Review Article

Abortion and its correlates among female fisherfolk along Lake Victoria in Uganda

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Abstract

Introduction: In Uganda, people living in fishing communities tend to engage in high-risk sexual activity which leads to unintended pregnancies that may end in abortions. Abortion has negative social, psychological, and medical impacts. We determined the frequency of abortion and its correlates among female fisher-folk along Lake Victoria in Uganda. **Methods:** A cross-sectional survey was conducted among women aged 15– 49 years from Kigungu and Nsazi fishing communities. Data were collected on socio-demographic characteristics, abortion, and family planning use. Associations between abortion and participant characteristics were assessed using logistic regression models. **Results:** Of the 713 women interviewed, 36, 5% were pregnant and 247, 34.6 % were using contraception. Majority (600, 84.2%) of those interviewed reported ever being pregnant. Approximately 45% of the pregnancies were un-intended while a third of those who had ever been pregnant (195, 32.5%) reported having aborted before. Slightly over a third (247, 34.6%) reported currently using or ever using family planning. Women aged 30+ years were more likely to abort compared to those aged 15-29 years (aOR: 2.7; 95% CI: 1.23-5.91). Women who had living children were less likely to abort compared to those who didn't have any living child (aOR: 0.06; 95% CI: 0.01 – 0.17). **Conclusion:** The rate of abortion among female fisher-folk in Uganda is substantial. Family planning use is still low and unintended pregnancies are common. Abortion risk increased with the age of the mother. Continuous behavioral change communication and optimization of family planning use are recommended to reduce abortions.

Keywords: Abortion, family planning, fishing communities, Uganda, unintended pregnancy

Introduction

Abortion is one of the main contributors to the high maternal mortality in Uganda.[1] An abortion rate of 39 per 1,000 women aged between 15 and 49 years was reported in 2013 in Uganda representing approximately 314,300 abortions.[2] The Ugandan abortion rate was slightly higher than the estimated rate for the East African region at 34 per 1,000 women between 2010 and 2014.[2] In 2013, approximately 128,682 women were treated for abortion complications up from 110,000 in 2003.[3] The injuries and illnesses resulting from unsafe abortion place a huge health care burden and remain a critical challenge for the Ugandan health care system, which is already burdened with other morbidities.

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Most religions and cultures in Africa do not encourage abortion because it goes against their beliefs.[3-5] Consequently, abortion in Africa tends to be associated with fear, shame and stigma leading to discrimination in society.[6] A study conducted in Kenya on community perceptions of abortion indicated that women who abort are excluded from community activities being labelled as murderers or prostitutes and often perceived as bad examples to younger women.[7] In Uganda and many other African countries, abortion is illegal unless performed by a licensed medical doctor in a situation where the woman's life is deemed to be at risk.[8-12] The 2012 Uganda national policy guidelines and service standards for sexual and reproductive health and rights permitted abortion under specific circumstances, including in cases of fetal anomaly, rape and incest.[13] Inconsistencies in the interpretation of the laws and policies on abortion by the law enforcement and the judicial system have led to uncertainties for women and medical personnel to know when abortion is acceptable.[14] Medical personnel are often reluctant to perform an abortion for any reason because of fear of the legal implications. Therefore, many abortions are self-induced and often conducted privately under unsafe conditions. Moreover, the stigma surrounding induced abortion makes it difficult for women to report, making unsafe induced abortions hard to measure. Under-reporting abortion leads to missed mitigation opportunities.[15]

In most low-income countries, there is also a lack of skilled medical personnel, which leads many women who wish to terminate their pregnancies to seek services of unskilled medical personnel.[10] The risk of illness and death tends to be high when abortions are performed by unskilled personnel.[16-18] Unsafe abortion contributes to maternal morbidity and mortality even though it is preventable.[19] It is estimated that 128,682 women were treated for abortion complications in 2013 in Uganda.[3] Family planning (FP) use remains one of the cost-effective public health intervention for preventing unintended pregnancies.[20] Ugandan women undergoing abortions often report that their pregnancies are unintended or undesired, indicating an unmet need for FP.[21]

People living in fishing communities (FCs) of Uganda are engaged in high sexual activity with multiple sexual partnerships and low condom use,[22], predisposing them to unintended pregnancies. These FCs are also characterized by limited access to healthcare services with few trained medical personnel.[23,24] This puts them at an increased risk of unsafe abortions and insufficient postabortion care, which poses health risks and associated healthcare costs.[25] Measurement of abortion rates and associated factors in the hard-to-reach settings such as the FCs is essential in informing reproductive policies and programs that suit such unique settings. However, data on abortion rates in FCs are still few, and the associated factors are not clearly understood. We set out to determine the rate of abortion and its correlates among female fisherfolk along Lake Victoria in Uganda.

