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Reproductive health challenges among women in internally displaced camps in Benue State: A protocol for a community-based health education interventional study

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Abstract

Sexual and reproductive health (SRH) services are a necessity for marginalized persons such as the displaced. The protocol describes an intervention that can contribute to overcoming challenges associated with SRH service delivery of three selected reproductive health (RH) services: HIV/AIDS, contraception, and cervical cancer screening. A pre-and post-intervention approach will be used to evaluate the effect of an intervention with trained Community-Based Reproductive Health Personnel (CBRHP) and/or mHealth technology within the selected IDP camps. Three (3) months of health education through the CBRHP and/or via mHealth technology will be provided. Using a questionnaire, interviews, and Focus Group Discussion (FGD) guide, the researcher will assess the suitability of this intervention to attain the objectives. Data analysis will be done with SPSS version 26. Univariate analysis will include mean and standard deviation, bivariate analysis will include a chi-square test of goodness for the association of variables, and McNemer's test to evaluate the effect of the intervention by comparing consistency in response across the variables under study. Multivariate analysis will be used to assess if sociodemographic, knowledge and health service impacts access and use of RH services. For qualitative analysis, findings will be grouped into themes. The outcomes of each theme will be used to complement the findings of the quantitative analysis. The primary outcome measures will include the level of knowledge of SRH, the number of people who want to access RH services and which RH services are most sought by the respondents. If the use of CBRHP is successful, there will be an increase in knowledge and use of HIV/AIDS, contraception and cervical cancer services. Challenges associated with access and uptake of RH services will also be assessed. *(Afr J Reprod Health 2023; 27 [10]: 133-144).*

Keywords: Sexual and reproductive health; displaced women; humanitarian settings, care delivery; Nigeria, Africa

Résumé

Les services de santé sexuelle et reproductive (SSR) sont une nécessité pour les personnes marginalisées telles que les personnes déplacées. Le protocole décrit une intervention qui peut contribuer à surmonter les défis associés à la prestation de services de SSR de trois services de santé reproductive (SR) sélectionnés : VIH/SIDA, contraception et dépistage du cancer du col de l'utérus. Une approche pré- et post-intervention sera utilisée pour évaluer l'effet d'une intervention avec du personnel de santé reproductive à base communautaire (CBRHP) formé et/ou la technologie mHealth au sein des camps de déplacés internes sélectionnés. Trois (3) mois d'éducation sanitaire via le CBRHP et/ou via la technologie mHealth seront dispensés. À l'aide d'un questionnaire, d'entretiens et d'un guide de discussion de groupe (FGD), le chercheur évaluera l'adéquation de cette intervention pour atteindre les objectifs. L'analyse des données sera effectuée avec SPSS version 26. L'analyse univariée inclura la moyenne et l'écart type, l'analyse bivariée comprendra un test de qualité du chi carré pour l'association des variables et le test de McNemer pour évaluer l'effet de l'intervention en comparant la cohérence de réponse pour les variables étudiée. Une analyse multivariée sera utilisée pour évaluer si les services sociodémographiques, les connaissances et les services de santé ont un impact sur l'accès et l'utilisation des services de SR. Pour l'analyse qualitative, les résultats seront regroupés en thèmes. Les résultats de chaque thème seront utilisés pour compléter les résultats de l'analyse quantitative. Les principales mesures des résultats incluront le niveau de connaissances en matière de SSR, le nombre de personnes souhaitant accéder aux services de SR et quels services de SR sont les plus recherchés par les répondants. Si l'utilisation du CBRHP réussit, il y aura une augmentation des connaissances et de l'utilisation des services liés au VIH/SIDA, à la contraception et au cancer du col de l'utérus. Les défis associés à l'accès et à l'utilisation des services de SR seront également évalués. *(Afr J Reprod Health 2023; 27 [10]: 133-144).*

Mots-clés: Santé sexuelle et reproductive ; les femmes déplacées ; contextes humanitaires, prestation de soins ; Nigéria, Afrique

