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Factors Influencing the Uptake of Modern Contraceptives among Women in Tanzania: A Survey of Public Health Facilities in Dodoma City Council

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Abstract

Background: Tanzania has a relatively high-unmet need and low use of family planning methods. Thirty- eight per cent of reproductive-aged women currently use modern contraceptive methods, and 22% have an unmet need for family planning.

Objectives: To determine the factors influencing the uptake of modern contraceptives among women attending public health facilities in Dodoma City Council.

Methods: An analytical cross-sectional study using a quantitative approach was conducted among 362 women of reproductive age that is women aged 15 years and above who attended public health facilities in Dodoma City and 32 healthcare workers who work in reproductive and child health clinics that offer FP services each chosen from a respective health facility. Data was collected from 6 September to 15 October 2021. A structured questionnaire was used to obtain data which was cleaned, pretested, validated, coded and analyzed using SPSS. The study applied a bivariate and multivariate logistic regression analysis model to association between the uptake of modern contraceptives and study variables at 5% statistical level of significance. The Odds Ratio (OR) at 95% confidence interval estimated the extent of association.

Results: The study findings from bivariate analysis revealed a statistically significant association at 5% as P>0.05 between the uptake of modern contraceptives and education status (OR=1.0275, P=0.034), awareness status (OR=1.4590, P=0.000), preference status (OR=1.0657, P=0.001), spouse support status (OR=1.3958, P=0.021) and satisfaction status (OR=1.2626, P=0.009). While the multivariate analysis revealed only significant association at 5% as P>0.05 with awareness status (AOR=1.0679, P=0.000), preference status (AOR=1.0117, P=0.010) and satisfaction status (AOR=1.0416, P=0.036).

Conclusion: The study revealed that education, marital status, awareness, preference, and satisfaction of the respondents have a positive significant effect on the uptake of modern contraceptives. Thus, respective authorities ought to spread more awareness and improve quality of services in order to improve the uptake ratio for contraceptives.

Keywords: Uptake of contraceptives; Women of reproductive age; Family planning; Dodoma.

Introduction

Contraception is described as pregnancy prevention by inhibiting the normal process of ovulation, fertilization and implantation. The use of modern contraceptive methods allows couples and individuals to attain their desired number of children

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[1]. To attain target 3.7 of Sustainable Development Goal (SDG) 3, which underscores that by 2030, the world should ensure universal access to sexual and reproductive health services, the use of modern contraceptive methods is crucial [2]. It was well reported that the reductions in unintended pregnancies and maternal and neonatal mortality can lead to the achievement of SDG 3 targets 3.1 and 3.2, which aim to reduce the global maternal mortality ratio to less than 70 per 100,000 live births and to end all preventable deaths of children under five by 2030 [2]. In 2019, there were approximately 1.9 billion women of reproductive age. Among these women, 1.1 billion needed family planning services but only 842 million used modern contraception [3]. According to the World Fertility and Family Planning Report of 2020 [4], the use of contraceptives among women of reproductive age in 2019 was above 55 % in 37 countries and below 20% in 23 countries.

Several factors, such as cultural and religious myths and misconceptions, undermine modern contraception [5]. In addition, partner-related factors and socio-demographic characteristics (age, education level, and religion) are associated with modern contraceptive use [6]. In low and middle-income countries, 214 million women who wanted to avoid pregnancy in 2019 were not using any method of contraception [7], and most of them were from Sub-Saharan African countries [7]. The reasons for this might be inadequate knowledge, poor accessibility to modern contraceptive methods, preference for having many children, among others [8]. Moreover, United Nations Department of Economic and Social Affairs and Population Division data show that more than 20% of the unmet need for family planning was in 15 countries from Sub-Saharan Africa [9].