Materials and Methods

Study design and eligibility criteria

A cross-sectional survey was conducted in Kigungu landing site and Nsazi Island.[26,27] Abortion and pregnancy history were assessed during the survey. The study communities were purposively selected based on their location (proximity to research center) and size (among the FCs on Lake Victoria, with >1,000 households). The sample size was determined using 1,786 households on a household list that was previously generated during census taking of the FCs.[28] From the original list, 1,452 eligible households were contacted. The study included residents for at least 6 months, those aged 15 to 49 years, and who consented to participate in the study.

Study population and setting

Kigungu landing site is found in Entebbe Municipality, along the shores of Lake Victoria, Africa's biggest lake. It is situated in Wakiso District, approximately 37 km (23 miles) from Kampala (Uganda's capital) and approximately 45 minutes' drive from the study clinic in Entebbe. It has a population of approximately 30,000 people. Kigungu has one Health Center III facility, which runs a general outpatient clinic and a maternity ward. It provides basic preventive, curative and promotive care, including a few FP services. Residents normally go to Entebbe regional referral hospital, which is approximately 30 minutes' drive from Kigungu landing site, to seek for more comprehensive health services. Nsazi Island is located in Mukono district. It is composed of 7 square miles of land with a population ranging from 2,000 to 8,000 people depending on fish seasonality. Nsazi has one Health Center II facility, which runs an outpatient clinic, treats a few minor illnesses, and offers antenatal care and community outreach services.

Availability of FP in both FCs is haphazard and limited to a few methods, including male condoms, oral contraceptive pills and Depo-Provera or Injectaplan. Periodically, non-governmental organizations (NGOs) offer long-acting reversible methods, including implants and intrauterine devices through outreach services. Permanent methods including vasectomy and bilateral tubal ligation are offered at the Entebbe regional referral hospital. The main economic activities in both communities include fishing and fishing-related activities (jobs that support the fishing industry, e.g. fish processing, drying and selling of fish), trading in other non–fish-related commodities, including commercial sex work, farming and other commercial activities.

Community mobilization

The study was first presented to community leaders to seek their permission to conduct the study and support in mobilizing participants. Thereafter, members in both communities were informed of the study through community sensitization seminars. Participants were invited by the community mobilization team to study clinics based in their communities where more study information was provided and data collected.

Key measurements

The main outcome variable was a self-reported history of ever having an abortion which was measured as a binary (Yes/No) variable. Abortion was defined as a deliberate termination of a pregnancy. Participants were asked if they had ever been pregnant and if they had ever had an abortion. They were further asked if they had wanted to become pregnant then and if they currently wanted to become pregnant. Independent variables included social demographic characteristics, sexual behavior characteristics, FP use and other reproductive health factors.

Data collection and quality control

Semi-structured questionnaires were used to collect data using a team of five trained staff who had a scientific and research background. The study team was trained prior to the commencement of the study on how to complete the study questionnaire. The study questionnaires were pretested and piloted in a non-study site before conducting the study. At the end of each day, verification of the data for completeness, accuracy and consistency was done.

Data management and analysis

Data generated from questionnaires were reviewed before entry. Double data entry was done and the data were exported to STATA Version 15.0 software (StataCorp, College Station, TX, USA) for analysis. At univariate analysis, the data were summarized into meaningful descriptive statistics such as means, medians or frequencies and appropriate proportions to present categorical variables. Independent variables were cross-tabulated with the primary outcome variable to determine clinically relevant and/or statistically significant associations. Chi-square tests and their respective *P* values were obtained to assess for associations using $P = 0.05$ as a cut-off point for statistical significance. At multivariable level, logistic regression models were run to estimate the adjusted odds ratios (aORs) and the 95% confidence intervals (CIs) of factors associated with abortion. The models were adjusted for potential confounders noted from findings of other studies such as social economic status, parity and statistically significant ($P < 0.05$) covariates identified in bivariate analyses.[29,30]

Ethical consideration

The study was approved by the Uganda Virus Research Institute–Research Ethics Committee (UVRI-REC, GC/127/16/10/572) and the Uganda National Council for Science and Technology (UNCST, SS 4183). Written informed consent or assent was obtained from all participants prior to conducting any study procedures. Pregnant women were referred for antenatal care.

