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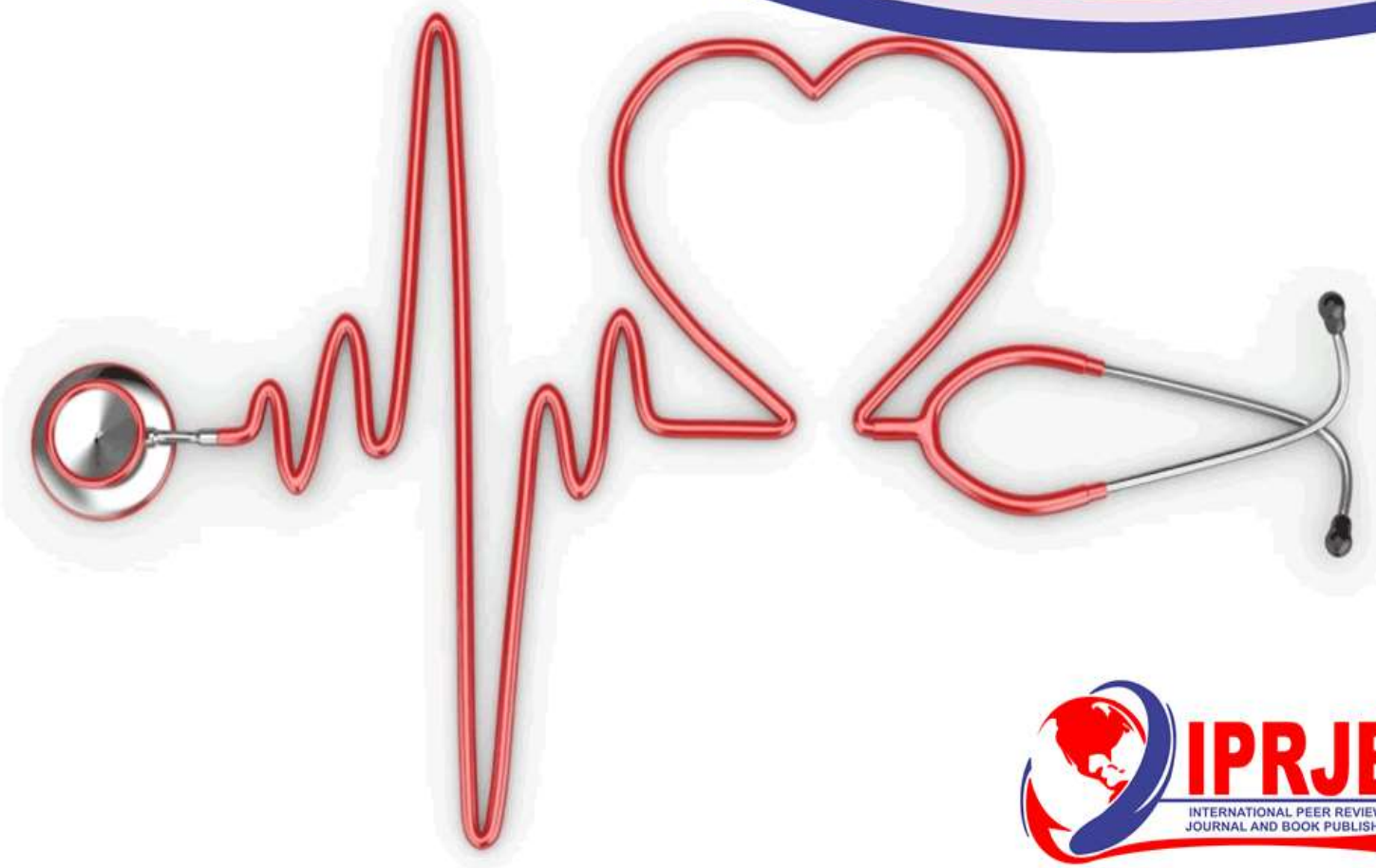

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Utilization of Male Contraceptives among Males in Bungoma County, Kenya

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Abstract

Purpose: Kenya has several policies to promote male participation in family planning, but data on male contraceptive use by male respondents is scanty. Available reports indicate that utilization of male contraceptives in Bungoma County to be less than 1%. This has been linked to high maternal deaths in Bungoma County. Limited male contraceptive choices has been cited as a barrier to utilization of current male contraceptives which calls for more research on male respondents to inform utilization, barriers, development and rollout of new male contraceptives. The aim of the study is to determine utilization of male Contraceptives among males in Bungoma County in Kenya**.**

Methodology: A Cross-sectional Analytical study conducted among 395 males aged 20-69 years in Bungoma County in Kenya. Sample size was determined by Fisher et al. formula and multistage sampling technique was employed. Descriptive and inferential analyses were employed with p-value < 0.05 being considered significant.

Findings: 80.9% of males are using aform of contraceptive with condom being the most used contraceptive (89.3%). Commodity related issues (X^2 =40.570, $p < 0.001$), service delivery point ($X^2 = 82.252$, $p < 0.001$), staff gender preference ($X^2 = 10.013$, $p = 0.018$ were found to be statistically significant barriers to utilization. There was a significant association (X^2 = 59.286, $p < 0.001$) between level of knowledge and utilization. 99% of the males are not aware of any other contraceptive other than condom vasectomy and withdrawal. If a new contraceptive was developed, the majority would prefer a pill when required.

Unique Contribution to Theory, Practice and Policy: This study established a higher utilization of male contraceptives and influencers of utilization than earlier documented. Lack of knowledge by healthcare providers on new contraceptives calls for continuous medical education on the status of contraceptive development. These findings will inform the policy makers on the areas to focus on by leveraging on the existing opportunities to improve utilization of the current and any other contraceptive that is to be developed. It provides an opportunity for more research on male respondents.

