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UPTAKE OF INTRA-UTERINE CONTRACEPTIVE DEVICES AND ITS ASSOCIATED INDIVIDUAL FACTORS AMONG WOMEN AGED 15 – 45 YEARS ATTENDING SERVICES AT BWEYOGERERE HEALTH CENTRE III, WAKISO DISTRICT, CENTRAL UGANDA – A CROSS-SECTIONAL STUDY.

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ABSTRACT

Introduction

An Intra-Uterine Contraceptive Device (IUCD) is a reversible, long-acting, safe, and effective method of postponing childbirth for couples, but many women get unwanted pregnancies in fear of side effects associated with some methods. This study aimed at determining the uptake of IUCDs and its associated individual factors among women aged 15 – 45 years attending health services at Bweyogerere Health Center III, Wakiso District, Central Uganda.

Methods

This cross-sectional study involved 391 women aged 15 – 45 years, attending services at Bweyogerere Health Center III, who voluntarily consented to participate in the study and were selected using systematic random sampling. Data was collected using a structured questionnaire. The data was analyzed in SPSS v.21 using mean, frequencies, percentages, chi-square, and binary logistic regression. Participants provided written informed consent for participation. Ethical approval was sought from the College Research and Scientific Committee, and administrative clearance was obtained from the District Health Office and the Health Facility In-Charge.

Results

Data was collected from 391 participants with an average age of 26.2 years ($S = 6.86$) and 348 (89%) were married and 378 (96.65%) were employed with almost equal distribution in the highest education level attained as; 148 (37.9%) had primary or less, 141 (36.1%) secondary and 102 (26.7%) had a tertiary or higher qualification. The uptake of IUCD was 26.6% and was associated with participants' age ($aOR=0.271$; $p\text{-value}=0.000$) and education level ($aOR=90.090$; $p\text{-value}=0.000$) as the significant individual factors.

Conclusion

The uptake of IUCDs among participants is 26.6%, which is low and is associated with one's age and educational level as the significant individual factors.

Recommendations

Health workers need to provide targeted contraceptive methods that are tailored to clients' characteristics, like age and educational background, to accelerate the uptake of methods like IUCDs.

Keywords: Uptake, Intra-Uterine Contraceptive Device, Individual Factors, Women of Reproductive Age

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INTRODUCTION

An Intra-Uterine Contraceptive Device (IUCD) is a long-acting, fully reversible method of avoiding conception for couples who wish to postpone childbirth. IUCDs have been reported to be safe and highly effective compared to other methods (Jatlaoui TC, 2017), but their uptake remains low (Demisew Amenu, 2023). Paradoxically, many women of reproductive age continue to get unwanted pregnancies in fear of side effects associated with some contraceptive methods (Khadijeh Asadi Sarvestani, 2017). This study

aimed at determining the uptake of IUCDs and its associated individual factors among women aged 15 – 45 years attending health services at Bweyogerere Health Center III, Wakiso District in Central Uganda.

METHODS

Study design

This was a descriptive cross-sectional study that employed quantitative methods.

Study setting

This study was conducted at Bweyogerere Health Centre III, which is located in Bweyogerere Division, Kira Municipality, Kyadondo County, Wakiso District in Central Uganda. It is about 11 kilometers (Km) from Kampala City Center, off Jinja Road towards the Namanve Industrial Park. It services clients from Bweyogerere, Nambole, Kirinya, Kireku, Kito, Kanzinga, and neighboring areas.

Study population

This study focused on women aged 15 – 45 years attending health services at Bweyogerere Health III in Wakiso District from 15th January to 15th February 2023. This is the population that mainly has an unmet need for contraception.

Inclusion criteria

All women aged 15 – 45 years attending services at Bweyogerere Health III who consented in writing to participate in the study.

Exclusion criteria

Women in labor and those who were critically ill and required special attention at the time of data collection were excluded.

Sample size

The study sample of 391 was calculated using the Miller and Brewer formula (2003), which is expressed as $n = \frac{N}{1+Ne^2}$, where n is the required sample, N is the population size, and e is the maximum permissible margin of error. The study was based on the Bweyogerere division's estimated population of women of the reproductive age of 16,242 (Ministry of Health Uganda, 2022). With a set confidence of 95% and a maximum acceptable error margin of 5%.

Sampling technique

Systematic random sampling was used in this study. Twenty-five (25) participants were enrolled each working day from an average of 160 patients who visit the facility with a sampling interval of 6. The first participant was always selected by simple random sampling using the lottery method among the six.

Data collection

Data for this study was collected using a structured questionnaire with closed-ended questions. The questionnaire was anonymous, and it was pre-tested to establish its validity and reliability. Two independent experts validated the tool for data collection, and its reliability was determined using Cronbach's alpha coefficient, which was found to be 0.82, which lies within the acceptable range of 7.0 – 9.5.

