

# Effects of Community-Based Family Planning Education Program on Knowledge of Family Planning Methods Among Married Women in Khartoum State, Sudan

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## Research Article

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# Abstract

## Background

Family planning (FP) is an important strategy in promoting maternal and child health. Although family planning was initiated in Sudan in 1965 and then incorporated into the Primary Health Care (PHC) in 1985, the utilization rate remains low, which is among the lowest countries in the region. This study aimed to evaluate the effects of a community-based family planning education program on knowledge of family planning methods for married women in Khartoum State, Sudan.

## Methods

Quasi-community interventional study design. It was conducted in Khartoum State, Sudan in December, 2020. A Family planning program was invented as an intervention program. The sample size consists of 456 mothers, the participants in the research are between the ages of (15 and 49). The data were collected by a questionnaire designed to measure mothers' knowledge. The questionnaire consisted of 30 questions covering the different aspects of family planning. The data were collected by the researcher. A pre-evaluation was done on the knowledge by using a structured questionnaire. After that, the health education program for the experimental group was done within 20 educational hours, pre and post-test is done to evaluate the effectiveness of the educational program.

## Results

The study results showed most of the intervention and control groups were illiterate 40%, they have little information about family planning methods, the mothers' knowledge has increased after family planning program intervention from 40–84.7%.

## Conclusion

The study concluded that a family planning educational program has significantly increased a mother's knowledge regarding family planning.

## Background

In order to promote mother and child health, family planning is an important technique, and it gives women a broader perspective on birth control, reproductive health, and pre-conception counselling [1]. Family planning has been defined, as parents can have as many children as they wish and space their pregnancies apart with family planning [2]. In some countries of the Middle East and North Africa, maternal mortality has not decreased by more than 25% [4]. Three-quarters of maternal deaths occur after childbirth and the first few weeks after birth [5]. In Sudan, the Maternal Mortality Rate (MMR) is

estimated to be 750 per 100,000 people, according to the Households, Health Survey, the prevalence of family planning, utilization in Sub-Saharan Africa is 22.1% [6]. A recent report from (72) countries showed that family planning, utilization is a preventative strategy that reduce maternal mortality rate of women [7]. Regarding the married couples in Sudan and family planning methods, a study conducted in Sudan found that a small number of married couples use family planning methods [8].

In order to gain a better knowledge of the socioeconomic factors that influence the use of family planning, a study it was found that men have always played a major role in decisions affecting women's reproductive health, family planning professionals, on the other hand, assume that men are less interested in reproductive issues [9]. Family planning is influenced by a variety of circumstances, all of which have an impact on how it is used. (Caldwell) have emphasized the importance of African countries' social cultures in maintaining the importance of family planning [10]. Furthermore, reports reveal that family planning use is fast expanding in most countries, but far less so in Arab and Sub-Saharan Africa [11]. According to reports, developing maternal health services in a context-appropriate manner could enhance demand-side access [12]. And there are different intervention programs were conducted to increase the use of contraceptive methods [13].

## Methods

A Quasi-Community Interventional was conducted in two local areas in the Khartoum north, Sudan in December, 2020. Area was randomly selected to act as the intervention group.

The study population consisted of married women between the ages of (20–50) in Aldaroshab and Alkadro areas. Criteria for the participants consist of all mothers in the study areas who are in the age (20–50) years. Exclusion criteria married women who are infertile. The sample size was selected from the two search areas by computerized method using the (Roasoft) website, with confidence Level 95%. The sample size of the study was 456 participants the researcher was select 500 participants because expected some drop can occur during the study. Divided into the intervention group (250) and the control group (250). Sampling technique: The two areas were written in a closed paper to select one for intervention and the other to study randomly. The sample was selected from 33 blocks. To choose five blocks for each region selected randomly by writing blocks in the closed papers. Fifty of mothers from each block. Data were collected by using the quantitative method a questionnaire designed by researchers to measure the score of knowledge of mothers in both groups. Was filled before starting the program and after eight months at the end of the study. Data were collected using questionnaire consisted of 30 questions covering the different aspects of family planning knowledge. Data Analysis for this study by Pre- and post-test data were grouped, categorized, and tallied using numbers and percentages. In the statistical package for social sciences, the independent sample t-test was utilized (SPSS version 23) to evaluate whether there is a significant difference at the level of 0.05.

