Improving knowledge and use of sexual and reproductive health services among displaced women: a quasi-experimental study.

Abstract

Introduction

Targeted interventions are needed to address the evolving needs of displaced persons. We explored the use of community-based reproductive health personnel (CBRHP) and mHealth technology to improve knowledge and use on selected SRH issues among displaced women.

Method

This was a quasi-experimental mixed method study conducted in internally displaced persons (IDP) camps in Benue State, Nigeria. Data was collected from 158 displaced women using a structured questionnaire at baseline and post health educational intervention. Additionally, focus group discussions and stakeholder interviews were done post-intervention. Qualitative analysis was done using a thematic approach. The paired t-test, logistic regression and prevalence ratio (PR) were used in comparing knowledge scores, check for association between outcomes and assess the likelihood of the use of services post intervention, respectively. A p-value ≤ 0.05 was considered statistically significant.

Result

The intervention significantly improved knowledge about SRH services, except for those who had never used them, with cervical cancer screening showing the most significant mean change (1.4 - 7.3). The intervention resulted in service use among less than 50% of the population, with service use being 4times as likely post-intervention. The intervention did not impact contraception and HIV/AIDS services but increased cervical cancer screening usage by 50 times. However, contraceptive self-care options increased compared to expert healthcare. Post-intervention participants were four times likely to use a service, with individuals with formal education having a more likelihood. Qualitative analysis showed that including interventions in daily activities, making services free, available, and accessible, and providing easily understood SRH knowledge could improve SRH.

Discussion

Health education using CBRHP significantly increases knowledge of SRH services and their use by marginalized subgroups, like persons of lower educational status particularly for unavailable services due to their perceived importance. Further research is needed to enhance the utilization of existing SRH services among displaced women.

Key Words: displaced women, sexual and reproductive health, HIV/AIDs, Contraception, Cervical cancer, Health education, mHealth.

INTRODUCTION

Climate variability, conflicts and displacement expose people to unplanned circumstances that could affect their health and well-being. In Nigeria, displacement has affected over 2.9 million people with Benue state holding about 14% of this displaced population[1,2.] Amidst struggling to survive or flee from dangers, women and girls in these settings are faced with sexual and reproductive health challenges, exacerbated by their already vulnerable status in society[3]. For this reason, Sexual and Reproductive Health (SRH) actors have acknowledged that access to SRH services is of the essence for displaced persons hence the recommendation to adopt the Minimum Initial Service Package (MISP)[4] to cater for their needs. However, the implementation of SRH intervention is faced with numerous challenges, including secondary migratory problems and other cultural and political issues that are context-specific [5,6].

Studies in Africa have acknowledged that SRH service knowledge and use among persons in humanitarian settings is usually affected by ethnic and cultural factors[7,8]. Hence there is a continuous need to empower these populations with knowledge and encourage the use of SRH services based on patients' autonomy. To achieve this, the utilization of a culturally acceptable technique is essential and most recommended [9,10]. For example, in Africa and Asia, success stories have been reported in the use of lay community health workers (CHW) to provide health education and SRH services to people in low-resource settings where cultural barriers exist [11,12]. Their involvement in care has been acknowledged in facilitating discussions that help understand the peculiar needs of the people and the services provided [13]. However, education and monitoring of the services provided by the CHW are necessary to ensure that the right knowledge is impacted based on the needs of the patient. In Nigeria, however, documented evidence on the use of CHW in promoting health service knowledge and the use of SRH service in displaced settings is scantily reported. Most specifically, there is a gap in research involving the use of locally trained health personnel in camps to provide HIV/AIDs, contraceptive, and cervical cancer-related information and encourage care-seeking behaviors. Using an intervention that educated displaced women about prevention and care measures for three sexually reproductive health (SRH) concerns—HIV/AIDS, contraception, and cervical cancer—and facilitated their access to and utilization of these resources—this study employed a quasi-experimental design to evaluate the capability of

employing community-based trained reproductive health professionals for improving the displaced women's knowledge and use of service.

