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ORIGINAL ARTICLE

Marital disruption among women with genital fistula in Nigeria: who is at greatest risk?

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Abstract

Introduction and hypothesis Marital disruption is a commonly identified sequela of genital fistula in developing countries. This study is aimed at identifying factors that correlate with marital outcomes.

Methods All new patients presenting to Evangel VVF Centre in Jos, Nigeria, between August 2015 and August 2017, were retrospectively reviewed with regard to demographics, medical history, and fistula details to identify variables correlating with marital status, particularly whether currently married or presently divorced, separated, or divorced and remarried (cumulatively the "divorce group").

Results Among 581 new patients, 66% were married and 18% experienced marital disruption. Presence of living children in the home and having attended any level of formal education were found to be protective of marriage (p values <0.0001 and 0.0045 respectively). Patients in the divorce group were more likely to have delivered a baby before the age of 18, be of Muslim background, and have a longer time since fistula formation (p values all <0.0001), as were those married younger than 18 and those whose fistula followed a vaginal delivery (p values 0.0015 and 0.0017 respectively).

Conclusion Several factors correlate with disruption of the marriage relationship. Patients at highest risk for marital disruption should be identified early and provided with interventions aimed at protecting their marriage and social support system.

Keywords Vesicovaginal · Fistula · Divorce · Marriage · Social consequences · Genital fistula

Introduction

Female genital fistula is an unnatural communication occurring between her genital tract and the urinary or gastrointestinal tract, or both. In the developing world, such injuries are most commonly the result of prolonged obstructed labor, a situation where during labor the fetus becomes stuck in the birth canal for a prolonged period, causing ischemic damage, which eventually results in necrosis and fistula formation. The end consequence is constant leakage of urine, feces, or both.

Although the physical damage and outcome are bad enough, it is well recognized that the impact of vesicovaginal fistula (VVF) or rectovaginal fistula (RVF) extends far beyond the woman's pelvis alone, as most of these women also endure psychological, social, and economic hardships as a result of their fistula [1–5]. This can be particularly problematic among cultures that are strongly community-oriented, as most tend to be in the areas of highest fistula prevalence [6–8]. One easily recognized loss of social support occurring frequently among women enduring fistula is loss of the marital relationship—divorce or separation from their husband—despite the fact that most fistulas can be successfully treated.

While much attention in fistula research has been rightly focused on finding the best means of correcting the physical problem and stopping leakage, some have reported marital statistics among fistula patients they have been studying, with widely varying results. Divorce rates quoted in fistula literature range from 10.4 to 54% among women enduring fistula [1, 3, 5, 9–14]. Although not widely studied, geography, cultural and social mores, and even property ownership have been postulated to have an impact on the likelihood of marital success following fistula [3, 5, 12, 15]. Yet, the factors that are truly influential on which patients get divorced and which do not remain unclear.

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The purpose of this study is to address this question with the hope that by identifying the factors correlated with marital success or dissolution, care can focus on marriages that are at a high risk for divorce, in efforts to protect them and facilitate the critically needed support women enduring fistula need during their recovery process.

Materials and methods

A retrospective review was undertaken of all women who presented to the clinic at Evangel VVF Centre (EVC) for the first time between August 2015 and August 2017. EVC is located in Jos, Nigeria at Bingham University Teaching Hospital (BHUTH), in the country's geopolitical Middle Belt. Women presenting to clinic for follow-up visits were excluded. Approval for this study was granted by the institutional review board of BHUTH. Informed consent from each patient was waived as only routinely collected, de-identified data, which was already in the hospital database, was used for this study.

Data collected include demographics such as age, hometown, education level, religious affiliation, and marital status; in addition to medical history, including parity, pregnancy outcomes, and fistula details. Fistulas were categorized as "obstetric" or "non-obstetric." Obstetric fistulas resulted from injuries of childbirth such as obstructed labor, birth trauma, uterine rupture, and cesarean section. Non-obstetric fistulas include those caused by non-obstetric surgeries, trauma, sexual assault, traditional medicine, or congenital anomalies.

There is notable confusion among most of our patients between the legal terms "divorced" and "separated." For that reason, in comparing married women with those whose marriages had broken down, we compiled all those who reported being divorced, separated, or divorced and remarried, as a single group, which we refer to as the "divorce group."

