Title

Religious beliefs and abortion attempts among women with recent experiences of unwanted pregnancy in Osun state, Nigeria

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Abstract

Religion is commonly referenced for denying women access to abortion. This study examined the influence of religious beliefs on abortion attempts among women with recent experiences of unintended pregnancy in Osun State. A cross-sectional design was used to carry out a community-based survey. Results showed that 53.5% of women with anti-abortion religious beliefs and 59.6% of those with pro-abortion religious beliefs attempted abortion. Neither religious beliefs nor affiliations significantly influenced women's abortion attempts. Age, marital status, spousal or partner opinion, and parity were the significant factors influencing abortion attempts. Using religion to deny women access to reproductive health services should be discontinued.

Keywords: Abortion decision, Religious beliefs, Unintended pregnancies, Safe abortion, Osun State

Introduction

Abortion is legally restrictive in Nigeria because the laws permit women to access abortion only if their lives are threatened by a pregnancy (Okonofua, 2022). Abortion is also socially restrictive in the country because women who have had abortions are commonly regarded as murderers and violators of women's bodies (Katz et al., 2022). In Nigeria, women with an abortion history are socially stigmatised and may experience difficulty getting married. This is because they are not only perceived as promiscuous but may also be perceived as potential victims of secondary infertility. Among the many factors that may be responsible for this stigma around abortion, religion remains arguably the most prominent (Oyediran et al., 2020; Frohwirth et al., 2018). Religious leaders across Nigeria celebrated the overturning of the landmark "Roe v. Wade", which had hitherto enshrined women's right to abortion in the United States (Vogue et al., 2022). This and the suspension of abortion guidelines by a State in Nigeria were widely branded as a 'victory for religious rights' in Nigeria (Punch News, June 29, 2022; Luscombe, 2022).

Most Nigerians practise Islam and Christianity, which are commonly interpreted to condemn abortion, either tagging it as a murderous act or a way to undermine the work of God (Al-Matary, 2014). Even the local religious practices in Nigeria do not approve of abortion, as they either regard it as sacrilege or an avenue to promote promiscuity (Omo-Aghoja et al., 2019). Despite the overt religious condemnation of abortion, no less than 1.25 million abortions occur annually in Nigeria (Bankole et al., 2016). Most of these abortions are carried out clandestinely and in unsafe environments because of the restrictive access to safe abortion services in Nigeria. An estimated 10% of women's deaths are attributed to abortion alone (Bankole et al., 2016). This represents about 40% of maternal deaths in Nigeria, thus making unsafe abortion the most significant single contributor to maternal deaths (The World Bank, 2022). If the current

trajectories continue, abortion could be a larger-than-expected impediment to Nigeria's efforts to achieve any significant achievement in the Sustainable Development Goals (SDGs) relating to good health and well-being (SDG3) and gender equality (SDG5). The WHO (2022) notes that ensuring women and girls access safe, respectful, and non-discriminatory sexual and reproductive services, including abortion, is fundamental to meeting the SDGs.

One may wonder why the Nigerian people, who are so religious and cultured, keep indulging in an act they have so overtly condemned. A plausible explanation for this might be that women shift from their religiously held stance and go for abortion when faced with the reality of an unwanted pregnancy. This postulation is rife because unwanted pregnancies have numerous socio-economic consequences (Bahk et al., 2015) that could make women jettison religiously held beliefs. However, this remains unclear because no known study has investigated the nexus. Notably, researchers increasingly acknowledge the influence of religion on sexual and reproductive healthcare utilisation (Sundararajan et al., 2019) and behaviour (Arousell & Carlbom, 2016). For instance, Oyediran et al. (2020) reported that Muslims had a lower likelihood of unintended childbearing than Christians.

Meanwhile, categorising individuals' religious beliefs into Christianity, Islam, etcetera might not reveal fundamental differences that exist in individuals' religious beliefs (Holt et al., 2014; Khorfan et al., 2014). After all, people of the same religion but from different denominations might not share the same beliefs about all topics, including abortion. Hence, Oyediran et al.'s study might only have reported religion's influence, not individuals' religious beliefs. Frohwirth et al. (2018) showed that religion had no significant effect on abortion decisions. Still, their study focused on women in general, many of whom were not even sexually active, least of all for them

to understand what carrying an unwanted pregnancy entailed. Hence, their respondents' reports might not be informed, thus making the study findings likely misleading.

Moreover, many Nigerians are well-versed in Western education, which arguably helps people escape the grips of religious fanaticism that places religion above human life (Gbadamosi, 2007). For instance, the theory of secularisation by Stijn and Guido (2015) posits that religious beliefs are of nominal value when individuals experiencing socio-economic transformations make important life decisions, for example, fertility decisions or willingness to keep a pregnancy. Existing evidence shows that Nigerian women are getting socio-economically transformed. This is evident in women's improving status in education, skilled employment, and headship of organisations, particularly in Southern Nigeria (The World Bank, 2023). Supposedly, such women should be using contraceptives to prevent unintended pregnancies and to protect themselves from being kept from career progression and productivity. However, evidence shows that contraceptive use among women in Nigeria is generally low (Fadeyibi et al., 2022; Dambo et al., 2017). What then remains unknown is whether or not religiously held anti-abortion beliefs would make such women and their unskilled contemporaries attempt abortion.