Introduction

In Nigeria, the causes of displacement are numerous and diverse ranging from religious crises to communal land disputes as well as political rivalry. In the Benue State of Nigeria, for example, disputes over land for grazing and farming land by the Fulani and the Tiv people, have erupted into horrifying violence driving thousands of people to flee their homes. The majority of these individuals, being women and children, now live in one of the 23 internally displaced persons (IDPs) camps in the region[1,2]. Sadly, IDPs and refugee camps are faced with the problem of inadequate health service provision (reproductive health services inclusive) even though their health needs are enormous [3]. Women in IDP camps are more prone to unhealthy sexual practices with young women more likely to be exposed at a younger age to sex without the use of contraception[4,5]. Hence they are likely to have unwanted pregnancies, abortions, and STIs including HIV/AIDs. Inequity in the allocation of humanitarian aid was documented in a variety of circumstances among IDPs in Nigeria[6]. These problems can be managed by providing health education with the help of healthcare providers or trained SRH persons[7,8]. However, these persons are often unavailable at the camps to provide services for behavior change or modification. Given the shortage of health personnel in Nigeria[9], the substitution of professional health persons with trained community-based reproductive health personnel (CBRHP) tends to serve as alternative when it comes to providing basic SRH knowledge to the communities such as IDP camps. Since health care services are usually not available/accessible or are poor within IDP camps[6,10,11], the tendency to get reproductive health care services that incorporate cervical cancer prevention may be absent.

This preventive service can be offered by trained members of the community (in this case CBRHP) who are likely to be more accepted as care providers by the community members since they share the same problems and communicate with each other better. Furthermore, studies that target interventions on aspects of reproductive health challenges among IDPs in Nigeria are few. Against this background, this study aims to look at an intervention focusing on reproductive health challenges among internally displaced women of Benue State. Specifically, the researcher will focus on intervention aimed at improving knowledge, access and use of reproductive health services, especially HIV/AIDS, contraception and cervical cancer prevention.

The specific objectives of the study are to:

1. assess the level of knowledge about RH services (HIV/AIDS, contraception and cervical cancer) among women in selected IDP camps in Benue State, pre-and post-intervention.
2. identify challenges associated with access to reproductive health care services (HIV/AIDS, contraception and cervical cancer) by women in selected IDP camps in Benue State, pre-and post-intervention.
3. identify challenges associated with the use of reproductive health care (HIV/AIDS, contraception and cervical cancer) services by women in selected IDP camps in Benue State, pre-and post-intervention.
4. evaluate the change in the use of RH services (HIV/AIDS, contraception and cervical cancer) pre-and post-intervention

Based on these research objectives the following research questions will be answered

1. What is the level of knowledge about RH care services (HIV/AIDS, contraception and cervical cancer) among women in the selected IDP camps pre-intervention in Benue?
2. What are the challenges experienced by women in the IDP camp with respect to access to RH care services (HIV/AIDS, contraception and cervical cancer services) in the selected IDP camps pre-intervention in Benue?
3. What are the challenges experienced by women in the IDP camp with respect to the use of RH care services (HIV/AIDS, contraception and cervical cancer services) in the selected IDP camps pre-intervention in Benue?
4. What RH service is most sought by participants, pre-intervention and post-intervention?
5. What is the impact of the CBRHP intervention on RH knowledge?
6. What is the impact of CBRHP intervention on the uptake of each of the RH services

The conceptual framework (Figure 1) elaborates on why RH services are relevant for IDPs and more importantly females. It also shows how the use of

CBRHP and incorporation of Mhealth (mobile health) can improve RH knowledge, RH service demand and use.

The columns on the left side of the framework show the characteristics that make members in an IDP camp vulnerable. Among the vulnerable characteristics, being a female gender is one of the major characteristics according to this framework. This is justified by the fact that women have unique health requirements in terms of sexual and reproductive function and have a complex reproductive system that is susceptible to dysfunction or sickness. Also, genetics, hormonal environment, and gender-evolved lifestyle behaviour make women's disease patterns different from that of men[12]. Adding to this, women in the study population hail from Africa, a continent where women have continuously been subjected to inequality and rights violations. According to Care International, women are more vulnerable due to the unequal cultural, social and economic status in the society[13]. In countries like Nigeria, these inequalities make women prone to issues like rape, battery, genital mutilation, girl-child marriage and other SRHR deprivation[14,15]. This makes the situation more complex because access and use of Reproductive health services are usually poor or unavailable among these vulnerable groups in the nation especially in rural areas and displaced settlements[15,16].

Insufficient food, insecurity and lack of shelter are also highlighted in this framework as vulnerable characteristics to SRH issues. This is because people in need of these basic needs are known to be more prone to high-risk sexual behaviours[17]. Studies in Africa have reported that women who need these basic needs may indulge in high-risk sexual behaviours especially among adolescents[7,15,17].

