

Knowledge, attitude and practice towards family planning among married women in areas of low and no family planning in Giza governorate: Impact of educational intervention

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Background/aim

Little or incorrect knowledge about family planning (FP) is one of the main barriers to its use. The study aimed to identify areas of low or no FP utilization; assess married women characteristics, knowledge, attitude, and practice toward FP; and determine the effect of FP education.

Patients and methods

This intervention study included 198 married women in the reproductive age. Areas of low and no FP utilization were identified by hot map software. All women in the pre-identified areas were selected. A structured questionnaire was used to assess their characteristics, knowledge attitude, and practice toward FP. FP health education sessions were done to discuss importance of FP, appropriate use of different methods, their effectiveness, and side effects. Participants' concerns and misconceptions were also addressed. After intervention, the participants' knowledge was assessed. Service utilization, FP demand, and contraception prevalence indicators were calculated.

Results

Areas of low and no FP utilization were identified on the map. Mean age of women was 23.1 ± 6.44 years. Most (82.83%) were school educated, and 61.11% were not working. The mean scores for knowledge and attitude were 12 ± 7.89 and 93.41 ± 8.17 , respectively. The contraception prevalence was 31.8%. Intrauterine device was the most common method among 54%, followed by pills in 23%, and 6, 8, and 5% were relying on injections, condoms, and natural methods, respectively. After health education, the mean knowledge score was significantly increased, reaching 23 ± 8.35 , and contraceptive prevalence was 43.1%.

Conclusion

Knowledge and attitude of the study participants toward FP was almost low. There is a need for health education and counseling sessions to enhance the utilization of FP methods.

Keywords:

family planning, health education, knowledge

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Introduction

The world nowadays is facing high population growth, reaching 7.7 billion, and is projected to reach 9.8 billion by the year 2045 [1]. Rising population has shifted resources from production to human services [2]. This negatively affects the economic growth, increases rates of poverty and unemployment, and threatens food security, especially in developing low-income and middle-income countries [2,3]. Thus, there is a need for stabilizing the population through universal access to family planning (FP) services.

Countries particularly the less developed ones strongly implement FP programs, and increased rates of contraception prevalence was observed [4]. In Egypt, the contraception prevalence rate increased from 48% in 1991 to 59% in 2014. The total fertility rate, which is the most important determinant of population growth,

reached 3.5 in 2014 and 3.4 in 2017, and then it sharply decreased, reaching 3.1 in 2018, with reduction in urban–rural gap. Despite these achieved progresses, FP use is still limited [5–7].

In developing countries, 60% of couples use contraceptive methods, and nearly 25% of pregnancies are unintended [8]. In Egypt, the total fertility rate is still above the global fertility rate, which is 2.5 live births per woman [6,8,9]. The 2014 EDHS reported that one in eight married women was in need for FP at the time of the survey. Overall, 16% of children born in the 5 years before the survey were

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not wanted at the time of conception [7]. This percentage was higher than that reported in the 2008 EDHS, which was 14% [6]. Moreover, there is increase in adolescent pregnancy (aged 15–19) from 9% in 2005 to 10% in 2008 and then 11% in 2014. Overall, 4% of the adolescents were pregnant and 7% had children according to 2014 EDHS. Child spacing has become a challenging issue, where almost 20% of births occur within 2 years of the preceding one [5–7]. As stated by Ministry of Health Statistic, approximately eight in 10 married women in Egypt did not want to have more children or wanted to space at least 2 years, yet a big proportion were not using FP methods [10]. FP utilization is a challenge as a result of barriers hindering its utilization [5,10].

One of the most significant barriers of FP is lack of information and false misleading information that lead to negative attitude toward FP, especially in Upper Egypt [10,11]. Studies showed that women wanted to have control on their fertility, but they did not have proper knowledge and were not receiving adequate FP education. Educating women about FP significantly increased their knowledge, and this would reflect on their attitude and behavior [5,12]. Other mostly reported barriers include social pressure, culture, medical health services, age of mother, age of marriage, and education of mothers and their husbands. It is extremely important to identify and overcome barriers to FP [13].

Policy makers and managers of programs can enhance FP programs by increasing their understanding of women and couples characteristics and overcome the identified barriers [10]. The present study aimed first to identify areas of low or no FP utilization in the catchments area of the family health center (FHC); second, assess married women characteristics, knowledge, attitude, and practice toward FP in the targeted areas; third, provision of FP education; and fourth, determine the effect of education on their knowledge.

