

ORIGINAL RESEARCH ARTICLE

The Effect of Educational Intervention on Family Planning Knowledge, Attitudes, and Practices Among Married Women in a Military Barrack in Northern Nigeria

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Abstract

Army barracks in Nigeria have low contraceptive prevalence rates (CPRs) and many children per family. The aim of this interventional study, involving 963 married women, is to determine the impact of health education on family planning knowledge, attitudes, and practices among married barrack women. The intervention group attended a 50-minute health talk and demonstrations on family planning methods. In the intervention group, the mean knowledge score rose significantly, from 5.5 points to 7.8 points post-intervention ($t = -16.7281$, $p = 0.0000$, $df = 460$). In addition, the CPR increased significantly, from 11.8% at baseline to 22.4% post-intervention (McNemar's $\chi^2 = 125.41$, $p = 0.0000$). Such significant changes were not noted in the control group. We conclude that health education is an effective intervention for improving knowledge about and attitudes towards contraceptives and their use among married women in military barracks in Nigeria. Intense and sustained health education is therefore recommended in addressing the low CPR in Nigeria. (*Afr J Reprod Health* 2014; 18[1]: 93-101).

Keywords: Impact, educational, intervention, family, planning, women.

Résumé

Les casernes de l'armée au Nigeria ont de faibles taux de prévalence contraceptive (CPR) et de nombreux enfants par famille. L'objectif de cette étude d'intervention qui implique 963 femmes mariées, est de déterminer l'impact de l'éducation de la santé sur la connaissance, les attitudes et les pratiques de la planification familiale chez les femmes mariées de la caserne. Le groupe d'intervention a participé à une conférence d'une durée de 50 minutes sur la santé et des démonstrations sur les méthodes de planification familiale. Dans le groupe d'intervention, le score moyen de la connaissance a augmenté considérablement, passant de 5,5 points à 7,8 points après l'intervention ($t = 16,7281$, $p = 0.0000$, $df = 460$). En outre, le CFPC a augmenté considérablement, passant de 11,8 % au départ à post- intervention de 22,4% (le χ^2 de McNemar = 125.41, $p = 0,0000$). De telles modifications significatives n'ont été constatées dans le groupe témoin. Nous concluons que l'éducation de la santé est une intervention efficace pour améliorer la connaissance et les attitudes envers les contraceptifs et de leur utilisation chez les femmes mariées dans les casernes au Nigeria. Nous préconisons donc une éducation de la santé intense et soutenue pour remédier au faible CPR au Nigeria. (*Afr J Reprod Health* 2014; 18[1]: 93-101).

Mots-clés: impact, éducation, intervention, famille, planification, femmes.

Introduction

Army barracks in Nigeria are known to be overcrowded, due to many children per family, among other reasons. It is not uncommon to find families with more than seven children and children thus constitute a greater proportion of this population. The problem of too many children is associated with low contraceptive use among married women of reproductive age in the barracks and the country as a whole¹⁻⁵.

Low contraceptive use among women of reproductive age is also associated with high

incidences of illegal abortions and maternal deaths⁶. Countries with low contraceptive prevalence rates (CPRs) have high maternal mortality ratios⁷. It is, therefore, not surprising that Nigeria, with a CPR of only 15%, has the second highest maternal mortality ratio in the world and an estimated 760,000 abortions induced annually^{6,8}.

Several studies have shown that, after fertility-related reasons, information-related reasons, such as misconceptions about contraceptives and their side effects, are the most common reasons for low contraceptive use in Nigeria⁹⁻¹¹. In Nigeria, friends

who have little or no knowledge of contraceptives, instead of health workers, are the main source of information on contraceptives^{8,12}. Hence, misinformation is rampant. Another factor fuelling misconceptions about contraceptives has been the sources of contraceptive supplies. In Nigeria, patent medicine shops, instead of pharmacies, are the main source of contraceptive supplies^{8,13}. The patent medicine shops are managed by unqualified drug vendors who have little or no knowledge about contraceptives and misinform their clients. Other information-related reasons responsible for the low CPRs in Nigeria are inadequate information and poor knowledge of contraceptive methods^{8,14}, despite high awareness of family planning in the country^{8,15,16}. For example, several studies have documented poor knowledge of emergency contraceptives in Nigeria¹⁷⁻¹⁹, even among health care providers and private medical practitioners^{5,6}. Only 13.8% of the medical practitioners studied prescribed correct dosages for their clients¹⁹. Another example is the lack of adequate information on oral contraceptive pills, fuelled by the myth that their prolonged use leads to permanent sterility. This misinformation has led some young women to opt for abortion instead of contraception for unwanted pregnancies²⁰.