In Tanzania, 38% of reproductive-aged women currently use modern contraceptive methods, and 22% have an unmet need for family planning [10]. Teenage pregnancies among 15-19-year-olds range from 23% to 27% and are higher among rural than urban women [10]. The total fertility ratio (TFR) was 5.4 children per woman of childbearing age in 2010 and 5.2 in 2015 [10]. Modern contraceptive methods currently available in the public sector supply chain in Tanzania include Oral contraceptive pills, injectable contraceptives (DMPA), condoms, intrauterine devices (IUCD), and contraceptive implants [11]. The Tanzanian Ministry of Health has implemented a series of national strategies and policies to facilitate the use of contraceptive services [12]. The main objective of these guidelines is to increase the contraceptive prevalence rate (CPR) and reduce the unmet need for family planning. The National target was to attain a national modern contraceptive prevalence rate (CPR) of 45% by 2020 and reduce the current unmet need for family planning (FP) to 10% by 2020 [12]. Nevertheless, this country's target was not achieved [13]. In the Dodoma region, 14.7% of family planning needs are unmet [10]. Despite existing data on the unmet need for family planning and the low contraceptive prevalence rate in Tanzania, no studies have been conducted on the factors influencing contraceptive use among women of reproductive age. Thus, this study aims to determine these factors to help policymakers and planners identify areas on which their programs and policies should focus shortly to improve the uptake of modern contraceptives.

Methods

Study Setting

The study was conducted at the public health facilities of the Dodoma City Council. Due to its convenience, Dodoma City Council was chosen as the area of study. It is a rapidly urbanizing city in Tanzania following the reallocation of government offices to Dodoma from Dar es Salaam in 2017, and the need for family planning services is high. The City Council has 35 public health facilities that provide family planning services, out of which two are hospitals, one is a health centre, and thirty-two are dispensaries.

Study Design and Population

An analytical cross-sectional design was used to investigate the factors that influence modern contraceptive use among women in public health facilities in Dodoma City. The study populations were health facility workers in reproductive and child health clinics that offer family planning and women of reproductive age who visited these clinics.

Sampling

Two samples were used according to the study populations. One comprised of health facility workers that acted as key informants who provided valuable information and perspectives that are crucial for understanding and the other was for women seeking family planning services. The city has 35 health facilities offering family planning services. The representative sample size in this population was calculated using Yamane's formula to obtain 32 health facility workers each chosen from a respective health facility. The Yamane's formula was preferred because it provides a simplified and relatively easy-to-use method, particularly when a more conservative estimate is acceptable from a finite population. These facilities were selected using simple random sampling aided by computer-generated numbers. For the case of clients attending RCH clinics, Fischer's formula was used to determine the sample size based on the contraceptive prevalence rate from a previous study, which was 38%. The researcher preferred this method because when dealing with cross-sectional studies the Fischer's formula ensures that the study has sufficient statistical power to detect a meaningful effect while controlling the risk of errors. Therefore, the determined sample size was 362 women of reproductive age.

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Since there are 32 health facilities involved, 12 women were selected using simple random sampling by employing the lottery method from each clinic.

Data Collection Tools

Data were captured through two structured questionnaires. These were for women seeking family planning services and health care workers offering reproductive health services. These tools contained open and closed questions on various aspects of socio-demographic factors that are associated with their clients' contraceptive use (age, marital status, educational level, income, awareness support from the partner, cultural and religion beliefs), the supply chain factors (forecasting, stock out, order fill rate, lead time and inventory management), and the health care system & policy factors (includes staff training, counselling skills, availability of guideline and standard, location and distance of the health facility, financing, satisfaction) affecting uptake of contraceptives.

Data Collection Procedures

Contact was made with the city council to inform the selected facilities about the study and to arrange visiting dates. Two to three health facilities were visited per day. The questionnaires were pre-tested in two facilities in Dodoma City before data collection. The problems encountered, time spent, and other suggestions for improvement were considered and used to make final adjustments to the questionnaire. Those facilities used for pre-testing were not included in the data collection process. The questionnaires had sections that addressed all the specific objectives, which were socio-demographic, supply chain, and health system and policy factors that impact reproductive health services use. To ensure internal validity, the researcher and supervisor reviewed the overall content of the questionnaire for readability, clarity, and completeness regarding the questions to be included in the study. The questionnaires were structured so that some questions were designed to ask for similar information in different ways to ensure consistency.