Patients and methods

Study design and settings

This intervention study was conducted at a FHC located at Giza governorate. According to the census conducted by National Health Registration System 2016, of the FHC, it serves ~30 000 (28 639) person within its catchment area. The center provides comprehensive integrated services for whole family. It contains FP clinic with a separated registration and archiving system than the center.

The clinic operates daily. The doctor first sees the patients and provides counseling and consultation to them on different methods of FP. Then they were referred to a nurse who provides them with the FP method they have chosen. The study was done from May 2017 to February 2019.

Ethical considerations

The study was approved by Research Ethical Committee, Faculty of Medicine, Cairo University, with approval registration no I-111014. The researcher respected all the principles of ethics of the Helsinki declarations. The interviewer explained to the women the purpose of the study and assured them about confidentiality of their responses, and a signed consent was obtained from them.

Study procedures

The study included two phases

- (1) Exploratory phase
 - (a) The researcher reviewed the patient records of the FP clinic retrospectively. These records included home address, age of patient, occupation, education, number of children, reason of the visit, type of the method of FP used, and if the patient has any health problems.
 - (b) Formation of hot spots on the center's catchment area map.

The researcher introduced hot spot map software in the computer of the FP clinic using eSpatial Mapping Software (eSpatial Company based in Dublin, Ireland) [14]. It is used to visualize FP utilization in the catchment area of the FHC. First, data of patients' addresses was uploaded, and then population clusters on the map were highlighted. Areas with high level of population using FP methods were expressed with dark shades and lighter shades for areas of low FP method utilization. White shades were for areas of no FP utilization. The clinic nurses were educated on utilization of the software to be used in the routine registration afterward and warrant the sustainability of the method.

The researcher arranged with the district manager to perform exploratory outreach visits for the areas that appeared white shaded on the map. The department of statistics in the districted provided the number of housing blocks in these areas; there were 76 blocks. Arrangement of the teams took place. The teams consisted of nurses and social service specialists. The researcher divided and trained the teams to perform a structured interview with the married women in the

reproductive age (15–49 years), and each team was assigned to interview three to four blocks each day, so all white shaded areas on the map were covered. The interviewee visited the houses to interview those women with eligible criteria, and if there were no eligible women, they visiting the next house. The interview was done in a period of 7 months.

Sampling technique and study population

The study included all married women in the reproductive age who accepted to participate in the study.

Data collection

Face-to-face interviews were conducted using a structured questionnaire. The questionnaire was developed by adopting relevant questions from various sources and previous studies [15–17] and after consultation with the experts in the field. It included the following sections:

- (1) (1) The first section of the questionnaire contained questions about the demographic characteristics and assessment of the socioeconomic status based on the questionnaire originally designed by Fahmy *et al.* [18].

(a) Mother's education, (b) husbands' education, (c) working status of the mother, (d) working status of the father, (e) use of computer, (f) per-capita income, (g) family size, (h) crowding index, (i) sewage disposal, and (j) refuse disposal.

A total percent score was calculated for each patient, and the results were categorized as follows: More than or equal to 70%, high socioeconomic status; 40 to less than 70%, middle socioeconomic status; and less than 40, low socioeconomic status.

- (2) Assessing the knowledge of women about FP using 29-item questionnaire. The answers were either 'know' or 'do not know'. The questions were scored '1' for know and '0' for do not know, with a maximum total score of 29 for each participant.
- (3) FP attitude scale was adapted from valid reliable FP attitude scale developed by Örsal and Kubilay [19]. The scale was translated from Turkish language to English and Arabic language and then retranslated to ensure the validity. The Cronbach alpha value was 0.87. The scale consisted of three subgroups: society attitudes toward FP (14 items), attitudes of methods (12 items), and attitudes of pregnancy (eight items). The scale was graded as 'strongly agree=1,' 'agree=2,' 'neutral=3,' 'disagree=4,' and 'strongly disagree=5.' For analysis, they were categorized into agree and disagree.

All the items of each subgroup were added, and then all subgroups were added to obtain the total score. The lowest score was 34 and the maximum score 170. Higher score indicating favorable attitude toward FP.

Then the questionnaire included section about the practice of FP methods. Participant mothers were then asked open-ended questions about the reason of not using FP methods. Before asking the questions of this section, participant mothers were asked if they were pregnant or in the post-partum period. None of them had positive response on this.

The questionnaires were first designed in English language and then translated to Arabic (local language), and then translated back to English to ensure validity. The interview took 30–45 min to be completed. The questionnaire was pilot tested on 20 participants. The pilot results were only used to check the validity and clarity of the questions, estimate the time needed to complete the questionnaires, and detect difficulties that may arise and how to deal with them. Necessary modifications were done based on the responses. They were not included in the analysis.

