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The Obstetric Fistula Cases Affecting Women of Childbearing Age in Keysaney and Deynile Hospitals in Mogadishu, Somalia

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Age.

The categorical variables were subjected to descriptive nonparametric inferentials before being presented in a table format. For all analyses, p-value less than five percent were taken as significant. The effect of FGM on mode of delivery: the odds of delivering spontaneous vaginal delivery were 1.25 times higher but not significantly so for mothers who underwent FGM than for those who delivered on assisted vaginal delivery. The same is true of spontaneous vaginal delivery against the caesarean delivery with FGM. Also, the odds of developing spontaneous vaginal delivery had been 4 times higher in those who underwent a caesarean section. Finally, developing rectovaginal fistula was significantly higher in those delivered with assisted vaginal delivery than the mothers who underwent caesarean procedure. The effect of the age ranges (18-25, 26-30, and 31-39) of the mothers on the delivery mode was tested and found no significant correlations. In conclusion, tackling obstetric fistula in Somalia, efforts have failed to reach the most vulnerable. Funding, preventive treatment, and training for local doctors and nurses are crucial. Also, there is a need for increased access to birth control services.

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INTRODUCTION

The Obstetric fistula (OF) is a condition/child birth injury that happens for the duration of prolonged unrelieved obstructed labor, leading to injury during childbirth, resulting in an abnormal opening between the vagina and the bladder (Vesicovaginal fistula) or rectum (rectovaginal fistula). While rare in affluent nations, the illness is a prevalent birth-related complication in developing nations.¹² Moreover, women suffer OF frequently encounter difficulties getting the right medical care and face limited economic opportunities. In Somalia, due to the turbulent conflict since the 1990s, though now in the process of recovering, women and children in particular have been victims of the drawn out crisis with certain highest maternal, neonatal and child mortality rates. Thus, due to the scarcity of human resources, specifically the lack of skilled medical staff, families customarily use traditional birth attendants (TBAs). As a result, mothers, particularly the overwhelming majority in the nomadic living style, suffer labor dystocia.^{1,3} This can occur in the second stage of labor when the baby is overly huge, the pelvis is too small, or there is a malpresentation, making it impossible for the fetus to pass down the birth canal. If obstructed labor is identified early and, if necessary, prompt intervention is carried out, which frequently involves performing a caesarean section, fistula can be totally avoided.⁴

As a result, it causes chronic urine or faecal incontinence, which isolates and humiliates the mother in society. While the condition is uncommon

in affluent countries, it is a common birth-related problem in developing countries.^{1,2-5} Additionally, they are often associated with a number of comorbidities, such as pelvic inflammatory disease, vaginal stenosis, infertility, osteitis pubis, and renal failure.⁶ Additionally, women with OF often experience challenges in accessing appropriate medical care and face limited economic opportunities. Although the exact prevalence rates in Somalia are unknown, the main risk factors for the conditions that are commonly reported—such as the place of birth and the absence of a trained birth attendant, the length of labor and the lack of a partograph, the lack of prenatal/family care, early marriage and young age at delivery, older age, the absence of family planning, and a number of other poorly defined additional factors—make the aforementioned Somalian pregnant women more likely to have OF.^{7,4}

There are few trustworthy statistics on the frequency and burden of OF. The prevalence estimate that is most frequently used is two million cases globally and 50,000 –100,000 new cases annually. Appropriately, the mainstream of study remain facility/capacity-based, and the handful that are population-based might not have been appropriate for correctly diagnosing OF.⁸ The diagnosis of OFs is done clinically through a pelvic exam verified by a dye test or cystoscopy and the treatment is mainly surgical through transvaginal or trans abdominal techniques.⁹ In Somali, Fistula diagnosis and subsequent repair Campaign has been

on since late 2021 at the Dayniile and Keysaney Hospitals in Mogadishu. Consequently, OF have been found to be one of the most devastating birth injuries and is a common ailment throughout Somalia. The wide age range of individuals served by the campaign highlights the significant need for OF repair procedures in the nation.¹⁰ While progress has been made to address OF in Somalia, interventions have often failed to reach those most in need, particularly in hard-to-reach areas. Secondly, its an international expert surgeon, anesthetists and scrub nurses who perform the surgeries. Nevertheless, the nation is actively engaged in the effort to eradicate OF, as previously mentioned in difficult situations, with the goals of preventing OF, treating those who experience it, supporting their rehabilitation and reintegration, and promoting evidence-based resource mobilization.