When persons are prone to high-risk sexual behaviour, there is a need to incorporate SRH services in their care. The WHO recommends SRH services as a priority health need for displaced persons[5]. In countries like Nigeria, studies have documented that the health of persons in IDP camps are usually disregarded even though the economic backbone of most of their families are poor[18]. For this reason, parents of displaced youths frequently employ them to street-trade to supplement the family's income. Street trading and other small professions predispose these youths to sexual difficulties[19] such as rape, sexual harassment, dangerous sexual activities, and commercial sex work, in a bid to get money for their homes. This raises the number of unintended pregnancies and other STDs among these groups of people[18].

The use of these RH services will however depend on their availability, accessibility and the knowledge of end-user about them. The model proposes that the incorporation of Community-based Trained Reproductive Health Personnel (CBRHP) as health educators in these camps can create a demand for RH services which will make individuals seek these services. The Use of CBRHP is justified by the fact that being individuals of the community, they are more likely to be accepted as agents of knowledge change. Mhealth as an assisted means of providing health education via proxy can also improve knowledge and most likely access to and uptake of services. According to the WHO, use of community-based individuals as change agents is a cost-effective measure for poor resource setting and an effective way to ensure behavioural change through education and role modelling[20].

Methods

Study location

Benue State is located in the North-central region of Nigeria with an estimated population of 4,253,641 people according to the 2006 census. The name of the state originates from Nigeria's second-largest river, the Benue River. Its shares borders with Nasarawa State on the north, Taraba State on the east, Kogi State on the west, Enugu State on the South-West, Ebonyi and Cross-Rivers States on the south, and Cameroon on the South-East. There exist 4 major ethnic groups in the state; the Tiv, Idoma, Igede, and the Etulo peoples. Makurdi is the capital. The indigenes live basically on subsistence farming. Common crops grown in this region include oranges, mangoes, sweet potatoes, cassava, soya bean, guinea corn, flax, yams, and sesame.

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[21]. These have made them settle in camps where they live as IDPs who depend on government and non-governmental agencies for assistance - food, shelter, water, security, medical assistance *etc.*[10].

The Internal Displacement Monitoring Centre (IDMC) estimates a total of over 1,000,000 displaced persons in Benue state. The majority of them are women[22].The state is burdened with HIV/AIDS as its prevalence rate of 4.9% is the second-highest in Nigeria[23].

Study period

Data collection will take 6 months and it will consist of 3 phases: a pre-intervention phase, an intervention phase and a post-intervention phase. Before the pre-intervention phase, a pretesting of the questionnaire will be done. This will take a period of 2 weeks. Data collection for the pre-intervention will be done for 2 weeks. Thereafter, the researcher will train personnel (2 per camp) in the CBRHP group (cohort) for the intervention phase. This training will take a maximum of 2 weeks using a return demonstration approach, This will maximize the teaching moment and enable the CBRHP to grasp ideas better[24]. Following the training, the intervention will begin and will take 3 months. In this study, there is expected to be a change in outcome measures following the interventions. Thereafter, a post-intervention phase will be done which will take two weeks.

Study design

The study will use a quasi-experimental design. This study seeks to explore the challenges with respected to HIV/AIDS, contraception and cervical cancer services among internally displaced women which will be operationally defined as RH service for the purpose of this study. It will explore the suitability of using community-based reproductive health personnel (CBRHP) to mitigate these reproductive health challenges by employing a mixed-method (qualitative and quantitative) approach. The pre-intervention will involve the collection of quantitative data only while post-intervention will involve the collection of both qualitative and quantitative data. A qualitative approach carried out will be done to interpret and expand on the quantitative results (Triangulation mixed-method design) post-intervention. This will give a deeper insight into the phenomenon under study[25]. The qualitative approach will adopt a constructive-interpretive paradigm which ensures that the research subjects give a reality of the situation. Two groups will be used to assess the suitability of the intervention. This approach will support the assessment of RH challenges among the women in the IDP camps of Benue state.

The researcher will use 4 camps which will be divided into two arms (groups): (1) a control group and (2) an intervention group that will receive health education from well-trained CBRHP who live within the camp. Within the intervention group, two subgroups will be created based on the method of delivery of health education. Health education will be provided by the CBRHP to these groups using either mHealth technology or physical reproductive health education. While one subset will receive both mHealth and in-person reproductive health education, the other will receive in-person reproductive health education alone.