At the end of every day, all completed questionnaires were checked to ensure their consistency and completeness.

Health education phase

After analysis of the gathered data, the researcher took approval from the district to perform targeted health education sessions for the women in the studied areas. It was arranged with a nearby youth club to conduct the health education sessions there. The coordinators of the youth club took the responsibility of sessions' announcement. The researcher with the teams performed six health education sessions every month for a period of 7 months. Topics discussed during the health education sessions were benefits of FP, risks of having large number of children for parents and children, the appropriate use of different methods, and side effects. Issues regarding FP concerns, for example, fear of side effects and infertility, were also addressed. Moreover, issues concerning their knowledge and attitude were discussed after analysis of the pre-intervention survey. The used methods were posters, flip charts, and models of FP of the Ministry of Health and Population (MOHP) to enhance the awareness of the women toward FP. At the end of the sessions, the participant mothers were free to ask any questions and inquiries.

Posthealth education knowledge assessment

After the applying health education, the teams performed another interview for the mothers to assess their knowledge, attitude, and practice toward FP.

Indicators used for knowledge, attitude, and practice

The following indicators were used for knowledge, attitude, and practice:

- (1) The percent of women having correct answer for each knowledge and attitude items before and after health education.
- (2) Mean knowledge and attitude score and contraceptive prevalence before and after health education.
- (3) Percent of the desire for additional children before and after health education.
- (4) Percent of demand for limiting or spacing and total demand (for FP) before and after health education.
- (5) Percent of service utilization before and after health education.
- (6) Regular follow-up of the map and identification to identify areas of increased FP utilization.

Statistical analysis

Data were analyzed using the SPSS for Windows software package, version 22.0 (SPSS Inc., Chicago, Illinois, USA). χ^2 was implemented for qualitative data, which were presented by numbers and percentages. t test was used to compare between two means and one-way analysis of variance for comparing more than two means. The P value 0.05 was considered as significant.

Results**Sociodemographic characteristics of the participated mothers**

The mean age of the mothers was 23.1 ± 6.44 years. The majority (82.8%) had school education, and 61.1% were not working. Nearly half of the participated mothers (47.98%) got married when they were less than 20 years old, and 41% had more than five children. Sociodemographic characteristics are illustrated in Table 1.

The participants aged above 25 years, having higher level of education, working, married at elder age, and with better socioeconomic level had more favorable attitude toward FP. The differences between the groups were statistically significant (Table 2).

The higher mean knowledge score was among mothers aged 20–25 years old, with high level of education,

Table 1 Sociodemographic characteristics of the participants

Characteristics	<i>n</i> (%)
Age	
<20	64 (32.32)
20–25	83 (41.92)
>25	51 (25.76)
Mothers' education	
Illiterate	8 (4.04)
School	164 (82.83)
Higher education	26 (13.13)
Husbands' education	
Illiterate	12 (6)
School	105 (64)
Higher education	81 (30)
Mothers' occupation	
Not working	121 (61.11)
Daily worker	77 (38.89)
Husbands' occupation	
Not working	17 (8.6)
Daily worker	122 (61.6)
Employee	59 (29.8)
Age of marriage	
<20	95 (47.98)
20–25	83 (41.92)
>25	20 (10.10)
Age of last pregnancy	
<20	33 (16.67)
20–25	106 (53.54)
>25	59 (29.80)
Number of children	
<2	24 (12.12)
2–5	91 (45.96)
>5	83 (41.92)
Socioeconomic status	
High socioeconomic status	24 (12.12)
Middle socioeconomic status	80 (40.4)
Low socioeconomic status	94 (47.48)

working, and having less than two children; the differences between groups were significant, as shown in Table 3.

Participants' knowledge of family planning

It was shown that the concept of FP was properly understood by the participants. More than half of the participants (56%) did not know the optimum gap between two births and 68% were not aware about the optimum number of children. The majority (91%) did not know how oral contraceptives are taken in relation to the cycle. Regarding intrauterine device, the majority gave wrong answers on time of its insertion and the duration it lasts in the uterus (70 and 76%, respectively). The general knowledge of the participants and awareness about the types of FP methods were significantly increased after provision of health education, as shown in Table 4.