The objectives of the study

The purpose of this study is to determine, from a national viewpoint, the risk aspects for fistula formation in women of childbearing age at the Deynile and Keysaney hospitals in the Mogadishu region. One of the primary objectives was to analyze the sociodemographic details of patients visiting both hospitals in order to identify risk factors for fistula formation. Furthermore, to examine the outcomes from cures for patients who recuperated at both hospitals before and following surgery for the illness. Ultimately, the goal is to raise awareness of OF among medical professionals and support groups, emphasising the importance of primary prevention by raising awareness of the problem in both urban and rural areas. In order to prevent and treat the ailment in Somalia, the study aims to provide insight into the underlying causes of the disorder.

METHODOLOGY

This study's main goal was to examine the contributing factors to the prevalence of obstetric fistula in Deynile and Keysaney hospitals in the

Deynile and Karaan districts of the Mogadishu region in particular and Somalia in general. The study was undertaken in two purposefully selected hospitals located in the Deynile and Karaan districts of the Mogadishu region by the Medical University of Al-Hayat, Department of Midwifery. A survey and data collection were conducted on 40 females in various age groups who experienced OFs in one way or another. A cross-sectional investigation was conducted to determine if the longitudinal effect of potential exacerbating factors such as FGM, or female genital mutilation, and mode of delivery had to sustain OF (vesicovaginal, rectovaginal, or a combination of both) and finally found out whether it's been repaired in the intervening period.

Data analysis

The data from the respondents were analyzed using Microsoft Excel; descriptive percentages and frequencies, nonparametric inferentials such as the χ^2 test and percentage analysis were applied to the categorical variables in Excel, SPSS, and R, then displayed as a chart layout. Furthermore, odds ratio and 95% confidence interval (CI) were also computed to infer the degree of association of the risk factors with OF among the respondents to gauge the matter in Somali-wide. For all analyses, a p-value of 0.05 and less was taken as significant, and the result was presented in table format.

RESULTS

Sociodemographic Features of the Participants.

Women with OF, 40 in total, were interviewed on their individual characteristics and reproductive health conditions, such as the mode of delivery, the type of OF incurred (vesicovaginal, rectovaginal, or a combination of both), and whether it's been repaired or otherwise in the intervening period, which has been catalogued in a systematic fashion in both Deynile and Keysaney Hospitals of the Mogadishu region. Three age ranges were used to categorise the survey respondents, and it was determined whether or not the individual age ranges

differed noticeably from one another. A single-factor analysis of variance was used to look at the age group differences, and the findings indicated that each of the three age categories differed significantly from one another ($p\text{-value} = 1.92 \times 10^{-5}$ @ 95% CI). To prove that the 18–25 age groups differ significantly from the others, a post hoc test was conducted, as there is no significant difference between the 26–30 and 31–39 age brackets with a

significance of 5.56×10^{-1} (Table 1). Among 40 respondents, only 25% had an occupation, while the rest (75%) of them had no employment at the time, with a $p\text{-value}$ of 2.14×10^{-8} . Due to the fact that 62.5% of OF sufferers, with a significance of 8.53×10^{-16} @ 95% CI, had no formal education, this could help to clarify that the higher frequency of OF happens for women who are unemployed.

Table 1: Socio-demographic characteristics of the study participants.