Participant recruitment

The subgroup that will receive the mHealth technology will be created based on the participant's possession of a mobile phone and their willingness to receive mHealth education on SRH via phone call.

Control group

In the Control group there will be no intervention by CBRHP. The control group will only be used as a benchmark to compare the effect of the outcomes following the CBRHP intervention with the intervention group. The researcher will collect quantitative data pre-intervention and qualitative and quantitative data post-intervention.

The intervention group

With the intervention group, the researcher will collect quantitative data pre-intervention and qualitative and quantitative data post-intervention. The CBRHP will be trained on prevention components of HIV/AIDS, contraception and cervical cancer, services available and need to use of RH. They will be engaged in providing health education services after pre-assessment of the cohort group. The training will use a return demonstration and interactive approach to ensure that the CBRHP understand the training and deliver the intervention in order to meet the goal. Thereafter, these CBRHP will be allowed to implement the training within the Intervention group.

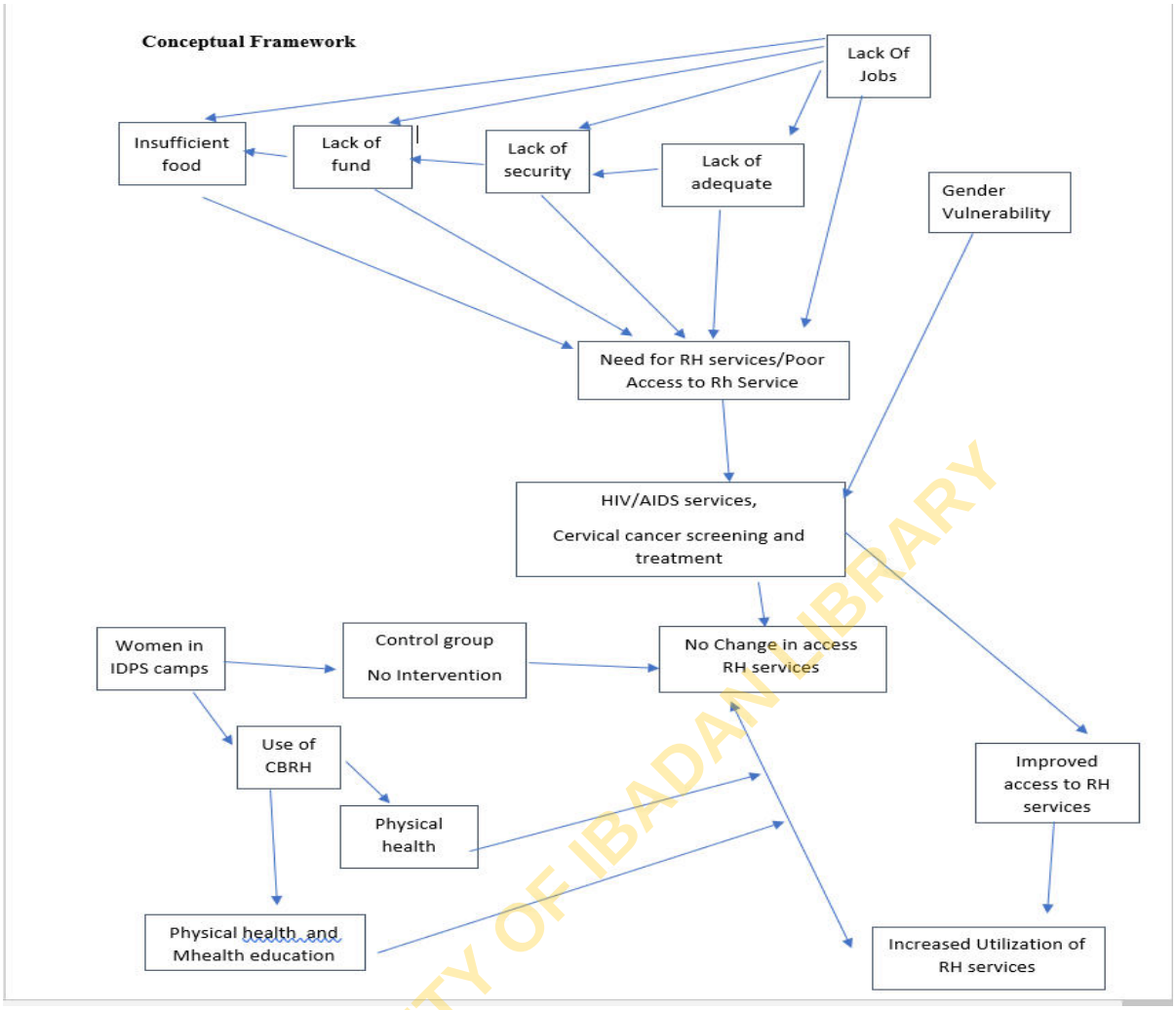

Figure 1: Conceptual framework

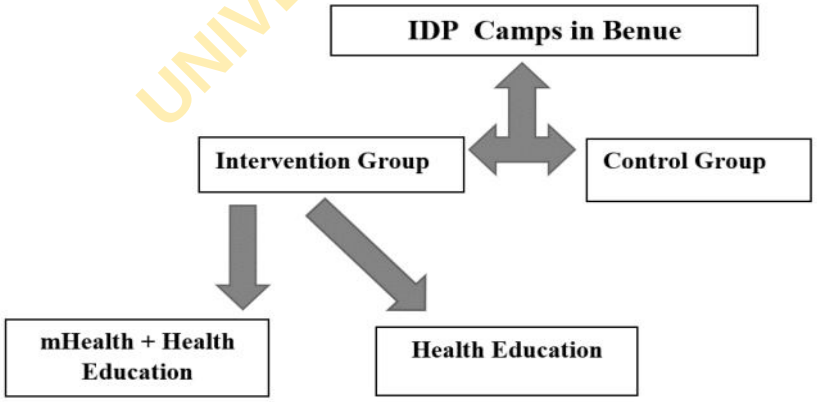

Figure 2: Flow chart for participants recruitment

Mhealth will also be provided to a subset of the Intervention group. CBRH will be trained basic phone etiquette and provision of SRH education on Phone. MHealth will be provided via phone calls only to eligible participants. A minimum of a 2-minute talk will be done with participants of the subject area. To ensure Mhealth is provided, the researcher will provide communication credit to CBRHPs. This training will be monitored by the researcher who will make biweekly visits to the camps. These CBRHP will encourage people to use these services as they will be provided with details of where to access these services if any individual should need them. This intervention will take 3 months.