Furthermore, the questionnaires were translated into Swahili to avoid language barriers. External validity was achieved by using simple random samples to ensure that the data was collected according to the determined sample sizes. To ensure reliability, the responses from the pretest were compared and observed to concur. Ethical approval was obtained before data collection. The participants willingly consented to participate in the study. In the case of any participant under the age of 16, informed consent to participate was obtained from the parents or legal guardians of the participant. The confidentiality of the data was maintained by coding the questionnaires and keeping them in a secure place only accessible to the principal investigator.

Data Analysis

The collected data was analyzed using SPSS version 23 to obtain descriptive statistics, such as percentages and frequencies, on the selected public health facilities. Furthermore, the inferential analysis of data was carried out whereby; the bivariate and multivariate logistic regression models were applied to examine the association between the uptake of modern contraceptives and study variables at a 5% statistical level of significance. Fischer's exact test and Pearson's Chi-square tests were used to ascertain the correlation between the study variables and the uptake of modern contraceptives. The odds ratio (OR) estimated the extent of the association at 95% confidence interval (CI).

Results

Socio-Demographic Characteristics

According to Table 1, the relative majority (46.70%) of the respondents were 24-34 years of age (60.20%) were married, and 48.90% had attained a secondary level of education. A comparatively higher proportion (32.60%) had a monthly income of 300,000– 399,999 Tanzanian Shillings (TZS).

Table 1: Socio-demographic characteristics of the respondents (n=362)

Socio-demographic Characteristic	Description	Observations	Percentage
Age in years	15 – 24	125	34.53
	25 – 34	169	46.69
	35 – 44	57	15.75
	45 – 54	11	3.04
Marital Status	Single	108	29.83
	Married	218	60.22
	Divorced	7	1.93
	Widow	3	0.83
	Separated	26	7.18

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Level of education	No education	4	1.1
	Primary	61	16.85
	Secondary	177	48.9
	Certificate	60	16.57
	Diploma	34	9.39
	Bachelor's degree	24	6.63
Monthly income	10,000 – 99,999	35	9.67
	100,000 – 199,999	57	15.75
	200,000 – 299,999	61	16.85
	300,000 – 399,999	118	32.6
	400,000 – 499,999	66	18.23
	500,000 and above	25	6.91

Uptake of Modern Contraceptive

The results showed that the majority of women (74.60%) use modern contraceptives (Table 2). The types of modern contraceptives preferred were injectable methods (39.70%), followed by pills (23.60%), implants (22.50%), and condoms (7.49%). The main reasons for preferred contraceptives were minimal side effects (50.19%) and convenience of use (47.90%). In addition, 23.40% of participants experienced side effects. The most prevalent side effects were nausea and vomiting (41.20%), heavy bleeding (33.80%), and lower abdominal pains (11.80%).

Association Between Uptake of Modern Contraceptives and Study Participants' Characteristics

The associations between socio-demographic characteristics and uptake of contraceptives were determined using chi-square at a 0.05 level of significance, and the results are presented in Table 3. The characteristics that had a statistically significant association with the uptake of contraceptives were marital status (p=0.024), level of education (p=0.043), level of satisfaction (p=0.001), and availability of support (p=0.001), and status of awareness (p=0.000). Therefore, this suggests that these variables influence the uptake of modern contraceptives in the community.

Table 2: Frequency of modern contraceptive use (n=267)

Variable	Description	Frequency	Percent
Type of contraceptives preferred	Pills	63	23.60
	Injectable	106	39.7
	Condoms	20	7.49
	Implants	60	22.47
	Copper T	18	6.74
Reason for the choice of contraceptives	Advised by the health provider	4	1.54
	Few side effects	134	50.19
	Only available choice	1	0.37
	Convenience	128	47.94
Occurrence of side effects	Experienced side effects	70	26.32
	Did not experience side effects	196	73.68
Type of side effects	Nausea and vomiting	28	41.18
	Heavy bleeding	23	33.82
	Headache	6	8.82
	Lower abdominal pain	8	11.76
	Delayed period	3	4.41