METHODOLOGY

Study settings

It was conducted in Benue State which is located in the North-central region of Nigeria and with an estimated population of 4,253,641 people[14]. It shares borders in the north, east, west, southwest and south with Nassarawa, Taraba, Kogi, Enugu, Ebonyi and Cross-Rivers States, respectively. The indigenes live basically on subsistence farming with the common crops grown in this region include oranges, mangoes, sweet potatoes, cassava, soya beans, guinea corn, flax, yams, and sesame[14].

Recently, the state has been in a land dispute with the Fulani herdsmen who constantly attack the indigenes, causing them to flee from their homes[15]. These have made some of them settle in camps where they live as Internally displaced persons (IDPs) who depend on government and non-governmental agencies for assistance - food, shelter, water, security, medical assistance, etc.[16]. The Internally Displacement Monitoring Center (IDMC) estimates over 2 million displaced persons in Benue state. The majority of them are women[17]. The state is burdened with HIV/AIDS as its prevalence rate of about 3 is the second-highest in Nigeria [18] .

Study Design

A documented quasi-experiment design[19], which involved a preintervention phase, a 3-month intervention phase, and a post-intervention phase was used in this study. Since our study aimed at providing health education intervention, we employed a post-intervention period of three months to assess its effect of service use, similar to previous research.[20,21] The security and safety concerns, resource constraints and the mobile population were other considerations for the choice of a short-term rather than a long-term follow up, so as to minimize tracking efforts and ensuring participants retention.

Inclusion/ exclusion criteria

Inclusion in the study were; women between the ages of 15 and 49 years old (irrespective of HIV status), living in the selected IDP camp for a minimum of 6 months, and who gave consent to the study were included in this study. Women who did not consent to the study, lived in the camp for less than 6 months, were not sure of their stay in the camp within the intervention period, and had any cognitive difficulties were excluded.

Sampling technique

Out of a total of four camps, Dauda camp1 and Dauda camp3 were chosen based on a security risk assessment, the availability of a health facility that provides SRH care in or near the camp, and its easy-to-evaluate location. About a ten-minute walk from these camps is a Family Support Clinic that offers a variety of SRH services, such as HIV prevention, care, and treatment, Sexually Transmitted infection (STI) management, conception service, Maternal and newborn services, and Sexual gender-based violence (SGBV) services.

Details of the sample size used have been documented[19]. To account for attrition, 10% of the initial sample was added to the calculated sample, giving a total of one hundred and fifty-eight women randomly selected from the two IDP camps for intervention. Participants for the FGD and interview were selected purposively, and these included women's leaders, camp captains and stakeholders, who have been known to participate actively in meetings and been resident in camp for over one year.

Data Collection procedure

Prior to the study, research assistants were trained to collect the data using a piloted instrument entered in the Kobo Collect version 2022.2.3 android application [22]. The tools were constructed following a review of the literature. Prior to the intervention, baseline data on participant knowledge and utilization of the service three months preceding the study were collected using a structured questionnaire, which was checked for content, face validity, and reliability using Cronbach's alpha with a result of 0.918 at the 0.000 level of significance.

The intervention included physical health education meetings for all the participants and a mhealth option for participants (119) who had mobile phones. The intervention package was in two wraps;

a physical meeting and a weekly phone call (mHealth) to participants to discuss HIV/AIDS, cervical cancer, and contraception services. Each meeting lasted approximately two hours and consisted of a lecture moderated by the researcher, research assistants and trained community-based reproductive health personnel to reinforce knowledge and raise awareness while weekly phone conversations lasted between two and three minutes. The educational component of the package included empowering with knowledge about the concepts including SRH prevention component, service use, linking them to service provision, and answering questions about myths and challenges affecting service use when available. CBRHP also provided assistance with referrals to facilitate participants' access to services. More details are documented somewhere else[19].Because cervical cancer screening services were not available in the camps, the researchers partnered with other personnel to provide free services to women who showed interest in using the services after the intervention.

Post intervention, data was collected using quantitative and qualitative tools (Mixed-Methods). The same structured questionnaires were used for the quantitative aspect while the qualitative involved focused group discussions (FGD) and key stakeholder interviews. A total of 3 FGDs were held with participants selected by age groups categories and each having a maximum number of 8 participants.

Outcome variables.