In the Intervention group, the CBRHP will meet with the women once in two weeks. These meetings will be arranged by the researcher, women camp captain/leader and camp captain. During each meeting, some light refreshments will be served to the women. Interactive sessions with CBRHP will take a period of at least one hour. Women will be provided with information and educated about HIV, Contraception and Cervical cancer. They will also be encouraged to use facilities and services. The CBRHP will provide the women with contact details and facilities closest to them in case these women seek to use any of these services. At each facility, the researcher will have a focal person who will be in charge of receiving and recording women in the Intervention group who visit the facility and had their needs met. Following the 3 months of intervention, the post-test will be done to evaluate the effect of the intervention.

The primary outcome measures will include the level of knowledge of RH indicators (HIV/AIDS, Contraception and Cervical cancer); the number of people who want to access RH services (HIV/AIDs, contraception or cervical cancer care); Which RH services are most sought for by the respondents. If the use of CBRHP and Mhealth is successful, there will be an increase in knowledge about HIV/AIDS, contraception and cervical cancer and more women in the camp will seek these services. The researcher will also identify challenges associated with access and use of these services in the cohort group. Table 1

Health facilities and services to be used by the intervention group

These facilities were selected based on proximity to the camps. At each facility, the researcher will have a focal person who will facilitate service delivery and provide records of the use of services by the participants.

Population and study area

The study will be carried out in 4 IDPs camps of Benue State. The population of the study will comprise of women of reproductive age (15-49) living within these camps, and selected stakeholders in the camp. Women will be recruited to the study irrespective of their HIV status. These stakeholders include camp captains, women leaders and health care providers (if available), representatives of governmental/non-governmental organizations. Selected participants must have lived within the camps for at least 6 months. This is to ensure that the respondent can give a real picture of the situation at hand. Selected stakeholders who play key roles within the camp (camp heads, those who provide services within these camps) will be interviewed. To ensure that the quality of the information gotten from the interview depicts the real situation, the interviewed stakeholder must have worked/lived within the camp for at least 6months (Table 2).

