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Knowledge and Perceptions on Contraception as Predictors of Uptake of Modern Family Planning Among Pastoralist Women of Reproductive Age (15 to 49 Years) in Garbatulla Sub-County, Isiolo County, Kenya

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All around the world, there is an enhanced awareness of family planning strategies that can be utilised to postpone pregnancy. Even so, pastoralist women are often not fully aware of existing family planning options. This places them at an increased risk of unplanned pregnancies, which may result in high maternal and child deaths. It is on this basis that this paper seeks to highlight knowledge and perception predictors of uptake of modern family planning amongst pastoralist women of reproductive age drawn from Garbatulla Sub-County, Isiolo County, Kenya. A cross-sectional analytical study design was applied on 419 women of reproductive age (15 to 49 years) proportionately sampled from pastoralists. A semi-structured questionnaire aided in data collection. The dependent variable was uptake of modern family planning measured on a binary categorical scale, whereas the independent variable was knowledge of modern family planning assessed based on possession of certain knowledge aspects on FP by the participants. Perceptions were assessed on a 4-point Likert scale measuring participant's perceptions of certain aspects related to modern FP. Binary logistic regression analysis was used to derive Odds Ratio (OR) at $\alpha \leq 0.05$, 95% Confidence Interval (CI). A majority of the participants were aged 25-35 years. Odds of uptake of modern FP reduced by 73% amongst those who had knowledge of the three main categories of modern FP when compared to those who did not have such knowledge, a significant prediction (OR=0.266, 95% CI=0.152-0.467, $p < 0.0001$). On the other hand, the odds of uptake of modern FP were 1.9 times higher amongst those who knew that there are permanent FP methods than those who did not have such knowledge, a significant prediction (OR=1.887, 95% CI=1.188-2.997, $p=0.007$). Odds of uptake of modern FP were 1.9 times higher amongst those who strongly agreed with the perception that fecund women use FP to postpone childbirth when compared to those who strongly disagreed with this perception, a significant prediction (OR=1.876, 95% CI=1.037-3.393, $p=0.037$). On the other hand, the odds of uptake of modern FP

were reduced by 58% amongst those who strongly agreed with the perception that there is a need to discuss FP and family size with spouse when compared to those who strongly disagreed with this perception, a significant prediction (OR=0.420, 95% CI=0.178-0.989, p=0.0047). In summary specific knowledge and perception variables are significant predictors of uptake of modern family planning by pastoralist women. There is a need to intergarte such factors in the design and implementation of interventions aimed at enhancing reproductive health matters amongst pastoralist women.

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INTRODUCTION

Family planning (FP) or contraception has been identified by the World Health Organization (WHO) as one of the essential reproductive health interventions needed to achieve safe motherhood as it reduces maternal and child mortality (Moreira et al., 2019; World Health Organization 2020). According to the United Nations (2019), globally, it is estimated that 1.1 billion women require or are users of FP. Of this number, close to 80 million opt for traditional methods of FP as opposed to modern methods, which means they have an unmet need for FP. In Africa, from the year 2015 to 2020, 55% to 58% of women had their needs for FP met through the use of modern family planning (WHO, 2020). However, in Sub-Saharan

Africa, the use of FP remains low and even disproportionately lower among women in the pastoral communities (de Vargas Nunes Coll et al., 2019). Modern Contraceptive Prevalence (MCP) is reported to be 9.1% among pastoralist women of the Afar region in Eastern Ethiopia, against a national MCP of 29% (Alemayehu et al., 2016).

Globally, the Reproductive Health (RH) needs and challenges in pastoralist populations are different from those of other contexts. People from these communities live in very traditional settings and adhere strongly to traditional cultural values and beliefs (Gele et al., 2019). Some of these beliefs are known to lead to poor sexual and RH outcomes

(Henok & Takele, 2017). In Africa, RH outcomes such as uptake of modern FP are often compromised due to limited knowledge of, and perceptions towards modern contraception (Caulfield et al., 2016). In the case of the adoption of modern contraception, short-term acting methods such as injectables are preferred in Africa (United Nations, 2019). In the East African region, MCP is low and with a wide range of disparity between countries. Countries that are predominantly inhabited by pastoralist communities show much lower rates of FP use and a very high unmet need for FP (Belda et al., 2017).