The level of knowledge about HIV/AIDS, contraception, and cervical cancer prevention services was obtained by the number of correct responses to questions related to the 3 selected RH services. A total knowledge score of 6 out of 11, 6 out of 12, and 5 out of 9 were termed good for HIV/AIDS, contraception and cervical cancer, respectively, while other scores were termed bad knowledge. Overall, participants with a total score of 17 and above were assigned good knowledge about the indicators, while those with scores below were assigned poor knowledge.

Data Management and Analysis

The data collected was entered into IBM SPSS Statistics (Version 26). The distribution of the data was check for normalcy using the Shapiro-wilks test. Normalcy was assumed since $p > 0.05$. Frequencies, percentages, mean and standard deviation was used to describe participants sociodemographic. The paired T-test was used to compare knowledge scores while logistic

regression was used to check for association with use of SRH service before and after the intervention. A logistic regression model with sociodemographic factors, ever used RH services and level of knowledge about RH services was used to predict the use of service in the last three months. To compare use of service use of service pre- and post-Intervention we use the crude odds ratio (COR). We calculated the prevalence ratio (PR) to know the likelihood of service us after intervention.

Qualitative analysis was done using a thematic approach. Codes that described participants' expressions of how SRH services could be improved were extracted. More details of the thematic analysis are explained in the methodology paper[19] . The findings of the thematic analysis were used to triangulate the findings of the quantitative analysis, and a diagram was used to summarize the study's findings on how to improve SRH service and use in the setting. In order to maintain anonymity, verbatim quotations that emanated during the interviews and FGD-given pseudonyms.

Ethical Consideration

Informed consent was obtained from all adults and assent from all adolescents younger than 19. The researcher adhered to the principles of anonymity and confidentiality. Ethical approval was obtained from the University of Ibadan/University College Hospital, Ibadan, Nigeria ethical review board (UI/EC/22/0020), with further administrative clearance from IDP camp authorities.

RESULTS

Table 1. Sociodemographic characteristics of respondents				
	Pre-intervention		Post -Intervention Camp	
	N	%	N	%
CAMP Name				
Daudu 1	36	22.8	34	25.6
Daudu 3	122	77.2	99	74.4
Total	158	100	133	100
< 19	20	12.7	15	11.3
20-29	72	45.5	55	41.4
39-39	46	29.1	46	34.6
> 40	20	12.7	17	12.7
total	158	100.0	133	100.0
Highest educational level				
None	87	55.1	72	54.1
Primary	38	24.1	36	27.1
Secondary	33	20.8	25	18.8
Total	158	100.0	133	100.0
Occupation				
Farming	140	88.6	116	87.2
Others*	15	9.5	12	9.0
None	3	1.9	5	3.8
Total	158	100.0	133	100.0
Marital Status				
Single	10	6.3	11	8.3
Married	126	79.8	115	86.4
Widowed	22	13.9	6	5.3
Total	158	100	132	100.0
Received call form CBRHP				
No	-	-	42	31.6
Yes	-	-	91	68.5
total			133	100.0
* Others include schooling and tailoring, Teaching		Attrition rate= 15.82%		

An attrition of 15.82% which was basically due to secondary migration in search of food and other necessities. Most respondents were between the ages of 20-29 years with a mean age range of 28±8years. The mean length of years lived in the camp was 4±1 pre and post intervention.

Most participants had no formal education and farming was the major occupation of the participants with over 87%. Up to 68% (91) of the participants who participated were involved in

mHealth intervention. Generally, the majority of the attritions were from Daudu 3(intervention camp). Attrition was highest among farmers between 20-29 years of age in both camp.

Table 2: Comparison of Mean Knowledge Scores Pre and Post-Intervention among subgroups

