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Uptake and Associated Factors of Male Contraceptive Method Use: A Community-Based Cross-Sectional Study in Northern Uganda

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Background: Uganda has one of the highest fertility rates in Sub-Saharan Africa (SSA). Improving contraceptive uptake in all genders, including males, may be critical to meeting family planning goals in such a setting. Yet, data on male contraception uptake and associated factors in SSA, including Uganda, are limited. We determined the uptake and associated factors of male contraception use in Lira City, Northern Uganda.

Methods: We conducted a community-based cross-sectional study from November 12, 2022, to December 12, 2022, among men aged ≥ 18 years. We used multi-stage sampling to select participants from 12 cells of Lira City divisions of East and West. Data were collected using interviewer-administered structured questionnaires. We defined uptake in males who had used any contraceptive method, including periodic abstinence, withdrawal, condoms, and vasectomy in the previous four weeks. We performed modified Poisson regression to identify associated factors of male contraception uptake.

Results: We recruited 401 participants with mean age of 30.4 (± 9.3) years. Male contraceptive uptake was 46.4%, 95% CI: 41.5–51.3%. Ever heard about male contraception (adjusted prevalence ratio [aPR] = 1.73, 95% CI: 1.172–2.539, $p=0.006$), willingness to use novel methods (aPR=2.90, 95% CI: 1.337–6.293, $p=0.007$), both partners being responsible for contraception (aPR: 1.53, 95% CI: 1.113–2.119, $p=0.009$) were the factors associated with male contraception uptake.

Conclusion: We found that nearly half of the men surveyed had used male contraceptive methods in Lira City. Factors associated with the uptake of male contraception included having heard about male contraception, joint couple decision regarding contraception, and the use of novel methods of male contraception. We recommend comprehensive education and awareness campaigns to promote male contraception, with a particular emphasis on encouraging shared decision-making within couples and introducing innovative contraceptive options.

Keywords: knowledge, male contraception, practices, uptake, Uganda

Background

Globally, male contraceptive use stands at 12.5% and about 60.0% of males are indirectly involved in family planning through spousal communication and approval.¹ There is a paucity of literature concerning male contraceptive use in Africa; however, a recent systematic review reported a low level of willingness to use novel male hormonal contraceptives of 34.0%.² According to the Uganda Demographic and Health survey of 2016, 35.9% of men were using a modern contraceptive method, an increase from 10.4% in 1995.³ Yet, the country is grappling with the highest fertility rate in the region and it stands at 5.4.⁴

Male partners play a key role in family planning/contraceptive uptake and use. This is influenced by different dimensions that include personal, organizational, spiritual, cultural, and political.² Henceforth, increasing access to

and uptake of male contraceptive methods (periodic abstinence, withdrawal, condoms, and vasectomy) is paramount in reducing abortion rates and unintended pregnancies.⁵ Additionally, contraception helps in healthy timing and spacing of pregnancies, hence regulating fertility. This correlates with a fall in infant, child, and maternal mortality.¹ A recent review reported that male contraception has the potential to shift societal gender dynamics and provide males with gender control over their production.^{4,6} However, recent clinical trials have reported that men are less willing to use male contraceptives with a level as low as 13.6%.² If not addressed, this is likely to compromise the achievement of Sustainable Development Goal 3.8 which targets health for all by the year 2030.

In Lira City, there has been a recurrent resistance to family planning by men due to widespread misconceptions about the use of family planning with frequent cases of domestic violence towards their female counterparts.⁷ Furthermore, a recent study in Uganda found that for men, a lack of knowledge, fear of their partners experiencing side effects, and dissatisfaction with male contraceptive methods have been key barriers to their involvement in their reproductive health.⁸ Hence, male contraception has been underutilized due to a myriad of factors. Thus far, male contraceptive behavior has been a largely understudied area in Uganda, yet male involvement in family planning both as clients and partners remains a key focus of reproductive health programs.⁹ Therefore, the purpose of this study was to determine the uptake and associated factors of male contraception use in Lira, Northern Uganda.