Keywords: *Utilization, Current, New Male Contraceptives*

JEL Codes: *I12 O30 J13*

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INTRODUCTION

World health organization (WHO) defines Family planning as the ability of individuals and couples to plan and get their desired number of children by spacing and limiting of their births. This is attained by the correct use of various birth control methods for both male and females. (WHO, 2017).

Maternal mortality in Kenya remains significantly high at 355 deaths per 100,000 livebirth and its reduction to meet the WHO target of 70 deaths per 100,000 livebirths by the year 2030 remains a challenge. (USAID 2024) Unplanned, unintended pregnancies among teenagers and other women remain a major contributor to these maternal deaths.(National Bureau of Statistics-Kenya and ICF International, 2015)

World Health Organization estimates the current global Family planning prevalence to be at 76%, while 270 million women have unmet needs for family planning. This situation is likely to deteriorate during emergencies due to lack of information especially for young girls and adolescents. This is more compounded in cultures where men are not involved in family planning matters (WHO 2020)

United Nations Population Fund (UNFPA) is coordinating efforts to eliminate these unmet needs by 2030 and it is working to ensure universal access to sexual and reproductive health-care services including family planning, However, lack of information, access to FP services and socio-cultural factors remain key barriers to meeting its target for the Sustainable Development Goal number 3.7. (UNFPA 2020).

According to African Population and Health Research Centre (APHRC), patterns of contraceptive use vary among other things by age, sex, and other sociocultural factors. On average, women aged 30-39 years are the primary users of contraceptives while adolescents (aged 15-19) have the lowest contraceptive use. (APRH 2018) Since reproductive health is both a male and female affair this could be a proxy indicator for males from the same cohort hence the need for both genders to participate fully in family planning matters for the entire society to achieve better reproductive health status. However previous studies have shown minimal active participation of males despite being main family decision makers. Moreso data on contraceptive use among males is either HIV focused or outdated(Kriel et al., 2019)

Gender based skewed distribution of health workforce and unwillingness to share tasks among health workers have been cited as a key limitation to access and utilization of contraceptives and other reproductive health services. This has more often resulted in long waiting time, lack of confidence and poor adherence. (WHO, 2017). Sociocultural and psychological norms, lack of education, misinformation and dominance of female as health care providers as barriers while positive attitude in men, literacy and awareness as positive influencers. (Sharma et al., 2018)

Based on the Multi indicator cluster survey in Bungoma county, the use of condom, withdrawal method, male sterilization all stand below 1%. (KNBS et al., 2016).During the Covid19 lockdown Bungoma county was among the counties that had significant number of teenage pregnancies a proxy indicator of men not optimally using contraceptives.(NCPD et al., 2020)

The purpose of this research therefore is to determine male contraceptive utilization, barriers and possible influencers to new male contraceptive roll out that will inform planners and other

stakeholders on best approaches to adopt and accelerate uptake in Bungoma county that is geared towards meeting sustainable development goal 3.7.

Being key family decision makers, male participation in family planning will increase utilization of contraceptives, reduce unplanned and unwanted pregnancies and therefore reduce underage pregnancies, abortions and ultimately maternal mortality WHO

Statement of the Problem

Despite family planning services being free of charge in most public health facilities, utilization of male contraceptive in Bungoma county remains dismal (< 1% for all male contraceptives). (KNBS et al., 2016). This has been linked to the high maternal deaths 238/100,000livebirths deaths (IPF2023). Most of the maternal deaths occur due to abortions arising from unplanned or unintended pregnancies that are due to lack of access to contraceptives and or contraceptive information. (WHO 2020)

Despite males being key decision makers, their involvement or participation in family planning and utilization of male contraceptives is not well documented, outdated or skewed towards HIV control. (Kriel et al., 2019)

Limited choices for male contraceptives has been a barrier to utilization. There is a global investment into developing new options, however there is lack information on what men will prefer (WHO 2020)

This study was to provide more information on utilization, current barriers and other influencers of male contraceptive utilization that will inform planners on future programs and policies development.

Diffusion of Innovations Theory

This theory was developed an American Socialist Everett M Rogers in 1962 to explain how new ideas or technologies diffuse among communities This study seeks to identify the current utilization of male contraceptives, the existing barriers to utilization and preferences of community members if new contraceptives are to be developed. The study identifies influences of utilization of new contraceptive and the adopter categories for the new contraceptives if rolled out.

Empirical Review

Wondim et al., 2020 evaluated the involvement of males in Contraceptive utilization in Northern Ethiopia and established that, only 12.5% use contraceptives with 98% using condoms, 2% use withdrawal with no reported use of vasectomy.

In the Jordanian((WHO 2016))study, despite the high level of knowledge (90%) on the contraception methods. In this study 45% of males were using contraceptives together with their spouses. Similarly in a rural Burundi community, despite the high level of knowledge on contraceptives (95%) contraceptive uptake stood as low as 22% an indication that knowledge alone does not translate to utilization of contraceptives (Hakizimana & Odjidja, 2021)

According to Global 2018, The young and unmarried but sexually active may use short-term and reversible contraception methods and most males within this cohort use condoms. The same applies to the young married men who still need children and therefore use contraceptives for child spacing. Male condom use among this cohort is still the most prevalent.

From Li et al 2018 study in Uganda, elderly men perceived condom use as being for the young, unmarried, and unfaithful while in Malawi, adolescents delayed contraceptive use before marriage as they were to prove their fertility immediately after marriage (Dombola et al., 2021)

Götmark & Andersson, (2020) found that, religiosity is negatively related to total fertility rates (TFR) while George et al., 2020 while exploring influencers of contraceptive utilization among males in Uganda noted hesitance to embrace modern contraceptives by some religious sects in Uganda. (George et al., 2020) In a northern Nigerian study, Sinai et al established that 50% (25% male and 25% females) of the participants were not using contraceptives due to religious restrictions. Targeted engagement of males and religious leaders with correct information was recommended. (Sinai et al., 2018)

Plana, O. in 2015 researched on new male contraceptives among the marginalized and determined that cost, access, knowledge and availability of new contraceptive would influence utilization of new contraceptives.