Variables	Scoring	Frequency(/%)	P-value
Age			
18-25	1	22 (55.0)	1.92×10^{-5}
26-30	2	10 (25.0)	5.56×10^{-1}
31-39	3	8 (20.0)	
Occupation			
Yes	1	10 (25.0)	
No	2	30 (75.0)	2.14×10^{-8}
Marital status of respondents			
Married	1	22 (55.0)	2.93×10^{-13}
Divorced	2	12 (30.0)	
Single	3	2 (5.0)	
Widowed	4	4 (10.0)	
level education of respondents			
		18-25	
None	1	25(62.5%)	8.53×10^{-16}
lower primary	2	14(35%)	4.11×10^{-5}
Secondary	3	1 (2.5%)	

Bivariate logistic regression analysis

After adjusting for the other independent variables, the impact of each one on women's OF status was examined using logistic regressions. As a result, the following factors were examined and presented in a table format: the likelihood of FGM on the mode of delivery (spontaneous vaginal delivery, assisted vaginal delivery, or caesarean delivery); the significant correlations between the type of fistula and the mode of delivery; the impact of the mothers' ages on the mode of delivery; and, lastly, whether or not the mother's OF was repaired on the type of fistula or vice versa. And, accordingly, comprehend if the tested attributes had significant associations with each other at 95% CI. As a result, in testing the

impact of FGM on mode of delivery, the odds of spontaneous vaginal delivery parturition were 1.25 (1.22, 1.66) times higher, though the variance was not significant, for those mothers who underwent FGM in their early ages than for those who delivered their babies by assisted vaginal delivery and escaped the tradition, with a significance ($p\text{-value}$) of 7.8×10^{-1} . The same is true when tested spontaneous vaginal delivery against the cesarean section delivery and suffered FGM with $p\text{-value}$ of 5.1×10^{-1} @95% CI (2(-1.55,2.53). Once again, assisted vaginal delivery and suffering from FGM or not were regressed against caesarean delivery, and the result was the former had been 1.6 higher in the prior condition @ 95% CI (-1.48, 2.42) as per Table 2.

Table 2: The effect of FGM on mode of delivery

Variables				Conditions		Bivariate analysis OR (95% CI)	χ^2	p-value
				Undergone FGM				
Mode of delivery				Yes	No			
spontaneous vaginal delivery				14	7	1.25 (-1.22, 1.66)	0.08	7.8X10 ⁻¹
Assisted vaginal delivery				8	5	Reference	Reference	
				Yes	No			
spontaneous vaginal delivery				14	7	2(-1.55,2.53)	0.36	5.5X10 ⁻¹
cesarean delivery				3	3	Reference	Reference	
				Yes	No			
Assisted vaginal Delivery cesarean delivery				8	5	1.6(-1.48, 2.42)	0.20	6.5X10 ⁻¹
				3	3	Reference	Reference	

When comparing women who gave birth naturally to those who had a caesarean section, the likelihood of spontaneous vaginal delivery was four times higher (1.96, 4.37) for those who had a caesarean section, and the odds of suffering OF were 0.44 times higher at (0.12, 1.57) 95% CI with a p-value of 2.0X10⁻⁵ in those who delivered their child via spontaneous vaginal delivery compared to those

who delivered their child via assisted vaginal delivery. Finally, the likelihood of developing a rectovaginal fistula was 3 (1.67,4.09) times higher in those who delivered their child with assisted vaginal delivery compared with the mothers who underwent caesarean procedure with a significance of 2.16X10⁻³ (Table 3).

Table 3: The influence Fistula type on the mode of delivery

Variables	Conditions		Bivariate analysis OR (95% CI)	χ^2	p-value
	Mode of delivery				
Fistula type	spontaneous vaginal delivery	Assisted vaginal delivery			
Vesicovaginal fistula	16	1	0.44(0.12, 1.57)	18.15	
rectovaginal fistula	3	12	Reference	Reference	2.0X10 ⁻⁵
	spontaneous vaginal delivery	cesarean delivery			
Vesicovaginal fistula	16	1	4(1.96,4.37)	12.09	
Combined	1	4	Reference	Reference	5.1X10 ⁻⁴
	Assisted vaginal Delivery	cesarean delivery			
rectovaginal fistula	12	1	3(1.67,4.09)	9.41	
Combined	1	4	Reference	Reference	2.16X10 ⁻³