Methods

Study Setting

The study was conducted in Lira City from November 12, 2022, to December 12, 2022. Lira city is located in the central part of northern Uganda about 343km from Kampala, well known as one of the regions in northern Uganda with a poor contraceptive non-use prevalence of 50%.¹⁰ The city comprises four major divisions, namely: Lira City West, East Division, Central, and Adyel division. The current uptake of male modern contraceptives in Lira City is unknown; however, recent studies found that the prevalence of utilization of modern contraceptives among postpartum women at two health centers in Lira City was 49.4%.¹¹

Study Design

This was a community-based cross-sectional study.

Study Population and Eligibility Criteria

We included males aged 18 years and above, who were residing in the selected divisions of Lira City during the study period. The study excluded male health workers because they have good knowledge of male contraceptives and were likely to skew the data. Additionally, individuals who declined to consent were excluded.

Sampling Criteria

A multi-stage sampling technique was used to select the participants from the Lira City Divisions of East and West. The 12 selected cells were Bar-onger Central and Go-down, Railway Quarters, Boroboro East, Baridike, Owinyo church, Ayago (a and b) and Kirombe Central and West, Teso A and Lira Modern Primary School. The two divisions, East and West were selected. Within each of the two divisions, two sub-counties were selected by simple random sampling. From each sub-county, two parishes were selected by a simple random sampling technique. A consecutive sampling technique was used to select the participants who gave written consent. In the technique, participants meeting the inclusion criteria and willing to participate were selected for the study. Participants who at the time of data collection were emotionally or psychologically unstable or had difficulty communicating or had cognitive impairment were excluded.

Sample Size Estimation

The study estimated sample size using the Kish formula (1965), assuming a variability ($p=0.13$), 95% Confidence interval, 5% margin of error, and $Z=1.96$. In order to account for the non-response rate, the sample size was increased by

10% to 193 participants. By factoring in the design effect of 2, this doubled the calculated minimum sample size to generate a total estimate of 386.

Data Collection

Five research assistants who were social scientists and good in both English and local dialect were recruited and trained to guide participants in filling in the questionnaire. Data for the present study was collected using a researcher-formulated questionnaire. The instrument had two sections, A and B. Section A captured demographic information such as age, education, marital status, and others. Section B captured information on awareness of, knowledge of, and practices of male contraceptive use and had 15 items. Such items included, "Have you ever heard about male contraception?" It captured information on the basis of "yes" and "no." The uptake of male contraception, or self-reported use of male contraceptives in the prior month, was the study's outcome variable and was assessed as a yes/no response. The independent variables included sociodemographic characteristics, knowledge about, and practices regarding male contraception. Pretesting of the questionnaire was done on 10% of the respondents, giving a Cronbach's alpha of 0.89.

Data Analysis

Every questionnaire was checked for completeness. Data were collected using Open Data Kit (ODK) software and thereafter exported to Microsoft excel for cleaning and editing, which was later exported to STATA version 17 (STATA Corp LLC, Texas, USA). Descriptive statistics including frequencies and percentages were used to summarize the participants' characteristics. Univariate analysis was done to generate frequencies and percentages for male contraceptive uptake variables related to knowledge and practices. Bivariate and multivariate analysis with a well-constructed regression model of predictors of male contraception was done. The outcome variable was extracted from the question, have you ever used any male contraception in the previous four weeks? Responses were Yes or No. We utilized prevalence ratios by way of a modified Poisson regression method employing a generalized linear model with Poisson as family and log link without an offset and integrating robust standard errors.^{12,13} Given the high prevalence (46.4%), odds ratios could have overestimated the effect size, hence they were not employed.¹⁴

Results

Socio-Demographic Characteristics

We analyzed data from 401 male participants, with an average age of 30.4 (± 9.3) years with an average of 3 children. Most participants had completed tertiary education (37.7%; $n=151$), were married (60.6%; $n=243$), and were peasants (46.3%; $n=155$). Most of the respondents were Anglican (47.4%; $n=190$) and lived in an urban setting (91.5%; $n=367$) (Table 1).