Sampling technique

The camps in which the study will be conducted will be selected by the researcher based on the camp size and security risk assessment to reach the camp location. For the selection of participants for the quantitative analysis, systematic random sampling will be used to select participants. The list of women within the camp will be gotten from the relevant authority. From there, they will be systematically selected with a fixed periodic interval between each woman assigned serial number on the list.

Participants that will receive Mhealth as an option will be selected using the convenience sampling method. For a participant to be in this group, she must be in possession of a mobile phone and must consent to a once in two-week phone interaction with a CBRHP who will educate her about SRH.

Table 1: Facilities and services they provide

Facility	Services provided
1. Daudu I ICRC health centre	Family planning, HIV testing and preventive services
2. Daudu II MSF health centre	Family planning, HIV testing
3. FSP Daudu	Family planning, HIV testing and preventive services, HIV treatment services and care
4. FMC Makurdi (Wadata)	Family planning, HIV testing and preventive services, Cervical cancer screening

Table 2: Population of study and location

Camp label	Name of camp	Group	Location	Number of women
A	Ortese Camp	Control	Guma	5,865
B	Abagena camp	control	Makurdi	3,801
C	Daudu I	cohort	Guma	1289
D	Daudu II	control	Guma	4847
Total				15,802

Source: Benue State Emergency Management Agency (SEMA)
Hence the target population for the study is 15,802

For the Focus group discussion (FGD) discussion, participants will be purposely selected. In each camp, 4 FGD will hold, one will be done among younger girls (15-24 years) another between participants aged 25-34years, another among much older women (35-49years). This is to ensure that participants in the FGD speak freely among their peers and to ensure that the researcher could explore the perspective across each age group. The fourth FGD group will be made of participants of different age groups. The much younger women between the ages 15-24 years, will represent the population of youths and their opinion will be considered as challenges faced by younger women when it comes to reproductive health knowledge access and use of reproductive health services. Those 25-34years will represent mid-aged women. Much older women 35-49 years will represent the population of more experienced women and whose opinion will be considered as the challenges faced by women of this age group. The fourth FGD group will be made of women of all ages. This will allow for variation of ideas and contrasting opinions among the respondents.

Other factors that will be considered in participants for the FDG to ensure a sociodemographic balance will include; educational level, marital status, parity, and ethnicity. Each focus group will have a minimum of 8 people and a maximum of 12. This is to account for any drop of persons from the group during the post-intervention phase. In each camp, 2 stakeholders will be purposefully selected for interview on the subject matter. For the in-depth interview, the researcher will use a purposive sampling method. Upon identification of a stakeholder within the camp, he/she will be asked if they have an interest in participating in the interview and if yes, then they will be interviewed.

The researcher will have a record of all participants who will take part in the study per camp. The record will include the name and contact number/ hut number. This is to make sure that the same respondents can be reached for the post-intervention phase.

Inclusion criteria

Women 15-49 years
Willing to participate and give consent
Must have lived within the selected IDP camps for a minimum of 6 months
Must consent to participate in the study
Can speak English, pidgin or the Tiv which is the local language fluently
Any individual who is a stakeholder in the camp (women leader, healthcare personnel, camp leader etc.) and must have worked or lived in the camp for over 6months

Exclusion criteria

Women within the age group who has a significant other that does not approve of her participation in the study
Not-permanent resident within the camp i.e. stays in the camp only for short periods
Those uncertain to stay in the camp within five months from initiation of the project

Sample size

The research will employ Yamane's formula $n = \frac{N}{1 + N(e)^2}$ to estimate the sample size, where :
e = Precision level
N = population size.
Hence sample size , n= 15,802/1+15,802 $(0.05)^2$= 390.1
Hence sample size will be approximately 390
Because of the possibility of a decrease in the number of participants post-intervention, 10% (39.0 women) of the sample size will be added to make up for attrition. This will give a total sample of 426 persons
To get a fair distribution of respondents from each camp, the researcher will employ a simple proportion to calculate how many respondents will be selected in each camp.
Sample size per camp will be = number of women in that camp*sample size/total population Table 3

Data collection

Quantitative data will be collected pre and post-intervention while qualitative data will be collected post-intervention. Quantitative data will be collected from respondents using structured questions. Data collected will focus on knowledge, access and use of the 3key selected RH areas (HIV/AIDs, Contraception and Cervical cancer). In-depth interviews and Focal Group Discussion will be used to validate the information obtained from the questionnaire post-intervention. Before administration, the questionnaires will be given to the PhD supervisor and some researchers for review and validation. It will be assessed for face and content validity. This is to ensure that the survey questions used are asking questions that accurately reflect the topic being investigated[26].