This study was conducted in Osun State to investigate how religiously held anti-abortion beliefs and the overt stigmatisation of abortion influence women's attempts at abortion when faced with unintended pregnancies. Osun is a state in southwestern Nigeria with a peculiar mix of women of all socio-economic positions. The State boasts a significant proportion of its population practising Christianity, Islam, and traditional religions (National Bureau of Statistics, 2022). For instance, the prayer headquarters of some Churches are in Osun. The State is home to the foremost Osun Osogbo shrine, which people annually visit for traditional religious practices.

Islam is also so widely practised in Osun State that the mainstream media were once awash with unfounded allegations that there were plans by a recent government regime to Islamize the State (Adedayo, 2014). The high level of religiosity in Osun thus makes the State a suitable setting for this study. Notably, social desirability could lead to deliberately misreporting abortion decisions in such a setting. Therefore, we only referenced women's abortion attempts when they had unintended pregnancies, irrespective of the outcome of the attempts.

Methods

Study design and participants

We used a retrospective cross-sectional design to examine the influence of women's religious beliefs and personal socio-demographic factors on abortion attempts. The study was based on a community survey of sexually active women of reproductive age living in Osun state. The eligible participants were asked if they had an unwanted pregnancy within the five years preceding the survey. Those who responded in the affirmative are the unit of analysis in this study. Data were collected using structured questionnaires scripted into Open Data Kit (ODK) for electronic capture. We tested the instrument for reliability and validity through a pilot study in Ibadan, Oyo state, in November 2022. Data were collected for twelve (12) days in December 2022 with the assistance of ten experienced female data collectors.

Sample and sampling

The sample size was determined using the Leslie Kish formula for sample size calculation in descriptive studies wherein there is optimal evidence of the best guess or the proportion (p) of interest (Pourhoseingholi et al., 2013). Here, p=0.60 is obtained from a United Nations Population Fund (UNFPA) 's report that nearly two-thirds of unintended pregnancies are aborted

(UNFPA, 2022). Using this proportion with a tolerance level (d) at 0.025 and a 5% significance level, the calculated sample with 10% attrition is 1150. We have used this total sample in a study published here (***removed to maintain an anonymous review***). We extracted 636 women who experienced unintended pregnancies within the referenced period as a sample in this study.

A multi-stage sampling technique was adopted using the Osun state map designed by the National Population Commission (NPC). The map illustrates the spatial patterns of the Local Government Areas (LGAs) and the political wards within each LGA across the State. We used the map to stratify the LGAs and the political wards into non-overlapping subsets. All 30 LGAs were stratified into three homogenous groups (strata) using the senatorial districts in the first stage. From these, two LGAs were selected per stratum, thereby making a total of six LGAs. In the second stage, four NPC-designed enumeration areas (2 each from rural and urban) were selected per LGA, giving 24 enumeration areas across six LGAs. We conducted a housing listing at the third sampling stage to get a list of all housing units within each enumeration area as the sampling frame. Participants were selected using systematic sampling with a k^{th} interval.

Measures

The outcome variable is abortion attempt, measured with a 'yes' or 'no' response to the question: "Did you use anything to interrupt the unintended pregnancy?". Women who responded with a 'yes' were grouped as those who "attempted" abortion, while those who responded otherwise were grouped as 'not attempted'. The term 'attempt' is used here because the study focuses on the decision to commit an abortion, irrespective of the outcome of the attempt (successful or not). A follow-up question, "What was the first thing you did when you tried to interrupt this pregnancy?" was asked to show the various methods used by women attempting abortion.

The main explanatory variable is abortion beliefs, the choice of which was premised on secularisation theory positing a nexus between religious beliefs, personal social & economic development and personal decision-making (Stijn & Guido, 2015). The variable was measured by seeking women's 'agreement [1]' or 'disagreement [0]' to a set of ten statements which summarised abortion-related religious beliefs, as established in literature (Pearce et al., 2017; Mathur, 2012; Hall et al., 2008): They are: (i) aborting a pregnancy for whatever reason is a sin; (ii) aborting a pregnancy is equal to committing murder, which is against God's commandment; (iii) only promiscuous women do abortion; (iv) a healthcare provider that renders abortion service is aiding murder; (v) abortion is a violation of a woman's body, which is the temple of God; (vi) abortion in whatever form is suppressing the work of God; (vii) no woman should be allowed to have an abortion because it encourages them to be more promiscuous; (viii) abortion is done to cover up one's sin against God; (ix) abortion is an instrument to destroy man's capacity to subdue the earth; (x) restricting women's access to abortion service will stop them from having an abortion.