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Table 3: Association between the Uptake of Modern Contraceptives and socio-demographic characteristics (n=362)

Variable	Uptake Of Contraceptives		Person chi-square	P-value
	Yes	No		
Marital status				
Married	106	148	5.0818	0.024*
Not Married	59	49		
Education status				
Educated	128	169	4.1095	0.043*
Not Educated	37	28		
Preference status				
Prefer	51	138	55.14	0.000*
Not Preferred	114	59		
Status of satisfaction				
Satisfied	110	49	63.68	0.000*
Not Satisfied	55	148		
Support status				
Supported	136	131	11.7674	0.001*
Not Supported	29	66		
Awareness status	Uptake Of Contraceptives		Fisher's exact	P-value
	Yes	No		
Aware	95	0	0	0
Not Aware	70	197		

*- statistically significant relationship

Factors Influencing the Uptake of Modern Contraceptives

To understand factors that influence the uptake of modern contraceptives, multivariate logistic regression models were employed (Table 4). The only factors significantly associated with the uptake of modern contraceptives were awareness status (AOR=1.0679, P=0.000), preference status (AOR=1.0117, P=0.010), and satisfaction status (AOR=1.0416, P=0.036).

Quality Of Service and Other Factors That Affect the Uptake of Contraceptives

The findings revealed that health providers counseled 77.40% of respondents on how to use contraceptives. One hundred and fifty-six (58.90%) received advice from health providers on dealing with the side effects. In addition, only 11.70% of the respondents were forced to take a specific method of modern contraceptives. Most (76.60%) of the respondents were satisfied with the service quality. The reasons for dissatisfaction for the remaining respondents were long waiting time (45.20%), lack of a contraceptive method of choice (41.90%), and lack of Privacy/confidentiality (12.90%) when delivering services. The majority (56.30%) of the facilities did not use guidelines. There was a statistically significant association between the uptake of modern contraceptives and service satisfaction level (p=0.001). In examining the provision of contraceptive management, the majority (71.90%) of the staff had been trained on family planning services and 78.10% on the Logistic Management Information System (LMIS). The latter covered four aspects, namely: assessment of stock status, knowledge of minimum and maximum stock level, reporting and requesting health commodities through the the-LMIS system, and ensuring adequate physical storage of contraceptives. The most frequent interval of supportive supervision visits during the 6 months before the study was once a month (68.80%) and twice in six months (28.10%). Regarding the costs incurred by the respondents on the uptake of contraceptives, 73.20% did not incur any costs. For the distance from the respondents' residence to the health facilities, most (75.50%) respondents resided between 1 to 5 kilometers, while 23.40% lived between 6 to 10 kilometers. The modes of reaching the health facilities were mainly walking (57.60%) and public service vehicles (33.90%).

Supply Chain Factors That Affect the Uptake of Contraceptives

The nurses (62.50%) were primarily responsible for ordering contraceptives, followed by pharmacists (28.10%). The considerations in forecasting the number of contraceptives

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Table 4: Predictors of Uptake of modern contraceptives

Variable	Description	Bivariate Analysis		Multivariate Analysis	
		Crude Odds Ratio (95% CI)	P-Value	Adjusted Odds Ratio (95% CI)	P-Value
Education status dummy	1=educated	1.0275	0.034*	1.0047	0.106
	0=not educated	(0.79-1.32)		(0.09-1.21)	
Marital status dummy	1=married	0.9948	0.665	0.9985	0.848
	0= otherwise	(0.76-1.31)		(0.08-0.16)	
Awareness status dummy	1 = yes	1.459	0.000*	1.0679	0.000*
	0 = no	(0.69-3.05)		(0.46-17.30)	
Preference status dummy	1=preferred	1.0657	0.001*	1.0117	0.010*
	0=not preferred	(0.84-1.34)		(0.52-1.26)	
Support status dummy	1=supported	1.3958	0.021*	1.0667	0.262
	0=not supported	(0.78-2.48)		(0.54-1.42)	
Satisfaction status dummy	1=satisfied	1.2626	0.009*	1.0416	0.036*
	0=not satisfied	(0.62-2.55)		(0.53-0.94)	