Table 2 Mean family planning attitude score according to sociodemographic characteristics

Characteristics	Mean	SD	F	P value*
Age				
<20	60.4	11	114.03	<0.01
20–25	81.2	13.9		
>25	93.6	9.8		
Mothers' education				
Illiterate	64	4.5	35.149	<0.01
School	75.2	12.9		
Higher education	95.6	10.6		
Husbands' education				
Illiterate	60.8	4.8	18.208	<0.01
School	81.6	13		
Higher education	74.8	12.6		
Mothers' occupation				
Not working	62	11.8	547.6	<0.01
Worker	101.6	10.6		
Husbands' occupation				
Not working	55.6	5.5	82.05	<0.01
Daily worker	73.2	13.6		
Employee	92.8	10.1		
Age of marriage				
<20	64.4	12.1	179.4	<0.01
20–25	84.4	12.6		
>25	111.6	4		
Age of last pregnancy				
<20	37.6	9.9	260.9	<0.01
20–25	81.6	12.5		
>25	92.8	10.1		
Number of children				
<2	66	12.3	91.44	<0.01
2–5	82.4	12.6		
>5	99.2	10.3		

*Significant when *P* value less than 0.05.**Attitude toward family planning utilization**

Most participants (85.4%) agreed that they want more children to share in workload, nearly two-thirds had fear of side effects, 65.2% agreed that boys strengthen the power of the father, and the majority (86.4%) agreed that there is no need to learn about FP. The participants' attitude significantly improved after provision of health education, as shown in Table 5. Of the 198 participated women who responded to the question concerning the sources of information about FP, relatives and friends were the most common source, as reported by 80%. Other sources such as health facilities and mass media made a minimal contribution (7 and 13%, respectively). The mean score of knowledge before health education was 12 ± 7.89 . After provision of health education, the score was significantly increased to reach 23 ± 8.35 ($P < 0.01$). Most women (89%) wanted to have more than two to five children. Overall, 8% wanted more than 5, and a minority (3%) wanted only one child.

Table 3 Mean family planning knowledge score according to sociodemographic characteristics

Characteristics	Mean	SD	F	P value*
Age				
<20	7.4	2.20	4.52	0.012
20–25	9.03	4.8		
>25	9.42	5.2		
Mothers' education				
Illiterate	8.1	6.5	9.32	<0.01
School	11.68	3.7		
Higher education	14.4	4.3		
Husbands' education				
Illiterate	5.2	5.4	104.55	<0.01
School	9.8	5.0		
Higher education	18.35	3.4		
Mothers' occupation				
Not working	6.65	2.2	89.58	<0.01
Worker	13.76	7.8		
Husbands' occupation				
Not working	8.6	3.3	2.22	0.1
Daily worker	10.8	4.6		
Employee	9.4	6.9		
Age of marriage				
<20	10.2	5.1	2.14	0.12
20–25	10.8	2.8		
>25	8.7	3.5		
Age of last pregnancy				
<20	7.9	5.8	1.27	0.23
20–25	8.3	5.1		
>25	7.4	4.7		
Number of children				
<2	18.2	4.0	132.76	<0.01
2–3	10.1	2.8		
>5	7.7	2.3		

*Significant when *P* value less than 0.05.**Practice of family planning**

Among the participant mothers ($n=63$), 31.8% were FP utilizers, and all of them were using only one method. Overall, 13% were visiting health facilities for FP follow-up. Most participants' husbands (92%) were not using condoms. Moreover, 95% were not practicing any natural methods of FP, such as withdrawal, safe period, or breast feeding. After provision of health education, there was significant improvement in FP utilization.

Figure 1 shows the change of FP utilization before and after health education provision, as there was significant improvement.

Intrauterine device was the most common method, as more than half (56%) of FP utilizers were utilizing it, and nearly a quarter (24%) were utilizing oral contraceptives. A minority (6, 9, and 5%) were relying on injections, condoms, and natural methods, respectively.