Results

Socio-demographic characteristics of female fisherfolk along Lake Victoria in Uganda [Table 1]

From the original 1,786 eligible households, we contacted 1,452 to interview 713 females. The majority (564; 79%) of the participants were from Kigungu as shown in Table 1. For both communities, the majority of the participants were aged between 15 and 29 years (73.9% and 61.1%, respectively) with women from Nsazi being older. Three hundred and forty women representing 47.7% of all the participants were engaging in trade or business which tends to be disguised as commercial sex work. More than half of the women in both villages had attained up to primary level of education with Nsazi having the higher percentage of these. More than half of the participants in both villages reported being married. Many participant characteristics differed significantly by study community [Table 1].

Reproductive health outcomes of female fisherfolk along Lake Victoria in Uganda [Table 2]

The majority of the women (600; 84.2%) reported ever being pregnant with nearly everyone, with 137 (92%) from Nsazi reporting ever being pregnant [Table 2]. A total of 195 women (32.5%) of all those who reported ever being pregnant reported that they had ever had an abortion. Although more than a half (329; 54.8%) of the women interviewed wanted to have children at the time of pregnancy, a few wanted to have children later (104; 17.3%) or not at all (167; 27.8%). It was also observed that slightly over a third (201; 33.5%) of the women got pregnant while in school. Almost everyone (700; 98.2%) knew about modern FP methods that include condoms, pills, injectable hormones, intrauterine devices and implants. However, just over a third (247; 34.6%) of the women were using FP. The majority of the women (575; 80.6%) reported having at least one living child with more than half of them (315; 52.6%) having children with their current sexual partners.

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After adjustment, women aged 30+ years were more likely to have reported an abortion compared with those aged 15 to 29 years (ages 30–39: aOR = 1.65, 95% CI = 1.05–2.59; and ages 40+: aOR: 2.7, 95% CI: 1.23–5.91). Women who had living children were less likely to abort than those who did not have any living child (one living child: aOR = 0.06, 95% CI = 0.01–0.17; more than one living child: aOR = 0.09, 95% CI = 0.03–031). Although not statistically significant after adjustment, women who had children with their current sexual partners were less likely to abort. Occupation, education level and religion were not statistically significantly associated with abortion [Table 3].

Discussion

This study established the rate of abortion and its correlates among female fisherfolk along Lake Victoria in Uganda with the aim of informing policy change. The rate of abortion was found to be relatively high compared with that in the general population.[3] We attribute this to the high sexual activity and low condom use in FCs previously reported.[22] In the current study, almost half of the women who had previously conceived, alluded to wrong timing implying that their pregnancies were unintended.

Table 1: Socio-demographic characteristics of the participants stratified by study site

All Participants	Total *n*=713	Kigungu *n*=564 (79.1%) *n* (col %)	Nsazi *n*=149 (20.9%) *n* (col %)	*P*
Age (years)				
Mean (SD)	26.2 (6.5)			
15-29	508 (71.2)	417 (73.9)	91 (61.1)	0.01
30-39	173 (24.3)	125 (22.2)	48 (32.2)	
40+	32 (4.5)	22 (3.9)	10 (6.7)	
Tribe				
Non-Muganda	389 (54.6)	318 (56.4)	71 (47.7)	0.06
Muganda	324 (45.4)	246 (43.6)	78 (52.3)	
Occupation				
No Job	98 (13.7)	84 (14.9)	14 (9.4)	<0.001
Trade/Business	340 (47.7)	278 (49.3)	62 (41.6)	
Fishing/Fish-related	80 (11.2)	42 (7.5)	38 (25.5)	
Housewife	124 (17.4)	92 (16.3)	32 (21.5)	
Others	71 (10.0)	68 (12.1)	3 (2.0)	
Religion				
Catholic	304 (42.6)	232 (41.1)	72 (48.3)	<0.001
Protestant/Anglican	167 (23.4)	132 (23.4)	35 (23.5)	
Muslim	106 (14.9)	74 (13.1)	32 (21.5)	
Other	136 (19.1)	126 (22.3)	10 (6.7)	
Highest Education Level				
Up to Primary	411 (57.6)	314 (55.7)	97 (65.1)	0.04
Post-Primary	302 (42.4)	250 (44.3)	52 (34.9)	
Marital Status				
Married	420 (58.9)	333 (59)	87 (58.4)	0.89
Not Married	293 (41.1)	231 (41)	62 (41.6)	