The responses were composited such that agreement with at least one of the statements would make the respondents anti-abortion. Explicitly stated, the composite scores yielded a minimum of '0' for those who disagreed in all, less than '10' for those who disagreed in some and '10' for those who did not disagree in any (i.e. agreed in all). All '0' scores were grouped as religiously 'pro-abortion' while others were 'anti-abortion' (Pearce et al., 2017; Mathur, 2012; Hall et al., 2008). The independent variables are the socio-demographic characteristics such as age, education, employment status, marital status, household decision-making ability, frequency of media exposure, residence type, spousal education, employment status, children ever born, household decision-making ability and ethnicity.

Secularisation theory posits that these factors supposedly empower people and thus free them from religious grips when making personal decisions, such as aborting an unintended pregnancy. Other variables are marital status, spousal opinion about abortion and opinion of significant others about abortion, all of which have been reported as having a significant influence on abortion decisions (Frederico et al., 2018; Philips et al., 2015). Spousal/partner's opinion about the abortion decision was measured by asking the participants whether their partner/spouse supported the abortion option when the unintended pregnancy was discovered. The opinion of significant others about the abortion option was measured as whether the participants' friends, relatives or any other person that was aware of the unintended pregnancy supported the abortion option or not.

Household decision-making ability was measured by asking questions on "Who usually decides how to spend your earnings?", "who usually decides on your healthcare? "who usually decides on large household purchases? Who usually decides on visits to family or relatives? and "Who usually decides what to do with money husband earns?". Those who responded with "I alone" were composited into 'autonomous decision maker' while those who responded with "my husband/partner and I" were grouped into 'joint decision maker'. Participants whose "husbands/partners and someone else" were responsible for such decisions were composited into 'dependent decision makers'.

Exposure to the media was determined using the reported frequencies of listening to the radio, reading the newspapers and watching television. The responses group ranged from *not at all, less than once a week* and *once a week* up to *almost every day*. Those who did all these 'every day' were grouped into 'always'. The 'once-a-week' were regarded as 'often' while those who did them

'less than once a week' were grouped as 'rarely'. Those who reported 'not at all for all the items were grouped as '*never'.* The variable' spousal age differences' was determined by subtracting the respondents' ages (in single years) from that of their spouses/partners. This resulted in three sets of numeric scores: negative, zero and positive. Scores lower than -5 (i.e. from -6) were grouped as 'partners/spouses younger by 5+ years'. Scores from -5 to 5 were grouped as 'both within the same 5-year age range' while scores >5 were grouped as 'partners/spouses older by 5+ years'. This variable grouping was informed by previous studies which showed how vast differences between couples' ages could influence women's health decisions (Oni et al., 2021; Kitila et al., 2020)

Data Analysis

Descriptive statistics involving frequency and percentage distribution and graphical illustrations were used to describe the categorical variables in the study. The numeric variables were presented using mean and standard deviation. A multicollinearity test was performed on the explanatory variables to identify collinear variables that could alter the true effects of regression slopes. This was done using a variance inflation factor (VIF) analysis before fitting the models. With a VIF score of 5 as the rule of thumb (Daoud, 2017), no variable with a VIF of ≥5 was included in the analysis.

We fitted Logit models to estimate the effects of abortion attempts among women with unintended pregnancies. Models 1 and 2 were fitted at bivariate levels to examine the influence of each religious belief and religious affiliation, respectively, on abortion attempts. The table showing the result of the bivariate analysis also presents the estimated prevalence of women who attempted abortion and how this changed across the categories of each independent variable.

Model 3 was fitted to assess the other independent variables' multivariate effect on abortion attempts. Model 4 was used to estimate the influence of all the study variables on abortion attempt decisions. This final model (model 4) was used as the basis for the discussion of the findings and in arriving at the study's conclusion.

Logit models are applicable for fitting the effects of factors on an outcome variable with two levels in which the levels are binary outcomes (Hoffman, 2019). The use in this study is justified in that the outcome variable, abortion attempt, had two groups, which are: 'attempted abortion' [1) and 'not attempted abortion' [0]. The odds ratios of the model were used to interpret and examine the influence of the explanatory factors, and their statistical significance was tested at a 95% confidence interval. All analysis was performed using Stata 16 (StatCorp, 2017).

Results

Results, as presented in Table 1, show that the majority (65.6% [21.4+44.2]) of the respondents were aged between 18 and 34 years, while a few (3.3%) were aged below 18 years. About the same proportion of the respondents each practised Christianity (41.4%) and Islam (43.1%), and nearly two-thirds (59.1%) were currently married/cohabiting. The mean age of the respondents' spouses/partners was 37.5± 8, and 16% of them were younger than the respondents by at least five years. The highest proportion (42.8%) of the respondents had secondary education, while the highest proportion (52%) of their partners/spouses had tertiary education. More than half (51.3%) were employed in skilled vocation, 61.2% had given birth to 1-3 children, and 33.3% were often exposed to the media.