The data were compiled in Excel for initial evaluation and then analyzed using JMP, Version 13 (SAS Institute, Cary, NC, USA). Categorical data were viewed as number and percentage, whereas continuous data were given as mean and standard deviation. Chi-square or *t* tests were used to examine relationships between categorical or continuous data respectively. Odds ratios with 95% confidence intervals were calculated comparing categorical data sets with marital status. For the purposes of this study, *p* values less than 0.05 were considered statistically significant.

Results

From August 2015 to August 2017, a total of 581 new patients presented to EVC with fistula complaints. The inciting etiology was obstetric in 83% of these cases (482), with stillbirth or perinatal loss being reported in 81% of those with an obstetric cause (389).

The average patient presenting was 29.8 years of age, with most patients coming from the middle or north of the country and having little or no formal education. Slightly over half of patients were from Muslim backgrounds. Most were in monogamous marital settings, with the average age at first marriage being 18, although some were married as young as 10 years. The average number of living children was 1.97 per patient. Patients had been leaking from their fistulas, on average, for more than 50 months. Demographic, marital, and fistula information is presented in Table 1.

The majority of patients were married at the time of presentation (385, 66.3%), whereas 6.4% (37) were widowed and 9.1% (53) had never married. Those in the divorce group numbered 106 (18.2% of all patients), including those who reported their marital status as divorced, separated, or divorced and remarried.

Age at presentation, marriage type (monogamous or polygamous), fistula etiology (obstetric or non-obstetric origin), and whether the patient was leaking urine or feces were similar between the married and divorce groups. Those who were currently married had higher parity (4.1 vs 2.2), more living children (2.3 vs 0.8), and had been leaking a shorter time before presentation (34.8 vs 79.3 months). Table 2 compares variables between the two groups and statistical associations between them.

Age at first marriage and age at delivery that caused the fistula were both found to be significant in relation to marital status. Marriage before the age of 18 was associated with a two-fold increase in divorce risk (OR 2.157, 95%CI 1.346–3.459), and those who delivered before the age of 18 were four times more likely to be in the divorce group (OR 4.001, 95%CI 2.245–7.132). Mode of delivery of the index pregnancy was also associated with marital status. Patients who underwent vaginal delivery were twice as likely to be in the divorce group than those who delivered by cesarean (OR 0.4817, 95%CI 0.3047–0.7615).

The presence of living children in the household correlated strongly with marriage survival. Only 35.3% of those in the divorce group (36) had any living children, compared with 72.9% of those who were currently married (277). This amounts to a nearly five-fold increased risk for divorce among those who do not have any living children (OR 4.9304, 95%CI 3.0974–7.8481).

Marital disruption was more common among patients from Muslim backgrounds. Three quarters of women who were enduring divorce or marital separation were Muslim (79, 75.2%), compared with just over half (198, 51.8%) in the married group. Looking at each religious group separately, 28.5% of Muslim patients were in the divorce group (79), compared with 12.4% of Christian patients (26). Muslim patients were roughly three times more

Table 1 Demographics and patient history among 581 consecutive new patients presenting to Evangel VVF Centre (EVC)

Demographic	*n*	% or SD
Age	29.8	11.504
Range 0.9–74		
Marital status		
Married	385	66.3
Divorce group	106	18.2
Divorced	59	
Separated	33	
Remarried	14	
Widowed	37	6.4
Never Married	53	9.1
Religious affiliation		
Muslim	304	52.3
Christian	270	46.5
Other	7	1.2
Education		
None or Koranic only	350	60.2
Any primary	121	20.8
Any secondary	86	14.8
Any post-secondary	18	3.1
Unknown	6	1.0
Geopolitical Zone		
Middle Belt	229	39.4
North East	186	32.0
North West	160	27.5
South South	3	0.5
South East	2	0.3
Unknown	1	0.2
Age at first marriage (range 10–36)	18.0	4.013
Marriage type		
Monogamous	305	59.9
Polygamous	204	40.1
Never married	53	
Unknown	19	
Age at index delivery (range 10–48)	25.7	7.234
Number of living children (range 0–9)	1.97	2.127
Number of months with fistula (range 0.25–384)	50.4	75.547
Previous repair attempts elsewhere?		
No	430	74.0
Yes	151	26.0

likely to be divorced than those reporting Christian affiliation (OR 2.824, 95%CI 1.736–4.593).