Kenya has made remarkable progress in matters of Reproductive Health (RH), as evidenced by an increase in the uptake of modern FP, whereby the prevalence of FP uptake is 53.2% (Hauck & Rubenstein, 2017). Regardless of the overall national progress in modern FP uptake, disparities in FP utilisation rates are still visible among different regions and specific population groups. For example, MCP in some counties of central Kenya is 75%, whereas in some counties of the Northern region, where the majority lead a pastoral way of life, it is as low as 1.9% (Akoth et al., 2021). Counties inhabited by pastoral communities have reported the lowest FP utilisation rates (Kenya National Bureau of Statistics, 2015). Isiolo is one of them and reports an overall FP prevalence rate of 26.3% and a Total Fertility Rate (TFR) of 4.9, which is above the national average TFR of 3.9 (Iyanda et al., 2020). Populations drawn from contexts with high TFR are often in high need of RH interventions, including FP. Low FP uptake in such contexts results in unintended pregnancies that may lead to maternal mortality (Endler et al., 2022).

While factors assumed to contribute to the low uptake of FP in pastoralist communities, including culture, religion, lack of formal education, low empowerment of women, long distance to health facilities, and partner support, have been confirmed (Chekole et al., 2019), these factors have not been confirmed or contextualised to the study area; Isiolo County. Low MCP has a direct consequence on maternal and child health and a direct relation to high TFR within a given population (Endler et al., 2022). This leads to rapid population growth whose consequences, such as economic strain, are transferred nationally, impacting the achievement of Sustainable Development Goals (SDG's) (Gichangi et al., 2021). There is limited documentation of studies exploring low MCP in Isiolo County. The predictors of modern FP uptake by pastoralist women in Isiolo County could be specific and are not well known, and this is important to address any existing challenges and build on opportunities for better RH outcomes. Therefore, this paper reports on knowledge and perception factors that predict the uptake of modern FP by pastoralist women of reproductive age (15 to 49 years) drawn from Garbatulla Sub-County, Isiolo County, Kenya.

MATERIALS AND METHODS

The study used an observational community-based cross-sectional descriptive survey that was undertaken at the ward-level among women of reproductive age (15 to 49 years) from Garbatulla Sub-County of Isiolo County, Kenya. Quantitative data were collected from sampled women of reproductive age. This design was considered appropriate because the study entailed the collection of data from a population, putting into consideration multiple knowledge and perception

variables on Family Planning (FP) at the time of data collection as a means of explaining the uptake of modern FP services.

The study further used a systematic sampling approach to sample four hundred and nineteen (419) (Fishers et al., 1998) from a total of six thousand and forty-five (6045) eligible women from the three wards of Garbatulla Sub-County. Proportionate sampling was used to determine the number of participants to be enrolled from each of the three wards. The researchers designed a structured questionnaire that had different sections collecting information on the uptake of modern FP (whether participants were currently using or had ever used modern FP) and participant knowledge and perceptions towards modern FP. The questionnaire section on knowledge of FP probed for knowledge variables including knowledge on three categories of modern FP methods, the existence of permanent FP methods, the need to wait for at least two years before having a subsequent pregnancy, the importance of waiting for at least two years before subsequent pregnancy, dangers of multiple child births, and place where FP is obtained. The questionnaire

section assessing perceptions regarding FP use utilised a 4-point Likert scale probing for varying perceptions on FP use.

Data was analysed using descriptive and inferential statistics. Independent variables were knowledge and perceptions of FP, which were assessed on a categorical scale. The dependent variable was the uptake of FP measured on a binary categorical scale (Yes or No). Binary logistic regression analysis was used to derive Odds Ratio (OR), which depicts the manner in which independent variables predict the occurrence of dependent variables at $\alpha \leq 0.05$, 95% Confidence Interval (CI).

RESULTS

The study targeted 419 participants, and all were accessible; hence, the response rate was 100%. As shown in Table 1, a high proportion of the study participants, 199 (47.7%), were aged 25-35 years. The majority of the participants, 411 (98.8%), were married, and slightly more than half, 219 (52.3%), had completed primary school level of education.