Data Gaps in Reviewed Literature

According Kriel et al 2019, data on male contraceptives is scanty while most of the available data is skewed towards female family planning/contraceptives or HIV prevention. More so, most data collected is from female respondents. Based on the data available, the Kenya National Bureau of statistics (KNBS 2016), male contraceptive utilization in Bungoma County is reported to be less than 1%, however, it did not specify utilization by contraceptive and doesn't report on the influencers of utilization that would inform intervention. This demands for urgent data collection to provide baseline information to guide evidence-based strategies for planners and implementors to enable to achieve SDG.

METHODOLOGY

Study Design

This was a community-based cross sectional analytical study that was to determine male contraceptive utilization in in Bungoma county in Western Kenya. This design was adopted to enable understand the actual proportions of males using contraceptives and associations between influencers to utilization that informed the poor reproductive indicators as reported by other investigators.

Participants

The target population was males aged 20-69 years of age who residents Kamukuywa ward of Kimilili Subcounty.

Inclusion Criteria

Males aged between 20-69 years who were residents of Kimilili Subcounty, Kamukuywa ward for at least 3 months prior to data collection and who voluntarily consented to participate in the study.

Exclusion Criteria

Exclusion criteria was any person who was a nonresident or resident for less than three months at the time of data collection, not male, mentally challenged and those who participated in pretesting of the questionnaire.

Sample Size Determination

Sample size determination was by Fisher et al. formula n= z2 pq/d2

n= 1.962x0.5x0.5/0.052= 384

Minimum sample size n=384

Sampling Technique

Multistage sampling technique was employed that included Simple random sampling purposive sampling, proportionate sampling systematic random sampling.

Data Collection and Management

Both quantitative and qualitative data was collected using a semi structured questionnaire. Key Interview Informants as respondents elaborated on their responses (qualitative data), main themes within these responses were identified, coded then analyzed.

Study Variables

Independent variables were individual factors that included level of Knowledge where a 50% and above score was graded as good and below 50% as poor and perceptions, Sociocultural factors that included religion, marital status and cultural beliefs.

Intermediate variables we commodity related variables of Distance, Cost, Workforce, Supply and Availability. Dependent variable was utilization of male contraceptives.

Ethical Considerations

This study got clearance from Kenyatta University Graduate School, Kenyatta University Ethics Committee PKU No: 2572/11692 and received a research permit from National Council for Science and Technology NACOSTI. License no 305733. County Department of Health Bungoma County-REF CG/BGM/CDH/RESRC/VOL1. Inclusion in this study was voluntary through the signing of informed consent and participants had the freedom to respond to questions they were comfortable with without any consequences. The study used codes for participants identity.

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Conceptual Framework

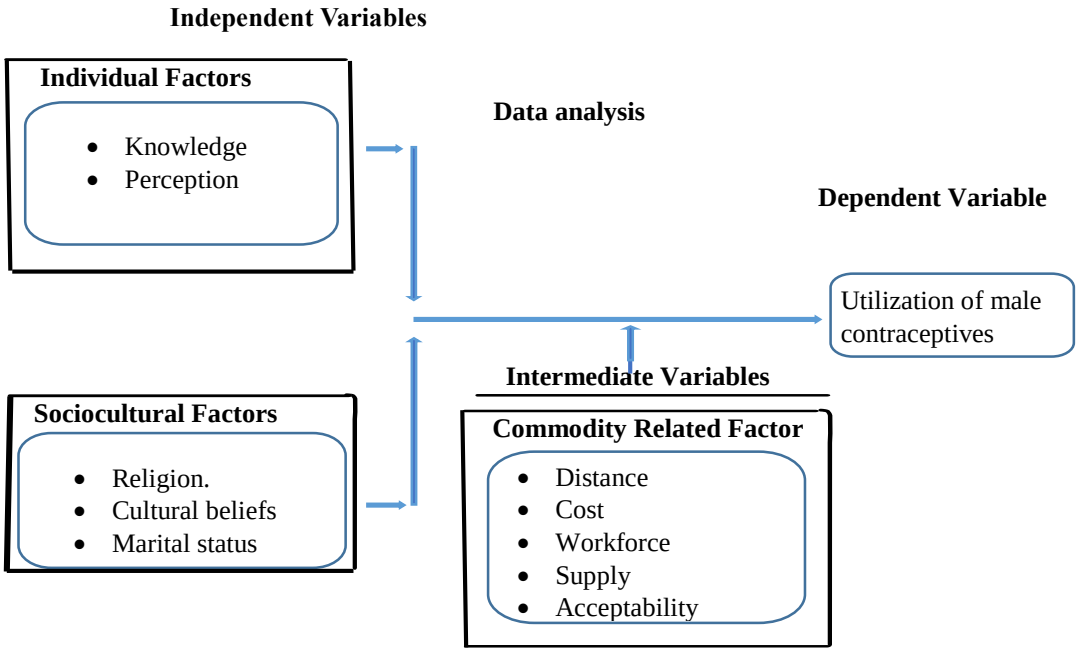

Figure 1: Conceptual Framework

Data was collected, summarized in spreadsheets and analyzed using the Statistical Package for Social Sciences (SPSS) Version 27 (V.27) software. Descriptive analysis Frequencies, percentages, and mean were used to describe the outcome. An Inferential statistical test using Chi-square test was then done at the 95% confidence interval with the comparisons being done at 5% level of significance.

RESULTS

Socio-Demographic Characteristics

Data was obtained from 395 study respondents with the response rate was 99.5%. Majority of the respondents were aged between 20-29 (27.7%) married (87.6%), protestant (59.8%), had 3-4 children (36.1%), had secondary education (47.3%), and 80.2% worker in the informal sector. See table 1 below.