The above-mentioned information-related issues can be addressed through health education. Health education is defined as consciously constructed opportunities for learning about health, including improving knowledge and developing life skills conducive to individual and community health²¹. Studies document strong relations between exposure to family planning messages in the media and contraceptive behaviour^{8,22}. However, the majority of married women (69.3%) in North-western Nigeria, where this study was conducted, do not have access to the media to listen to family planning messages⁸. This study is, therefore, designed to assess the effect of health education on knowledge about and attitudes towards contraceptives and their use among married women of reproductive age in the Ribadu Military Cantonment in Kaduna, Nigeria. The choice of a barrack was selected due to the observation that a Nigerian army barrack is like a 'mini-Nigeria', housing Nigerians of diverse

ethno-cultural background and religious persuasions.

Method

Study location

The study was conducted in military barracks in Kaduna and Zaria, both in Kaduna State in Northern Nigeria. Kaduna and Zaria are both cosmopolitan towns, with comparable levels of trade and commerce and fairly reasonable levels of access to health care services.

Study design

The study employs a quasi-experimental design, with baseline, intervention, and post-intervention phases. The experimental site was the Ribadu Military Cantonment, the largest and most populous barrack within the Kaduna metropolitan area. It has an estimated population of 2,784 married women of reproductive age²³. There are two health facilities in the cantonment, the Nigerian Defence Academy Medical Centre and the Medical Regimental Services, both offering family planning services. The control site was the Chindit Barrack, located in Zaria and about 82 kilometres from Kaduna. It has an estimated population of 2,520 married women of reproductive age²⁴ and a residential setting similar to that of Ribadu Cantonment. Its Medical Regimental Services centre offers family planning services too. Age, ethnicity, education, and other baseline socio-demographic variables were comparable between the intervention and control groups.

Sample size determination

The respondent sample size for the study was determined using the Computer Program for Epidemiologist (PEPI) version 11.24. Its COMPARE 2 program (version 2.72) for comparing proportions was used as described by Abramson²⁵. The study was designed to detect a 5% difference in CPR between the control and study groups, with a significance level (alpha

error) of 5% and a statistical power of 50%. The national CPR of 15% was also used. A sample size ratio of 2:1 (control group to study group) was used. A sample size of 963 was obtained, which translates to 321 members in the study group and 642 in the control group.

Study population

The respondents in the study fulfilled the following criteria: They were married women of reproductive age who resided in one of the two cantonments, they consented to participate in the research, and their husbands were not about to retire (or be transferred out of Kaduna State) before completion of the research.

Sampling technique

The respondents in the study cantonments were divided into two strata: the wives of officers and the wives of non-commissioned officers. The former reside in the officers' quarters while the latter reside in the non-commissioned officers' quarters. A stratified random sampling technique (with proportionate allocation) was used to determine the number of respondents to be selected from each strata: 36 from the officers' quarters and 285 from the non-commissioned officers' quarters. This approach was based on the fact that the ratio of officers to non-commissioned officers in the Nigerian army was 1:9²⁶. Systematic random sampling was then used to finally select the respondents from a list of households in each stratum. A household was first selected from both the officers and non-commissioned officers' quarters. One eligible respondent was then interviewed from the household. Thereafter, respondents from every *k*th household were interviewed until the required numbers of respondents were interviewed, with the factor *k* derived as $k = N/n$, where *n* is the total number of respondents in a stratum and *n* the required stratum sample size.

The same sampling techniques used in the study cantonment were employed in the control group. A total of 71 respondents were selected from the officers' quarters of Chindit Cantonment

and 571 from its non-commissioned officers' quarters.

