hours, while 30.65% of the surgeries were completed in 1 to 1.5 hours. A small proportion (8.06%) of the procedures extended beyond 3 hours, reflecting the complexity of certain cases. Spinal anesthesia was predominantly used, being administered in 90.32% of the surgeries, while 9.68% of the cases required conversion to general anesthesia. Notably, all repairs were conducted via the vaginal route, demonstrating a consistent approach to fistula repair among the surgical team.

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Table 4: Distribution of post-operative outcomes among the participants (N=62)

Outcome	Frequency	Percentage
Total hospital stay (<21 days)	62	100.00%
Mean hospital day	17.52±6.27 days	
Continuous catheterization (7-10 days)	59	95.16%

The post-operative outcomes for the participants revealed a generally efficient recovery process. All 62 women (100%) had a total hospital stay of fewer than 21 days, with the mean duration of hospitalization being 17.52 days (±6.27). The majority of participants (95.16%) required continuous catheterization for a period of 7 to 10 days post-surgery, reflecting standard post-operative care practices aimed at promoting healing and preventing complications.

DISCUSSION

The findings of this study provide significant insights into the socio-demographic and clinical characteristics of women undergoing obstetric fistula repair in a private hospital in Dhaka, Bangladesh. The study highlights several key factors contributing to the persistence of obstetric fistula, including early marriage, financial constraints, and inadequate access to skilled birth attendants. Additionally, the study reports on the outcomes of surgical repair, emphasizing the high success rate and the challenges that remain in managing residual complications. The observation that all participants were married at an early age aligns with previous studies from similar low-resource settings, where early marriage is a prevalent factor contributing to obstetric fistula. Amodu *et al.,* (2017) noted that early marriage, coupled with unskilled birth attendance, significantly increases the risk of obstetric fistula, as young girls are more likely to experience obstructed labor due to underdeveloped pelvic bones and lack of access to timely medical interventions [16]. This trend was further compounded by the financial constraints universally reported by participants in the present study, a factor that has been consistently highlighted in the literature as a barrier to accessing necessary obstetric care. Audu *et al.,* (2008) similarly reported that financial barriers are a major hindrance to seeking timely medical attention, often leading to prolonged labor and the subsequent development of fistulas [17]. The average age at first childbirth among the participants in this study was between 15 and 18 years, a critical period that increases the risk of complications during delivery. This finding mirrors the data from studies in Northern Nigeria, where teenage pregnancies are common, and the lack of skilled birth attendants contributes to the high incidence of obstetric fistula [16]. The high percentage (87.10%) of home deliveries conducted by unskilled attendants in this study underscores the urgent need for improving access to skilled birth attendants, a factor that has been repeatedly identified as crucial in preventing fistulas. Mselle and Kohi (2016) emphasized the importance of skilled care during childbirth, noting that the absence of skilled birth attendants is directly linked to poor maternal outcomes, including fistulas [18]. The study also revealed that a significant portion of participants attributed their condition to misfortune, with some blaming their husbands or mothers-in-law for not seeking timely healthcare. This belief in misfortune as a cause of medical conditions is not uncommon in low-resource settings and has been reported in other studies, such as those by McFadden *et al.,* (2011), who found that socio-cultural beliefs and family dynamics significantly impact healthcare-seeking behaviors [19]. The prevalence of illiteracy among the participants (77.42%) further exacerbates this issue, as low literacy levels limit women's understanding of maternal health and their ability to advocate for timely medical care. Siddle *et al.,* (2016) similarly reported high rates of illiteracy among fistula patients, which contribute to delays in seeking care and a lack of awareness about the importance of skilled birth attendance [20]. The surgical outcomes reported in this study are encouraging, with an 88.71% success rate for fistula repairs. This is consistent with findings from other studies in similar settings, such as those reported by Kayondo *et al.,* (2011) in Uganda, where a success rate of over 80% was achieved [9]. However, the 11.29% of unsuccessful repairs and the 4.84% of patients who experienced residual stress incontinence highlight the challenges that persist in fistula management. Browning (2016) identified similar challenges, noting that factors such as the size and location of the fistula, as well as the presence of scarring, significantly influence the likelihood of successful repair and the risk of residual incontinence [21]. The duration of surgeries in this study varied, with the majority lasting between 1.6 and 3 hours. This is comparable to findings by Sori *et al.,* (2010) in Ethiopia, where the duration of fistula surgeries also varied depending on the complexity of the case [8]. The use of spinal anesthesia in 90.32% of the cases in the present study reflects a common practice in low-resource settings, where spinal anesthesia is often preferred due to its lower cost and reduced risk compared to general anesthesia. Ahmed *et al.,* (2016) reported similar findings in Northern Nigeria, where spinal anesthesia was used in all fistula repair surgeries [22]. Additionally, the consistent use of the vaginal route for repairs, as seen in this study, aligns with the practices reported by Lassey (2010), who emphasized the effectiveness of the vaginal approach in achieving successful outcomes [23]. Post-operatively, the total hospital stay for all participants was less than 21 days, with a mean duration of 17.52 days. This is relatively short compared to the findings by Hailu (2018) in Ethiopia, where the median recovery time was approximately 5.14 weeks [24]. The study's finding that 95.16% of participants required continuous catheterization for 7 to 10 days is consistent with the