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Table 1: Socio-Demographic Characteristics

Characteristics	n = 393 n (%)
Age (years)	
20-29	109 (27.7%)
30-39	90 (22.9%)
40-49	81 (20.6%)
50-59	76 (19.3%)
60-69	37 (9.4%)
Occupation	
Informal	315 (80.2%)
Formal	72 (18.3%)
Others	6 (1.5%)
Education level	
None	7 (1.8%)
Primary	128 (32.6%)
Secondary	186 (47.3%)
Tertiary	72 (18.3%)
Marital status	
Married	344 (87.6%)
Single	49 (12.5%)
Religion	
Protestant	235 (59.8%)
Catholic	135 (34.4%)
Muslim	14 (3.6%)
Others	9 (2.3%)
Number of children	
None	77 (19.6%)
1-2	69 (17.6%)
3-4	142 (36.1%)
≥5	105 6.7%)

Proportion of Males Utilizing Male Contraceptives in Bungoma County

The majority (80.9%) of the respondents used contraceptives. Condoms were the most used contraceptive method (89.3%). Contraceptives were used mainly (52.2%) within the current week of data collection and mainly to prevent STDs (50.9%) and pregnancy (34.9%).

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Table 2: Utilization of Male Contraceptives among the Respondents

Attributes	n = 393 n (%)
Do you use contraceptives?	
Yes	318 (80.9%)
No	75 (19.1%)
Contraceptive methods used (n =318)	
Condom	284 (89.3%)
Sterilization/vasectomy	17 (5.3%)
Withdrawal	10 (3.1%)
Others	7 (2.2%)
When last used the contraceptive (n =318)	
< a week	166 (52.2%)
1-4 weeks	57 (17.9%)
4-12 weeks	32 (10.1%)
12-24 weeks	23 (7.2%)
24-52 weeks	6 (1.9%)
> 52 weeks	34 (10.7%)
Motivation for using contraceptives (n =318)	
Prevent pregnancy	111 (34.9%)
My partner's request	27 (8.5%)
Own initiative Support my partner who can't use contraceptives	18 (5.7%)
To prevent STDs	162 (50.9%)
Most preferred method that can advocate (n =352)	
Condom	316 (89.7%)
Vasectomy	9 (2.6%)
Withdrawal	27 (7.7%)
Contraceptive method never to advocate (n =323)	
Condoms	24 (7.4%)
Vasectomy	230 (71.2%)
Withdrawal	49 (15.2%)
All	20 6.2%)

Utilization of Male Contraceptives

The results show that the variation in male contraceptives utilization was significantly dependent on age categories ($X^2 = 17.557$, $p < 0.001$) (Table 3).

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Table 3: Utilization of Male Contraceptives

Barrier	n =393 Utilization of male contraceptives		X^2	*p**
	Yes	no		
Age			17.557	<0.001
20-29	97 (88.9%)	12 (21.6%)		
30-39	76 (84.4%)	14 (15.6%)		
40-49	65 (80.2%)	16 (18.8%)		
50-59	58 (79.4%)	15 (20.6%)		
60-69	22 (59.5%)	15 (40.5%)		
Occupation			10.007	0.124
Informal	249 (79.3%)	65(19.7%)		
Formal	36 (85.7%)	6 (14.3%)		
Others	31 (80.6%)	6 (19.4%)		
Education level			3.012	0.390
None	6 (85.7%)	1 (14.3%)		
Primary	98 (76.6%)	30 (23.4%)		
Secondary	152 (81.7%)	34 (18.3%)		
University	62 (86.1%)	10 (13.9%)		
Marital status			0.835	0.361
Married	276 (80.2%)	68 (19.8%)		
Single	42 (85.7%)	7 (14.3%)		
Religion			6.908	0.075
Protestant	182 (77.8%)	53 (22.6%)		
Catholic	118 (87.4%)	17 (12.6%)		
Muslim	12 (85.7%)	2 (14.3%)		
Others	6 (66.7%)	3 (33.3%)		

* Significance level < 0.05

Barriers to Current Male Contraceptive Utilization among the Study Respondents

Contraceptive delivery point (X^2 = 82.252, p < 0.001), distance (X^2 =8.763, p = 0.033), serving staff gender preference (X^2 = 10.013, p = 0.018), reasons for missing to collect contraceptives (X^2 =40.570, p < 0.001), and comfortability to collect contraceptives (X^2 = 39.653, p <0.001) were found to be statistically significant barriers to the utilization of current male contraceptives. See Table 4 below.

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Table 4: Chi-square Test of Association on Barriers to Current Contraceptive Utilization

