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The Role of Community Health Workers in Influencing Family Planning Decisions among Users: A Case Study in the Ndera Sector of Gasabo District, Rwanda

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ABSTRACT

INTRODUCTION: Community health workers (CHWs) play a critical role in promoting contraceptive knowledge and usage, thereby impacting fertility rates in developing nations. Understanding their contribution to family planning (FP) decisions in specific contexts, such as the Ndera sector of Gasabo District, Rwanda, is essential.
METHODS: This was a cross-sectional quantitative study of 445 randomly selected family planning users that used a structured questionnaire.
RESULTS: Ninety-one percent of respondents were female, 53% were aged 25-34 years, and 75% were married. Educational levels ranged from primary to secondary. While CHWs were acknowledged by 97% of respondents, only 41% reported receiving adequate FP information. Statistically significant associations ($p<0.001$) were found between various demographic and FP-related variables, including age, marital status, FP preferences, access to FP information, satisfaction with information, educational level, and perceived barriers, and CHW's Contribution on Family Planning Decisions.
CONCLUSION: The study highlights a lack of male involvement in FP services in Rwanda, with only 9.1% of participants reporting male involvement and suboptimal provision of family planning information by community health workers

INTRODUCTION

Community health workers (CHWs) have emerged as crucial components of healthcare systems worldwide, particularly in addressing the needs of rural and underserved populations in developing countries [1]. Originating in Ding Xian, China in the 1920s, CHW programs began to proliferate globally in the 1960s, recognizing the limitations of the traditional Western medical model in meeting the healthcare needs of these populations [2, 3]. CHWs are defined by the US Department of Labor as individuals who assist communities in adopting healthy behaviors, conducting outreach, and advocating for individual and community health needs, CHWs play diverse roles in promoting health and well-being [3].
In developed nations such as the USA, CHWs

are integral members of healthcare teams, particularly in addressing social determinants of health within disadvantaged communities [4]. Throughout Africa, CHWs have played pivotal roles in advancing health-related Millennium Development Goals, notably in reducing child mortality, improving maternal health, and combating HIV/AIDS, malaria, and other diseases [5]. In Rwanda, the establishment of CHW programs by the Ministry of Health in 1995 was a response to healthcare access challenges and a shortage of medical professionals exacerbated by the 1994 genocide against Tutsi [6].

CHWs in Rwanda operate within various settings, including workplaces, neighborhoods, and households, with the objective of providing both therapeutic and preventive healthcare services [6]. With approximately 45,000 CHWs serving communities, their responsibilities range from offering medical care to children, pregnant and nursing women, to facilitating access to contraception [7]. Specifically regarding family planning services, CHWs provide a range of options including short-acting methods like injectable, tablets, condoms, and standard day techniques; which allows women to track their menstrual cycle in-order to identify when they are likely to become pregnant, given the complexity of implant insertion requiring medical expertise and sterile environments [8].

The aftermath of the 1994 genocide significantly impacted fertility patterns in Rwanda, prompting government initiatives to promote family planning as a means of poverty reduction and national development [7]. "Vision 2020," launched in 2000, aimed to elevate Rwanda to a middle-income country, with a concerted effort to reduce the fertility rate from 6.5 to 4.5 total births per woman by 2020. CHWs, along with other stakeholders, were trained to disseminate information about contraception and address societal barriers hindering family planning uptake [7].

Through routine community engagement activities such as the monthly umuganda community service day (A traditional Rwandan practice of community service, held on the last Saturday of each month), CHWs and officials actively discussed reproductive health issues, including family planning, with community members [9]. These concerted efforts bore fruit, as Rwanda's fertility rate plummeted below the target to 4.1 total births per woman by 2020, with a substantial increase in contraceptive usage among married women from 17% to 64% during the same period [8,10].

Despite these achievements, there remains a paucity of published literature elucidating the specific contribution of CHWs to family planning promotion in Rwanda. Therefore, this study aims to assess the role of CHWs in promoting family planning utilization among the community of Ndera sector in Gasabo district, Rwanda. By filling this gap, the study seeks to provide valuable insights into the effectiveness of CHW-led interventions in advancing reproductive health outcomes in Rwanda.

