

HEALTHCARE SYSTEM ASPECTS INFLUENCING MODERN CONTRACEPTIVE UTILIZATION AMONGST FEMALES OF REPRODUCTIVE AGE IN TURKANA, KENYA

Douglas S. Okenyori*

Department of Community Health and Development, Faculty of Science, The Catholic University of Eastern Africa, Kenya.

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*Corresponding Author: Douglas S. Okenyori

Department of Community Health and Development, Faculty of Science, The Catholic University of Eastern Africa, Kenya.

Email Id: d.s.okenyori@gmail.com

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ABSTRACT

Background: Modern contraception is essential for women's health, offering diverse methods tailored to individual needs. Globally, 1.1 billion females require family planning, but 172 million face unmet contraceptive needs, especially in developing nations. In Kenya, despite progress, Turkana County lags by 26.3% in contraceptive utilization, facing sociocultural challenges. This research targets healthcare factors affecting contraceptive utilization, addressing Turkana's unique issues. **Methodology:** A descriptive cross-sectional design was utilized, with 360 participants chosen through systematic random sampling from registered households. SPSS 21.0 facilitated analysis, revealing correlations through frequencies, proportions, and Chi-Square tests. Results were visually presented. **Results:** The study revealed a modern contraceptive utilization rate of 53%. Healthcare system factors significantly impact modern contraceptive utilization, including distance to health facilities ($p < 0.000$), availability of family planning services ($p < 0.000$), positive healthcare worker attitudes ($p < 0.000$), sufficient health providers ($p < 0.000$), and expected service time ($p = 0.003$). **Conclusion and Recommendations:** The research highlights the crucial significance of healthcare system factors in Turkana's contraceptive utilization. Accessible, positive healthcare experiences significantly impact utilization. To address disparities, Turkana County need to prioritize healthcare investment, extending family planning to remote areas through mobile clinics or outreach programs, training positive healthcare workers, and ensuring timely, fostering enhanced reproductive health outcomes.

KEYWORDS: Modern Contraceptive, Contraceptive utilization, Healthcare system factors, Reproductive age, Turkana County.

INTRODUCTION

Modern contraception is crucial for women's health and integral to reproductive well-being. While natural fertilization can occur at any time during the fertile period, preventing unwanted pregnancies is essential in certain circumstances. Various methods, such as barrier methods, hormonal methods, intrauterine devices, and sterilizations, cater to women's diverse needs based on health, lifestyle, and interpersonal factors.^[1]

Globally, 1.1 billion females require family planning, with 172 million facing unmet contraceptive needs. Disparities persist, especially in developing nations, influenced by factors like peer pressure, partner support, along with restricted accessibility to services.^[1,2,3,4,5]

In Kenya, despite positive trends, unintended pregnancies contribute to high perinatal as well as maternal mortalities. Inequalities exist, with Turkana County lagging behind by 26.3% in modern

contraceptive utilization. Health concerns, side effects, and sociocultural norms contribute to slow progress in counties with sub-optimal use.^[6] Kenya's population growth poses economic challenges, with 37% of pregnancies unplanned, leading to unsafe abortions and maternal mortality. The unmet need for contraception is evident, with Turkana County facing a 15.6% unmet need. Poor reproductive health indicators, including a low prevalence rate of contraceptives and high total rate of fertility, make Turkana County a pertinent case study.^[6,7] This research focuses on healthcare system factors influencing modern contraceptive utilization in Turkana County, aiming to address specific issues contributing to sub-optimal utilization.

MATERIALS AND METHODS

Study design: This research utilized a descriptive cross-sectional methodology to examine the use of contemporary contraceptives among Women of Reproductive Age (WRA) in Turkana. A descriptive cross-sectional study design was selected to obtain a picture of contraceptive usage at a certain moment.

Setting: The study was conducted in Turkana County, which was chosen at random from among the five counties (Turkana, Mandera, Wajir, Marsabit, and Samburu counties) that have high rates of unplanned pregnancies and low contraceptive prevalence⁶. The study focused on a population that had resided in Turkana for at least nine months to ensure adequate exposure to the local context and health services.

Participants and sampling technique: The research cohort comprised females of reproductive age, specifically those who were residing in Turkana for no less than nine months and aged 15 to 49 years. Individuals involved were chosen through a systematic random sampling method from registered households that adhered to defined inclusion and exclusion criteria. Individuals identifying as women within the designated age range were invited to partake in the study by offering their voluntary written consent and ensuring their availability for an interview. Participants who did not furnish written consent or were inaccessible for interviews throughout the study duration were omitted from the analysis.