Study variables

The questionnaire contained items on participants' use of IUCDs for family planning and individual factors like; age, marital status, education level, employment, religion, knowledge of IUCD as a method of family planning, and participants' perception of the availability of IUCDs and skilled health staff to administer IUCDs for family planning.

Statistical analysis

After collection, data was entered into Microsoft Excel for cleaning and then imported into the Statistical Package for the Social Sciences (SPSS), version 21, for analysis. Descriptive analysis was done using mean and standard deviation for continuous variables and frequencies and proportions for the categorical variables. Chi-square (χ^2) and binary logistic regression were used to establish the relationship between the uptake of IUCD and individual factors with a 95% confidence interval. The significance level was thus set at a p-value < 0.05 .

Bias

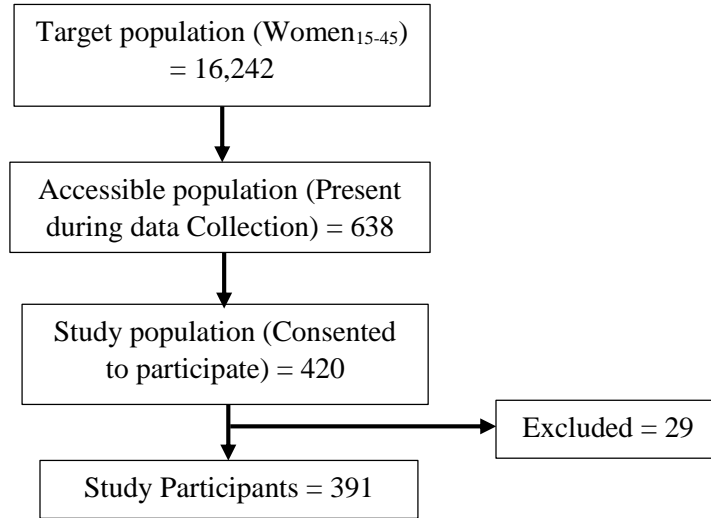
Probability sampling was done to minimize selection bias, and the study was conducted at a community facility to minimize bias due to referral. The items in the tool were pretested for validity and reliability before data collection.

Ethical considerations

Ethical clearance was obtained from the College Research and Scientific Committee on 10th December 2022, and administrative approvals were obtained from the District Health Office and Health Facility In-Charge on 20th December 2022. Study participants provided written informed consent.

RESULTS

Figure 1: Flow chart showing the Selection of Study Participants



This study involved 391 women aged 15 – 45 years attending services at Bweyogerere Health Centre III, Wakiso District. The average age of the participants was 26.2 years (S = 6.86) and 348 (89%) were married and 378 (96.65%) were employed with almost equal distribution in the highest education level attained as; 148 (37.9%) had primary or less, 141 (36.1%) secondary and 102 (26.7%) had tertiary or higher qualification.

Uptake of Intra-Uterine Contraceptive Device (IUCD) for Family Planning

The uptake of IUCDs among women of reproductive age attending services at Bweyogerere Health Centre III is 104 (26.6%).

Individual Factors Associated with Uptake of Intra-Uterine Contraceptive Device (IUCD)

Table 1: Bivariate Analysis of Individual Factors associated with Uptake of Intra-Uterine Contraceptive Device (IUCD)

Variable	Measure	Number	Percentage	X ²	p-value
Age	15 – 25	194	49.6	95.581	0.000
	26 – 35	151	38.6		
	36 – 45	46	11.8		
Marital status	Married	348	89.0	0.795	0.373
	Not married	43	11.0		
Education	Primary or less	148	37.9	126.818	0.000
	Secondary	141	36.1		
	Tertiary or more	102	26.0		
Employment	Formal	216	55.2	4.360	0.113
	Self	162	41.4		
	Unemployed	13	3.4		
Religion	Catholic	136	34.8	4.167	0.384
	Anglican	106	27.0		
	Muslim	30	7.7		
	Born-Again	73	18.7		
	Others	46	11.8		
Awareness of IUCD	Yes	348	89.0	14.580	0.000
	No	43	11.0		
Availability of IUCDs	Yes	344	88.0	19.358	0.000
	No	47	12.0		

Availability of skilled staff	Yes	246	62.9	83.514	0.000
	No	145	37.1		

In this study, about half of the participants 194, 49.6% were aged 15 – 25 years, 348 (89%) were married, 148 (37.9%) had primary education, 141 (36.1%) had secondary education, and 102 (26%) had tertiary education. More than half of the participants 216, 55.2% had formal employment, 136 (34.8%) were Catholics, and 348 (89%) were aware of IUCD as a modern method of family planning. The majority of the respondents, 344 (88%), perceived IUCDs as an easily available method, and 246 (62.9%) perceived that skilled health staff are easily available to administer IUCDs for family planning.