Further analysis was performed to test the effect of the age of the mothers on the mode of delivery. With a p-value of 6.2X10⁻¹ at 95% CI, the odds of being

in the 18–25 age range were slightly higher at 0.46 (-1.3, 2.21) but not statistically significant when compared to the 26–30 age range. The same has

been true when tested spontaneous vaginal delivery verses cesarean delivery and assisted vaginal delivery in the aforementioned two age brackets with odds ratios of 1.56 (-1.3, 2.21) and 1.30 (-1.72, 2.25), and p-values of 8.0×10^{-1} and 7.4×10^{-1} ,

respectively (Table 4). The rest of the combination as far as the mode of delivery and the effect of age ranges of the mothers tested on the Mode of delivery all shown that no significance among them as per table 5.

Table 4: The influence of age of the mothers on the Mode of delivery

Variables	Conditions		Bivariate analysis		
	Mode of delivery		OR (95% CI)	χ^2	p-value
Age	spontaneous vaginal delivery	Assisted vaginal delivery			
18-25	13	5	1.56 (-1.3, 2.21)	0.25	6.2X10 ⁻¹
26-30	5	3	Reference	Reference	
	spontaneous vaginal delivery	cesarean delivery			
18-25	13	4	1.30(-1.72, 2.25)	0.07	8.0X10 ⁻¹
26-30	5	2	Reference	Reference	
	Assisted vaginal Delivery	cesarean delivery			
18-25	5	4	0.83(-2.40, 2.04)	0.03	8.7X10 ⁻¹
26-30	3	2	Reference	Reference	
	spontaneous vaginal delivery	Assisted vaginal Delivery			
18-25	13	5	1.30(-1.72, 2.25)	0.07	8.0X10 ⁻¹
31-39	4	2	Reference	Reference	
,	spontaneous vaginal delivery	cesarean delivery			
18-25	13	4	1.75(-1.47, 2.59)	0.30	6.4X10 ⁻¹
31-39	4	2	Reference	Reference	
	Assisted vaginal delivery	cesarean delivery			
18-25	5	4	1.25(-2.14, 2.58)	0.11	7.4X10 ⁻¹
31-39	2	2	Reference	Reference	
	spontaneous vaginal delivery	Assisted vaginal Delivery			
18-25	5	3	0.83(-2.40, 2.04)	0.03	8.7X10 ⁻¹
31-39	4	2	Reference	Reference	
	spontaneous vaginal delivery	cesarean delivery			
26-30	5	4	1.25-2.14, 2.58)	0.03	8.5X10 ⁻¹
31-39	2	2	Reference	Reference	
	Assisted vaginal delivery	Assisted vaginal delivery			
26-30	3	2	1.50 -2.25, 3.06)	0.09	7.6X10 ⁻¹
31-39	2	2	Reference	Reference	

Further testing has been performed on the influence of fistula type on the respective age brackets, and the odds of incurring Vesicovaginal fistula type is

0.4 times higher in those in the age bracket between 18 and 25 compared with those sustained rectovaginal fistulae and in the age bracket of 26 to

30 at (0.041, 4.82) 95%CI with a *p-value* of 1.44×10^{-7} . That's also true when regressed Vesicovaginal fistula to Combined, and rectovaginal fistula to Combined with a *p-values* of 5.1×10^{-4} and 2.16×10^{-3} @ 4(1.96,4.37) and 3(1.67,4.09) respectively.