Male Contraceptive Uptake Variables Related to Knowledge and Practices

Out of the total sample of 401 male participants, the uptake of male contraceptives was 46.4% ($n=186$) with a 95% confidence interval of 41.5% to 51.3%. The majority of the respondents had heard about male contraceptives (61.9%; $n=248$) and knew condoms as a male contraceptive method (68.8%; $n=275$). Most of the respondents had obtained this information from friends (48.9%; $n=108$) and had talked to their spouses about using male contraceptives (53.1%; $n=213$). However, most of the respondents were not willing to use novel contraceptives (61.6%; $n=247$) and their spouses had not approved of the use of male contraceptives (51.4%; $n=206$) (Table 2).

Factors Associated with Male Contraceptive Use

At Multivariate analysis (Table 3), ever hearing about male contraception (adjusted prevalence ratio [aPR]=1.73, 95% CI: 1.172–2.539, $p=0.006$), willingness to use novel methods (aPR=2.90, 95% CI: 1.337–6.293, $p=0.007$), both partners responsible for contraception (aPR: 1.53, 95% CI: 1.113–2.119, $p=0.009$) were significantly associated with uptake of male contraceptives. Participants who had heard about male contraceptives were 1.73 times more likely to use male contraceptives compared to those who had not heard of male contraceptives. Respondents who were willing to use novel

Table 1 Socio-Demographic Characteristics of Respondents (N=401)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	18–24	103	25.69
	25–35	207	51.75
	36–45	68	17.00
	>45	22	5.50
Education	No formal education	18	4.49
	Primary	94	23.44
	Secondary	138	34.41
	Tertiary	151	37.66
Marital status	Married	243	60.6
	Not married	158	39.4
Occupation	Businessman	119	35.52
	Engineer	23	6.87
	Health worker	7	2.09
	Peasant	155	46.27
	Politician	4	1.19
	Teacher	27	8.06
Religion	Anglican	190	47.38
	Catholic	180	44.89
	Muslims	31	7.73
Employment status	Employed	80	19.95
	Self employed	277	69.08
	Student	44	10.97
Have children	No	147	36.66
	Yes	254	63.34
Number of children	1–3	187	73.62
	4–6	53	20.87
	>6	14	5.51
Desire to have children	No	141	35.16
	Yes	260	64.84
Average monthly income (UGX)	<50,000	62	17.0
	50,000–100,000	68	18.7
	>100,000	234	64.3

Abbreviation: UGX, Ugandan shillings.

Table 2 Knowledge and Practices Regarding Male Contraceptive Use Among Respondents (N=401)

Variable	Attribute	Frequency	Percentage
Heard about male contraceptive	No	153	38.2
	Yes	248	61.9
Willingness to use novel method	No	247	61.6
	Yes	154	38.4
Discussion with spouse	No	188	46.9
	Yes	213	53.1
Spousal approval	No	206	51.4
	Yes	195	48.6
Responsible for contraception	Husband	139	34.7
	Wife	68	17.0
	Both	194	48.3

(Continued)

Table 2 (Continued).

Variable	Attribute	Frequency	Percentage
Source of information	Friend	108	48.9
	Social media	71	32.1
	Television	13	5.9
	Workmate	29	13.1
Reasons for non-use*	Side effects	60	44.1
	Do not know any method	25	18.4
	Religious prohibition	18	13.2
	Contraception is for women	15	11.0
	Others	11	8.1
	Desire for more children	7	5.2

Notes: *Reasons for non-use were assessed among 135 respondents, who answered this question.