(Place Table 1 about here)

The ethnic distribution of the respondents shows that 62.9% were Yoruba, 12.7% were Igbo, and 24.4% were from other ethnic groups. The results also show that 58.3% lived in urban areas, and 20.4% had the autonomous ability to make decisions in their households. Figure 1 illustrates the various methods with which women attempted to interrupt unintended pregnancies. Given that women used multiple methods to interrupt the referenced pregnancy, each bar in the graph represents 100% of women who attempted abortion (each bar is not mutually exclusive). The result shows that the most used method (51%) was an oral intake of herbs, substances, or a combination of both. The substances were detergents, bleach or gasoline. About 22% attempted pregnancy interruption by inserting solid objects such as catheters, sticks, or hangers into the vagina. The method least used was manual vacuum aspiration (12.7%).

Place Figure 1 about here

Furthermore, as presented in Table 2, results show that 53.5% of women with anti-abortion beliefs, compared with 59.6%) of women with pro-abortion beliefs, had abortion attempts. The p-value of 0.14, which is not less than the 0.05 significance level, suggests that religious beliefs had no significant association with abortion attempts. The result also shows that 46.9% of women with the ability to make autonomous decisions and 61% of those who jointly made household decisions attempted abortion. There was a significant association between decision-making ability and abortion attempts among women (χ^2=6.93; p<0.05).

Place Table 2 about here

No less than 45% of women across age groups attempted abortion though it was much higher among women under 18 (90.5%) than among other age groups, say 35+ (54%). At p<0.05, age and abortion attempt decision had a significant association. The number of children born was

also significantly associated with abortion attempts. The prevalence was highest among those who never gave birth to any child (71.9%) and lowest among those with more than three children (47.7%). While 59.8% of women employed in skilled vocation attempted abortion, 43% of those engaged in unskilled occupation also attempted it.

Furthermore, results from Table 3 show that religious beliefs had no significant influence on women's decision to abort a pregnancy both in the unadjusted model [model 1] (OR=1.28; CI=0.92-1.79) and in the adjusted model 4 (aOR=0.97; CI=0.60-1.58). Also, religious affiliations had no significant influence on abortion decisions (aOR=1.46; CI=0.90-2.38). As shown in model 4, women who had the autonomous ability to make decisions were 53% significantly less likely to attempt abortion (aOR=0.47; CI=0.26-0.88) than women who were dependent on their spouses/partners for decision-making.

Also, women aged 18-24 had a 92% significantly lower likelihood than women below 18 to attempt abortion (aOR=0.08; CI=0.02-0.42). The results also showed that marital status significantly influenced women's abortion attempt as those who were divorced and widowed had 92% significantly higher odds of abortion attempt than their married counterparts (aOR=1.92; CI=1.05-3.52). Spousal/partners' age differences also had a significant influence on abortion decisions as women who had much older spouses/partners were 68% (aOR=0.322; CI=0.16-0.65) less likely than their counterparts who had younger spouses/partners to attempt an abortion.

Place Table 3 about here

Having the support of spouses/partners influenced women's abortion decisions. In this, women whose spouses/partners' opinions were not in support of abortion were 47% less likely than women who had supportive opinions of spouses/partners on abortion (aOR=0.53; CI=0.31-0.89).

For women whose significant others (friends and relatives) had supportive opinions on abortion, there was a much higher likelihood of abortion decision than for women whose significant others did not support abortion (aOR=2.32; CI=1.31-4.10). The result also showed that the number of children ever born significantly influenced abortion attempts on unintended pregnancy. Stated empirically, women who had 1-3 children were 80% aOR=0.20; CI=0.08-0.51) less likely, while those who had above three children were 77% aOR=0.23; CI=0.08-0.66) less likely than women with no children to attempt an abortion. The frequency of exposure to the media was also found to significantly influence women's decision to attempt an abortion.

Discussion

The community survey of women shows that nearly three of five women with unintended pregnancies attempted abortion, and the method mainly used was an oral intake of herbs and substances. This result is consistent with UNFPA's 2022 report that shows that 60% of unintended pregnancies are aborted. It is also comparable with findings in previous studies (Guttmacher Institute, 2022; Bearak et al., 2020). However, this rate is unsurprisingly much higher than the one-third reported by Swannnell and Aust (2016). A plausible reason for the much higher rate is that while previous studies focused on women in general, this study isolated women with recent experiences of unintended pregnancy. Focusing on women with experience of unintended pregnancy is considered more reliable because the women had been exposed to the risk of abortion, which made their reporting more informed. Moreover, using women not exposed to the risk of abortion in the base calculation of the abortion rate would lead to an underestimation. It would only produce a crude abortion rate, which is less unreliable.