Inclusion and Exclusion Criteria: The criteria for inclusion were defined to encompass females of reproductive age, specifically targeting those within the age range of 15 to 49 years, who provided their consent for participation in the study. Eligible women needed to communicate independently and respond to questions without assistance, except for translation or reading support. Additionally, they were required to have been residents of Turkana for at least nine months. The exclusion criteria excluded females who were not willing to participate, seriously ill, pregnant, or had sick children.

Variables: The most important variable examined was the impact of healthcare system factors on usage of advanced contraceptives amongst WRA in Turkana, Kenya.

Data Sources/Measurement: Data collection was conducted through a meticulously designed questionnaire, which was administered to participants by skilled research assistants. The questionnaire was translated into Kiswahili and designed to capture detailed information on contraceptive utilization (yes or no), healthcare characteristics such as accessibility, availability, and affordability of modern contraceptives, health workers' attitudes towards WRA on modern contraceptive utilization, and sources of information. The reliability and validity of the questionnaire were ensured through pre-testing and subsequent adjustments. Individual interviews were conducted with females who met inclusion criteria but were unable to read or write to provide information.

Bias: To address potential sources of bias, systematic random sampling was utilized to choose individuals from registered households who met specific inclusion and exclusion criteria, thereby minimizing selection bias. Additionally, efforts were made to protect the privacy and confidentiality of participants' responses in order to reduce reporting bias.

Study Size: Sample size was found using Fisher's equation^[8], based on a contraceptive prevalence rate of 30.7% as reported in the KDHS 2022^[6] leading to a target sample size of 360 individuals.

$$n_0 = \frac{z^2(pq)}{e^2}$$

The calculation of sample size was conducted utilizing a confidence level of 95% alongside a normal deviation (Z) value of 1.96. In Turkana, the uptake of modern contraception was recorded at 30.7% ($P = 0.37$), while the proportion of individuals not utilizing it provided a metric for variability ($Q = 1 - P$). Permissible error margin (E) was established at 5% (0.05). The application of these values in equation resulted in an initial estimation of a sample size comprising 327 individuals. In order to address the possibility of non-responsive and unfinished surveys, sample size was augmented by 10%, culminating in a total of 360 individuals.

Quantitative variables: Quantitative variables encompassed participants' healthcare system factors like accessibility, availability, affordability of modern contraceptives, health workers' attitude towards WRA on modern contraceptive uptake, and sources of information. Proportions and frequencies were utilized to summarize the healthcare factors.

Statistical Methods: The analysis of statistical data was conducted utilizing IBM SPSS version 21.0. The figures

were summarized through descriptive statistics, and inferential analysis was performed utilizing Chi-square tests to evaluate the relationships between variables, establishing a significance threshold at $p < 0.05$ and a 95% confidence interval. Analysis accounted for sampling strategy, and any missing data were addressed through appropriate statistical techniques. Rigorous sensitivity analyses were performed to validate robustness of findings.

Ethical Consideration: The study gained ethical approval from Kenyatta National Hospital-University of Nairobi Ethics and Research Committee (KNH-UoN ERC), as indicated by reference number UP387/04/2023. Furthermore, approval was taken from the National Commission for Science, Technology, and Innovation (NACOSTI) under license number NACOSTI/P/23/27693. Prior to initiation of data collection, permissions were duly secured from the County Commissioner of Turkana County as well as from local authorities. All individuals involved presented penned informed consent, and their confidentiality was meticulously maintained throughout duration of study.

RESULTS

Distribution of Healthcare System Factors

The objective of research was to demonstrate the distribution of respondents concerning healthcare considerations. The results reveal that a significant portion of the population, 109 individuals (30.3%),

resided between 5 to 10 kilometers from healthcare facilities, while 96 participants (26.7%) were located 2 to 4 kilometers away. In context of family planning services, a significant majority of participants, specifically 307 individuals or 85.3%, affirmed their availability, whereas 36 participants, accounting for 10%, expressed uncertainty regarding this matter. In terms of affordability, a significant majority of participants, specifically 285 individuals (79.2%), indicated their ability to afford the items in question. In contrast, a smaller group of 24 participants (6.7%) expressed that they could not afford them. Overall, the sentiment among individuals indicated that healthcare workers exhibited a positive demeanor, with 195 participants (54.2%) expressing this view, while 145 participants (40.3%) described their attitude as fair. Among the participants, health providers emerged as the principal source of family planning information for 208 individuals, accounting for 57.8%, while community health workers followed, serving 90 participants, or 25% of the total. A total of 241 participants, representing 65.1%, anticipated that the services would require less than an hour, whereas 98 participants, accounting for 27.2%, expected the duration to be between 1 and 2 hours. In conclusion, a total of 223 participants, representing 61.9%, expressed the belief that the number of healthcare providers was sufficient. Conversely, 77 participants, accounting for 21.4%, indicated that there was a shortage of providers. Below, the findings are illustrated in Table 1.