Table 3 Bivariate and Multivariate Analysis for Factors Associated with Male Contraceptive Use, Lira City, Uganda

Variable	Male Contraceptive Use		Bivariate Analysis			Multivariate Analysis		
	No n (%)	Yes n (%)	PR	95% CI	P value	aPR	95% CI	P value
Age (years)								
18–24	59(27.6)	44(23.7)	Ref					
25–35	98(45.8)	109(58.6)	1.23	0.869–1.750	0.24	2.49	0.636–9.766	0.19
36–45	40(18.7)	28(15.1)	0.96	0.600–1.548	0.88	1.48	0.358–6.152	0.59
>45	17(7.9)	5(2.7)	0.53	0.211–1.342	0.18	0.93	0.171–5.118	0.94
Education								
None	11(5.1)	7(3.8)	Ref					
Primary	64(29.8)	30(16.1)	0.82	0.360–1.868	0.61			
Secondary	83(38.6)	55(29.6)	1.02	0.467–2.250	0.95			
Tertiary	57(26.5)	94(50.5)	1.60	0.743–3.450	0.23			
Marital status								
In a marital relationship	131(60.9)	112(60.2)	Ref					
Not in a marital relationship	84(39.1)	74(39.8)	1.02	0.758–1.363	0.92			
Occupation								
Businessman	46(26.4)	73(45.3)	Ref					
Engineer	5(2.9)	18(11.2)	1.28	0.762–2.137	0.36	1.15	0.743–1.771	0.54
Health worker	3(1.7)	4(2.5)	0.93	0.340–2.549	0.89	1.33	0.659–2.675	0.43
Peasant	107(61.5)	48(29.8)	0.50	0.351–0.727	<0.001	0.81	0.567–1.150	0.24
Politician	2(1.2)	2(1.2)	0.82	0.200–3.321	0.78	1.01	0.457–2.362	0.99
Teacher	11(6.3)	16(9.4)	0.97	0.562–1.651	0.90	1.23	0.707–2.132	0.47
Anglican	91(42.3)	99(53.2)	Ref					
Catholic	105(48.8)	75(40.3)	0.80	0.592–1.079	0.14	0.85	0.621–1.157	0.30
Muslims	19(8.8)	12(6.5)	0.74	0.408–1.352	0.33	0.56	0.281–1.133	0.12
Employment								
Employed	37(17.2)	43(23.1)	Ref					
Self employed	149(69.3)	128(68.8)	0.86	0.609–1.214	0.39	1.06	0.654–1.727	0.81
Student	29(13.5)	15(8.1)	0.63	0.352–1.142	0.13	3.92	0.856–17.916	0.08
Have children								
No	78(36.3)	69(37.1)	Ref					
Yes	137(63.7)	117(62.9)	0.98	0.729–1.321	0.90			
Number of children								
1–3	98(71.0)	89(76.7)	Ref					
4–6	27(19.6)	26(22.4)	1.03	0.666–1.595	0.14	1.09	0.792–1.498	0.60
>6	13(9.4)	1(0.9)	0.15	0.021–1.077	0.06	0.27	0.048–1.494	0.13

(Continued)

Table 3 (Continued).