		Baseline	Post Intervention	
		$\bar{x}\pm\sigma$	$\bar{x}\pm\sigma$	P. Value
Age category	19 years and bellow	17.4 ± 6.7	23.7 ± 6.1	0.005
	20-29 years	16.3 ± 6.4	26.8 ±2.3	<0.001
	39-39 years	17.8 ± 6.0	27.2 ± 1.5	<0.001
	40 years and above	19.0 ± 6.5	27.7 ± 1.1	<0.001
highest level of education	No formal education	17.1 ± 6.7	27.4 ±1.5	<0.001
	Primary Education	16.8 ± 6.6	25.5 ± 4.6	<0.001
	Secondary Education	18.0 ± 5.0	26.48±2.1	<0.001
What is your occupation	Farming	16.8 ± 6.4	27.2 ± 1.7	<0.001
	Others*	19.3 ± 4.3	21.7 ± 6.3	<0.001
	None	25.0 ±6.3	26.4 ± 0.9	<0.001
Relationship status	Single	13.3 ± 6.7	21.8 ± 6.0	0.010
	have a live-in partner/ Married	17.1± 6.3	27.2 ± 1.82	<0.001
	widowed	19.5 ± 5.3	27.8 ± 0.8	<0.001
Has a mobile phone	No	14.8 ± 7.0	24.7 ± 4.7	<0.001
	Yes	18.0 ± 5.9	27.1 ± 1.5	<0.001
Did you receive calls	No	. .	24.9 ± 4.3	-
	Yes	. .	27.5 ±1.3	<0.001
ever used RH services?	No	16.4 ± 6.5	19.0 ±0	0.080
	Yes	17.7 ±6.2	26.8 ± 2.8	<0.001
SRH service				
HIV		6.3±3 3.0	8.6±0.92	<0.001
contraception		8.5±3.5	10.7 ±1.19	<0.001
Cervical cancer		1.4 ±2.0	7.3 ±1.7	<0.001

There was no significant difference between pre-and post-intervention knowledge change among participants who did not utilize any of the services. Nonetheless, participants with other characteristics gained a substantial amount of knowledge. Additionally, each SRH subject exhibited a significant increase in knowledge gained. Nevertheless, the gain in knowledge regarding cervical cancer was considerably greater than that regarding HIV/AIDS and

contraception, which rose from an average of 1.4 to 7.3 after the intervention, for a mean difference of 5.9.

Table 3: percentage change in each service uptake following the CBRHP Intervention

	Pre-intervention		Post-intervention		PR
	N	%	N	%	
HIV	23	14.56%	21	17.30%	1.19
Contraception	20	10.75%	14	12.00%	1.17
Cervical cancer	1	0.63%	42	32.30%	51.27

shows that the women were twice as likely to use SRHs post-intervention, with only close to half of them (48%) reporting use of service. The use of contraceptives and HIV/AIDS had a prevalence ratio of 1, signifying no effect of the intervention on the use of these services. Uptake of cervical cancer was 50 times more likely post-intervention.

While utilization of HIV counseling and testing services increased by approximately 3 points utilization of treatment and care, PMTCT, and PEP services declined. Oral contraception, injectables, and condom use increased by approximately 2 points following the intervention, while use of implants and exclusive breastfeeding decreased. Generally, uptake of cervical cancer services increased with up to 18 points of participants being screened using Visual inspection with acetic acid (VIA).

