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Estimating the prevalence of urinary and fecal incontinence in a nationally representative survey in Sierra Leone

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The Global Burden of Disease study estimates that 1.8 million disability-adjusted life years are due to obstructed labor worldwide, with 90% concentrated in Africa and Southeast Asia [1]. Obstetric fistulas refer to abnormal openings, as a result of prolonged labor, between the bladder and vagina (vesicovaginal fistula) or the rectum and vagina (rectovaginal fistula) leading to chronic urinary or fecal incontinence. There is no true estimate for the prevalence of fistulas in low- and middle-income countries (LMICs), but guesses of 3–4 million unrepaired cases in LMICs [2]. The only representative population-based assessment was

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performed in Ethiopia in 2005, which reported a prevalence of 720 per 100 000—much higher than a previous estimate of 150 per 100 000 [3].

The aim of the present study was to estimate the prevalence of urinary and fecal incontinence in reproductive-aged women as a proxy for fistulas in Sierra Leone using the Surgeons OverSeas Assessment of Surgical need (SOSAS). It was hypothesized that the prevalence would be similar to the recent estimate in Ethiopia. The implementation of SOSAS in Sierra Leone has been previously described in detail [4]. Briefly, a cluster-randomized, cross-sectional population-based household survey was conducted to estimate the prevalence of conditions requiring surgical attention. A total of 75 study clusters were randomly selected in two stages with probability proportional to population size from the 9671 enumeration sites in Sierra Leone. The current analysis is limited to 1320 (36.2%) women older than 14 years of age from the 3645 respondents.

A structured head-to-toe verbal examination covered six anatomical regions. The groin, genitals, and buttocks region included a question related to urinary and fecal incontinence as a proxy for fistula. It was made clear that the question was meant to assess fistulas and enumerators were trained to probe specifically for questions regarding this private condition. The study was approved by the Sierra Leone government and Scientific Review Committee and the Research Ethics Committee of the Royal Tropical Institute in Amsterdam, Netherlands. Informed consent from all respondents was obtained. Statistical analyses were conducted with Stata software version 12.0 (StataCorp LP, College Station, TX, USA) to assess prevalence rates of incontinence and compare cases of possible fistulas with the rest of the cohort. A χ^2 test was used for categorical variables and *t* tests were used for continuous variables. $P < 0.05$ was considered statistically significant.

The mean age of the women included in the study was 34.9 years and almost 60% lived in a rural village (Table 1). Transportation times to the nearest primary, secondary, and tertiary care centers were significantly longer in rural compared with urban settings ($P < 0.001$). There were 8 (0.61%) reported cases (mean age: 39.9 years) of urinary or fecal incontinence, corresponding to an overall prevalence rate of 606 per 100 000 women (95% confidence interval [CI], 187–1025). Notably, all 8 lived in a rural village (rural rate: 1030 per 100 000 women [95% CI, 319–1743]) and currently had symptoms (Table 2). Two had received major procedures, but the majority did not seek health care owing to lack of money. The major disability reported was feeling ashamed (75%), but difficulty with transportation and being able to work were also noted. Reproductive screening was done based on a menstrual period in the last two years (secondary to possible inaccuracy of age) and four women stated that they had had a period in the last two years. Their parities were assessed: one para zero, two para one (one home delivery, one cesarean delivery), and one para three (all home deliveries).

Although underpowered, comparing cases with the rest of the cohort shows a statistically significant difference for proportion living in rural villages ($P = 0.018$) and greater proportion being of Mende ethnicity ($P = 0.042$). However, markers for education (level of education attained, $P = 0.344$; and literacy, $P = 0.137$) and occupation ($P = 0.536$) were not significantly different.

The incontinence prevalence rate of 606 per 100 000 women extrapolates to over 10 000 women in Sierra Leone today who could immediately benefit from access to urogynecological care. This prevalence is similar to the recent report of 720 per 100 000 women in Ethiopia [3]. Whether the causes of the incontinence are related to obstetric complication is unclear since the nature of the survey did not determine time in relation to the parity, and parity was not assessed for women in menopause.

The only population-based attempt to assess the incidence of obstetric fistula in LMICs was the MOMA survey [5]. It reported an incidence of 10.3 per 100 000 deliveries, but the confidence interval of the estimate, based on two reported cases of vesicovaginal fistula, included zero.

The present report relies solely on self-reporting, therefore overestimation by equating urinary and fecal incontinence to fistula is likely due to misreporting of stress or urge incontinence. On the other hand, underreporting of this private condition is even more common. In addition, it is possible that some women with fistulas may be excluded from the households surveyed owing to perceived shame and may not be caught in the sampling.

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Table 1

Demographics of the study population (n=1320). Surgeons OverSeas Assessment of Surgical Need, Sierra Leone 2012.^a

Demographics	
Age, y	34.9 m± 16.8
Rural location	776 (58.8)
Transport time, h ^b	
Urban	
Primary ^c	0.6 ± 1.2
Secondary	1.3 ± 2.4
Tertiary	3.0 ± 3.3
Rural	
Primary	1.4 ± 1.3
Secondary	4.0 ± 5.6
Tertiary	6.9 ± 6.4
Education	
None	790 (59.8)
Primary	132 (10.0)
Secondary	354 (26.8)
Higher	38 (2.9)
Literacy	497 (37.7)

^aValues are given as mean ± SD or number (percentage).

^bTime to each hospital type by setting; *P*<0.001 comparing each transport time in urban settings to rural settings.

^cPrimary=health facility without operating room; secondary=health facility with operating room; tertiary=health facility with operating room and at least one surgical specialist.

Table 2

Survey results from the identified cases of urinary and fecal incontinence. Surgeons OverSeas Assessment of Surgical Need, Sierra Leone 2012.^a

Demographics	Non-cases	Cases	P value ^b
No.	1312	8	
Rural location	771 (58.8)	8 (100.0)	0.018
Education			
None	787 (60.0)	6 (75.0)	0.344
Literacy	500 (38.1)	1 (12.5)	0.137
Occupation			
Unemployed	344 (26.2)	2 (25.0)	0.536
Farmer	455 (34.7)	3 (37.5)	
Small business	293 (22.3)	3 (37.5)	
Other	220 (16.8)	0 (0.0)	
Ethnic Origin			
Mende	467 (35.6)	6 (75.0)	0.042
Temne	376 (28.7)	2 (25.0)	
Other	469 (35.7)	0 (0.0)	
Current problem		8 (100.0)	
Healthcare sought			
Major Procedure	-	2 (25.0)	-
None - No money	-	4 (50.0)	
None - Not available	-	1 (12.5)	
None - No need	-	1 (12.5)	
Traditional healer	-	4 (50.0)	-
Any Disability	-		
Feeling Ashamed	-	6 (75.0)	-
Ability to Work	-	1 (12.5)	
Transportation	-	1 (12.5)	
No	-	0 (0.0)	

^aValues are given as number (percentage) unless otherwise indicated.

^b χ^2 test.