The patient's level of education and the survival of the child in deliveries resulting in fistula were both found to *decrease* the risk for marital disruption. Educational attainment was found to be significantly disparate between the groups at every educational level (statistics not shown). Looking specifically at the impact of *any* level of education found that having attended any formal education from even 1 year of primary schooling upward was associated with a two-fold reduction in the risk for divorce (OR 0.4920, 95%CI 0.3038–0.7967). Similarly, when the baby survived the delivery, the patient was more than twice as likely to remain married (OR 0.4264, 95%CI 0.2041–0.8909).

Discussion

Women who sustain vesicovaginal or rectovaginal fistula endure much more than the physical torment of leaking urine or feces. Along with the dissolution of their normal anatomy and physiology, many face incredible pressures in their communities and families, with marriages frequently being directly impacted [1, 5, 8, 14, 15]. Marital status has been shown elsewhere to have a significant impact on quality of life among women who have had fistulas, with divorce and separation significantly increasing such a woman's risk for impaired mental health [15]. Among our patients presenting to the Evangel VVF Centre for initial evaluation, over 18% were already divorced or separated from their husbands.

We found that many factors correlated significantly with divorce. Among these, the greatest impact by far in our population was the presence or absence of any living children within the home. Having any living children, regardless of whether or not it was from the pregnancy that caused the fistula was associated with a nearly five-fold increased chance of remaining married ($p < 0.0001$). This seems explicable, as the presence of a child resultant from that marriage would provide many a significant draw to remain within the institution, whereas in certain cultural settings a man may see his wife as primarily a source of children, which may predispose them toward divorce in settings where that has failed in addition to causing a fistula. Parity was also significantly different between those who were or were not still married (4.1 vs 2.2 deliveries), although this impact on marriage is likely more a result of the presence or absence of living children, as women with higher parity are also more likely to have any children presently alive ($p < 0.0001$).

The correlation of marital status with living children is comparable with a smaller study in Northern Nigeria from the 1980s, which found that of 100 fistula patients, divorce rates were notably higher among those who did not have any living children [5]. In that paper, the divorce rate among women with any living children was 14% compared with 36% among those without any living children, 2.5 times more. In comparison, among our patients, 12% with any living children and 39% without were in the divorce group, 3.25 times more.

Being from a Muslim religious background, lack of education, first marriage at less than age 18, and childbirth before age 18 were all significantly associated with an increased risk

Table 2 Comparison of variables among patients in the divorce and married groups

Characteristic	Divorce group ($N = 106$)	Married group ($N = 385$)	p Value	Odds ratio (95% CI)
Age	29.04 ± 9.31 (15–58)	30.49 ± 9.83 (15–70)	0.1744	
Religious affiliation				
Muslim	79 (75.2)	198 (51.8)	<0.0001	2.824 (1.736–4.593)
Christian	26 (24.8)	184 (48.2)		
Education				
None	79 (74.5)	226 (59.0)	0.0045	2.033 (1.256–3.292)
Any	27 (25.5)	157 (41.0)		
Age at first marriage				
<18 years	73 (70.9)	194 (53.0)	0.0015	2.157 (1.346–3.459)
18+	30 (29.1)	172 (47.0)		
Marriage type				
Monogamous	52 (52.0)	229 (61.1)	0.1097	0.691 (0.443–1.077)
Polygamous	48 (48.0)	146 (38.9)		
Fistula etiology				
Obstetric	95 (89.6)	350 (90.9)	0.6875	0.8636 (0.423–1.764)
Non-obstetric	11 (10.4)	35 (9.1)		
Age at delivery				
<18 years	27 (28.1)	31 (8.9)	<0.0001	4.001 (2.245–7.132)
18+	69 (71.9)	317 (91.1)		
Fetal outcome				
Alive	9 (9.5)	67 (19.7)	0.0214	0.426 (0.204–0.891)
Dead	86 (90.5)	273 (80.3)		
Leakage				
Urine	89 (96.7)	339 (92.9)	0.2330	0.440 (0.130–1.485)
Feces	3 (3.3)	26 (7.1)		
Number of months leaking	79.3 ± 78.6 (0.25–360)	34.8 ± 64.5 (0.1–384)	<0.0001	
Number of living children	0.8 ± 1.4 (0–7)	2.3 ± 2.1 (0–9)	<0.0001	
None	66 (64.7)	103 (27.1)	<0.0001	0.203 (0.127–0.322)
Any	36 (35.3)	277 (72.9)		
Mode of delivery				
Vaginal	55 (57.3)	137 (39.3)	0.0017	0.482 (0.305–0.762)
Cesarean	41 (42.7)	212 (60.7)		
Total parity	2.2 ± 2.0 (0–10)	4.1 ± 3.0 (0–16)	<0.0001	