SD=Standard deviation

Almost two thirds of the abortions occurred among women with unintended pregnancies. Social and economic challenges have been reported previously as some of the reasons why women with unintended pregnancies abort.[31,32] Women in FCs tend to experience an early sexual debut which exposes them to pregnancies early in life before they are economically able to manage them.[33,34] So, many of these pregnancies will most likely end in abortion. This highlights the primary care physician's need to improve FP service provision in FCs.

While the prevalence of abortion elsewhere increased with increasing levels of education,[35] our findings were different. The majority of the study participants had low education levels with very few studying beyond the primary level. It is possible that this precluded positive associations of abortion with education. Many FCs lack adequate schools, and as such people in these communities may not have the opportunity to have 'sex education', putting them at risk of prematurely engaging in unprotected sexual activities.[27] While some women in these communities may intend to avoid pregnancy, many end up failing due to lack of knowledge on safe behavior and birth control.[36-38] In order to achieve universal access to reproductive health, health care providers need to devise innovative FP education tools that will suit the social context of people living in FCs. According to the recent UNICEF (United Nations Children's Emergency Fund) findings, 40% of girls in Uganda are coerced into marriage with much older men before the age of 18 years and 10% marry before their 15th birthday.[39] Although child marriages were not specifically assessed in the current study, this practice may put young women and adolescent girls at risk for pregnancy earlier than they perhaps may have otherwise anticipated. There remains a need to introduce sex education even among those who do not get formal education. The lack of access to FP services might explain the high abortion rates. It was observed that there were a few available FP methods or options in the FCs. Unmet need for modern FP remains a big challenge in Africa.[40] In Uganda, 40% married women and almost half of sexually active women of reproductive age have an unmet need and unsatisfied demand for FP.[41] Previously published work from this study has reported that unmet need for FP is even higher in FCs due to various socio-medical, cultural and structural barriers.[27]This makes women fisherfolk prone to unintended pregnancies and sexually transmitted infections (STIs) such as HIV (human immunodeficiency virus).[42] Meeting the female fisherfolk's contraceptive needs could be a critical strategy for avoiding unintended pregnancies and controlling the spread of STIs.

Essential healthcare is limited and skilled personnel are few in most remote areas in Uganda.[23,33,38] Therefore, morbidity due to various disease conditions including unsafe abortion is prevalent in Uganda.[43] FCs may be experiencing higher rates of morbidity due to unsafe abortion because of their inadequate health facilities and lack of enough skilled medical personnel. High levels of abortion morbidity have serious consequences not only on the health and life of women but also on their finances, their children's health and well-being.[44-46] Expanding

Table 2: Reproductive health outcomes of the participants stratified by study site