METHODS

Study Design: This study used a descriptive cross-sectional design to investigate family planning (FP) users attending the 4 health posts in the Ndera Sector of Gasabo District, Kigali city, during mid-September to early-October 2023.

The Ndera Sector, covering 50 square kilometers, has a total population of 95,000 people, with a population density of 1,890 per square kilometer. It comprises 6 cells and 42 villages, with 214 CHWs operating under Rubungo Health Center supervision. Additionally, apart from the health center, Ndera has 4 health posts that provide FP services among their offerings.

To determine the sample size, Yamane's formula was employed, taking into account the average number of FP users per year in the Ndera sector, which is 31,780. According to Yamane's formula: n= N/1+N (e) 2

Sample size (n) = 31780/ [(1+31780(0.05)2)] = 395 (+ allowance for non-response ~10%). Hence (n) is superior or equal to 434.5= 445.

Participants: Participants eligible for inclusion in this study were women and men aged between 18 and 45 years residing in the Ndera sector who were actively using family planning options, while individuals with mental disabilities and new residents were excluded.

Study Tool: A survey was conducted at all four health posts in the Ndera Sector, employing a simple random sampling technique to select participants from among family planning users. Data collection occurred at each health post, where FP users were categorized by their respective villages. Participants were provided with pieces

of paper marked with "yes" or "no," and those selecting "yes" were invited to participate in the study. Priority was given to male participants during data collection due to their perceived underutilization of contraception. Each village was represented by nine FP users in the study sample. Data were collected using a structured questionnaire administered through face-to-face interviews. The questionnaire, initially prepared in English, was translated into the local language (Kinyarwanda).

Data Analysis: Analysis was conducted using the Statistical Package for Social Science (SPSS), where frequency distribution and percentages were utilized to determine the socio-demographic characteristics of family planning (FP) users. Descriptive statistics tools such as frequency and percentage were employed to assess the attitudes, practices, and level of knowledge of FP users. Tables were utilized for visual representation of the data. To identify factors associated with CHWs contribution to FP decisions among users, the Chi-square test was employed, with significance set at a P value of less than 0.001.

Ethical considerations: Numerous ethical considerations were addressed during the study. Ethical clearance was obtained from the Institutional Review Board (IRB) of the University of Rwanda, College of Medicine and Health Sciences (Ref: CMHS/IRB/430/2023).

Oral authorization was also obtained from the Sector Executive Secretary of the Ndera sector, along with a consent letter from Kibagabaga District Hospital. Written informed consent was obtained from all study participants after providing them with comprehensive information about the study's purpose, benefits, and risks. Participants were given the freedom to decide whether or not to participate, without any intervention or consequences for declining or leaving the study early. Participant information was kept confidential and anonymous to ensure privacy. The study did not cause any physical or psychological harm to participants, and no financial compensation was provided for participation, as it was voluntary.

RESULTS

Socio-demographic Characteristics of Participants: Table 1 summarizes the sociodemographic characteristics of the 395 participants included in this study.

Table 1: *Socio-Demographic Characteristics of Participants*

Socio-demographics	n	%
Gender		
Male	36	9.1
Female	359	90.9
Age (years)		
18-24	33	8.4
25-34	211	53.4
35-45	151	38.2
Marital status		
Single	84	21.3
Married	298	75.4
Divorced	7	1.8
Widowed	6	1.5
Education level		
None	4	1.0
Primary	165	41.8
Secondary	199	50.4
University/tertiary	27	6.8

The sample predominantly consists of females, with only 9.1% (n=36) being male. Regarding age distribution, 8.4% (n=33) of participants fall within the 18–24 age range, 53.4% (n=211) within the 25–34 age group, and 38.2% (n=151) within the 35–45 age group. Marital status varies, with 1.8% (n=7) divorced, 1.5% (n=6) widowed, 75.4% (n=298) married, and 21.3% (n=84) single. In terms of educational attainment, 1.0% have never attended formal schooling, 41.8% (n=165) have completed elementary education, 50.4% (n=199) have completed secondary education, and 6.8% have completed university or higher education; only 1% (n=4) reported being uneducated.