Barrier	Utilization of male contraceptives			
	Yes	**no**	X^2	p*
Service delivery point (n = 370)			82.252	<0.001
Government	204 (92.7%)	16 (7.3%)		
Private health facility	44 (81.5%)	10 (18.5%)		
Dispense in community and workplace	25 (83.3%)	5 (16.7%)		
Shop	36 (90.0%)	4 (10.0%)		
Others	7 (26.9%)	19 (73.1%)		
Distance (n =356)			8.763	0.033
Less than 1 km	97 (87.4%)	14 (12.4%)		
1-2 km	125 (91.9%)	11 (8.1%)		
2-4 km	73 (78.5%)	20 (21.5%)		
> 4 km	21 (84.0%)	4 (16.0%)		
Gender preference of the serving staff (n = 357)			10.013	0.018
Female staff	53 (77.9%)	15 (22.1%)		
Male staff	63 (85.1%)	11 (14.9%)		
Either sex of staff	173 (91.1%)	17 (8.9%)		
Collect from the dispenser	24 (96.0%)	1 (4.0%)		
Availability of contraceptives (n = 348)			5.462	0.141
Never	16 (84.2%)	3 (15.6%)		
Rarely	55 (83.3%)	11 (16.7%)		
Occasionally	144 (91.1%)	14 (8.9%)		
Always	98 (93.3%)	7 (6.7%)		
Do you pay for FP services (n = 354)			0.181	0.671
Yes	87 (88.8%)	11 (11.2%)		
No	223 (87.1%)	33 (12.9%)		
Does the cost of contraceptive make men not use contraceptives (n = 376)			2.063	0.151
Agree	107 (83.0%)	64 (17.0%)		
Disagree	205 (85.1%)	36 (14.9%)		
Frequency of missing contraceptives from service delivery point in the last 6 months (n = 353)			6.090	0.107
Never	69 (90.8%)	7 (9.2%)		
Rarely	148 (91.9%)	13 (8.1%)		
Occasionally	66 (82.5%)	14 (17.5%)		
Always	30 (83.3%)	6 (16.7%)		
Reason for missing to collect contraceptives (n = 317)			40.570	<0.001
Out of stock	172 (93.0%)	13 (7.0%)		
Staff attitude	10 (62.5%)	6 (37.5%)		
Lack of money	24 (82.8%)	5 (17.2%)		
Personal reasons	16 (80.0%)	6 (23.1%)		
Feel comfortable collecting contraceptives (n = 362)			39.653	<0.001
Yes	242 (91.7%)	22 (8.3%)		
Not sure	18 (52.9%)	16 (47.1%)		
No	54 (84.4%)	10 (15.6%)		

* Significance level < 0.05

Knowledge and Perceptions May Affect Use of Male Contraceptives

Several questions were asked to determine level of knowledge and perceptions and an average score of 50% and above was qualified as good while anything below 50% was poor. A univariate analysis was then conducted on the knowledge and perceptions categories of the

respondents and the results presented in Figure 1. Majority (85%) of the respondents had good knowledge and perceptions on the utilization of current male contraceptives.

Figure 1: Knowledge on Current Male Contraceptives among Respondents

Knowledge and Perceptions on New Male Contraceptives

To determine knowledge on new male contraceptives, respondents were asked to name at least one modern male contraceptive other than condom and vasectomy. Only 1% of the respondents and 0% (zero) of the Key Interview Informants had knowledge on new male contraceptives. Results are as in Table 5.

Table 5 Showing the proportion of respondents with knowledge on new male contraceptives.

	Respondents n=380		KII n=12	
Have Knowledge	**Yes**	**No**	**Yes**	**No**
Number	4	376	0	12
Percentage	1	99%	0	100%

Association between Knowledge, Perceptions, and Use of New Male Contraceptives among Respondents

The results show that the respondents' knowledge and perceptions on utilization of contraceptives was statistically significant associated with acceptability of new male contraceptives (X^2 =8.763, p = 0.033), the preferred formulation (X^2 = 11.432, p = 0.022) and knowledge and perceptions (X^2 = 59.286, p < 0.001) (Table 6).

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Table 6: Association between Knowledge and Perceptions and Use of New Male Contraceptives among Respondents

Attribute	Knowledge and perceptions		X^2	p*
	Good	Poor		
Acceptability of the new male contraceptives (n = 307)			5.065	0.024
Acceptable	140 (88.6%)	18 (11.4%)		
Unacceptable	118 (79.1%)	31 (26.9%)		
Duration to start using the new male contraceptives (n = 306)			1.652	0.438
Immediately	76 (87.4%)	11 (12.6%)		
1-6 months	118 (88.7%)	15 (11.3%)		
>12 months	80 (93.0%)	6 (7.0%)		
Preferred formulation (n =350)			11.432	0.022
Pill	68 (81.0%)	16 (19.0%)		
Injection to other part of body	116 (92.1%)	10 (7.9%)		
Implant	38 (90.5%)	4 (9.5%)		
Gel	81 (90.0%)	9 (10.0%)		
Surgical	5 (62.5%)	3 (37.5%)		
Utilization of contraceptive method (n = 393)			59.286	< 0.001
Yes	293 (92.1%)	25 (7.9%)		
No	43 (57.3%)	32 (42.7%)		

* Significance level < 0.05

Factors Associated With Acceptability of New Male Contraceptives

Distance (X^2 = 10.604, p = 0.014) and cost (X^2 = 4.666, p = 0.031) were significantly associated with acceptability of new contraceptive. Results are presented in Table 7.

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Table 7: Factors Associated With Acceptability of New Male Contraceptives among the Respondents

Determinants	Acceptable	Unacceptable	*n = 393* X^2	*p**
Age			4.245	0.374
20-29	38 (44.2%)	48 (55.8%)		
30-39	41 (55.4%)	33 (44.6%)		
40-49	36 (57.1%)	27 (42.9%)		
50-59	29 (55.8%)	23 (44.2%)		
60-69	14 (43.8%)	18 (56.2%)		
Occupation			1.252	0.535
Formal	31 (57.4%)	23 (52.6%)		
Informal	83 (51.6%)	78 (48.4%)		
Others	44 (47.8%)	48 (52.2%)		
Education level			1.244	0.743
None	5 (71.4%)	2 (28.6%)		
Primary	50 (50.0%)	50 (50.0%)		
Secondary	73 (51.0%)	70 (49.0%)		
University	30 (52.6%)	27 (47.4%)		
Marital status			3.024	0.220
Married	141 (53.0%)	125 (47.0%)		
Single	17 (41.5%)	24 (58.5%)		
Religion			2.039	0.564
Protestant	94 (52.5%)	85 (47.5%)		
Catholic	52 (27.7%)	57 (52.3%)		
Muslim	7 (58.3%)	5 (41.7%)		
Others	5 (71.4%)	2 (28.6%)		
Service delivery point			2.810	0.590
Government health facility	95 (56.5%)	73 (43.5%)		
Private health facility	20 (48.8%)	21 (51.2%)		
Community distribution site	14 (60.9%)	9 (39.1%)		
Shop	18 (52.9%)	16 (47.1%)		
Others	10 (41.7%)	14 (58.3%)		
Distance			10.604	0.014
<1 km	62 (68.1%)	29 (31.9%)		
1-2 km	42 (46.2%)	49 (53.8%)		
2-4 km	38 (48.7%)	40 (51.3%)		
> 4 km	12 (50.0%)	12 (50.0%)		
Paying for family planning services			4.666	0.031
Yes	41 (46.1%)	48 (53.9%)		
No	112 (59.9%)	75 (40.1%)		
Formulation preference			6.030	0.197
Pill	43 (53.1%)	38 (46.9%)		
Injection	43 (53.8%)	37 (46.2%)		
Implant	10 (47.6%)	11 (52.4%)		
Gel	56 (68.3%)	26 (31.7%)		
Surgical	4 (50.0%)	4 (50.0%)		