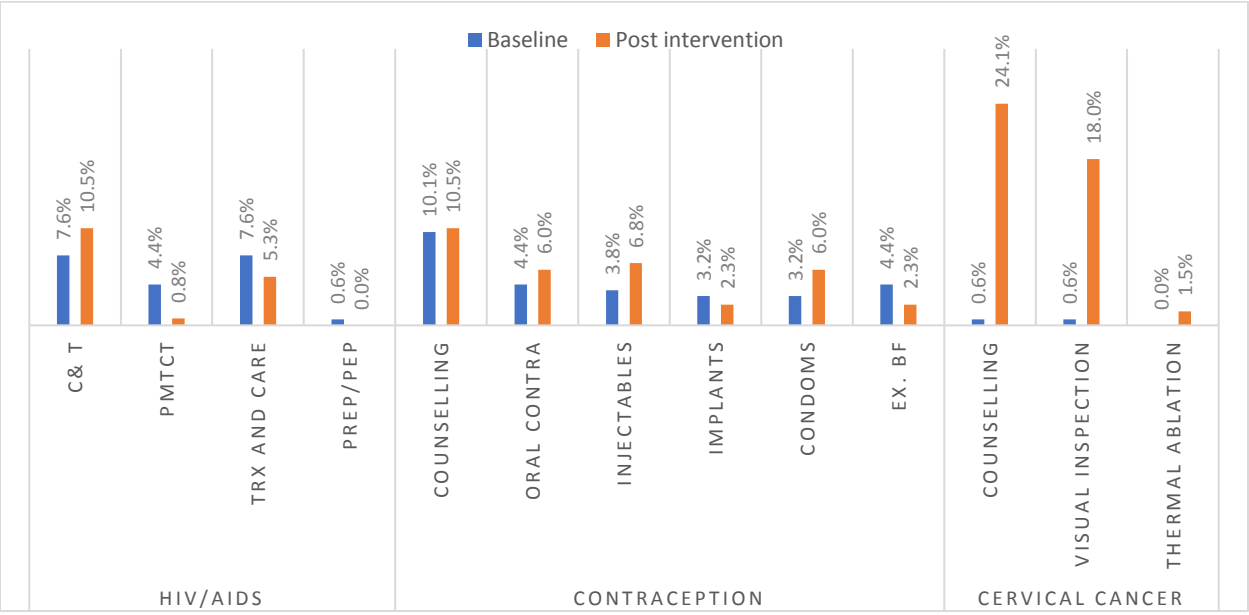

Table 4

		Pre-Intervention	Post Intervention
	Variable	**AOR (**95%**CI)**	**AOR (**95%**CI)**
Age	-	1.065(0.996-1.141)	0.995(0.948-1.044)
Highest level of education	No formal education	ref	ref
	Primary Education	0.331(0.101-1.087)	***0.260(0.092-0.736) ****
	Secondary Education	0.406(0.103-1.609)	***0.324(0.102-1.027)****
occupation	Others*	ref	
	Farming	***9.868(1.084-89.865)****	1.172(02.83-4.57)
Relationship status	have a live-in partner/ Married	1.863(0.630-5.511)	0.568(0.165-1.951)
	No live-in partner	ref	ref
Has a mobile phone	No	ref	ref
	Yes	0.903(0.263-3.098)	3.789(0.721-19.91)
Length of stay in camp		0.734(0.511-1.054)	1.044(0.799-1.363)
Did you receive calls	No	-	ref
	Yes	-	0.686(0.151-3.115)
Leve of SRH Knowledge	poor	0.985(0.916-1.059)	0.988(0.842-1.158)
ever used RH services?	No	ref	
	Yes	***0.040(0.005-0.311)****	--
			COR(95%CI)
Study timing	Pre-intervention		
	Post-intervention		**4.9(2.989-8.188)***

Table4 shows that holding other variables constant pre intervention respondent's occupation and ever use of a RH service predicted use of a RH service in the last three months while highest level of education was the only predictor of use of service post intervention. Preintervention persons who had previously use a service where less likely to use the service 3month before the intervention;0.040(0.005-0.311) while women who were farmers were 9 times more likely to use a service that those on other professions CI,(1.084-89.865. Post-intervention, those who had no education where more likely to use a service compared to those whom had a primary education or a secondary education; 0.260(0.092-0.736) and 0.324(0.102-1.027) respectively.

Generally post-intervention participants were 4.9 times more likely to use a service than in the pre-intervention phase; CI, **(2.989-8.188)**. However, there was no significant difference between those

who received phone calls from the CBRHP to use a service post-intervention and those who did not.

During the FGD and interview with stakeholders, the participants highlighted the need for improving SRH knowledge and use among the people leaving displaced camps. According to them, there are some key things that could be done to improve women's knowledge and use of SRH services. These included using other platforms to provide SRH information outside of the facility, implementing interventions outside of farming seasons, providing adequate information about services, including males in SRH care, providing stigma- and discrimination-free services, and making services free of charge. The following expressions highlight this:

"Sexual and reproductive health knowledge must not be provided only when we come to the hospital; meetings like this are useful avenues to make sure people learn." (Camp leader).