*-statistically significant association, CI-confidence interval

in health facilities were mainly based on consumption data (71.90%) and service utilization data (18.75%). Concerning the lead-time, 78.10% of the health facilities received orders within three months. The majority (53.10%) of the health facilities received the full quantity of all the contraceptives ordered. Regarding stock levels, 68.80% of the health facilities had minimum and maximum stock levels of 3 and 6 months, respectively—moreover, 71.90% of health facilities received resupply once every three months. Regarding the availability of modern contraceptives in health facilities, only 34.38% of health facilities had all the available types. The reported contraceptives that were often not available included implants (38.10%), oral contraceptive pills (28.80%), Copper T (23.80%), and injectables (9.50%). Most health facilities (65.60%) used the Information Communication Technologies (ICT) System for reporting and ordering contraceptives. The reported ICT tools used were computers (76.19%) and mobile phones (23.81%). Moreover, 65.60% of the health facilities lacked an internet connection for recording health information, diagnosis, and service delivery.

Discussion

This study aimed to assess the factors affecting contraceptive uptake among women attending public health facilities in Dodoma City Council. The study reveals that age was a significant factor affecting FP uptake, whereby the majority of the respondents associated with the uptake of modern contraceptives were in the aged between 25 – 34 years.

Similar results have been obtained in other studies in Ethiopia, where the results show that contraceptive use is highest among 24-35-year-olds [14]. The reason could be that this age category is usually married and, therefore, likely to get pregnant easily. The use of DMPA injections was comparatively high at 39.7%, similar to the findings from the Tanzania Demographic Health Survey, which showed that women prefer Depo-Provera to any other modern family plan [10]. This drug is convenient and reliable since it is administered quarterly. Noncompliance is, therefore, likely to be minimal [7]. However, this result is contrary to that in Ghana, where condoms are the most widely used, probably due to the role condoms play in both the prevention of sexually transmitted infections and the control of unintended pregnancies [15].

The main determinants of contraceptive use were level of education, access to health facilities, the influence of social media, and neighborhood. In this case, education was found to be the main source of information influencing awareness of modern contraceptive use. This is probably because the importance of family planning is relayed in schools, and women can make informed choices. However, this differs from other studies in Ghana, where television was identified as the main source of information influencing awareness on the uptake of modern contraceptives [16].

Reliable income had a positive correlation with the uptake of modern contraceptives. Individuals with higher monthly incomes are more likely to be aware of the need for child spacing so that they can have adequate time to work

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and, therefore, tend to use family planning more frequently. This finding is consistent with Edo state, Nigeria [17]. Residing close to health facilities was found to increase the use of modern contraceptive methods. The time and costs incurred to reach the facilities were minimal; this finding is consistent with that in Senegal, where people travelling long distances to reach health facilities are less likely to use contraceptives [18]. Most of the respondents were counselled on how to use contraceptives by healthcare providers. This service was found to be significantly associated with the increase in uptake of contraceptives. Counselling enhances interaction with clients and informs them on a broad range of contraceptive method choices. Health care providers trained in Family Planning counselling were found to be more useful to their clients' satisfaction with using Family Planning methods. Pre-counselling improves the contraceptive uptake rate significantly [19].

The utilization of contraceptives is enhanced when couples are in agreement and support one another. In Ethiopia, women who discuss the issue of modern contraceptives with their husbands and are supported are more likely to use modern contraceptive methods than women who aren't supported [20]. However, in this study, most respondents did not get support from their partners. Several studies are underscoring the challenge of culture to the uptake of family planning services [21,22]. The majority of the respondents' traditional beliefs did not support the use of modern contraceptives, believing that they cause harm and the perception of having many kids as a sign of wealth. That explains why most studies point to the desire to have more children as a barrier to family planning. Moreover, in Africa, traditionally, women are considered responsible for increasing family size, and failure to do so attracts negative judgment from society [23]. The reported contraceptives that were often not available included implants, oral contraceptive pills, Copper T, and injectables. Comparatively, in some other sub-Saharan African countries, the proportion of health facilities that report experiencing contraceptive stock-outs in the past six months is estimated to be 50% or more [24]. The main reasons for stock-outs could be improper planning, forecasting, and quantification of contraceptives by less-skilled health workers and non-pharmaceutical personnel. Most providers reported that their health facilities order contraceptive replenishment from the Medical Stores Department through the electronic logistics management information system (e-LMIS).