At bivariate analysis, participants' age ($X^2 = 95.581$; p -value=0.000), education level ($X^2 = 12.818$; p -value=0.000), knowledge of IUCD as a family planning method ($X^2 = 14.580$, p -value=0.000), perception of the availability of IUCDs ($X^2 = 19.358$; p -value=0.000) and skilled health staff to administer the method ($X^2 = 83.514$, p -value=0.000) were statistically significant. Participants' marital status ($X^2 = 0.795$; p -value=0.373), employment status ($X^2 = 4.360$; p -value=0.113) and religion ($X^2 = 4.167$; p -value=0.384) were not statistically associated with uptake of IUCD.

Table 2: Multivariate Analysis of Individual Factors associated with Uptake of Intra-Uterine Contraceptive Device (IUCD)

Variable	Response	OR (95% CI)	p-value	aOR (95% CI)	p-value
Age	15 – 25 26 – 35 36 – 45	0.199 (0.134 – 0.294)	0.000	0.271 (0.140 – 0.523)	0.000
Education	Primary or less Secondary Tertiary or more	269.500 (36.178 – 2007.564) 5.153 (2.965 – 8.957)	0.000 0.000	90.090 (11.050 – 734.509) 3.139 (1.489 – 6.621)	0.000 0.003
Awareness of IUCD	Yes No	0.057 (0.008 – 0.417)	0.050	0.705 (0.068 – 7.361)	0.770
Availability of IUCD	Yes No	0.000 (0.000)	0.997	0.000 (0.000)	0.997
Availability of skilled Staff	Yes No	0.000 (0.000)	0.995	0.000 (0.000)	0.994

In multivariate analysis, participants' age (aOR=0.271; p -value=0.000) and education level (aOR=90.090; p -value=0.000) were significantly associated with the uptake of IUCDs for family planning. Participants' knowledge of IUCD as a method for family planning was only associated with uptake of IUCD before adjusting for confounders (OR=0.057; p -value=0.050). After adjustment, the association between knowledge of IUCD as a method of family planning lost its significance (aOR=0.705; p -value=0.770). Participants' perception of the availability of IUCD as a family planning method (aOR=0.000; p -value=0.997) and skilled health staff to administer the method (aOR=0.000; p -value=0.994) were not significantly associated with uptake of IUCD at multivariate analysis.

Summary

The uptake of IUCD for family planning among women aged 15 – 45 years, attending services at Bweyogerere Health Center III, Wakiso District was 26.6% and is associated with participants' age and educational level as the significant individual factors.

DISCUSSION

This study aimed at determining the uptake of IUCDs and its associated individual factors among women aged 15 – 45 years attending health services at Bweyogerere Health Center III, Wakiso District in Central Uganda. The uptake of IUCDs among Participants in this study was 26.6%. This finding is higher than the 1.3% uptake rate reported in a mixed design study conducted in Southwestern Ethiopia (Demisew Amenu, 2023) and 16.3% among post-partum mothers at Gombe Hospital, Butambala District in Uganda (Kizito Omona, 2020). However, this finding is much lower than the 60% uptake rate reported among post-abortion women in Central Uganda (Herbert Kayiga, 2024). This implies that the uptake rate would vary depending on the specificity of the study population, with the rate being lower among the general population of reproductive age and increasing with specific sub-populations.

The uptake of IUCDs was found to be associated with participants' age (aOR=0.271; p -value=0.000). This result is in agreement with the findings of a study in Northwest Amhara, Ethiopia among women of reproductive age using

family planning that indicated that age was a significant factor associated with the uptake of IUCDs (Simachew Animen, 2018) but contradiction with another study among married women in Southwestern Ethiopia that indicated that age was not a significant factor associated with uptake of IUCDs (Shimelis Teshome, 2020 Feb). The contradiction in these findings could be explained by the specificity of the sub-population of married women whose age may not have as much influence as their marital status.

This study also found a significant association between participants' education level and uptake of IUCD for family planning (aOR=90.090; p-value=0.000). This finding is in agreement with that of a study on factors influencing the utilization of IUCDs among post-partum women at Gombe Hospital in Butambala that indicated a significant association between participants' education level and utilization of IUCDs (Kizito Omona, 2020) and another study among women in Kabwe, Central Province, Zambia (Janet Mazuba Mweempwa, 2023). This implies that one's education is a key predictor for the uptake of IUCD for family planning.