Variable	Male Contraceptive Use		Bivariate Analysis			Multivariate Analysis		
	No n (%)	Yes n (%)	PR	95% CI	P value	aPR	95% CI	P value
Income								
Below 10,000	32(16.1)	7(4.2)	Ref			Ref		
10,000–50,000	15(7.5)	8(4.9)	1.64	0.873–3.085	0.12	1.35	0.687–2.640	0.39
>50,000	152(76.4)	150(90.9)	2.17	1.271–3.714	0.05	1.37	0.740–2.511	0.32
Heard about male contraceptive								
No	116(54.0)	37(19.9)	Ref					
Yes	99(46.1)	149(80.1)	2.48	1.733–3.561	<0.001	1.73	1.172–2.539	0.006
Willingness to use novel method								
No	148(68.8)	99(53.2)	Ref					
Yes	67(31.2)	87(46.8)	1.72	1.272–2.334	<0.001	2.90	1.337–6.293	0.007
Discussion with spouse								
No	125(58.1)	63(33.9)	Ref					
Yes	90(41.9)	123(66.1)	1.72	1.272–2.234	<0.001			
Spousal acceptance of contraception								
No	131(60.9)	75(40.3)	Ref					
Yes	84(39.1)	111(59.7)	1.56	1.166–2.095	0.003	0.92	0.516–1.651	0.79
Responsible for contraception								
Man	191(42.3)	48(25.8)	Ref					
Both	89(41.4)	105(56.5)	1.57	1.114–2.205	0.01	1.53	1.113–2.119	0.009
Woman	35(16.3)	33(17.7)	1.41	0.902–2.189	0.13	1.43	0.093–2.203	0.110
Source of information								
Friend	49(49.5)	59(48.4)	Ref					
Social media	31(31.3)	40(32.8)	1.03	0.690–1.540	0.88			
Television	8(8.1)	5(4.1)	0.70	0.283–1.754	0.45			
Workmate	11(11.1)	18(14.8)	1.14	0.670–1.925	0.64			

Abbreviations: PR, prevalence ratio; aPR, adjusted prevalence ratio; CI, confidence interval; Ref, reference category.

methods of male contraceptives were 2.9 times more likely to use male contraceptives compared to those who were not willing to use novel methods. Males who reported that both partners are responsible for contraceptive use were 1.53% more likely to use male contraceptives (Table 3).

Discussion

We conducted a study to determine the uptake and associated factors of male contraceptive method use in Northern Uganda. We found the uptake of male contraceptives was 46.4%. The findings report an improvement in the uptake of modern male contraception contrary to the previously reported uptake of 35.9% by a recent cross-sectional population survey conducted in Uganda.⁶ This is most likely due to the increase in massive campaigns on virtual communication platforms, radios, and TVs regarding male contraception use in the study setting. Moreover, in the current study, men who had ever heard about male contraception were more likely to use male contraception compared to their counterparts who did not get any information regarding male contraception. The uptake of male contraceptives in the current study is consistent with previous reports from Cameroon and Ghana, which documented rates of 46.4% and 42.6%, respectively.^{15,16} However, the uptake is higher than 38.4% reported in urban Uganda.¹⁷ This discrepancy may be attributed to differences in sample size and geographic settings.

The results further revealed that 53.1% had talked to their spouses about using male contraceptives and the couple jointly consented to it. The findings of this study align with recent research conducted in Malawi and Tanzania, which reported a prevalence of male involvement in family planning decisions of 53.0% and 26.6%, respectively.¹⁸ This is further supported by a study conducted in Indonesia, which found that the approval of the family planning method by

spouses positively influenced the uptake of male contraception.¹⁹ This study also revealed decreased willingness for uptake in situations where only male partners were responsible for contraception. Couples need to make a joint decision regarding contraception because it involves both individuals and affects their relationship, well-being, and future plans. Making a joint decision together ensures that both partners are comfortable and in agreement with the chosen method and promotes communication, mutual trust in the relationship and overall quality of life.

Our findings show that participants who were willing to use novel methods of male contraceptives were more likely to use male contraceptives compared to those who were not willing to use novel methods. This finding aligns with the results of a recent qualitative survey conducted in Uganda and Burkina Faso, which indicated a greater level of acceptance and positive attitudes towards novel hormonal contraceptive methods in Uganda compared to Burkina Faso.²⁰ These findings categorically indicate that there is growing awareness about men taking responsibility for contraception and will most likely accept and utilize these novel methods once available, given the fact that traditional hormonal female contraceptive methods have been associated with serious lifelong side effects in women.