For participants who cannot read or write the English language, the questionnaire will be translated to the local languages (Tiv) and translated back to English with the aid of a translator who will also double as a research assistant. This is to ensure that the questionnaire retains the same meaning.

Once approved, a Pilot pre-test will be done on about 10% of a similar population (43 persons) to check the questionnaire for any unnecessary, ambiguous and difficult questions which will be deleted, rescaled or rephrased. The reliability of the questionnaire will be tested using a test-retest technique in which copies of the questionnaire will be administered to 10% (43 persons) of the sample size which will not be part of the study. After two weeks, other copies of the questionnaire will be administered to the same respondents for a posttest. The data will then be inputted in SPSS 23, where the reliability will be calculated using Pearson's Moment Correlation.

For qualitative data, Focus Group Discussions (FGD) will be conducted with the female selected participants on their Village Sabbath day to ensure that the activity does not interfere with their weekly routine. The FGD will be organised and moderated by the researcher with the aid of the trainees as translators. Recording tapes will be used to tape discussions alongside notes that will be made during the FGD. For interviews, appointments will be booked and the researcher will avail herself for the interview on the scheduled date.

The questionnaire distribution will be done in two phases in all the selected camps: the first will be before the intervention and the second will be after the intervention. In both phases, the administration of questionnaires for the collection of data will take 2 weeks. The intervention will be done in one camp (cohort) and will last for 3 months.

Questionnaire design

The questionnaire was built following a literature review on the subject matter. It was partitioned into 4 sections. Section A collected data on participant Sociodemographic characteristics, section B assessed knowledge of the RH services, section C assessed the use of these services and section D assessed access to RH services. The questions on Knowledge were adapted from the Demographic

Table 3: Camp and calculated sample

Camp label	Name of camp	Group	Number of women in that camp	Sample size per camp
A	Ortese	Control	5,865	158
B	Abagena camps	control	3,801	102
C	Daudu I	cohort	1289	35
D	Daudu III	cohort	4847	131
Total			15,802	426

Health Survey (DHS) questionnaire[27]. Questions on the women's questionnaire that assess women's knowledge of HIV/AIDS and contraceptive was used. This questionnaire was found relevant and applicable to the study considering that it was used to assess women's knowledge of the subject in Africa. Questions on contraceptive knowledge had 12 questions while those on HIV/AIDS had 9 questions. Questions on knowledge of Cervical cancer were built following a literature review on the subject area. A questionnaire used by previous researchers to assess knowledge and attitudes toward cervical on women was adapted[28,29]. The questions in this section had a total of 9 questions. For the question assessing use and access to RH services, the researcher structured the question based on available research on the subject. Questions on the use of RH services had 5 questions while that on access to RH services had 8 questions. In this section, participants' responses were graduated using a Likert scale of 5 (SA for Strongly Agree, A for Agree, NS for Not Sure, DA for Disagree, SDA for Strongly Disagree)

Data management and analysis

Data will be analysed using the triangulation technique to ensure that the information deducted is rich, robust, comprehensive and well developed. Consistent findings from both quantitative and qualitative data will be used to elucidate complementary phenomena and diverging points. Qualitative data from the focus group discussion and interview will be recorded and transcribed. These data will be listened- to and read by the researcher carefully and repeatedly. Important points will be written out and grouped in themes, and major and minor categories. This information will then be compared and contrasted. The record tapes and transcribed information will be destroyed once they are analysed. It will then be stored on a computer for further analysis. The data will be analysed using Nvivo. Quantitative data will be analyzed with SPSS version 23. Charts and tables will be used to illustrate the results. Because the questionnaire used categorical variables, a chi-square test of the association will be used to associate variables, while McNemer's test will be used to compare data before and after the intervention. logistic regression will be used for multivariate analysis

For descriptive analysis, sociodemographic data, details on reproductive health knowledge, use of each service, access to RH service and access to services will be represented in tables using actual numbers(n) and percentages (n%). Reproductive health knowledge will be categorized into good or poor by scoring participants' responses. From knowledge of contraceptive use, a score of 6/12 and above will be categorized as good while below will be categorized as bad; for knowledge of HIV, 6/11 and above will be categorized as good while below will be categorized as bad; for Cervical cancer, 5/9 and above will be categorized as good while bellow will be categorized as bad. This will then be represented graphically (Pie chart).