* Significance level < 0.05

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Age and Knowledge and Perceptions of the Respondents' Distribution by Preference of Contraceptive Method

A chi-square test of association was conducted where contraceptive method was the dependent. The preference of contraceptive method was not statistically dependent on age ($X^2 = 3.967$, $p = 0.681$) and knowledge and perceptions ($X^2 = 1.820$, $p = 0.403$) (Table 8).

Table 8: Contraceptive Method Preference by Age among the Respondents

Barrier	n =393 preference of contraceptive method			X^2	p*
	Condom	Vasectomy	withdrawal		
Age				3.967	0.681
20-29	128 (90.8%)	3 (2.1%)	10 (7.1%)		
30-39	65 (84.4%)	3 (3.9%)	9 (11.7%)		
40-49	97 (91.5%)	3 (2.8%)	6 (5.7%)		
50-59	26 (92.9%)		2 (7.1%)		
60-69					
Knowledge and perceptions				1.820	0.403
Good	284 (90.4%)	7 (2.2%)	23 (7.3%)		
Poor	32 (84.2%)	2 (5.3%)	4 (10.5%)		

Discussion

Introduction

There were 395 respondents with 99.5% response rate. The average age of respondents was 40.4yrs with mode being 27 years. The average family size was 4.04 which is lower than that for Bungoma county (4.6)but almost same as the national (3.9) (National Bureau of Statistics-Kenya and ICF International, 2015)

Utilization of Male Contraceptives

This study found a high utilization of male contraceptives, which is closer to findings in Kisii (Steinfeld et al., 2013) (Wamalwa E. et al., 2015). However this varies with findings from multiple studies in Ethiopia .(Wondim et al., 2020)(Kassa et al., 2014) in Kenya (KNBS et al., 2016). Uganda (Thummalachetty et al., 2017) that found a lower utilization.

As reconned by Universal Health Coverage policy brief 2018, the high utilization could be attributed access to contraceptives at no cost in most government institutions. Similar findings were also reported by (Griffins.O et al 2020) that indicated consistent utilization of condoms of 87% among men in Kenya. Utilization was seen to progressively decrease with increasing age which is in line with decreased sexual needs as one and menopause especially for married couples. According to WHO, this variation occurs due to varied contraceptive needs per age group. These results are similar to findings in West Pokot Kenya by (Butto etal 2015).

Males aged between 20-40 years were the greatest consumers of contraceptives, These are similar findings with (APRH 2018) (NCPD et al., 2020) (Kassa et al., 2014) in Ethiopia and(Emmanuel et al., 2015) Kenya. This can be attributed to outcomes of specific objectives of reproductive health policies that targeted to promote increased use of contraceptives among adolescents and youths (Condom policy, 2001) (MoH, 2015). It also tallies with findings in the US where up to 93% of older adolescence were using a form of contraceptive. (Martinez & Abma, 2020).

Condom was the most used male contraceptive across all age groups. These are similar findings with those from (Wondim et al., 2020) in northern Ethiopia. However, the findings vary with global findings("Contracept. Use by Method 2019," 2019). The high utilization could be because condom is the only form of modern male contraceptive that is easily accessible and reversable. Most respondents in this study indicated that though withdrawal method is reversable too, it is not practical sentiments echoed by (Kabagenyi et al., 2014) in Northern Uganda. These however differ with findings among teenagers in Europe, Albania, Congo and Cameroon who had a higher utilization of withdrawal method (Martinez & Abma, 2020) ("Contracept. Use by Method 2019," 2019). In this study 5.3% of the respondents reported to have undergone vasectomy, These findings are higher than findings in Kenya (KNBS et al., 2016) <1% Kenya , (2.6%) Japan but closer to Oceania(5.8%). It is however lower than in the United Kingdom and Ireland (10.4%) and (6.6%) among the Americans. ("Contracept. Use by Method 2019," 2019) This high prevalence could be attributed to the long-time consistent outreach to health facilities in the study area by a renown reproductive health service provider. (Marie Stopes). These variations too could be explained by the regional variation in contraceptive preference and choice (WHO 2017). Regional variation in utilization has been attributed to the social cultural religious and economic status. For example in Kenya, the North eastern and costal region where Islam is the predominant religion and have a higher poverty index have the lowest contraceptive utilization. (KDHS 2022).

Most respondents had used contraceptives within three months to data collection. These are similar to findings in Bungoma (70%),(Ministry of Health Kenya, 2016) (Emmanuel et al., 2015),- (MOH 2016) who found 65% and 77% utilization at last sexual encounter in Kenya. (NCPD et al., 2020)

Although condom is a dual technology product, the greatest motivation to use it was to prevent STI 50.9%, 49.1% was to prevent pregnancy. These resonate well with other findings in Kenya((Manguro et al., 2022)(Steinfeld et al., 2013) which found a higher and consistent utilization of condoms among persons living with HIV.