Table 1: Participant's profile

Socio-Demographic Feature	n	Percentage (%)
Age	15-24	12.6
	25-34	47.5
	35-44	33.2
	45-49	6.7
	Total	100.0
Marital Status	Married	85.2
	Not married	14.8
	Total	100.0
Marriage Type	Monogamous	62.3
	Polygamous	22.9
	Total	85.2
Participants Education Level	None	28.9
	Primary	52.3
	Secondary	12.9
	Tertiary	6.0
	Total	100.0

As shown in *Table 2*, the odds of uptake of modern FP reduced by 73% amongst those who had knowledge of the three main categories of modern FP when compared to those who did not have such knowledge, a significant prediction (OR=0.266, 95% CI=0.152-0.467, $p<0.0001$). On the other hand, the odds of uptake of modern FP were 1.9 times higher amongst those who knew that there are permanent FP methods than those who did not

have such knowledge, a significant prediction (OR=1.887, 95% CI=1.188-2.997, $p=0.007$). Nonetheless, knowledge of; the need to wait for two years before subsequent pregnancy, the benefit of waiting for the two years, the dangers of multiple pregnancies, and the place where one can obtain FP did not significantly predict the uptake of modern FP ($p=0.627$, $p=0.720$, $p=0.316$, and $p=0.690$, respectively).

Table 2: Modern FP knowledge predictors of Modern FP uptake

Variables Knowledge of FP	Family Planning Uptake		χ^2	OR	95% CI	p-value
	Yes	No				
Know three categories of modern FP	Yes	154(36.8)	138(32.9)	21.347	0.266	0.152-0.467
	No	41(9.8)	86(20.0)			
Knows permanent FP methods	Yes	87(20.8)	105(25.1)	7.233	1.887	1.188-2.997
	No	108(25.8)	119(28.4)			
Know the need to wait for 2 years before subsequent pregnancy	Yes	121(28.9)	144(34.4)	0.237	1.144	0.665-1.969
	No	74(17.7)	80(19.1)			
Know the benefit of Waiting for 2 years	Yes	125(29.8)	135(32.2)	0.128	0.918	0.573-1.469
	No	70(16.7)	89(21.2)			
Know the dangers of multiple births	Yes	134(32.0)	158(37.7)	1.004	1.344	0.754-2.396
	No	61(14.6)	66(15.8)			
Knows place to obtain FP	Yes	169(40.3)	188(44.9)	0.159	1.132	0.616-2.082
	No	26(6.2)	36(8.6)			

*Statistically significant Wald statistics at $\alpha \leq 0.05$. OR odds ratio, 95% CI: 95% Confidence Interval. OR is generated through a binary logistic regression test procedure.

As shown in *Table 3*, the odds of uptake of modern FP were 1.9 times higher amongst those who strongly agreed with the perception that fecund women use FP to postpone childbirth when compared to those who strongly disagreed with this perception, a significant prediction (OR=1.876, 95% CI=1.037-3.393, $p=0.037$). On the other hand, the odds of uptake of modern FP were reduced by 58% amongst those who strongly agreed with the perception that there is a need to

discuss FP and family size with spouse when compared to those who strongly disagreed with this perception, a significant prediction (OR=0.420, 95% CI=0.178-0.989, $p=0.0047$). However, the perception that FP causes health-related effects and the perception that pregnancy is dictated by God and a person has no control did not significantly predict the uptake of FP ($p=0.215$ and $p=0.814$, respectively).

Table 3 Modern FP perception predictors of Modern FP uptake

Variables Perceptions on FP			Family Planning Uptake		χ^2	OR	95% CI	p- value
			Yes	No				
Fecund women use FP to postpone childbirth	Strongly Agree		96(22.9)	144(34.4)	4.329	1.876	1.037- 3.393	0.037*
	Agree		49(11.7)	46(11.0)				
	Disagree		17(4.1)	18(4.3)				
	Strongly Disagree		33(7.9)	16(3.8)				
FP causes health- related effects	Strongly Agree		13(3.1)	37(8.8)	1.538	1.917	0.685- 5.365	0.215
	Agree		106(25.3)	120(28.6)				
	Disagree		64(15.3)	50(11.9)				
	Strongly Disagree		12(2.9)	17(4.1)				
Need to discuss FP and family size with spouse	Strongly Agree		52(12.4)	55(13.1)	3.941	0.420	0.178- 0.989	0.047*
	Agree		65(15.5)	90(21.5)				
	Disagree		57(13.6)	51(12.2)				
	Strongly Disagree		21(5.0)	28(6.7)				
Pregnancy is dictated by God, and I've no control	Strongly Agree		9(2.1)	6(1.4)	0.056	0.865	0.260- 2.881	0.814
	Agree		65(15.5)	61(14.6)				
	Disagree		91(21.7)	117(27.9)				
	Strongly Disagree		30(7.2)	40(9.5)				

*Statistically significant Wald statistics at $\alpha \leq 0.05$. OR odds ratio, 95% CI: 95% Confidence Interval. OR is generated through a binary logistic regression test procedure.