## Results

Table 1. Shows the demographic characteristics of the study participants (456). Most of the subjects (72.37%) were 20–30 years old. The majority of subjects (40.4% & 33.8 respectively) were illiterate and secondary school educational level in intervention group. Regarding occupation Most of subjects were housewives in intervention group (71.1%) and (63.59%) on control group. Level of income is medium in intervention group and control group (70.2% & 54.82% respectively).

Table 1  
Shows the distribution of the research participants' demographic characteristics.

<b>Variable</b>	<b>Intervention group No (%)</b>	<b>Control groups No (%)</b>
<b>Age in years:</b>		
< 20	21 (09.21)	26 (11.40)
20–30	165 (72.37)	155 (67.98)
31–40	30 (13.16)	37 (16.22)
41 years and more	12 (05.26)	10 (04.38)
<b>Educational level:</b>		
Illiterate	92 (40.4)	99 (43.42)
Primary	41 (18.0)	31 (13.59)
Secondary	77 (33.8)	65 (28.50)
University and above	18 (7.9)	33 (14.47)
<b>Level of income:</b>		
Low	29 (12.7)	40 (17.54)
Medium	160 (70.2)	125 (54.82)
High	39 (17.1)	63 (27.63)
<b>Number of children</b>		
< 5	70 (30.7)	55 (24.12)
5–10	138(60.5)	140 (61.40)
> 10	20(8.8)	33 (14.47)

Table 2 shows the correct answers of the participants at posttest too high than that of the control group, regarding the definition of family planning. as spacing between births, the correct answer was mentioned by 209(91.7%) of the control group at posttest compared to 55(24.5%) of the same group at pretest measurement.

Table 2  
Distribution of the participant's knowledge about definition of family planning

Items	Pretest (n = 228)		Posttest (n = 228)		T	P
	Correct	Mean	Correct	Mean		
	No (%)	±SD	No (%)	±SD		
Stop giving birth	123(53.9)	0.61 ± 0.7	195(85.5)	1.54 ± 0.4	-13.2	0.01
Spacing between births	55(24.5)	0.68 ± 0.8	209(91.7)	1.64 ± 0.7	-13.3	0.01
Limitation of births	197(85.5)	0.57 ± 0.6	203(89.0)	1.67 ± 0.6	-15.8	0.01
Prevent STD	156(68.4)	1.25 ± 0.8	202(88.6)	1.82 ± 0.9	-9.0	0.01
Timing of birth	192(85.1)	0.69 ± 0.4	208(91.2)	1.51 ± 0.8	-10.4	0.06

Table 3  
Distribution of the participant's knowledge about methods of family planning.

Items	Pretest (n = 228)		Posttest (n = 228)		T	P
	Correct	Mean	Correct	Mean		
	No (%)	±SD	No (%)	±SD		
Natural methods	94(41.2)	0.71 ± 0.84	186(81.9)	1.75 ± 0.5	-15.4	0.01
Hormonal methods	54(23.7)	0.66 ± 0.51	196(90.4)	1.50 ± 0.8	-10.9	0.02
Surgical Methods	44(19.3)	0.57 ± 0.8	168(73.7)	1.46 ± 0.7	-12.4	0.01
Mechanical methods	50(21.9)	1.67 ± 0.6	148(64.9)	1.56 ± 0.7	-15.8	0.01

Table 4  
Participants knowledge regarding characteristics of natural methods of family planning pre and posttest

Items	Pretest (n = 228)		Posttest (n = 228)		T	P
	Correct	Mean	Correct	Mean		
	No (%)	±SD	No (%)	±SD		
Meaning	96(42.1)	0.75 ± 0.06	176(77.5)	1.69 ± 0.09	-7.8	0.01
Effectiveness	75(32.9)	0.59 ± 0.03	210(92.1)	1.89 ± 0.01	-9.2	0.04
Advantages	86(37.7)	0.41 ± 0.04	198(86.8)	1.76 ± 0.12	-8.4	0.01
Side effects	84(36.8)	0.82 ± 0.12	174(78.3)	1.73 ± 0.08	-11.9	0.07

Table 5

Participants knowledge regarding characteristics of hormonal methods of family planning pre and posttest