A graphical representation of the number and percentage of persons who use RH services before and after interventions will also be illustrated.

To analyze the response on the access which uses a Likert scale for evaluation, the modal score will be used to ascertain which challenge affect RH services delivery in IDP camps. A Chi-square test will be used to associate sociodemographic characteristics with the use and knowledge of RH services. McNemar's test will be used to compare data before and after the intervention. More specifically, it will compare Knowledge and use of RH services before and after the intervention.

Logistic regression will be used for multivariate analysis. It will be used in the analysis of the relationship between the participant's sociodemographic characteristics, RH knowledge, Use of RH services.

Ethical considerations

Ethical clearance for this study has been obtained from the institutional review board, Institute for Advanced Medical Research and Training, College of Medicine, University of Ibadan, Nigeria (UI/EC/22/0020). To collect data from the camp, the researcher has sought approval from authorities who manage the activities of the camp; the State emergency management agency (SEMA).

Participation in this study will be strictly on voluntary bases and a written informed consent and assent will be gotten from participants. To ensure the secrecy of information, responses to questionnaires will be assigned codes in place of their names. This will include trained research assistants who are fully aware of the importance of confidentiality in research. Also, data collected will be entered into SPSS and will be accessible by only the principal investigator or a designated assistant. Future projects wishing to use the samples and data will be reviewed and the lead investigator will be asked to sign a confidentiality form testifying to maintain patient secrecy. Further training will be done on collection of qualitative data and emphasis will be laid on aspects of being non-judgemental, probing techniques and confidentiality issues.

Discussion

This paper describes a protocol that employs a mixed-method study design to assess the suitability in the use of CBRHP and/or mhealth technology to improve knowledge, access and use of sexual and reproductive health services in IDP camps in the Benue State of Nigeria. Some studies have acknowledged the use of community-based refugees in the provision of health care as a cost-effective strategy to improve care outcomes in refugee camps[30,31]. However, such interventions have not been carried out in Nigeria. Also, the use of mhealth technology among refugees for SRH care delivery in Africa is poorly documented. An intervention of this sort can throw more light on the effectiveness of the use of digital technology on the displaced population who are in most cases faced with a lack of access to facilities and information[32–34].

In the course of the research, the researcher will also identify challenges faced by IDPs in the access and use of SRH services. Understanding the challenges behind the uptake of SRH services for IDPs is crucial for guiding implementers, policymakers, and non-governmental organizations (NGOs) in effectively facilitating the integration process and sustainability of interventions into health systems. This can go a long way to enhance SRH outcomes and reduce health disparities among marginalized groups like the IDPs thus contributing to their socio-economic development.

However, the use of this protocol for IDPs comes with its own set of limitations. One such challenge is the possibility of migration within the intervention period as a result of the crisis. Refugees and IDPs are known to be mobile in search of safety, shelter and food[35,36]. In Benue state which harbors a farming population, IDPs are known to migrate during the planting and harvesting season. Increasing the population size by 10% will make up for any attrition during the course of the intervention.

Another possible limitation will be maintaining the quality in data collection especially with qualitative data. To ensure quality data is collected, the research assistant (RA) will be trained on the data collection method. The RAs will be persons who can speak the local language and have some experience on data collection. To ensure that the RAs are retained, they will be placed on a stipends. Before every encounter for data collection following the training, a returned demonstration on data collection/ interview skill will be made by the RAs to ensure that the training knowledge was retained and ready for use.

The study will use a variety of data collection tools; quantitative and qualitative. Using a qualitative method for the study allows for participants to express their perspectives on the issue. Getting the perspective of service providers and managers of the community will give an idea of the issues bordering on SRH care delivery from the health caregivers and an administrators' perspective. The use of interviews and focus group will grant participants the freedom to express their own opinions on a topic in the language that they choose and in relation to problems that they find important. This will throw light on individual perspectives as concerns the topic.

The outcome of the use of services will be based on real-time documentation of participants' use of an SRH service. A regular feedback mechanism and supervision of focal persons will be

put in place to ensure proper documentation of service use. This will give a real picture of the effect of the intervention on the uptake of SRH service.

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