Data collection

A self-administered structured questionnaire was used to collect data from both groups. The questionnaire was adapted from another study²⁷. It was pre-tested among 48 married women (5% of the sample size) of reproductive age in the Jaji Military Cantonment, about 30 kilometres from Kaduna.

An interactive health education intervention on family planning was carried out on the study group, after baseline data collection. Messages for the health education intervention were adapted from 'The Advocates' Life Planning Education Manual'²⁸. The intervention lasted 50 minutes and was followed by a question and answer session. This intervention was withheld from the control group until the post-intervention phase of the study was completed, after which the control group was then similarly exposed to the intervention for ethical reasons. The health talk was delivered by a health educator.

Post-intervention data were collected three months after the health education intervention. The same individuals were interviewed in both the baseline and post-intervention phases. The same questionnaire as was used earlier, during the baseline survey, was used to study subjects in both the intervention and control groups.

Data analysis

The survey data were analyzed using SPSS software (version 17.0). There were 10 questions on knowledge of contraceptives. One point was assigned for each correct response and zero for a negative response. The maximum score obtainable was 10 points. The mean knowledge score was then determined. The scoring system for attitude was similar, resulting in a mean attitudinal score. Comparison of the mean knowledge and mean attitudinal scores between the study and control cantonments was then conducted at both the baseline and post-intervention stages. A test of significance was conducted using a paired *t*-test.

Uptake of contraception was assessed using McNemar's test.

Ethical considerations

Approval and ethical clearance for the research was obtained from the Ethical and Scientific Committee of the Ahmadu Bello University Teaching Hospital. Permission to conduct the research in the two barracks was obtained from the commanders of both the Ribadu and Chindit Cantonments. Informed consent was obtained from the study subjects after the objectives of the study were explained to them. The participants were assured of the confidentiality of the information obtained.

Results

A total of 963 married women participated in the study (321 from the study group and 642 from the control group). As shown in Table 1, the majority of the participants in both the study and control groups were 30 to 34 years old (38.9% and 31.9%, respectively). Both cantonments were ethnically heterogeneous, with minority tribes being the major ethnic groups in both the study and control groups (33% and 41%, respectively). The majority of the participants were Christians in both the study and control groups (58% and 62%, respectively) and had between three and four living children (44.6% and 54.4%, respectively).

Table 1 Socio- Demographic profile of respondents in both study and control group

Variable	Study Group		Control Group		P- Value
	Frequency	%	Frequency	%	
Age (Years)					
15-19	17	5.4	32	4.9	.13
20-24	49	15.4	152	23.7	
25-29	93	28.9	160	24.9	
30-34	125	38.9	205	31.9	
35-39	26	8.1	60	9.4	
40-44	11	3.3	33	5.2	
Ethnicity					
Hausa	80	25	122	19	.17
Yoruba	90	28	199	31	
Igbo	45	14	58	9	
Others	106	33	263	41	
Religion					
Islam	135	42	244	38	.28
Christianity	186	58	398	62	
Highest Educational Level					
Primary	90	28	138	21.5	.07
Secondary	130	40.4	330	51.4	
Tertiary	65	20.2	96	14.9	
Quranic	12	3.9	37	5.8	
None	24	7.5	41	6.8	
Occupation					
Soldier	26	8	64	10	.30
Civil Servant	51	16	84	13	
Business	151	47	327	51	
Unemployed	93	29	167	26	
No. of Living Children					
0	10	3.1	17	2.6	.09
1-2	85	26.4	181	28.3	
3-4	153	47.8	287	44.7	
5+	73	22.7	157	24.4	
Total	321	100	642	100	

Secondary school education was the highest educational level attained in both the study and

control groups (40.4% and 51.4%, respectively). As shown in Table 2, the most common family

planning method in the study group was the use of injectable contraceptives, 36.6% pre-intervention and 44.6% post-intervention. Similarly, in the control cantonment, injectable contraceptives were the most common family planning method, 40.7% pre-intervention and 40.4% post-intervention. Male condoms were the least used method in both the study and control groups (4.9% pre-intervention and 2.7% post-intervention and 5.6%

pre-intervention and 5.3% post-intervention, respectively). Natural methods, female condoms, diaphragms, implants, and sterilization were not used by any respondent in the two groups, either pre- or post-intervention.