Items	Pretest (n = 228)		Posttest (n = 228)		T	P
	Correct	Mean	Correct	Mean		
	No (%)	±SD	No (%)	±SD		
Meaning	56(23.5)	0.46 ± 0.06	202(88.6)	1.78 ± 0.04	454	0.01
Effectiveness	62(27.2)	0.43 ± 0.05	182(79.9)	1.77 ± 0.07	454	0.02
Advantages	48(21.1)	0.97 ± 0.05	144(63.2)	1.81 ± 0.06	454	0.02
Side effects	86(37.7)	0.44 ± 0.07	184(79.7)	1.82 ± 0.04	454	0.03

Table 6

Participants knowledge regarding characteristics of mechanical methods of family planning pre and posttest

Items	Pretest (n = 228)		Posttest (n = 228)		T	P
	Correct	Mean	Correct	Mean		
	No (%)	±SD	No (%)	±SD		
Meaning	20(8.8)	1.25 ± 0.8	204(89.5)	1.82 ± 0.9	-9.0	0.01
Effectiveness	28(12.3)	0.69 ± 0.4	194(85.1)	1.51 ± 0.8	-10.4	0.06
Advantages	54(23.7)	0.30 ± 0.5	172(75.4)	1.12 ± 0.2	-11.6	0.02
Side effects	24(10.5)	1.00 ± 0.7	196(86.0)	1.33 ± 0.8	-4.2	0.02

Table 7

Participants knowledge regarding benefits of family planning pretest and posttest

Items	Pretest (n = 228)		Posttest (n = 228)		T	P
	Correct	Mean	Correct	Mean		
	No (%)	±SD	No (%)	±SD		
Preventing pregnancy-related health Risks in women	14(6.1)	0.48 ± 0.03	188(82.5)	1.83 ± 0.05	-16.9	0.03
Reducing infant mortality	22(9.6)	0.68 ± 0.05	168(73.7)	1.75 ± 0.04	-17.7	0.02
Prevention of STDs	6(2.6)	0.62 ± 0.04	202(88.6)	1.91 ± 0.11	-10.2	0.03
To promote health to infant	78(34.2)	0.36 ± 0.02	204(89.5)	1.83 ± 0.04	-27.9	0.03

Table 8  
Participants knowledge regarding side effect of family planning pretest and posttest

Items	Pretest (n = 228)		Posttest (n = 228)		T	P
	Correct	Mean	Correct	Mean		
	No (%)	±SD	No (%)	±SD		
Delay pregnancy	20(8.8)	0.39 ± 0.04	214(93.3)	1.73 ± 0.04	-23.2	0.01
Irregular menstruation	98(43.0)	0.69 ± 0.05	206(90.4)	1.51 ± 0.07	-11.7	0.03
IUDs can cause perforate	96(42.1)	0.63 ± 0.04	206(90.4)	1.85 ± 0.03	-26.5	0.02
Hormonal method can cause headache and vomiting	22(9.6)	0.38 ± 0.04	168(73.7)	1.82 ± 0.04	-29.3	0.01

## Discussion

The present study aims to assess the women's knowledge receive health education program about family planning in Khartoum state, the study was conducted on a 456 of women. An educational program has been conducted to find out the knowledge and benefit from it, the researchers found regarding Knowledge of the participants regarding family planning significantly increase after intervention program for all aspects of family planning including (meaning, benefits, methods of family planning. This corresponds to the results of a study conducted in Cameroon and Nigeria, which showed 24% and 72.9% respectively [14]. Regarding the educational level, it was found that the illiteracy rate was about 40%, and in another study conducted in one of the states of Sudan, the illiteracy rate for women was low at 15% [15]. Knowledge score of meaning natural methods increased in the intervention group from 42.1–77.5%, ( $p = 0.019$ ), this is similar to another study, which showed awareness of natural methods in Sub-Saharan Africa 52% [16]. And in Khartoum state, Sudan as 56%. [16] In our study knowledge score of hormonal methods in the post control test 49.6%, then increased from 23.7 in pre-intervention 90.1% in post-intervention, ( $p$  value = 0.022). Another study in Sudan showed increased knowledge from 36–72% after health education program [17]. The awareness of natural methods showed high in pretest when compared to other methods of family planning, this may be due to cultural acceptance of natural methods. Knowledge about the side effect of family planning also increased significantly ( $p$  value = 0.01).