Perceptions of Family Planning Users towards Services Offered by Community Health Workers in Family Planning: The findings presented in Table 2 demonstrate a high awareness of CHWs among respondents, with 97% (n=383) confirming their presence in the study area. Only a minority, comprising 3% (n=12) of participants, reported unawareness of CHWs. Among those aware, 41% (n=162) indicated receipt of sufficient FP information from CHWs and expressed comfort in discussing FP matters with them, while 59% (n=233) reported insufficient information or discomfort in such discussions.

Table 2: *Perceptions of Family Planning Users towards Services Offered by Community Health Workers (CHWs) in Family Planning (FP)*

Variable(s)	n	%
CHWs presence in your area		
Yes	383	97.0
No	12	3.0
Enough information about FP from CHW		
Yes	162	41.0
No	233	59.0
Satisfied by information provided by CHW about FP		
Yes	155	39.2
No	7	1.8
Not applicable	233	59.0
Feel comfortable discussing FP issues with CHW		
Yes	162	41.0
No	31	7.8
Did not have the chance to discuss with CHWs	202	51.1
CHWs contribution in FP decision		
Yes	147	37.2
No	248	62.8
Can recommend FP services offered by CHWs		
Yes	155	39.2
No	7	1.8
Not applicable	233	59.0
Family planning method		
Condom	40	10.1
Birth control pills	66	16.7
Intrauterine Device	13	3.3
Injectable	162	41.0
Implant	110	27.8
Natural methods	4	1.0

Furthermore, 39.2% (n=155) expressed satisfaction with the FP information provided by CHWs and endorsed the FP services offered by them. Notably, 37.2% (n=147) acknowledged CHWs' contribution to their FP decisions and method selection, with injectables being the most preferred (41%, n=162), followed by implants (27.8%, n=110), condoms (10.1%, n=40), birth control pills (16.7%, n=66), intrauterine devices (IUDs) (3.3%, n=13), and natural methods (1%, n=4).

Factors Associated with CHW's Contribution on Family Planning Decisions among FP Users: Table 3 displays the results of the chi-square test examining the relationship between various factors and participants' decisions regarding family planning. Among the variables analyzed in the multivariate model, seven demonstrated statistical significance ($p < 0.01$) in relation to the contribution of Community Health Workers to family planning decisions. These variables encompassed age, marital status, education level, preference for FP methods, access to sufficient FP information, satisfaction with provided information, and perceived barriers. However, gender did not show statistical significance ($p = 0.11$) in this analysis.

DISCUSSION

This study delved into the pivotal role of Community Health Workers (CHWs) in influencing family planning decisions among FP users within the Ndera sector of Gasabo District, Rwanda. Our investigation encompassed an examination of demographic characteristics, provision of adequate information, and FP users' perceptions regarding the services offered by CHWs. While our research builds upon existing literature, which has touched upon the general impact of CHWs on FP promotion in Rwanda, it uniquely focuses on elucidating the specific roles of CHWs in this domain.

In terms of FP users' perceptions, our findings underscored a high level of awareness among FP users regarding the presence of CHWs in their community, with 97% of participants acknowledging their existence. However, only 41% reported receiving sufficient information about FP from CHWs, a discrepancy from findings reported by Mazzei et al. in 2019, which highlighted regular household visits by CHWs as a significant factor contributing to increased contraceptive use [11]. Nevertheless, FP users who received adequate information from CHWs expressed high levels of satisfaction and were inclined to recommend these services to others, corroborating similar positive attitudes reported in a study conducted in rural Ghana by Maya J. Stephens et al. in 2020 [12].