Whatever the mode of calculation, it is clear that women attempted abortion, irrespective of their religious beliefs or affiliations. Both unadjusted and adjusted logit models showed that neither

religious beliefs nor religious affiliations significantly influenced women's abortion attempts. These are consistent with previous studies (Frohwirth et al., 2018; Williams, 1982), which reported the non-significant influence of religion on sexual and reproductive health decision-making even though it contrasts with a few (Oyediran et al. (2020).

Beyond the purview of previous studies, however, the current research points to the complexity that shrouds people's religious tenets and practices, albeit hypocrisy. This may explain why people would suddenly jettison their 'religious beliefs' and commit an abortion just because they do not want to be seen as committing the same 'sin' they have vehemently condemned. In settings where religion has become a dominant factor in people's way of life, people may prefer to appear 'socially desirable' so that people do not judge them. This explains why people, especially unmarried, may fear unintended pregnancies more than life-threatening sexually transmitted infections (STIs) because even though STIs may kill, they do not make people look promiscuous like unintended pregnancies would.

It is also likely that religious beliefs do not prevent women from committing an abortion because those beliefs might not have been their religious choices had they the free will to choose what to believe. A study by the Pew Research Center (2016) shows that over 8 in 10 religious adherents were born into the religion of their parents/guardians. Before individuals could become conscious of religious choices, they would have been so accustomed that a renouncement might not be socially desirable. This may make women commit an abortion even if their inherited religious beliefs do not support it. The reverse of this may be the case among women of high socio-economic status who might have unbundled themselves from traditionally held religious beliefs. For instance, the current study shows that more women with tertiary education (59.5%) than those with primary education (31.8%) attempted abortion. In what looks like evidence in

support of the secularisation theory (Stijn & Guido, 2015), the study also shows that more skilled (59.5%) than unskilled women (43%) attempted an abortion. However, the logit models showed that education and employment status had no significant influence on abortion attempts, thus pointing to the limitation in the postulations of the theory (Lechner, 1991).

Educated and skilled women might have the wherewithal and relative autonomy to abort an unwanted pregnancy, more so that unwanted pregnancy impairs their economic productivity and labour force participation (Yazdkhasti et al., 2015). However, their decision not to abort a pregnancy may be determined by the number of children they already have. The study shows that the likelihood of attempting an abortion is reduced with more children ever born. For instance, women who already had their desired fertility may abort an unwanted pregnancy, unlike women who desire additional children. Other factors undermining this study's postulation of the secularisation theory were the opinions of significant spouses and significant others.

While educated and skilled women may have the autonomy to decide to abort an unwanted pregnancy, such autonomy does not erode the fact that it takes two to produce a pregnancy. This explains why women whose partners did not have supportive opinions about abortion options were 47% less likely to attempt terminating an unwanted pregnancy. After all, trying to abort a pregnancy when spouses/partners did not support the abortion could lead to domestic violence against women (Grace et al., 2023), irrespective of their socio-economic status. This underscores the importance of agreement between couples/cohabiting partners when making sexual and reproductive health decisions.

Furthermore, media exposure was found to significantly influence women's abortion attempts, as the odds of attempting an abortion were highest among women with the highest frequency of

exposure. This result is consistent with the findings by Ahinkorah et al. (2020). This might be because the women were exposed to media that showed them methods of committing an abortion, which they tried when the need arose. However, this might not be the case since the media they were exposed to were censored (television, radio and newspaper). Even at that, women highly engaged in censored media are likely to be quite active on the uncensored ones, thus exposing them to abortion information. Studies have also reported how media exposure improved women's access to sexual and reproductive health information (Das et al., 2021) and service usage (Ajaero et al., 2016). Thus, The media remains a veritable platform that may be used to sensitise the public on the importance of discontinuing the subterfuge of religion as bait to deny women access to safe sexual and reproductive health services, including abortion.

Strength and Limitations

This study unlocked insights into the two sensitive topics of religion and abortion. The study filled the knowledge gap created by the lack of community-based evidence on the relationship between religious beliefs and abortion attempts among women faced with unintended pregnancies. This gap existed despite the prevailing attribution of restrictive laws and discriminatory reproductive health practices to considerations shrouded in religion. The study also improved an understanding of how women's socio-economic positions influence their attempt at abortion in the face of unintended pregnancies. Notably, the study provides evidence to engage religious/opinion leaders on how religious practices could be more tolerant of sexual and reproductive health choices. After all, women seek services when in need, without recourse to religion. The study's use of an electronic data kit for data collection contributed to the data quality.

However, the study has some drawbacks, which may require the findings to be cautiously used. First, an abortion attempt was measured as making efforts to terminate a pregnancy, but the outcome of the effort was not investigated. Since not all abortion attempts would lead to eventual pregnancy termination, this might have overestimated the reported abortion rate. Second, religious beliefs are so complex that measuring them at a point in time, as was done in this study, might not adequately cover their dynamism. Lastly, not only did the study's use of a cross-sectional design not permit the measurement of the dynamisms in religious beliefs, but it also did not permit the measurement of the influence of the dynamisms on abortion attempts. Hence, the preferential use of 'relationship' instead of 'causality' was adopted in the inferential analysis. Some of the identified limitations may be overcome through longitudinal studies adopting qualitative designs.