Table 1: Participants' Healthcare System Factor(n=360).

Factors	Responses	Frequency (n=360)	%
Distance to Health Facility	>10 km	70	19.4
	5– 10 km	109	30.3
	2 – 4 km	96	26.7
	Up to 1 km	85	23.6
Affordability of Services	Yes	285	79.2
	No	24	6.7
Availability of Family Planning Services	Can't tell	36	10.0
	Yes	307	85.3
	No	17	4.7
Source of Family Planning Information	Relatives or friends	32	8.9
	Health providers	208	57.8
	Community health workers	90	25.0
	Media	28	7.8
	Religious leaders	2	.6
Attitude of Health Worker	Good	195	54.2
	Fair	145	40.3
	Poor	20	5.6
Sufficiency of Health Providers	Can't tell	60	16.7
	Yes	223	61.9
	No	77	21.4
Expected Service Time	>2Hrs	25	6.9
	1-2 Hrs.	98	27.2
	≤1 Hr.	237	65.8

The relationship amongst healthcare system variables and the use of modern contraceptive methods

The study investigated the impact of different healthcare system aspects on utilization of modern contraceptives. Findings revealed that participants residing within 1 kilometer of healthcare facilities demonstrated the highest utilization of modern contraceptives, with 60 (31.6%) participants, followed by 56 (29.5%) participants residing within 2-4 kilometers from the hospital facilities. The distance to healthcare facilities significantly influenced contraceptive utilization ($p < 0.000$). Moreover, participants overwhelmingly chose contraceptives when family planning services were available, with 181 (95.3%) participants utilizing these services, while only 7 (3.7%) participants did so when services were unavailable. The association was strongly significant between the availability and the utilization of modern contraceptives ($p < 0.000$). Services were perceived as affordable by 171 (90%) participants, but the affordability of services did not demonstrate a substantial connection with utilization of contraceptives ($p = 0.176$). Participants demonstrated a preference for contraceptive utilization when healthcare workers

exhibited positive attitudes, with 123 (64.7%) individuals choosing contraceptives in such instances. This was followed by 60 (31.6%) participants when attitudes were perceived as fair. The correlation identified between the favorable attitudes of healthcare professionals and the use of contraceptives was determined to be remarkably significant ($p < 0.000$). The primary source of family planning information for participants was healthcare providers, with 117 individuals (61.6%) relying on them, while community health workers were the next most utilized source, with 46 participants (24.2%). Nevertheless, the origin of information regarding family planning did not show a considerable correlation with its utilization ($p = 0.119$). A substantial proportion of participants, specifically 73.7%, chose to utilize contraceptives when the service duration was an hour or less, a finding that holds statistical significance ($p = 0.003$). Ultimately, the adequacy of healthcare providers had a significant impact on utilization ($p < 0.000$), as evidenced by 153 individuals opting for contraceptives when providers were deemed sufficient, in contrast to a mere 26 when they were found lacking. Table 2 below illustrates the results obtained.

Table 2: Exploration of the relationship amongst healthcare system variables and the use of modern contraceptive methods (n=360).

Variables Characteristics		Utilization of modern Contraceptive		Chi-Value Df P-value
		Yes (n=190, 52.8%)	No (n=170, 47.2%)	
Distance to Health Facility	Up to 1 km	60 (31.6%)	25 (14.7%)	$\chi^2=22.215^a$ df=3 p=0.000
	2 – 4 km	56 (29.5%)	40 (23.5%)	
	5– 10 km	48 (25.3%)	61 (35.9%)	
	10 km and above	26 (13.7%)	44 (25.9%)	
Availability of Family Planning Services	Yes	181 (95.3%)	126 (74.1%)	$\chi^2=37.833^a$ df=2 p=0.000
	No	7 (3.7%)	10 (5.9%)	
	Can't tell	2 (1.1%)	34 (20%)	
Affordability of Services	Yes	171 (90%)	114 (67.1%)	$\chi^2=1.835^a$ Df=1 P=0.176
	No	11 (5.8%)	13 (7.6%)	
Health Worker Attitude	Poor	7 (3.7%)	13 (7.6%)	$\chi^2=18.394^a$ df=2 p=0.000
	Fair	60 (31.6%)	85 (50%)	
	Good	123 (64.7%)	72 (42.4%)	
Source of Family Planning Information	Community health workers	46 (24.2%)	44 (25.9%)	$\chi^2=7.331^a$ df=4 p=0.119
	Health providers	117 (61.6%)	91 (53.5%)	
	Religion leaders	2 (1.1%)	0	
	Media	14 (7.4%)	14 (8.2%)	
	Friends and relatives	11 (5.8%)	21 (12.4%)	
Expected Service Time	<1 Hr.	140 (73.7%)	97 (57.1%)	$\chi^2=11.705^a$ df=2 p=0.003
	1-2 Hrs.	38 (20%)	60 (35.3%)	
	>2Hrs	12 (6.3%)	13 (7.6%)	
Sufficiency of Health Providers	Yes	153 (80.5%)	70 (41.2%)	$\chi^2=62.157^a$ df=2 p=0.000
	No	26 (13.6%)	51 (30%)	
	Cannot tell	11 (5.8%)	49 (28.8%)	