Chemist shops were the main source of contraceptive supplies during the pre-intervention period in both the study and control groups (48.1% and 53.7%, respectively).

Table 2: Distribution of participants by type of family planning methods they are currently using and their source of supply

Type of method	Study Group				Control Group			
	Pre-Int.		Post-Int		Pre-Int.		Post-Int.	
Loop (IUCD)	8	21.9	14	18.9	19	18.5	19	17.5
Condom	2	4.9	2	2.7	6	5.6	6	5.3
Pills	11	29.3	20	28.4	27	25.9	31	28
Injectables	14	36.6	32	44.6	42	40.7	45	40.4
EC	3	7.3	4	5.4	9	9.3	10	8.8
Female condom	0	0	0	0	0	0	0	0
Inplant & Diap.	0	0	0	0	0	0	0	0
Sterilization	0	0	0	0	0	0	0	0
Natural methods	0	0	0	0	0	0	0	0
Source of supply								
Chemist	20	53.7	27	37.8	50	48.1	56	50.8
Hospitals	11	29.3	30	41.9	29	27.8	27	24.6
F.P centre	2	4.9	13	17.6	5	5.6	6	5.3
Others	5	12.2	2	2.7	19	18.5	21	19.3
Total	38	100	72	100	103	100	111	100

EC = Emergency contraceptives. FP = Family planning.

IUCD = Intrauterine contraceptive Device.

Diap. = Diaphragm.

Pre- Int. = Pre-intervention.

Post – Int = Post – Intervention.

As shown in Table 3, the mean knowledge score of the study group rose significantly, from 5.5 points at baseline to 7.8 points post-intervention ($t = -16.7281, p = 0.0000, df = 460$). However, in the

control group, it rose only from 5.3 points at baseline to 5.6 points post-intervention, which is not statistically significant ($t = -4.1224, p = 0.0000, df = 1282$). The mean attitudinal score in

the study group increased significantly, from 4.3 points at baseline to 8.1 points post-intervention ($t = -31.4612, p = 0.0000, df = 460$). In the control group, however, the increase in mean attitudinal score, from 4.5 points at baseline to 4.54 points post-intervention, was not statistically significant ($t = -2.3836, p = 0.0173, df = 1282$).

Table 3: Mean Knowledge and Mean Attitudinal Scores of participants in both Study and Control Groups before and after intervention.

	Study Group (n=321)		Control Group (n=642)	
	Pre-int.	Post-int.	Pre-int.	Post-int.
MKS	5.5	7.8	5.3	5.36
S.D	0.87	1.9	0.21	0.22
MAS	4.3	8.1	4.5	4.54
S.D	0.9	1.6	0.61	0.69

MKS = Mean Knowledge Score.
 MAS = Mean Attitudinal Score.
 S.D = Standard Deviation.
 Pre- Int. = Pre-intervention.
 Post – Int = Post – Intervention.

As shown in Table 4, 11.8% of the respondents in the study group used family planning methods at baseline, with 22.4% post-intervention, a statistically significant increase in contraceptive use (McNemar’s $\chi^2 = 125.41, p = 0.0000$). However, in the control group, the increase from a baseline of 16% to 17.3% post-intervention was not statistically significant (McNemar’s $\chi^2 = 281.82, p = 0.09$).

Table 4: Distribution of participants by current use of Family Planning (FP) methods.