"The women usually travel for farming to a neighboring state, this causes missed opportunities in care…. We cannot stop them they are looking for food (healthcare workers)

"Sometimes the health care workers want to just do their jobs. Some years ago, they came to screen us for cervical cancer, and we were not well informed about the procedures. Some women agreed to be screened and came back to tell us they stole their wombs. I liked the way they told us about cervical cancer screening, and we were motivated to use the service. Health workers should learn to use a language we understand'' (Orla,)

"If our husband doesn't allow us to go to the hospital, we won't go; they should educate them and tell them it's important for us to check ourselves" (Msushima)

" *When you are going to treat yourself sometimes some health worker will make you feel uncomfortable especially when you have infection. …when you have HIV people in the camp will run from you*" (Mary)

"Services should be provided for free; we have lost everything and are struggling to eat." (Tyongu)

"the women come to seek services but sometimes we have stock out…, it is essential for commodities to be available in the camp facility (health care worker)

"These women move a lot, if these intervention in such a way that it targets times when they are settled; I mean out of planting and harvesting seasons, it will be very helpful" (Terfa)

Discussion

The population faced an attrition rate of 15.8% following the intervention, with the highest rate among those 20–29 years old. The major occupation of the respondents was farming. The intervention significantly increased knowledge about the SRH service (HIV, contraception, and cervical cancer) in all groups except those who had utilized a SRH service. Generally, use of the SRH service was twice as likely post-interview, with the majority of women using a cervical cancer service. There was a significant difference in the use of SRH services pre- and post-intervention, but there was no significant increase in service use among those who received the mHealth option.

In many studies in Nigeria, the majority of displaced persons are aged 18-29 years[23,24]. The population of Benue State is known to be primarily farmers[14], which explains why the major occupation of the women was farming. Due to the crisis, the majority of the women may have displaced themselves in search of farming opportunities in neighboring cities or states. According to the Texas University Center Strauss Center and WHO, displaced persons in IDP camps are likely to further migrate in search of opportunities, due to camp living conditions and security concerns[25]. A relatively high percentage of the population (68%) participated in the mHealth intervention. Mobile health interventions have gained popularity in Africa due to the widespread use of mobile phones, even in rural areas like that of the setting, making it a good platform to provide health information that caters for individual needs in a confidential way[26].

Generally, a significant knowledge gain was noted among all subgroups following the health education provided by the CBRHP. However, those who did not utilize SRH services did not have any significant increase in knowledge about the service. This goes to prove that participation in SRH intervention motivates interest in SRH matters and promotes knowledge gain. A study by the WHO showed that participants' engagement in SRH activities significantly increased their knowledge [27]. For these reasons, many advocates have discouraged the one-size-fits-all approach to talking about SRH service in humanitarian settings since individuals have their own differences that need to be considered when providing SRH service and knowledge [13,28].

A greater usage of post-interventionist services was observed in less than half of the population, this suggests that certain variables within the population still hinder use despite the increasing awareness of SRHR issues Utilization of the service prior to the intervention was less likely among individuals who had ever utilized an SRH. Contradictory findings from a community-based study

among displaced women with disabilities in a non-humanitarian situation suggesting that retention and reengagement with SRH services may be difficult to achieve, an issue that is particularly pronounced in displaced settings[29]. Since agriculture is the major occupation of the, people with the highest socioeconomic standing were more likely to be farmers; hence, they were in a better position to access care in comparison to those in other professions. Based on the results post-intervention, individuals with lower levels of education were more likely to utilize the service compared to those with some education. This suggests that individuals with less formal education may have had limited access to health information, including SRH education. Consequently, the intervention increased their curiosity and receptivity to the health information. Previous research has established that education is only weakly correlated with the current lack of utilization of SRH services like modern contraceptive methods[30]. Other research, however, has found no significant relationship between educational attainment and service utilization[29,31].

Use of service was two time more likely post intervention. The use of contraceptives and HIV services showed no effect in increase in comparison to cervical cancer screening services which had a 50 times more likely post intervention likely attributed to the availability of previously unavailable services and perceived importance among the women. Literature confirms that short interventions significantly increase knowledge about SRH services. However, few studies have reported a significant effect on the uptake of services following such interventions with short time periods[32,33,34]. The high uptake of cervical cancer services may be due to the fact that cervical cancer services, which were previously not available in the camp facility, were made available for those who showed interest during the intervention. It can be concluded that the women perceived cervical cancer services to be of interest and importance considering the substantial gain in knowledge, which was far greater than that of the other SRH concepts. Additionally, because this sort of screening seemed relatively new, participants felt It was necessary to take up the service. Generally, HIV counseling and testing services increased to about 3%; however, other service usage declined. This may be explained by the fact that services such as PMTCT and treatment are only available to persons living with HIV (PLHIV) or HIV-exposed persons. In most settings, HIV care and treatment and PMTCT and treatment and care services are offered through a differentiated delivery care model, which allows for more patient-centered care and decreases hospital visitation[35]. In most cases, a person living with HIV may visit a facility just once every six months or may receive care outside of the facility[36]. The use of pre- and post-exposure HIV prophylaxis