Conclusion

Abortion attempts are high among women of reproductive age in Osun state, irrespective of their religious beliefs about abortion. Methods used for attempting abortion are predominantly unsafe, the most common of which is oral intake of herbs and substances. A high number of children ever born, frequent exposure to the media, being young, and having supportive opinions from spouses/partners about abortion are the significant factors that influence women's abortion decisions. Therefore, religion should not continue to be used as bait to deny women access to safe sexual and reproductive health services. It is recommended that the legal frameworks guiding women's access to sexual and reproductive health services in Nigeria be reviewed without placing religious considerations above women's health and lives.

Statements & Declarations:

Funding

No funding was received for the study

Competing Interests

All the authors declare no competing interest

Data Availability

The data and Stata dofile used for the analysis are available upon request. The corresponding author should be contacted for this.

Ethics approval

All experiments/methods/activities in the study were performed in accordance with the Declaration of Helsinki. Ethical approval was gotten from an Institutional Ethical Review Committee. Participation was purely voluntary and premised on informed consent. Where minors (women aged 15-17) were involved, informed verbal and written consents were provided by the male partner (if married) or by the head of household (if unmarried). After this, the consent of the minors involved was then obtained. Where recruited participants could not understand English, the certified translation in Yoruba language was used. Informed consent was obtained from all subjects and/or their parents or legal guardian(s) for the study

Consent to participate

Participation was purely voluntary and premised on informed consent. Where minors (women aged 15-17) were involved, informed verbal and written consents were provided by the male partner (if married) or by the head of household (if unmarried). After this, the consent of the minors involved was then obtained. Where recruited participants could not understand English, the certified translation in Yoruba language was used. Informed consent was obtained from all subjects and/or their parents or legal guardian(s) for the study.

Consent to publish

Not applicable

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Table 1: Social and demographic characteristics of the respondents

Variables	Response groups	Frequency (N=636)	Percentage
Age (in years) • *Mean*= 30.1 • *SD*=7.5	Below 18	21	3.3
	18-24	136	21.4
	25-34	281	44.2
	35+	198	31.1
Religion	Christianity	263	41.4
	Islam	274	43.1
	Others	99	15.6
Marital Status	Never married	136	21.4
	Currently married/cohabiting	376	59.1
	Others	124	19.5
Spouse/Partner's age • *Mean*=37.5 • *SD*=8.0	Spouses were younger by 5+ years	80	16.0
	Both are within the same 5-year age range	213	42.6
	Spouses were older by 5+ years	207	41.4
Highest level of education	None	25	3.9
	Primary	85	13.4
	Secondary	272	42.8
	Tertiary	254	39.9
Spouse/partner's level of education	None	15	3.0
	Primary	35	7.0
	Secondary	187	37.4
	Tertiary	263	52.0
Employment status	Unemployed	152	23.9
	Employed: unskilled	158	24.8
	Employed: skilled	326	51.3
Children ever born	None	96	15.1
	1-3	389	61.2
	3+	151	23.7
Frequency of media exposure	Never	144	22.6
	Rarely	212	33.3
	Often	213	33.5
	Always	67	10.5
Ethnic groups	Yoruba	400	62.9
	Igbo	81	12.7
	Others	155	24.4
Type of place of residence	Rural	265	41.7
	Urban	371	58.3
Household decision-making ability	Dependent	255	40.1
	Intermediate	251	39.5
	Autonomous	130	20.4