The level of technology used in the health facilities was low; in most facilities, there was no internet system. This finding is consistent with that of Kenya, where most respondents reported that the level of technology affects the efficiency of medicines availability in their health facility [25]. Furthermore, there were significant health system and policy factors constraints. Health system and policy factors considered were the lack of privacy and confidentiality, limited information they provided to clients at a health facility, the lack of qualified health staff incentives, the lack of family planning standards & guidelines, and the financial implications of a full range of services. This finding is consistent with that of Ethiopia, which shows that the inadequate availability of key resources, such as trained staff, information, education, communication materials and other family planning guidelines and standards in clinics, is a major constraint to the performance of quality family planning services [26].

Strengths

The study will help policymakers and planners to identify areas on which their programs and policies should focus shortly to improve the uptake of modern contraceptives. For donors and implementing partners, the study will enable them to know where they can support the service providers. The study findings will show the reasons behind the choice and uptake of contraceptives. This may form the basis for coming up with customized mitigation strategies to enhance the uptake.

Limitations

The study used only cross-sectional data, which limits the analysis. For this reason, the use of panel data for future research is recommended. In-addition, this study was carried out from a sample of depicted randomly from 32 health facilities in Dodoma city council, Tanzania. Thus, the findings may be region-specific hence, future studies could use samples from the other areas in the country or from different national contexts of a similar set-up to test and extend the generalizations of the findings.

There might have been biases of information from the information provided by the respondents since some of them do not keep a good record this may lead to inaccurate data. Furthermore, the study did not focus on private facilities offering modern contraceptive methods, and the study excluded male and female sterilization and the lactation amenorrhea method (LAM) as the modern methods of contraception. Thus, all of the above could lead of biased data.

Conclusion

There are many health benefits of contraceptive use, including the prevention of unwanted childbearing, improved birth spacing, reduction of maternal and infant mortality, and improvements in the lives of women and children in general. The study revealed that socio-demographic factors have a positive significant effect on the uptake of modern contraceptives. In addition, supply chain factors significantly contribute to the uptake of modern contraceptives.

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List of Abbreviations

CHEWs: Community Health Workers

COCs: Combined Oral Contraceptives

CPR: Contraceptive Prevalence Rate,

DMPA: Depot Medroxyprogesterone Acetate

DR: Democratic Republic of Congo

FP: Family Planning,

ICT: Information Communication Technology,

IUDs: Intra Uterine Devices,

IUS: Intra Uterine Systems,

LARCs: Long-acting reversible contraceptives,

POPs: Progestin Only Pills

RCHs: Reproductive and Child Health Clinics,

SCMS: Supply Chain Management System,

SDPs: Service Delivery Points,

DGG: Sustainable Development Goal (SDG),

SPSS: Statistical Package for the Social Sciences,

TDHS: Tanzania Demographic Health Survey,

TFR: Total Fertility Rate

Declaration

There is no funding for this manuscript

Ethical Consideration

Prior to the study, a letter of authorization was obtained from the President's Regional Office for Local Government and Administration with reference number AB.307/332/01 to conduct the research. Informed consent was obtained from the study participants during data collection and confidentiality was observed during the entire process. University of Rwanda Ethics committee approved the study.

Consent for Publication

Not applicable

Availability of Data and Materials

The data set used in this study is available from the corresponding author and can be shared for special request

Conflict of Interest

The authors certify that they are not affiliated with any organization or institution that has a financial or non-financial interest in the subject matter or materials contained in this manuscript.

Author's Contribution

MM conceived the study, collected data, and wrote the draft; OM and PK substantially revised the study design, paper and manuscript; VK and NLJ substantially revised the manuscript. All authors read and approved the final manuscript.

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