	Study Group (n=321)		Control Group (n=642)	
	Pre-int.	Post-int.	Pre-int.	Post-int.
Current use of FP	Frequency	Frequency	Frequency	Frequency
Yes	38(11.8%)	72(22.4%)	103(16%)	111(17.3%)
No	283(88.2%)	249(77.6%)	539(84%)	531(82.7%)
Total	321	321	642	642

Discussion

Injectable contraceptives were the most frequently used family planning method among respondents at baseline in both the study and control groups, followed by oral contraceptive pills. This finding differs from the results obtained over a decade ago in the same study group, when male condoms were the most common method, followed by pills⁴. This

shift is likely due to the increased availability of injectables and a preference for them over condoms. This result also differs from the findings in Turkey of Ertem et al., where intrauterine contraceptive devices (IUCDs) were the most used method post-intervention²⁹. This difference in findings could be due to the fact that the nearest facilities providing IUCD insertion services were within the barracks, whereas in Turkey such facilities were not available within the study area. The respondents in the barracks, however, were familiar with the providers and might have therefore found such services to be uncomfortable within this context and thus avoided them.

Male condoms were the least used method in both groups, both pre- and post-intervention. This finding is consistent with other studies, which document low condom use among married couples^{30, 31}. Health education had no remarkable effect on condom use among the respondents. A possible reason for this is that men decide when to use condoms and they were unfortunately not included in the study. The decrease in male sexual pleasure associated with condom usage may be another reason.

Female condoms and implants were not used by any participants (either pre- or post-intervention) in either cantonment. Several factors may be responsible for this, such as acceptability, cost, and availability. In addition, sterilization was not used post-intervention, possibly due to the fear of associated surgical complications or the fact that it is expensive, irreversible, and culturally unacceptable in Nigeria³².

Pre-intervention, chemist shops were the main source of contraceptive supply in both groups, while family planning centres were the least used source. However, post-intervention, hospitals became the main source of supply and the proportion of respondents in the study group who obtained their contraceptives from family planning centres increased remarkably.

The significant increase in the final mean knowledge score in the study group is consistent with the findings of Briegler et al. in Ghana³³, where the final mean knowledge score among youths in intervention areas was significantly greater than that of youths in control areas. It is also consistent with findings among unmarried

women in Shanghai, China, where the knowledge score in the intervention group increased significantly while there was no change in the control group³⁴.

The improvement in attitude towards family planning in the study group is also similar to findings in China, where the attitude of intervention students towards contraceptive usage improved after health education, while no significant change was observed in the control group.³⁵ Similar findings were noted in Mali by Thomas et al³⁶. The attitudinal changes in our study group and in the study group in Mali were both noted three months after intervention, whereas in China they were noted two weeks after intervention.

The significant increase in the post-intervention CPR in our study group is similar to that in the Ghana study, where the proportion of youths in the intervention group who reported the use of a modern contraceptive method increased significantly³³, as well as to the post-intervention CPR increase in the study in Shanghai, China³⁴. As in our study group, increased contraceptive use in both Ghana and China was noted three months post-intervention. Our results are also consistent with the findings of Solman³⁷, Paul et al.³⁸, and Savelieva et al.³⁹ in Egypt, the United Kingdom, and Russia, respectively.

One limitation of this study is possible contamination of the control group, which might have received family planning messages from sources other than the study. The second limitation is the relatively low statistical power of 0.5 that was used to determine the sample size. Although it limits the statistical significance of our findings, it should not underscore their importance, since this is the first study of its kind (to the best of our knowledge) in Nigerian barracks. The third limitation of our study is the non-inclusion of the respondents' husbands. Their inclusion could positively affect the attitude of respondents towards family planning and its use. The fourth limitation is the study's inability to assess the impact of the intervention due to the short interval between intervention and post-intervention data collection (three months). A longer duration, such as six months or more, could have made this possible.

Conclusion

Health education significantly increases the knowledge of respondents about all types of contraceptives and significantly improves attitudes towards contraceptives and their usage. However, due to various reasons, some contraceptive methods are poorly or never used, despite health education intervention. To improve the currently low CPR in Nigeria, increased and sustained health education in family planning methods is recommended.

Contribution of Authors

Abdulrazaq A. G: Lead in the design and co-ordination of the study, carried out the field work and data collection, performed statistical analysis on the data collected and drafted the manuscript.

Kabir S: Participated in design and reviewed manuscript.

Mohammed N.S: Participated in the design and co-ordination of the study and reviewed the manuscript.

Suleiman I. H: Participated in statistical analysis, helped with interpretation of results and the revision of the manuscript.

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