The present study showed overall correct knowledge was 84.7% at post-intervention measurement compared to 40.1% at pre-intervention measurement. The findings of this study are comparable to those of a Sudanese study, according to the study, mothers who were encouraged by midwives to take beneficial child health measures were more likely to be creative in their fertility controls [18]. Furthermore, the results of the Sudan Household Health Survey, which showed an increase in contraceptive use and better understanding [19]. Corroborate these findings. The current study found a significant improvement

in contraceptive knowledge in the intervention group compared to the control group, which was similar to a community-based intervention in India that showed considerable gains in contraceptive awareness among mothers [18]. The media is seen as an essential source of information about family planning. In our study, 51% of women learned about family planning from the media. (TV/Radio) and 24.8% from the health care center [20]. Who reported only 22% of women had their source information from the media. Similarly, to our findings, a Ugandan study found that exposure to electronic media messages was the most important determinant in women's adoption of family planning methods [21].

## Conclusion

Most of the intervention and control groups were illiterate and secondary school education within (20–30) years of age. The majority of participants were housewives having a medium level income. The major source of information of participants was (TV) and Radio. The pre and post control Knowledge towards family planning did not show any statistically significant difference.

## Abbreviations

FP  
Family planning  
PHC  
Primary Health Care  
MMR  
Maternal Mortality Rate  
TV  
Television

## Declarations

### Ethics approval and consent to participate

The research and data was treated with confidentiality, the treatments. Prior to the study, the researcher and assistants thoroughly described and clarified the study's purpose. The National Ribat University issued a written official letter to do study. (ethical approval code: JRO/17/J/1/2).

### Consent for publication

Not applicable

### Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

## Competing interests

All authors have no competing interest and declare that this study is original article.

## Funding

This study has not received any funding.

## Authors' contributions

A.J. and W.S. Conceived and designed the analysis, wrote the main manuscript text, collected the data  
W.S. prepared figures and tables. All authors reviewed the manuscript.

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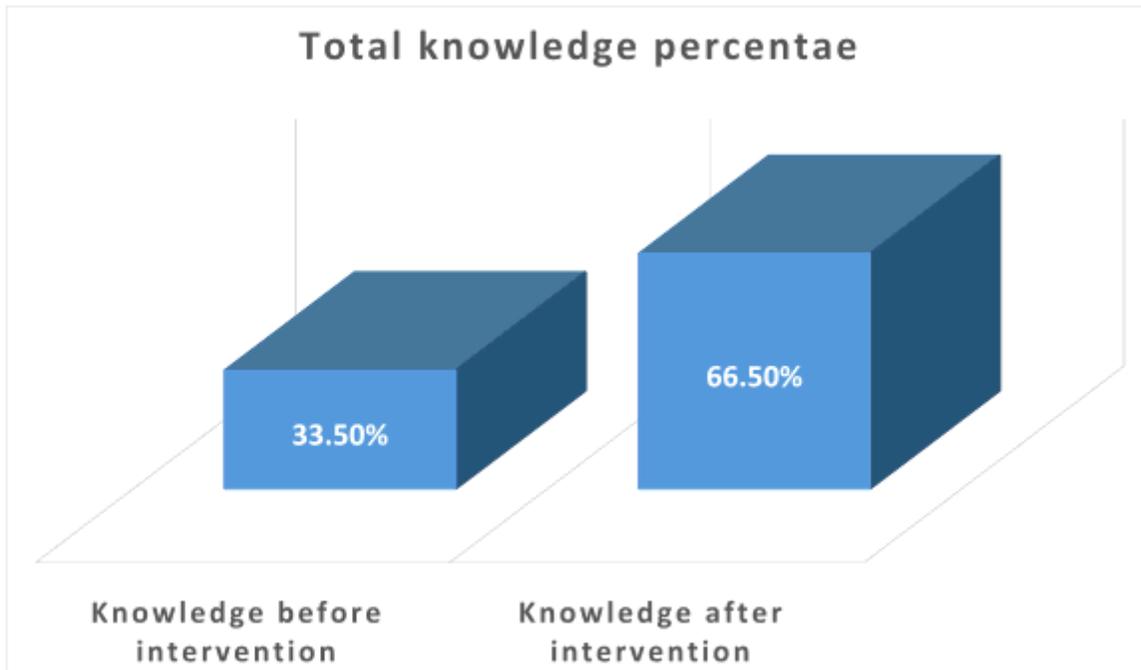
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## Figures



**Figure 1**

Effect of family planning educational programme on women over all knowledge related to family planning aspects in Khartoum State pre and posttest.