Modern contraceptive utilization

The results indicated that 53% (190) of the respondents were currently utilizing modern contraceptive methods (Figure 1).



Figure 1: Current contraceptive utilization (n=360).

DISCUSSION

Healthcare System Factors

The study investigated various factors influencing modern contraceptive utilization among respondents, providing insights into their perceptions and experiences related to healthcare accessibility, affordability, healthcare worker attitudes, information sources, service length expectations, and perceived sufficiency of healthcare providers. Most participants reported residing within 5-10 kilometers from healthcare facilities, indicating convenient access for a substantial number, while others lived within 2 to 4 kilometers, suggesting a moderately manageable distance. This favorable situation aligns with a study conducted on decreasing the unmet need of contraceptive services amongst youth^[9], emphasizing the importance of geographical proximity for healthcare access.

A substantial proportion of participants indicated that modern contraceptive services are both readily accessible and financially feasible. Over fifty percent of the participants expressed their ability to afford these services, highlighting the affordability and accessibility of contemporary contraceptives. This finding aligns with the research conducted on healthcare system indicators related to usage of modern contraceptives, reinforcing the importance of reproductive health choices.^[10] This positive scenario contributes to informed decision-making and promotes better reproductive health outcomes within the surveyed population.

In terms of healthcare worker attitudes, study exposed that >50% of respondents held positive perceptions of healthcare workers' attitudes. This positive outlook underscores the crucial role of positive attitudes among healthcare professionals in creating a helpful atmosphere for those seeking healthcare services, involving modern contraceptive utilization. It contrasts with a study led in South Africa which emphasizing impact of positive attitudes on enhancing promoting better health outcomes and overall quality of care.^[11]

The research underscored the role of healthcare providers as the primary source of information regarding the use of modern contraceptives, with over fifty percent of respondents depending on their guidance. This highlights the significant impact that healthcare professionals have in molding individuals' understanding and choices related to contemporary contraceptive methods. The findings underscore the critical role of healthcare specialists, not merely in the provision of services but also in offering education along with guidance on reproductive health, in harmony with the results of a study conducted in Kenya.^[12]

In terms of service length expectations, most participants anticipated that healthcare services would last <1 hour. This expectation of relatively short service durations is crucial for efficient healthcare service delivery, particularly for modern contraceptive services where ssssstimely access is essential. This highlights the importance of sustaining effective healthcare delivery systems to align with preferences and needs of surveyed populace, thereby fostering improved reproductive health outcomes, in accordance with findings of study conducted in Rawalpindi.^[13]

A considerable proportion of respondents expressed the view that the availability of healthcare providers in their vicinity was adequate. The perception of a sufficient healthcare workforce can foster trust and confidence in the healthcare system, motivating individuals to pursue and utilize healthcare services, such as modern contraceptives. This optimistic viewpoint corresponds with the research undertaken regarding the impact of racial-ethnic discrimination on women's healthcare outcomes, highlighting how positive perceptions can bolster healthcare-seeking behavior and contribute to the overall well-being of the community.^[14]

CONCLUSION

The study underscores the critical role of healthcare system factors in shaping modern contraceptive utilization in Turkana County. Accessible and positive healthcare experiences significantly influence utilization. Understanding these dynamics is pivotal for targeted interventions to tackle disparities and increase reproductive health outcomes.

RECOMMENDATIONS

Turkana county governments needs to consider in prioritizing healthcare investment, extending family planning services to remote pastoralist areas through mobile clinics or outreach programs. Training healthcare workers is crucial, emphasizing a positive demeanor, as attitudes significantly impact contraceptive decisions. Prioritizing reduced waiting times and an ample provider workforce will further boost contraceptive uptake.

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Conflict of interest: No conflicts of interest were found to disclose.

Ethical approval: This study was approved by the Scientific Ethics and Review Committee (SERC) of the University of Nairobi/Kenyatta National Hospital (KNH) number UP387/04/2023., and also, by the National Commission for Science, Technology, and Innovation (NACOSTI) license No. NACOSTI/P/23/27693.

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