Table 5: The effect of Fistula type on the respective age bracket

Variables	Conditions		Bivariate analysis OR (95% CI)	χ^2	p-value
	Age				
Fistula type	18-25	26-30			
Vesicovaginal fistula	16	1	Reference	Reference	
rectovaginal fistula	3	12	0.4(0.041, 4.82)	27.67	1.44X10 ⁻⁷
	18-25	31-39			
Vesicovaginal fistula	16	1	Reference	Reference	
Combined	1	4	4(1.96,4.37)	12.09	5.1X10 ⁻⁴
	26-30	31-39			
rectovaginal fistula	12	1	Reference	Reference	
Combined	1	4	3(1.67,4.09)	9.41	2.16X10 ⁻³

Based mother's record on whether the mother's OF was repaired or not was regressed against the type of fistula mother suffered during the delivery. The odds of the mother having undergone repaired procedure were 0.81 times higher than not getting the opportunity to be healed from both types of OF, never the less, the result is not significant with a *p-*

value of 8.0×10^{-1} at 95% CI (-0.44, 2.06). Also, by looking at those suffered vesicovaginal fistula and rectovaginal fistula and the mothers suffered combination of both and repaired were 1.75 and 2.17 times higher than not repaired ones with a with *p-values* of 3.5×10^{-3} and 1.9×10^{-2} at 95% CIs (0.56, 2.59) and (0.77, 2.88) respectively.

Table 6: The effect of the mother's OF was repaired or not on the type of fistula the mother suffered during the delivery.

Variables	Conditions		Bivariate analysis OR (95% CI)	χ^2	p-value
	Fistula type				
Repaired	vesicovaginal	rectovaginal			
Not repaired	fistula	fistula			
repaired					
Repaired	14	13	0.81(-0.21, 1.46)	0.06	8.0X10 ⁻¹
Not repaired	4	3	Reference	Reference	
	Vesicovaginal	Combined			
	fistula				
Repaired	14	4	1.75(0.56, 2.59)	0.30	5.9X10 ⁻¹
Not repaired	4	2	Reference	Reference	
	rectovaginal fistula	Combined			
Repaired	13	4	2.17(0.77, 2.88)	4.74	
Not repaired	3	2	Reference	Reference	1.9X10 ²

DISCUSSIONS

Obstetric trauma is the main cause of vesicovaginal and rectovaginal fistula formation in developing countries. Somalia as an underdeveloped nation has

been in a long and protracted internecine civil strife that has disproportionately affected women and children, who have among the highest rates of maternal, newborn, and child mortality worldwide.

Among other things, obstetric trauma is the primary cause of vesicovaginal and rectovaginal fistula formation.¹⁰ Worldwide, there are more than 0.5 million cases of obstetric vesicovaginal fistulas unaccompanied; rectovaginal fistulas account for 1% to 8% of cases, while mixed vesicovaginal and rectovaginal fistulas account for 1% to 23% of cases. The mechanism of injury in OF is a pressure necrosis following prolonged obstructed labour, Obstetrical maneuvers in precipitous delivery, and sometimes following elective abortions.¹¹ Women with OFs in the study, 40 in total, were interviewed on their background characteristics as well as reproductive health issues, which have been catalogued in a systemic fashion in both Deynile and Keysaney Hospitals of the Mogadishu region.

The age groups, as aforementioned in the above, of the survey participants were divided into three ranges, and it had been determined whether or not the individual age ranges differed noticeably from one another in the conditions investigated. Among 40 respondents only 25% had occupation, while the rest (75%) of them had no employment at the time, thus ostensibly not afford to obtain treatment. This may help to explain why women without jobs have a higher incidence of OF; hence, there may be a correlation between the prevalence of OF patients and the low educational attainment that underlies the top unemployment rate (62.5%). As a consequence, an estimated over one million women and girls potentially enduring with OF live the consequences incurred by the condition, such as chronic incontinence, dangerous infections, a lifetime of discrimination, and depression due to the stigma and social isolation that surrounds it in many Somali communities.¹⁰

Bivariate logistic regression analysis.