	Total (*n*=713) *n* (%)	Kigungu (*n*=564) *n* (col %)	Nsazi (*n*=149) *n* (col %)	*P*
Ever been pregnant?				
Yes	600 (84.2)	463 (82.1)	137 (92)	0.003
No	113 (15.9)	101 (17.9)	12 (8)	
Ever had an abortion before?				
Yes	195 (32.5)	144 (31.1)	51 (37.2)	0.18
No	405 (67.5)	319 (68.9)	86 (62.8)	
Wanted to become pregnant then?				
Yes, right time	329 (54.8)	254 (54.9)	75 (54.7)	<0.001
Yes, but later	104 (17.3)	65 (14)	39 (28.5)	
Not at all	167 (27.8)	144 (31.1)	23 (16.8)	
Currently want to become pregnant?				
Yes, I want to become pregnant	275 (45.8)	198 (42.8)	77 (56.2)	0.02
I have mixed feelings about becoming pregnant	179 (29.8)	146 (31.5)	33 (24.1)	
I do not want to become pregnant	146 (24.3)	119 (25.7)	27 (19.7)	
Were you in school at time of pregnancy?				
No	399 (66.5)	303 (65.4)	96 (70.1)	0.34
Yes	201 (33.5)	160 (34.6)	41 (29.9)	
Aware of family planning?				
Yes	700 (98.2)	553 (98)	147 (98.7)	0.62
No	13 (1.8)	11 (2)	2 (1.3)	
Use of a family planning method				
Yes	247 (34.6)	194 (34.4)	53 (35.6)	0.79
No	466 (65.4)	370 (65.6)	96 (64.4)	
Number of children living				
No children	138 (19.4)	121 (21.5)	17 (11.4)	<0.001
One child	175 (24.5)	151 (26.8)	24 (16.1)	
Two children	141 (19.8)	106 (18.8)	35 (23.5)	
More than two	259 (36.3)	186 (32.9)	73 (49)	
Have children with current sexual partner?				
No	285 (47.4)	211 (45.6)	74 (54)	0.08
Yes	315 (52.6)	252 (54.4)	63 (46)	

and improving the quality of postabortion care services to treat the often serious health complications resulting from unsafe abortion remains critical. Infrastructural upgrade and deployment of skilled medical personnel in such remote areas may be helpful in reducing maternal mobility or mortality. NGO services reduce the economic burden women may face as extra costs are incurred when they move from their primary resident communities to go to the referral hospitals to access FP services. In this study, abortions were more likely to occur among older women compared with younger girls. This is contrary to the findings from other studies where younger girls were more likely to abort compared with older women.[47-49] Our findings show a similar trend with findings from the general population cohort, between 1996 and 2013, where women aged 15 to 49 years were interviewed on their pregnancy outcome in the past 12 months.[50] In this study, abortion risk increased with the age of the mother. The early sexual debut exposes women from FCs to a long reproductive window. So, they tend to have many children or big family, which is economically and socially demanding. Some women are involved in multiple sexual partnerships and may end up getting children from different men which may be undesirable ending in abortion.[51] Also because they have already proved their fertility, they may find it easier to make a decision to abort, which may not be the case for younger women who have no children or those that are just starting a family.

The high HIV infection rates among women in FCs may be another contributing factor.[23,52] Though we did not collect HIV test data in this study, or ask about how HIV may figure into pregnancy decisions, the risk of transmission and challenges of raising a child with HIV may certainly weigh on some women when deciding about pregnancy. Attending antenatal care services for early detection of HIV and prevention of mother-to-child transmission of HIV is recommended to lower abortion risk. Women who had living children were less likely to abort compared with those who did not have any living child. This is contrary to the findings from other studies where having children was significantly associated with abortion.[53,54] In these studies, the desire to stop or postpone childbearing and economic constraints were thought to explain the high rates of abortion.

Lastly, law enforcement against abortion in Uganda is still weak; therefore, termination of a pregnancy through abortion becomes easy to implement.[2] Strengthening law enforcement against abortion across the country is necessary. Raising awareness of Uganda's abortion laws and policies among the primary care

Table 3: Abortion and its correlates among female fisherfolk along Lake Victoria in Uganda