Barriers to Current Male Contraceptive Utilization in Bungoma County

This study directly and indirectly assessed probable barriers that hinder utilization of male contraceptives. Qualitative and quantitative data was analyzed indicated majority of the respondents 59.63% collected contraceptives from government facilities. This could be because government facilities were almost equally distributed in the study area hence providing easy accessibility while contraceptives are available at a no cost. Within the government facilities there were multiple service delivery points that ranged from outdoor condom dispensers, Family planning rooms, outpatient consultation rooms, maternity, and pharmacy. These multiple delivery points could be part of the integration of Family planning and HIV prevention service provision within the healthcare system MOH 2015, MOH 2017. However, men are reported to avoid going to the family planning clinic due to privacy& confidentiality issues. In this study service delivery point was found to be statistically significant barrier.($X2 = 82.252$, $p < 0.001$) a finding that corroborates well with (George K et al., 2020) Uganda, WHO 2017,(Steinfeld et al., 2013) in Kenya(UNDP.2019)(George K et al., 2020).

Service integration has been advocated for as a strategy to improve reproductive health service, contraceptive utilization, and sustainability (MOH 2017). This seemed to be well adopted

within government facilities within the study area, Similar findings have been reported in other studies in Kenya (Steinfeld et al., 2013)and globally (WHO, 2017)

Reasons for missing contraceptives were a significant barrier to male contraceptive utilization (X2 =40.570, p < 0.001). Only 28.16% reported to always get contraceptives when they need, 4.59% never get contraceptives with stockouts being the major reason for failing to collect contraceptives. This response resonated well with similar response in this study on what can be done to improve utilization where 33.0% of respondents suggested availing contraceptives in a continuous supply to improve contraceptive utilization by males. This is supported by findings from Kirinyaga Kenya(Waruguru, 2019).

Majority of the respondents (52.38%) were comfortable being served by either male or female staff. This finding contrasts with (WHO, 2017), (Sharma et al., 2018) who indicate that males preferred being served by male service providers. However, majority 41.82% of the respondents agreed that service provider may affect contraceptive utilization by males in different ways. The study found a significant association between utilization and serving staff gender preference (X2 = 10.013, p = 0.018). These findings are similar to studies conducted in Nyanza Kenya, Uganda and India (Steinfeld et al., 2013) (George K et al., 2020) (Sharma et al., 2018) (Li et al., 2020)

In this study there was a significant association (X2 =8.763, p = 0.033). between utilization and distance. This could inform the high utilization of contraceptives as majority (97%) resided within a 5km radius from the service delivery point. These findings are similar to (Mwaliko et al 2014).(Gitobu et al., 2017).(Oldenburg et al., 2021) Burkina Faso.(Paköz & Yüzer, 2014) Turkey. It also resonates well with the WHOs recommendation of improving access by having health facilities at most 5kms from patients' residence. However this varies with other studies in other parts of Kenya.(KenyaNationalBureauofStatistics[KNBS], 2018).

Most Ministry of health policies have advocated for free condoms and family planning service as an incentive to utilization, this could inform why majority of respondent received services from government facilities. These findings resonate well with WHO that indicates availability of free of charge or affordable condoms globally. (Global 2018). Similarly, George K et al., 2020 indicates that free of charge services are a driver to increase utilization. 62.5% of those who bought contraceptives got them from shops while 33.33% from government hospital. The cost-free contraceptives could inform the high utilization of the contraceptives. Access at no cost could be a reflection of the government's policy to provide condoms free of charge in government health facilities with facilities being at liberty to place a cost sharing fee on condoms being dispensed (Condom policy, 2001) (MOH 2015)

There was a statistically insignificant associated between cost and utilization.. This contrasts with most literatures (Global 2018). (Gitobu et al., 2017) (Hakizimana & Odjidja, 2021) Level of education, marital status, occupation and religion are determinants of contraceptive utilization (MoH, 2015) However in this study there was insignificant association between Occupation X2 10.007 0.124, Level of education X2 3.012 0.390, Marital status X2 0.835 0.361 and religion X2 6.908 0.075 with contraceptive utilization. These findings are contrary to other studies in Kenya (Mwangi et al 2016)(Mochache et al., 2020)(Ochako et al., 2017) (Haryanto, 2017) in Indonesia and(Ekpenyong et al., 2018) in Nigeria.

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Knowledge and Perceptions on Use of New Male Contraceptives

This study established good knowledge levels for 85% of the respondents on current male contraceptives. In this study, 94.96% of the respondents had good knowledge on what family planning is. When asked about male contraceptives, 90.2% of the respondents knew male condom, 40% knew Vasectomy while 24.5% knew about withdrawal method. The same order was replicated in utilization. The good knowledge informs decision making and therefore appropriate choice which could inform the high utilization in this study. (WHO 2017). Similar findings have been reported, (Gitobu et al., 2017) (Adelekan et al., 2014) Nigeria. (Health & Of, 2001), (MoH, 2015) (Ekpenyong et al 2018) Nigeria. However, other studies have indicated that high knowledge does not necessarily translate to high utilization of contraceptives an indication that there are more factors that come to play to facilitate an increase in utilization(Haryanto, 2017) (Wondim 2021).