*Statistics given are n (%) or $n \pm$ SD (range)

for divorce (OR 2.8, 2.0, and 2.2, and 4.0 respectively). Although each of these factors is individually significant, they may be united under cultural norms within patient populations coming from Northern Nigerian tribes. Cultures in this area are predominantly Muslim, have lower rates of formal education, and earlier ages of female marriage and childbirth. Among our patients in this study, 82.3% of those reporting Muslim affiliation also reported having no formal education, compared with 35.6% of patients from a Christian background. Similarly, marriage before the age of 18 was more common among Muslim women than among Christian women in this study (72.9 vs 35.7%).

The length of time of leakage was also significantly higher among women in the divorce group (79.3 months vs 34.8 months, $p < 0.0001$). It has been recognized in other research that divorce rates increase over time, if the fistula is not corrected [1, 5]. Our data may indicate a window of time within which interventions aimed at counseling patients and

their families may have a greater impact on preserving marriages. Further research in this area is warranted.

Curiously, mode of delivery was also found to be associated with marital status. Those whose deliveries were vaginal were twice as likely to be divorced as those who were delivered by cesarean section, regardless of whether or not that child survived ($p = 0.0017$). In many Nigerian situations, transferring a laboring woman to the hospital or allowing the woman to undergo a cesarean can only be undertaken with consent from the husband. As such, this may indicate that those men who did not allow their wives to be taken to the hospital or to have a cesarean delivery in a timely fashion were already less invested in their marriage, and may therefore be quicker to terminate a marriage that ends in fistula development. It is also possible that families who are the poorest, and therefore unable to access proper medical care, may also be more likely to divorce, although we were not able to assess the economic status of each family unit in this study. We hope to investigate this further in future studies.

It is worth mentioning that there was no significant difference in marital outcomes between women whose fistula was obstetric and those of non-obstetric etiologies. As a growing number of women with non-obstetric fistulas present to fistula centers like ours, it is important we recognize that marital disruption among patients with fistula is not solely limited to those with obstetric causes.

Reported divorce rates among women with fistula have been widely varied. Even within a single study investigating two neighboring regions found a wide disparity in divorce rates (52 vs 25%, [3]), although one large meta-analysis put the divorce and separation rate at 36% [1]. Our study's finding of a divorce rate of 18% is a small decrease from the reported rate of 20% at our institution over a decade ago [13]. This is a seemingly encouraging decrease; however, this difference may not reflect any true social change, as the divorce rates have increased in comparison with a 14% rate of divorce among new fistula patients presenting to another Northern Nigeria fistula center in the 1970s [5].

Limitations of this study include the retrospective nature of the study, particularly from the point of arrival at our fistula center. Those who are already divorced at the time of presentation are, in many cases, beyond the point where attempts to protect or repair marital relationships is feasible. As such, these data should be used with an eye to identify patients at highest risk for divorce at the earliest possible point, ideally to aim interventions at protecting and restoring marriages immediately upon development of fistula. Also because of its retrospective design, correlations identified in this study cannot be confirmed as definitively causative to the disruption of the marriage institution, but only as related factors. Future studies comparing prospective interventions aimed at these factors may clarify those that are truly disruptive and may be addressed to protect marriages.

Certainly the best case is to prevent fistula formation altogether, but, in the absence of that, we posit that delaying marriage and childbearing until age 18 or higher, formal education for girls, educating communities and husbands on safe deliveries, and education on the treatability of genital fistula could all serve to both minimize fistula formation and to protect the marriages involved.

Conclusion

Patients at highest risk for marital disruption need to be identified early and provided with counseling (personal and family) to help expedite finding treatment for their fistula and to protect marriages and social support systems.

Compliance with ethical standards

Conflicts of interest None.

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