DISCUSSION

Participant's demonstrated possession of certain knowledge aspects related to modern FP. Notably, 69.7% reported to possess knowledge of the three main categories of modern FP, findings that concur with those from a study done in Tanzania by Kara et al. (2019), which noted high knowledge levels on matters of contraception by women of reproductive age. While it is true that knowledge levels on contraception are expected to enhance uptake, this is not usually the case. This was the case in Kara et al. (2019) study, whereby high knowledge levels did not guarantee increased uptake of contraception. The scenario was replicated in the current study, whereby knowledge of the three main modern methods reduced the chances of uptake of modern FP by 73%. Therefore, knowledge levels reported by the study had a low likelihood of guaranteeing uptake of contraception, which was evident by low FP uptake amongst the participants.

Worth noting is the fact that there are different knowledge aspects on matters of modern FP (de Vargas Nunes Coll et al., 2019). The influence of possession of basic knowledge on contraception, such as major methods, versus possession of sufficient and detailed knowledge on important aspects of contraception, such as the relative effectiveness of different contraception methods, may pose a varying influence on uptake (van Zyl et al., 2019). The current study only focused on the possession of basic knowledge of contraception; hence, the reported findings may not be conclusive. This notwithstanding possession of any mere knowledge of FP is likely to influence the decision to partake in FP (Pazol et al., 2015). This was apparent in the present study, whereby participants who reported possessing knowledge of permanent modern FP methods had a higher likelihood of partaking in modern FP. Overall, the participants had adequate knowledge on varying aspects of FP, such as where to access FP service, adverse implications of low child spacing, and

benefits of adequate child spacing. However, these knowledge factors did not predict the uptake of modern FP.

On perceptions of FP as a predictor of modern FP uptake, a study done in Uganda by Nsubuga et al. (2016) argues that perceived notions of benefits and acceptability of FP are likely to predict uptake. The present paper confirmed these notions as evidenced by the fact that the perceived notion that fecund women utilise FP to postpone childbirth had high odds of predicting uptake (OR=1.876, 95% CI=1.037-3.393, p=0.037). Perceptions are often reliant on knowledge; hence, the perceptions held by the participants in the current study could have been a result of relatively high knowledge levels. Overall, knowledge and perceptions of FP are critical factors that shape the subsequent uptake of contraception services (van Zyl et al., 2019). Pastoralist women experience an array of barriers to modern FP uptake, even in circumstances where they choose to utilise modern contraception. In other instances, these women have limited knowledge and specific misconceptions, which may impair the uptake of modern FP.

CONCLUSION

The study observed that certain knowledge aspects on contraception methods significantly predicted FP uptake; however, there were variations in the likelihood of such knowledge influencing FP uptake, which was low. Perceptions of the use of FP by fecund women to postpone childbirth showed significant prediction, whereas the perception of the need to discuss FP and family size with a spouse reduced the chances of modern FP uptake. Conclusively, strategies that would augment knowledge and perceptions on

matters of contraception are likely to enhance objectives aligned to enhancing the uptake of modern FP.

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Availability of Data and Materials

As per the privacy and confidentiality provisions in the informed consent, the dataset generated and analysed for the study is not available publicly. However, data can be obtained from the corresponding author (drmohamedabdullahi96@gmail.com) upon reasonable request.

Author's Contributions

The author's responsibilities were as follows: MAA developed the research protocol, reporting and manuscript, DAM and DO review/revised the study protocol and data collection approaches. KKT performed data entry, cleaning and analysis. All authors made equal contributions to the development of the manuscript.

Ethics Approval and Consent to Participate in The Study

A research permit was sought from the National Commission for Science, Technology, and Innovation. Ethical clearance was obtained from Maseno University Scientific and Ethical Review Committee for ethical clearance Approval Number: MSU/DRPI/MUERC/00923/20. Informed written and voluntary consent was obtained from all the participants, and data was anonymised to ensure confidentiality.

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