Characteristics	Abortion 195 (27.3%)	Crude Odds Ratios (OR) and 95% Confidence Interval (CI)			Adjusted Odds Ratios (aOR) and 95%CI		
		OR	95% CI	*P*	aOR	95% CI	*P*
Age (years)							
15-29	113 (28.3)	1 (Ref)					
30-39	65 (38.7)	1.60	1.10-2.34	0.025	1.65	1.05-2.59	0.028
40+	17 (53.1)	2.88	1.39-5.96	0.015	2.70	1.23-5.91	0.013
Tribe							
Non-Muganda	100 (31%)	1 (Ref)					
Muganda	95 (34%)	1.15	(0.82-1.62)	0.42			
Occupation							
No Job	22 (28.2%)	1 (Ref)					
Trade/Business	33 (44%)	1.20	(0.69-2.09)	0.52			
Fishing/Fish-related	33 (71.7%)	2.00	(1.02-3.91)	0.04			
Housewife	33 (28%)	0.99	(0.52-1.87)	0.97			
Others	15 (5.3%)	1.41	(0.63-3.15)	0.39			
Religion							
Protestant/Anglican	41 (28.9%)	1 (Ref)					
Catholic	90 (33.3%)	1.23	(0.79-1.92)	0.36			
Muslim	31 (33.7%)	1.25	(0.71-2.20)	0.44			
Other	33 (34.4%)	1.29	(1.74-2.25)	0.37			
Highest Education level							
Post-Primary	78 (33.6%)	1 (Ref)					
Up to Primary	117 (31.8%)	0.92	(0.65-1.31)	0.64			
Marital status							
Married	122 (31.6%)	1 (Ref)					
Not married	73 (34.1%)	1.12	(0.79-1.59)	0.53			
Community							
Nsazi	51 (37.2%)	1 (Ref)					
Kigungu	144 (31.1%)	1.31	(0.88-1.96)	0.18			
Wanted to become pregnant then?							
Yes, right time	101 (30.7%)	1 (Ref)					
Yes, but later	34 (32.7%)	1.10	(0.68-1.76)	0.70			
Not at all	60 (75.9%)	1.27	(0.85-1.88)	0.24			
Currently want to become pregnant?							
Yes, I want to become pregnant	82 (29.8%)	1 (Ref)					
I have mixed feelings about becoming pregnant	59 (64.8%)	1.16	(0.77-1.73)	0.48			
I do not want to become pregnant	54 (36.7%)	1.38	(0.90-2.11)	0.14			
Were you in school at time of pregnancy?							
No	128 (32%)	1 (Ref)					
Yes	67 (33.5%)	1.06	(0.74-1.52)	0.76			
Aware of family planning?							
Yes	193 (32.5%)	1 (Ref)					
No	2 (28.6%)	0.83	(0.16-4.31)	0.82			
Use of a family planning method							
Yes	68 (29.7%)	1 (Ref)					
No	127 (34.2%)	1.23	(0.86-1.76)	0.24			
Number of children living							
No children	21 (67.7%)	1 (Ref)					
One child	35 (19.6%)	0.05	(0.02-0.15)	<0.001	0.06	(0.01-0.17)	<0.001
Two children	46 (30.5%)	0.09	(0.03-0.28)	<0.001	0.09	(0.03-0.31)	<0.001
More than two	93 (38.9%)	0.11	(0.04-0.32)	<0.001	0.10	(0.03-0.31)	<0.001
Have children with current sexual partner?							
No	109 (38.2%)	1 (Ref)					
Yes	86 (27.3%)	0.61	(0.43-0.86)	0.004	0.72	(0.49-1.04)	0.08

physicians, the judicial system and women across the country is required. That way, the medical personnel and pregnant women will know when it is acceptable to conduct an abortion and thereby reduce self-induced unsterile abortions that tend to be

fatal. To promote safe motherhood in this and other similar settings, sensitization on the dangers of abortion should be emphasized.

Conclusion

Abortion among female fisherfolk is high and unintended pregnancies are common, while the proportion using FP is low. Continuous behavioral change communication and sex education by healthcare providers are needed. Contraceptive uptake needs to be optimized to lower the incidence of unintended pregnancy and potential subsequent abortions. A stable supply of FP services in FCs should be made possible to reduce the unmet need. A wide range of contraceptive options should be available to enable women to make the best choice when desired. More resources should be allocated to sexual and reproductive health services while prioritizing marginalized areas with abstract reproductive health services. The introduction of youth-friendly FP services could improve FP access among the youth who might be stigmatized. It is necessary to address the reproductive health needs of the elderly fisherfolk and increase their awareness about the dangers of abortion while enabling them to achieve their desired fertility.

Study limitations

Being a cross-sectional study design, the Casual inference is what I meant. Also, since the study relied on the participants' self-report, there could have been potential for recall bias about the history related to abortion. Non-response and concealment of sensitive information as would be expected from questions about one's sexual practices (particularly illegal ones) was a concern that we attempted to address with a larger study sample size. The research team was also trained on how to ask sensitive questions as best as possible. We attempted to control for potential confounders of known factors in the multivariable analysis; however, it was clear that many factors varied by study community, and we may not have captured data on all confounders. To adequately assess perceptions about self-induced abortions and attitudes towards abortions, further research involving qualitative data collection methods is recommended.

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Conflicts of interest

There are no conflicts of interest.

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