The impact of a number of significant risk factors, including the effect of FGM on delivery method and the relevance of repaired/unrepaired FGM on fistula type, were examined using bivariate logistic regressions. As a result, in testing the effect of FGM on mode of delivery, even though the odds of

delivering spontaneous vaginal delivery was slightly higher to those mothers undergone female circumcision in their early ages than those delivered their babies on assisted vaginal one and escaped the tradition, but there is no significant difference found among the three mode of delivery on the two conditions (in case the mother undergone FGM in early stages of her life (table2). This could be explained that, though the custom is still prevalent in Somalia, those who went through FGM in the study are higher (25) than those who escaped (15), but not significant.

According to the World Health Organisation, various reasons, including better health, increasing girls' development and their preparation for marriage, controlling women's sexual desires before marriage, girls' resistance to illicit sexual acts, purity and beauty of women, and the process of keeping the past generations' customs for circumcision.^{12,13} The study looked at how the style of birth affected the type of fistula that was formed. Those who had a spontaneous delivery had a considerably higher chance of experiencing an OF than those who had an assisted delivery. The same was true when comparing spontaneous delivery against those delivered by caesarean. Finally, the likelihood of developing a rectovaginal fistula was significantly higher in those who delivered their child with assisted one compared with the mothers who underwent a caesarean procedure with significance. Again, this result could be attributed to the beefing up of comprehensive emergency obstetric services in regional hospitals¹⁰, but warrants further study if the case is as above. Furthermore, it presages that spontaneous vaginal delivery incurs the likelihood for the mother to suffer either vesicovaginal fistula or rectovaginal fistula, as the cases of combined conditions are significantly lower than the other types.

Further analysis was performed to test the effect of the age of the mothers on the mode of delivery. The odds of being in the age bracket of 18-25 were slightly higher but significant compared to the age

range of 26-30. The same has been true when testing spontaneous vaginal delivery versus caesarean delivery and assisted vaginal delivery in the aforementioned two age brackets, respectively. The combination, as far as the mode of delivery and the effect of age ranges of the mothers tested on the mode of delivery are concerned, has shown no significance among them, as per Table 5. The age effect has little to no impact on the manner of delivery, as demonstrated by the effects of the mode of delivery on the type of fistula. It's interesting to note that, in the two Mogadishu hospitals where this was tested, the mother's age had little bearing on whether or not she developed a fistula. Lastly, the sort of fistula the mother experienced during delivery was revealed by the impact of whether or not the mother's OF was corrected. Although the mother's chances of undergoing a repaired treatment are marginally higher than her chances of not being able to heal from both forms of OFs, the outcome was not statistically significant. The result substantiates earlier findings that OF patients have fears of retaining and sharing sexual activities with their husbands in the future. This finding is consistent with a study conducted in West Pokot, Kenya, which concluded that fistula victims still have fear of having sex with their husbands even after successful repairs.^{14,15,16}

CONCLUSION AND RECOMMENDATIONS:

Despite efforts to address OF in Somalia, particularly in communities that are hard to reach, the most vulnerable people have usually not been reached.¹⁰ Aside from a few tertiary medical facilities in the nation, such as Banadir Children and Mother Hospital, that are equipped to perform fistula repair and other public health pressing matters, the nation as a whole depends on foreign physicians, especially those from international medical humanitarian organisations like Physicians Across Continents (PAC), who travel there specifically to participate in the campaign.

Hence, the following recommendations are being considered necessocery: 1) To give medical care or

attention to the women who are living with these devastating injuries that could occur with childbirth, mitigating variables such as social reintegration programmes, funding for fistula preventive treatment, and training for local doctors and nurses are crucial, particularly to those in the major referral hospitals such as Banadir Children and Mother Hospital.^{10,15,16} 2) Increased public awareness of the illness, its symptoms, and its risk factors are essential components of long-term attempts to end OFs in the country and the region. 4) To guarantee that sufficient resources are allocated to this issue, there is a need for increased access to family planning services, education for women and girls, and community economic growth. 5) All stakeholders must also be mobilised in coherence. 6) Finally, appropriate and well-coordinated efforts are sine qua non to declare Somalia free of fistula and to eradicate it entirely.

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