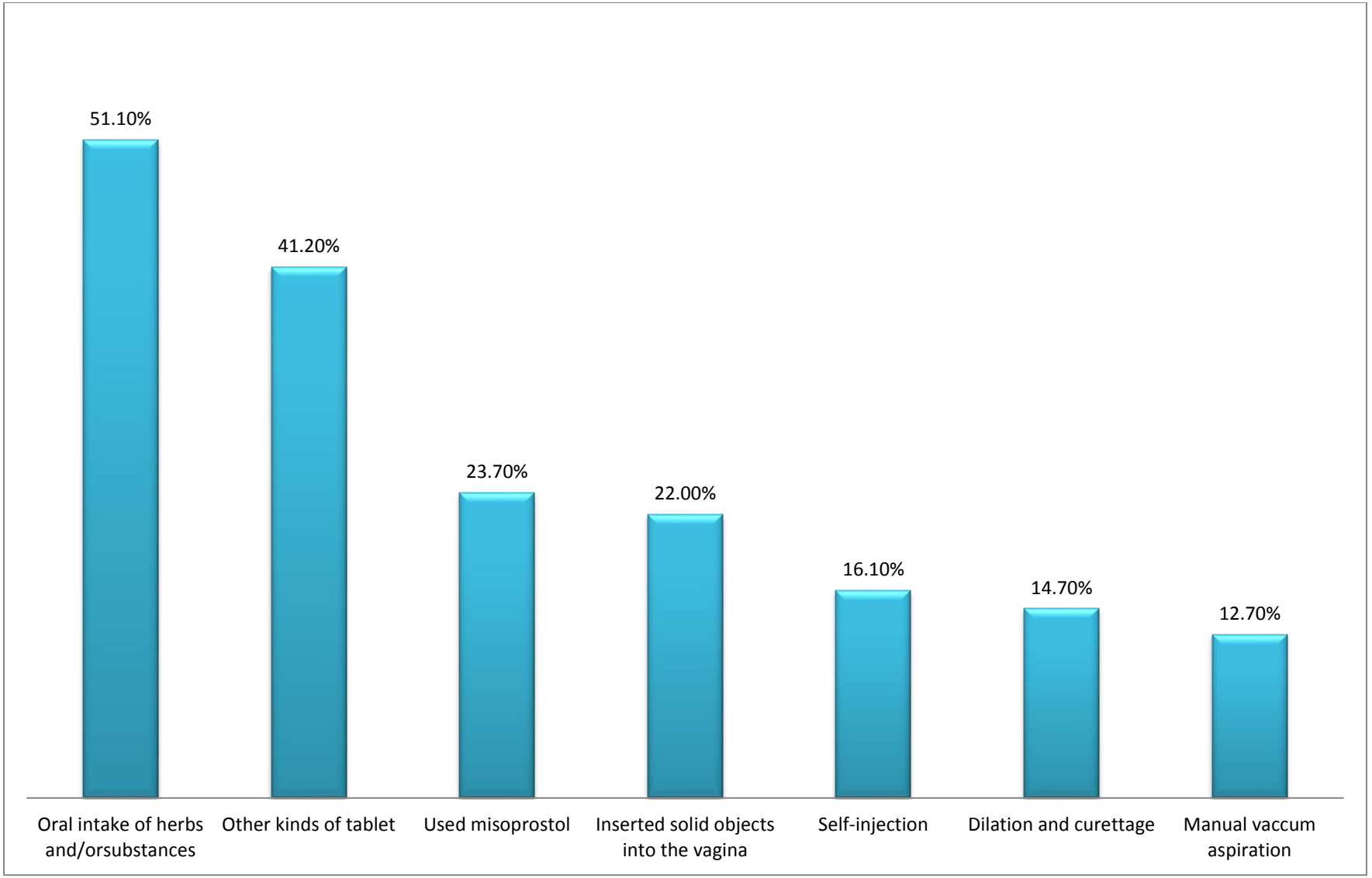

Figure 1: Methods used for abortion attempt

Table 2: Cross-tabulation of abortion attempt decision by the explanatory variables

		Abortion Attempt				
		Not Attempted	Attempted	Total	χ^2	P
Religious beliefs	Anti-abortion	192 (46.5)	221 (53.5)	413	2.21	0.14
	Pro-abortion	90 (40.4)	133 (59.6)	223		
Religion	Christianity	108 (41.1)	155 (58.9)	263	13.16	0.00
	Islam	142 (51.8)	132 (48.2)	274		
	Others	32 (32.3)	67 (67.7)	99		
Household decision-making ability	Dependent	115 (45.1)	140 (54.9)	255	6.93	0.03
	Joint	98 (39.0)	153 (61.0)	251		
	Autonomous	69 (53.1)	61 (46.9)	130		
Spouse/partner's opinion about the abortion option	Not supported	186 (43.5)	242 (56.5)	428	0.41	0.52
	Supported	96 (46.2)	112 (53.9)	208		
Opinions of significant others about abortion	Not supported	230 (46.1)	269 (53.9)	499	2.88	0.09
	Supported	52 (38.0)	85 (62.0)	137		
Age (in years)	Below 18	2 (9.5)	19 (90.5)	21	18.58	0.00
	18-24	75 (55.2)	61 (44.9)	136		
	25-34	114 (40.5)	167 (59.4)	281		
	35+	91 (46.0)	107 (54.0)	198		
Marital Status	Never married	54 (39.7%)	82 (60.3)	136	3.98	0.14
	Married/cohabiting	179 (47.6)	197 (52.4)	376		
	Others	49 (39.5)	75 (60.5)	124		
Spouse/partner's age difference	Partners younger by five years	23 (28.8)	57 (71.3)	80	23.29	0.00
	Both are within the same 5-year age range	86 (40.4)	127 (59.6)	213		
	Partners/spouses older by five years	119 (57.5)	88 (42.5)	207		
Highest level of education	None	14 (56.0)	11 (44.0)	25	25.28	0.00
	Primary	58 (68.2)	27 (31.8)	85		
	Secondary	107 (39.3)	165 (60.7)	272		
	Tertiary	103 (40.6)	151 (59.5)	254		
Employment status	Unemployed	61 (40.1)	91 (59.9)	152	13.57	0.00
	Employed: unskilled	90 (57.0)	68 (43.0)	158		
	Employed: skilled	131 (40.2)	195 (59.8)	326		
Children ever born	None	27 (28.1)	69 (71.9)	96	14.25	0.00
	1-3	176 (45.2)	213 (54.8)	389		
	3+	79 (52.3)	72 (47.7)	151		
Media exposure	Never	66 (45.8)	78 (54.2)	144	6.66	0.08
	Rarely	106 (50.0)	106 (50.0)	212		
	Often	87 (40.9)	126 (59.2)	213		
	Always	23 (34.3)	44 (65.7)	67		
Ethnicity	Yoruba	184 (46.0)	216 (54.0)	400	13.36	0.00
	Igbo	21 (25.9)	60 (74.1)	81		
	Others	77 (49.7)	78 (50.3)	155		
Residence type	Rural	128 (48.3)	137 (51.7)	265	2.89	0.09
	Urban	154 (41.5)	217 (58.5)	371		
Total		44.3	55.7	636		