recommendations from Barone *et al.*, (2012) and Barone *et al.*, (2015), who found that shorter catheterization periods can be as effective as longer durations without increasing the risk of repair breakdown [25,26]. In conclusion, the findings of this study contribute to the growing body of evidence on the factors influencing the occurrence and management of obstetric fistula in low-resource settings. While the high surgical success rate is promising, the challenges related to socio-cultural beliefs, financial barriers, and the availability of skilled care during childbirth underscore the need for comprehensive strategies to prevent fistulas and improve maternal health outcomes. Future research should focus on addressing these barriers and exploring ways to enhance the quality and accessibility of obstetric care in similar settings.

Limitations of The Study

The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community.

CONCLUSION

Obstetric fistula is predominantly a problem affecting women in rural areas and those who are primiparous and poor. The study observed a high success rate of approximately 89% following surgical repair. However, the analysis revealed that larger fistula size, circumferential fistulae, and significant vaginal scarring are critical predictors for successful fistula repair. Furthermore, it was noted that successful closure accompanied by stress incontinence is more likely in cases involving type IIb fistulas (those involving the urethra), circumferential fistulas, and those with extensive vaginal scarring. The findings also highlight the importance of having a specialized team, including experienced surgeons and anesthetists, in achieving successful surgical outcomes. Even in resource-limited settings, complex fistula repairs can be successfully performed in private hospital environments, demonstrating that with the right expertise, effective treatment is possible even under challenging conditions.

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Ethical approval: The study was approved by the Institutional Ethics Committee.

RECOMMENDATION

Preventing new cases of obstetric fistula is crucial, particularly through enhancing community awareness and education on the importance of skilled maternal care, targeting both men and women. The role of the media, especially electronic media, in raising awareness on a large scale cannot be overstated. Implementing the "three delays" model, which addresses delays in seeking care, reaching care, and receiving adequate care, is essential in preventing fistula cases. Furthermore, many patients require post-operative rehabilitation and reintegration, including life skills training, to improve their quality of life after surgery. There is a pressing need for more trained personnel specializing in fistula repair surgeries, as well as systematic approval and standardization of surgical procedures for fistula repairs. Dedicated post-operative care and patient counseling are also critical for successful recovery and long-term outcomes. Given the overburden on public hospitals, it is imperative for these institutions to take a proactive role in addressing the needs of women suffering from obstetric fistula, ensuring that even the poorest and most neglected women receive the care they need to rebuild their lives.

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