Knowledge about new male contraceptives was poor (1%), 99% of respondents did not know any new male contraceptives while 100% of key informants including family planning service providers and public health officers did not know any new male contraceptive in use or under development. This lack of knowledge is likely to affect utilization if such commodities are introduced. This study found a significant association between utilization knowledge and perceptions ($X2 = 59.286$, $p < 0.001$). These are similar to findings in Nigerian and Kenyan studies MS et al., 2018) ,(Mwangi et al., 2016)

Majority of respondents 64.45% had positive perceptions on male contraceptive utilization. 77.70%. agreed to the statement that New Medicines approved by government are effective and safe while 85.6% do what the Doctor says, this is an indicator of trust in government initiatives and adherence to health providers instructions. These findings could indicate that the community is confident with initiatives that come through government system and level of adherence could be good. It also provides a clue on community entry strategies that can be utilized during introduction of new products for contraception. 74.2% disagreed that using contraceptives makes one a lesser man, 81.1% contraceptives is a woman's business 65.8% women who use contraceptives become promiscuous. These are similar to Nigerian findings of 86% and 65% respectively (Ekepeyon et al 2018) They also corroborates well with other studies in Nigeria (Adelekan et al., 2014) and(Ochako et al., 2017)Kenya. These perceptions could provide a good platform for synergy in contraceptive utilization between male and females that will see males support their female partners which will enable bridge the gap of unmet needs for family planning. (Ekepeyon et al 2018)

The majority (82.6%) perceived vasectomy as a form of castration and 76.2% indicated that it reduces sexual pleasure. Most of the respondents (83%) indicated that despite using contraceptives, sexual pleasure is a priority. These findings indicate lack of specific information on specific methods of contraception and informs the nature or characteristic of new contraceptive that may be developed in future. These are similar to findings from Nyanza Kenya where there was low utilization of vasectomy as a contraceptive method that was believed to reduce sexual pleasure (Steinfeld et al., 2013), Uganda (Haryanto, 2017) Indonesia. Therefore there is need for more communty sensitization and indepth health education on the specific details of each method as such as perceptions would have negative influnce on utilization (Mwangi et al., 2016)

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Factors That Affect Acceptability of New Male Contraceptives

In this study, 89.7% of the respondents preferred or would advocate for the use of condoms while 2.6% would advocate for Vasectomy. This high preference could be attributed to condom being a dual technology product, readily available and mostly free of charge in government facilities (WHO 2017). This could also be attributed to the limited choices for male contraceptives ease of use , reversibility and prevention of STI. 71.2% indicated they can never use or advocate for surgical vasectomy, this is mainly due to cultural beliefs and myths that have led to such negative perceptions. This informs the need for community sensitization and education on contraceptive method specific to demystify such misconceptions to improve acceptability and uptake.(Dombola et al., 2021) These findings are echoed by (Adelekan et al., 2014) Nigeria. (Thummalachetty et al., 2017) Uganda. Similar findings were reported in Uganda (Kabagenyi et al., 2014) and Pakistan (Haryanto, 2017) India(Sharma et al., 2018). Formulation of the contraceptive was found to be a determinant, majority of respondents (36.07%) prefer injectable formulation to other parts of the body but not reproductive system while minority (2.6%) preferred surgical vasectomy. Cultural beliefs, misconceptions and fear associated with surgical vasectomy is seen as deterrents to acceptability. These are similar to findings from multiple studies in Uganda and Pakistan(Thummalachetty et al., 2017) (Kabagenyi et al., 2014) (Haryanto, 2017)

If a new contraceptive were provided, most respondents (53.2%) would prefer Pill when needed while minority 2.6% preferred non-surgical vasectomy. These are similar characteristics with the current and most utilized contraceptive (Condom). Majority preferred contraceptives that will be readily available (63%), acceptable formulation (54%) while the minority 20% mentioned cost. This resonates well with responses on the utilization of current contraceptives and barriers to utilization and corroborates well with findings in America. (Plana, O. (2015). It further provides insights on the nature of the contraceptive that should be considered in future. Considering that condom has been embraced due to its dual action, a one-off double technology contraceptive is more likely to easily be accepted. However more health education and community sensitization would improve the knowledge to change the perceptions that would then increase acceptability with ultimate increase in utilization (Emberson, 2016)(Mwangi et al., 2016)

Seventy-one point four six (71.46%) of those who accepted would use new contraceptives would use it within six months of introduction while 87.5% would use it within 12 months. Slightly more than half (52.8%) of the respondents believed that family planning clinics want to limit birth of the poor. Although majority of men were on contraception, 57.7.% of them felt that occurrence of a pregnancy was ok for them. This could inform the higher fertility rates despite high utilization of contraceptives. (Ekepenyon et al 2018). Although religious influence has been cited in several studies as an influencer to acceptability (Adelekan et al., 2014) Nigeria, (Wondim et al., 2020)Ethiopia, (George K et al., 2020)Uganda (Kabagenyi et al., 2014) Uganda) and (Wangia Elizabeth, 2018) Kenya, this study found it to be statistically insignificant X2 =2.039 p= 0.564. (Mutemi, n.d.) (Mwangi et al., 2016)

Conclusion

Utilization of male contraceptive is in Bungoma County underestimated. Condom is the most utilized contraceptive, however, there are still barriers that hinder utilization of male contraceptives especially Vasectomy. Most of the residents of Bungoma County have good

knowledge on current male contraceptives, However, there is an almost absolute lack of knowledge on new contraceptives under development that could be a barrier to acceptability and use of new contraceptives if rolled out.

Recommendations

There should an intentional and continuous/ sensitization and update of healthcare providers and men specifically regarding new male contraceptive development

Considering that this study established a high utilization of male contraceptives than what has ever been reported before in Kenya, there is need for similar research to be done on a larger scale. There is need for more research on sexual behavior to explain why men continue using contraceptives while their spouses are on mid and longer acting contraceptives.

Limitations and Delimitations

This study targeted adult male only respondents who only responded to specific questions from the questionnaire. Due to cultural sensitivity of sexual matters in the study area only adult male enumerators were used to collect data.

The study noted use of condoms among those utilizing vasectomy or those who reported their partners were using sterilization method. This is a WHO and MOH recommendation for persons who are HIV infected. However, this study did to establish HIV status of respondents or their partners to confirm if users of both methods were infected.

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