Table 3: Models estimating the effects of religious beliefs and other variables on abortion attempt

Background Characteristics	Model 1 OR(95% CI)	Model 2 OR	Model 3 aOR(95% CI)	Model 4 aOR(95% CI)
Religious beliefs				
Anti-abortion	1.0			1.0
Pro-abortion	1.28(0.92-1.79)			0.97(0.60-1.58)
Religion				
Christianity		1.0	1.0	1.0
Islam		0.65(0.46-0.91)*	0.71(0.45-1.13)	0.71(0.53-1.19)
Others		1.46(0.90-2.38)	1.56(0.81-3.00)	1.56(0.81-3.00)
Household decision-making power				
Dependent			1.0	1.0
Intermediate			1.09(0.67-1.80)	1.10(0.67-1.81)
Autonomous			0.47(0.26-0.87)*	0.47(0.26-0.88)*
Age (in years)				
Below 18			1.0	1.0
18-24			0.08(0.02-0.41)*	0.08(0.02-0.42)*
25-34			0.26(0.05-1.42)	0.27(0.05-1.49)
35+			0.20(0.03-1.12)	0.20(0.04-1.17)
Marital Status				
Never married			1.0	1.0
Married/cohabiting			0.60(0.31-1.14)	0.58(0.30-1.11)
Others (divorced, widowed)			1.92(1.05-3.52)*	1.92(1.05-3.52)*
Spouse/partner's age				
Younger by 5+ years			1.0	1.0
Both are within the same 5-year age range			0.58(0.29-1.16)	0.58(0.29-1.17)
Older by five years or more			0.32(0.16-0.64)*	0.32(0.16-0.65)*
Spouse/partner's opinion about the abortion option				
Supported			1.0	1.0
Not supported			0.53(0.31-0.89)*	0.53(0.31-0.89)*
Opinion of significant others about abortion option				
Not supported			1.0	1.0
Supported			2.32(1.31-4.05)*	2.32(1.31-4.10)*
Highest level of education				
None			1.0	1.0
Primary			0.16(0.02-1.09)	0.16(0.02-1.09)
Secondary			0.48(0.07-3.49)	0.49(0.07-3.53)
Tertiary			0.41(0.06-2.97)	0.41(0.06-3.01)
Spouse/Partner's Highest level of education				
None			1.0	1.0
Primary			4.65(0.59-36.8)	4.67(0.59-37.0)
Secondary			2.50(0.25-25.2)	2.51(0.25-25.3)
Tertiary			3.45(0.34-34.61)	3.44(0.34-34.6)
Employment status				
Unemployed			1.0	1.0
Employed: unskilled			0.75(0.39-1.44)	0.75(0.39-1.44)
Employed: skilled			1.52(0.83-2.79)	1.53(0.82-2.83)
Children ever born				
None			1.0	1.0
1-3			0.20(0.08-0.51)*	0.20(0.08-0.51)*
3+			0.23(0.08-0.66)*	0.23(0.08-0.66)*
Media exposure				
Never			1.0	1.0
Rarely			2.20(1.13-4.28)*	2.21(1.13-4.33)*
Often			2.07(1.07-4.00)*	2.08(1.07-4.04)*
Always			2.36(1.04-5.39)*	2.37(1.04-5.42)*
Ethnicity				
Yoruba			1.0	1.0
Igbo			2.36(1.05-5.28)*	2.37(1.05-5.32)*
Others			0.78(0.47-1.30)	0.78(0.47-1.30)
Residence type				

Rural	1.0	1.0
Urban	1.14(0.74-1.75)	1.14(0.74-1.75)

significant at 5%; CI=confidence interval; OR=odds ratio; aOR=adjusted ratio