among displaced populations has generally been noted to be poor. This is due to factors such as low knowledge about the option, unavailability of Pep and Prep, costs of these services, stigma associated with their use, and cultural factors [35,36]. A systematic review that assesses how Pre - exposure prophylaxis (PreP) could be improved among migrants specifically pointed out that most migrating persons had no knowledge about prep, and for those who knew, the cost and unavailability of prep were major barriers to service use in studies carried out among displaced persons [36] . For this reason, actors have recommended more targeted campaigns to improve use of PrEP and PeP among displaced persons and increase access to HIV prevention services among this group [36] .

While there was about a two percent increase in the use of oral contraceptives, injectables, and condoms post-intervention, the use of implants decreased. More studies are recommending the use of self-care options as an invaluable method to improve the SRH of displaced persons [13,37]. This is because this method offers privacy and confidentiality, a limited need for health practitioners who are relatively scarce in displaced settings, and is cost-effective [37]. This may explain the slight increase in condom use, oral contraception, and injectables compared to implants, which require more expertise.

The intervention significantly improved the use of the selected SRH service post-intervention; however, there was no significant improvement in the use of services between those who used the mHealth option and those who did not. Nevertheless, those who received mHealth were about two times more likely to use a service. This may be explained by the fact that mHealth was just a subset of the intervention that received physical education. However, the two-fold increase in service usage among those who received mHealth, despite the lack of statistical significance, implies that a comprehensive approach that includes both digital and physical components may be more effective in promoting SRH services in low literacy population like that in this study. Studies in displaced settings have recorded success in the use of lay refugees and displaced persons to provide SRH knowledge and attitudes toward health service use [38,39]. However, researchers opined that there is a need for research to assess the quality of service offered by lay SRH workers[11,38].

Qualitative findings showed that to improve SRH in the setting, it was necessary to plan interventions in times when the people were less likely to migrate. In this setting, the out-of-farming sessions may have been more appropriate. The findings also suggested that integrate SRH

into the people's lifestyle, providing free services and commodities, and providing SRH information in a way that is easily understood could improve outcomes. In a publication by the UNFPA, integrating health activities into the lifestyle of displaced persons ensures that services align with their living conditions, reducing the chance of service disruption and making the services more accessible and acceptable to them [40]. This approach will be more effective if these services are affordable to the displaced persons [40,41]. A high-quality health system is one that optimizes health care in a given context by consistently delivering care that improves or maintains health outcomes, by being valued and trusted by all people, and by responding to changing population needs [41]. In a report emphasizing the need for high-quality care for sustainable development, the need for aligning services with diverse routines of people, especially in sub-Saharan Africa was emphasized [41]. Kruks et al in their publication further opined that this ensures high-quality health is offered by ensuring that the service is valued and trusted by the people [41]. It has also been recommended that SRH information be provided in an easily understood and culturally sensitive manner, which is essential to ensuring understanding and engagement with SRH services[43]. Communication strategies that employ the use of a lay healthcare worker proficient in the local language along with the use of visual aids have been recommended[38].

Based on the findings the figure below can be used to illustrate how SRH health services knowledge and use can improved in the study setting