Our results revealed that those who had not heard of male contraceptives and were not willing to use novel methods were less likely to use male contraceptive methods. Both of these circumstances negatively affect male contraceptive uptake rates, because men are not educated on the different options of male contraception and may not consider using them as a viable option for family planning. This can lead to deadly complications that include unintended pregnancies which can have long-term consequences for individuals, families, and communities. This result mirrors the findings of the study conducted in 2017 in Uganda.²¹

In a nutshell, the improved male contraceptive uptake has public health implications, as this will most likely reduce the burden of contraceptive uptake on women and potentially lower the magnitude of unintended pregnancies and the overall burden of maternal morbidity and mortality. The factors associated with male contraception such as having heard about male contraception could have been indirectly influenced by increasing male literacy levels, socioeconomic status, exposure to sexual reproductive health and rights services in schools, and media exposure. Therefore, such efforts and many others should be continuing to exist and be supported by the government of Uganda and other development partners. Lastly, joint couple decision-making around contraception use could lead to increased contraception use in general and better decision-making around family planning. The factors that could impact this decision-making process could include the level of couple communication, gender norms, power dynamics within the relationship, and individual attitudes towards contraception.

Strengths and Limitations of the Study

The study helped provide evidence of acceptability regarding further plans to roll out novel male contraception methods. However, it was limited in scope and only focused on male contraceptive uptake in Lira City Northern Uganda; hence, our findings can only be generalized to the population of men in Lira City in Northern Uganda and other similar peri-urban settings. Because the study was cross-sectional, we cannot establish causality, its limited to one point in time and does not provide information on temporal relationships. Additionally, we could not rule out under-reporting of male contraception given that it is a culturally sensitive issue that is subject to social desirability bias and the Hawthorne effect. Despite its limitations, this study produced data that will help researchers better understand the magnitude of male contraception is low and the factors associated with the uptake.

Conclusion

We found that nearly half of the men surveyed had used male contraceptive methods in Lira City. The factors associated with the uptake of male contraception included having heard about male contraception, joint couple decision regarding contraception, and use of novel methods of male contraception were significantly implicated in increasing willingness for uptake. We recommend increasing efforts to create more awareness and education around male contraceptive methods with a focus on joint decision-making between couples and the use of novel methods. This could potentially lead to an increase in the adoption of male contraceptives and ultimately contribute to more effective family planning and reproductive health outcomes.

Abbreviations

aPR, adjusted prevalence ratio; CI, confidence interval; CIRTH, Center for International Reproductive Health Training; ODK, Open Data Kit; PR, prevalence ratio; SD, standard deviation.

Data Sharing Statement

The Principal Investigator is the custodian of the datasets and other materials of this study. For confidentiality reasons, the datasets are not publicly available. However, the data sets can be availed upon reasonable request from the corresponding author.

Ethics Approval and Consent to Participate

The ethical approval was granted by Gulu University Research Ethics Committee under approval number GUREC-2022-330. We sought and obtained written informed consent from respondents during data collection. The participants indicated their consent by checking an appropriate box for consent before filling out the questionnaires. Participants were told that their participation was voluntary and that there would be no negative consequences if they refused to participate (none declined). During data collection, respondents were assigned unique identifiers instead of names to protect their confidentiality. Information was stored in password-protected computers and was not shared with anyone outside the investigation team. Additionally, we obtained permission from Local council Chairpersons of the selected wards of Lira City where the study was conducted.

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Author Contributions

All authors (RT, EK, SN, GM, JN, AK, MM and RM) made substantial contributions to the conception and design of the study, acquisition, analysis, and interpretation of the data. All the authors took part in drafting and revising the article critically for important intellectual content; all the authors agreed to submit the manuscript to the current journal; all authors gave final approval of the version to be published, and agreed to be accountable for all aspects of the work.

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Disclosure

The authors of this work report no conflicts of interest. However, it is important to note that Lira University had not yet established its own Research Ethics Committee at the time of our study (REC). Therefore, we sought ethical approval for our research protocol from the nearby institution, Gulu University. Initial establishment of Lira University was as a constituent college affiliated with Gulu University.

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