On the other hand, this study found no association between marital status and uptake of IUCDs ($X^2 = 0.795$; p-value=0.373). This result disagrees with the finding of a study conducted in Central Uganda that indicated marital status as a significant factor influencing the uptake of IUCDs for family planning (Herbert Kayiga, 2024). It also contradicts the findings of a study conducted in Nigeria that presented marital status as a significant factor (Eluwa Gle, 2016). This contradiction could be explained by the fact that the majority of the participants in this study (89%) were married, which caused less variability among study participants about marital status.

This study found no association between employment status and uptake of IUCDs for family planning ($X^2 = 4.360$; p-value=0.113). This finding is in agreement with a study on the relationship between contraceptive use and women's sector-specific employment in India (Lotus McDougal, 2021) but contradicts a mixed-method study conducted in Zambia that indicated a significant relationship between employment status and uptake of hormonal IUCDs for family planning (Brunie, 2022). Employment status could have varying influences on women's uptake of IUCD in different population setups. There is a need to explore the effect of socioeconomic status on IUCD uptake in addition to employment status.

In this study, there was no demonstrable relationship between religion and uptake of IUCDs for family planning ($X^2 = 4.167$; p-value=0.384). This result disagrees with earlier findings of studies done in Central Uganda (Herbert Kayiga, 2024), Western Ethiopia (Tigabu, 2018), in the United States (Maryam Guiahi, 2020), and Kapchorwa District in Uganda (Mathys, 2018). There is continued conflict between religious beliefs and scientific information about contraception. There is a possibility that participants

who are more exposed to scientific information make decisions based on such knowledge as opposed to religious beliefs.

Participants' knowledge of IUCD as a method of contraception was also not significantly associated with the uptake of IUCDs for family planning (aOR=0.705; p-value=0.770). This finding is in line with findings from a study conducted at Enugu State Teaching Hospital, Parklane (Chukwuasokam Caleb Aniechi, 2022) but disagrees with that of a study conducted in Southern Ethiopia (Demelash Woldeyohannes, 2022). Much as participants' knowledge of the contraceptive method is important in determining the choice of a contraceptive method, the uptake of a method like IUCDs may be more informed by the client's educational background than knowledge about specific methods of contraception.

Participants' perception of the availability of IUCDs for family planning was not associated with the uptake of IUCDs (aOR=0.000; p-value=0.997). This result contradicts an earlier finding of a study at Gombe Hospital, Butambala District in Uganda, that indicated that the availability of IUCDs was a significant factor influencing the utilization of IUCDs (Kizito Omona, 2020). This finding also disagrees with that of a study conducted in Hossana Town, Southern Ethiopia, which emphasized the significance of the shortage of medical supplies in the utilization of IUCDs (Demelash Woldeyohannes, 2022). The difference in the observed findings could be attributed to the variation in the individual characteristics of participants between studies.

Relatedly, participants' perception of the availability of skilled health staff to administer IUCDs was not significantly associated with the uptake of IUCDs for family planning (aOR=0.000; p-value=0.994). This result contradicts the findings of a quantitative study in Southern Ethiopia that indicated that the absence of trained health personnel is a key reason for the low utilization of IUCDs (Demelash Woldeyohannes, 2022). The study finding also disagrees with that of a study in Butambala District in Uganda (Kizito Omona, 2020). However, much as earlier studies focused on the influence of the availability of trained health staff on the utilization of IUCDs, this study explored participants' perceptions of the availability of skilled health staff on the uptake of IUCDs, which could explain the observed difference between the findings.

GENERALIZABILITY

The findings of this study are generalizable to middle-aged women living in peri-urban areas and seeking to postpone childbirth.

CONCLUSION

The uptake of IUCDs among women aged 15 – 45 years attending services at Bweyogerere Health Centre III is 26.6% which is low and is associated with one's age and educational level as the significant individual factors.

LIMITATIONS

This study involved all women aged 15 – 45 years who turned up for any health care service at the facility. It did not focus on those who specifically wished to receive contraceptive services.

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RECOMMENDATIONS

Health workers need to provide targeted contraceptive methods that are tailored to clients' characteristics, like age and educational background, to accelerate the uptake of methods like IUCDs.

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AUTHORS' CONTRIBUTION

Ssebunya Joel Collins: Designed and collected data.

Namaasa Aeron Mukirya: Designed and analyzed data.

ABBREVIATIONS

aOR: Adjusted Odds Ratio

CI: Confidence Interval

IUCD: Intra-Uterine Contraceptive Device

Km: Kilometer

OR: Odds Ratio

FUNDING SUPPORT

There was no special funding provided during the conduct of this study.

CONFLICT OF INTEREST

We declare that there was no conflict of interest in this study.

DATA AVAILABILITY

The data supporting the findings of this study can be provided by the authors upon reasonable request.

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