Regarding FP practices, our study revealed that

Table 3: *Factors Associated with CHW's Contribution on Family Planning Decisions among FP*

	No n (%)	Yes n (%)	Total n	Chi^2	P-Value
Age				16.30	<0.001
18-24	24(72.7)	9(27.3)	33		
25-34	148(70.1)	63(29.9)	211		
35-45	76(50.3)	75(49.7)	151		
Total	248(62.8)	147(37.2)	395		
Gender				2.53	0.110
Female	221(61.6)	138(38.4)	359		
Male	27(75.0)	9(25.0)	36		
Total	248(62.8)	147(37.2)	395		
Marital status				23.68	<0.001
Divorced	3(42.9)	4(57.1)	7		
Married	172(57.7)	126(42.3)	298		
Single	71(84.5)	13(15.5)	84		
Widowed	2(33.3)	4(66.7)	6		
Total	248(62.8)	147(37.2)	395		
Educational level				16.09	<0.001
None	0(0.0)	4(100.0)	4		
Primary level	91(55.2)	74(44.8)	165		
Secondary level	136(68.3)	63(31.7)	199		
University/ tertiary level	21(77.8)	6(22.2)	27		
Total	248(62.8)	147(37.2)	395		
FP method				26.93	<0.001
Birth control pills	37(46.2)	43(53.8)	80		
Condom	29(72.5)	11(27.5)	40		
Implant	80(74.1)	28(25.9)	108		
Injectable	88(58.6)	62(41.4)	150		
Intrauterine devices	12(92.3)	1(7.7)	13		
Natural methods	2(50.0)	2(50.0)	4		
Total	248(62.8)	147(37.2)	395		
Enough FP Information			299	0.00	
No	228(97.9)	5(2.1)	233		
Yes	20(12.3)	142(87.7)	162		
Total	248(62.8)	147(37.2)	395		

a majority of FP users who had health contact with CHWs opted to use FP methods endorsed by CHWs. For instance, injectables emerged as the preferred choice among 162 participants, aligning with findings from a study by Jane Wickstrom et al. in 2015, which emphasized the popularity of injectable contraceptives among FP users in sub-Saharan Africa, including Rwanda [13].

Moreover, our research identified certain sociodemographic factors, such as age, level of education, and marital status, as influential determinants in shaping FP users' decisions in relation to CHW involvement. Specifically, age, marital status, and education level exhibited a strong association with the extent of CHW contribution to FP decisions, echoing similar findings from studies conducted both within and outside Rwanda. For instance, A. Juma's study in Western Kenya highlighted the role of education in influencing attitudes towards CHW services, with less educated women expressing higher approval rates for CHW services compared to their more educated counterparts [14].

Interestingly, while our study found no significant correlation between gender and CHW contribution to FP decisions, factors such as adequate information provision, satisfaction levels, and overcoming perceived barriers emerged as key drivers for FP uptake, with FP users predominantly opting for methods provided by CHWs. These findings align with those of B. Solanke et al. from Nigeria, which demonstrated a positive association between interaction with CHWs and modern contraceptive use [15].

In this case, the cross-sectional design restricted the researchers from examining the dynamic nature of the relationship between community health workers and family planning decisions among users in the Ndera sector of Gasabo District, Rwanda. Therefore, prospective longitudinal studies are recommended to better explore this relationship.

CONCLUSION

The study underscores a significant gap in male involvement (9.1%) and suboptimal provision of FP information by CHWs, despite their potential impact on FP uptake. However, among those who had contact with CHWs, 91% acknowledge their significant contribution to FP decision-making. To maximize their influence, extending CHWs' reach to a larger population segment is crucial. Efforts to enhance awareness about CHWs' roles are imperative, given that nearly half of those who never had contact with CHWs cited lack of awareness about FP services.

Therefore, the community health workers in collaboration with other health professionals, community leaders and related government agencies needs to address the gaps in male involvement in FP services and improving awareness about CHWs' roles in providing FP services. These are essential steps in advancing FP uptake and reproductive health outcomes in Rwanda.

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