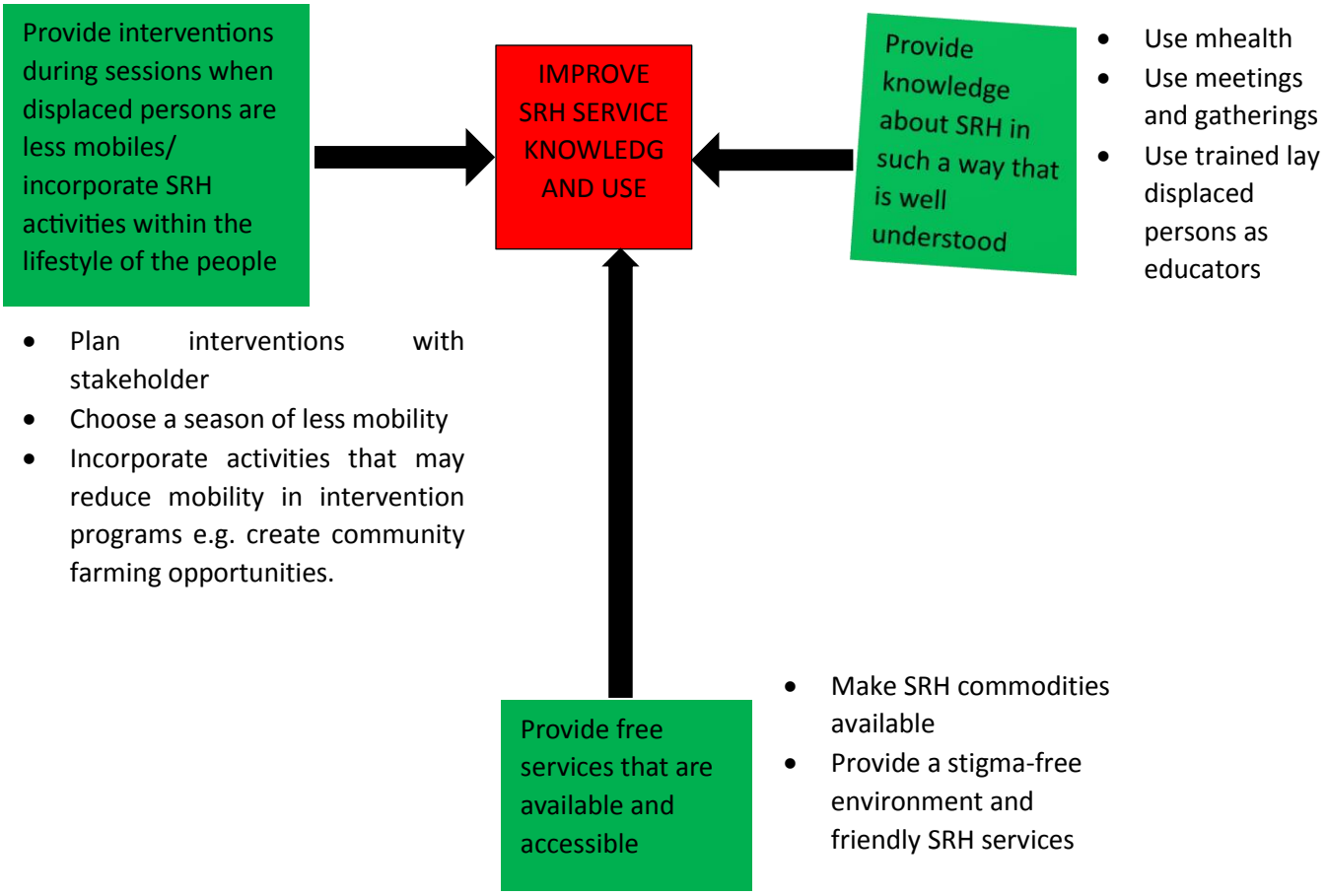

Figure 2: How SRH health services knowledge and use can be improved

Conclusion

In this study, it is noted that CBRHP and mHealth can improve knowledge and utilization of SRH services during displacement. However, slightly over 50% of women especially those who had never used services did not use a service following the intervention. The women showed much interest in services (cervical cancer services) that were not initially available in the setting and the use of self-care services increased more compared to services requiring expert care following the intervention. Health education gynecological cancers such as cervical cancer and availability of client-dependent methods are readily acceptable among displaced populations. However, it is crucial to adopt a culturally sensitive and inclusive approach when intervening to improve SRH among displaced persons. Furthermore, it underscores the necessity for additional endeavors to establish a connection between the acquisition of knowledge and the active participation of women in SRH services. This can be achieved by situating SRH interventions within the unique circumstances of humanitarian settings, considering obstacles related to accessibility and the seamless integration of services into the daily lives of women. By doing so, interventions can be optimized in their effectiveness.

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