Table 4 Knowledge of family planning before and after health education

Knowledge	Knowledge before HE [n (%)]		Knowledge after HE [n (%)]		(P value)* χ^2
	Know	Don't know	Know	Don't know	
Optimum gap between two child births	87 (44)	111 (56)	180 (91)	18 (9)	<0.01
Optimum number of children	63 (32)	135 (68)	160 (81)	38 (19)	<0.01
FP is helpful in avoiding unwanted births	61 (31)	137 (69)	184 (93)	14 (7)	<0.01
Methods of FP					
Oral contraceptives					
How they are taken in relation to the cycle	18 (9)	180 (91)	190 (96)	8 (4)	0.04
Number of pills in the packet	5 (3)	193 (97)	123 (62)	75 (38)	<0.01
What should a woman do if she forgots taking one or two pills	33 (16.6)	165 (83.4)	147 (74)	51 (26)	<0.01
Side effects of pills (at least 2)	103 (52)	95 (48)	176 (89)	22 (11)	<0.01
IUD					
Time for its insertion	59 (30)	139 (70)	141 (71)	57 (29)	<0.01
How long it lasts in the uterus	48 (24)	150 (76)	170 (86)	28 (14)	<0.01
How to check its position	24 (12)	174 (88)	107 (54)	91 (46)	<0.01
Is it necessary for follow-up after insertion	18 (9)	180 (91)	172 (87)	26 (13)	<0.01
Side effects of IUD (at least 2)	95 (48)	103 (52)	123 (62)	75 (38)	0.004
Advantages of IUD (at least 2)	117 (59)	81 (41)	162 (82)	36 (18)	<0.01
Injections					
Awareness of injections	162 (82)	36 (18)	190 (96)	8 (4)	<0.01
Women using the birth control shot (Depo Provera) must get an injection every month or 3 months	51 (26)	147 (74)	141 (71)	57 (29)	<0.01
Implants					
Awareness of implants	22 (11)	176 (89)	164 (83)	34 (17)	<0.01
Time for its administration	12 (6)	186 (94)	121 (61)	77 (39)	<0.01
For how long it remains in the arm	6 (3)	192 (97)	139 (70)	59 (30)	<0.01
Side effects	6 (3)	192 (97)	127 (64)	71 (36)	<0.01
Condom					
Awareness of condom	156 (79)	42 (21)	190 (96)	8 (4)	<0.01
Can protect against sexual transmitted diseases	24 (12)	174 (88)	152 (77)	46 (23)	<0.01
Natural methods					
Awareness about lactational amenorrhea	147 (74)	51 (26)	170 (86)	28 (14)	0.0038
Awareness about safe period	77 (39)	121 (61)	141 (71)	57 (29)	<0.01
Awareness about coitus interruptions	57 (29)	141 (71)	105 (53)	93 (47)	<0.01

FP, family planning; HE, health education; IUD, intrauterine device. Know, correct response of the participant; do not know, other than correct response of the participant. *Significant when P value less than 0.05.

Table 5 Participants' attitude before and after health education

	Attitude before HE [n (%)]		Attitude after HE [n (%)]		P value*
	Agree	Disagree	Agree	Disagree	
Society attitude					
Extra children show man's strength	102 (51.5)	96 (48.5)	91 (46.0)	107 (54.0)	0.26
More children gain social power	134 (67.7)	64 (32.3)	128 (64.6)	70 (35.4)	0.5
Families want to have more children to share the workload	169 (85.4)	29 (14.6)	101 (51.0)	97 (49.0)	<0.01
It is okay for a family to have many children as children can take care of each other	97 (49.0)	101 (51.0)	58 (29.3)	140 (70.7)	<0.01
Having many children in the family means that the siblings will support each other in the future	115 (58.1)	83 (41.9)	87 (43.9)	111 (56.1)	<0.01
A boy is a must for his assets not to be divided	76 (38.4)	122 (61.6)	53 (26.8)	145 (73.2)	0.01
Giving birth is the primary duty of the mother	132 (66.7)	66 (33.3)	81 (40.9)	117 (59.1)	<0.01
The family should have two daughters and two boys	69 (34.8)	129 (65.2)	62 (31.3)	136 (68.7)	0.4
Children are god's gift, so family planning is refused	142 (71.7)	56 (28.3)	21 (10.6)	177 (89.4)	<0.01
Birth control method is not a traditional issue	149 (75.3)	49 (24.7)	75 (37.9)	123 (62.1)	<0.01
Mothers or mothers in law do not allow to use contraception	128 (64.6)	70 (35.4)	113 (57.1)	85 (42.9)	<0.01
If there is a boy, it is said that I have a child	93 (47.0)	105 (53.0)	64 (32.3)	134 (67.7)	0.002
Boy strengthens the power of father	129 (65.2)	69 (34.8)	112 (56.6)	86 (43.4)	0.08
Boy carries the name of his father	72 (36.4)	126 (63.6)	41 (20.7)	157 (79.3)	0.005
Method attitude					
Intrauterine device causes headache	86 (43.4)	112 (56.6)	69 (34.8)	129 (65.2)	0.08
The thread of the IUD reduces sexual intercourse	167 (84.3)	31 (15.7)	42 (21.2)	156 (78.8)	<0.01
It is feared that the IUD will escape into the stomach	86 (43.4)	112 (56.6)	18 (9.1) (9.1)	180 (90.9)	<0.01
It is feared that birth control pills will cause cancer, bleeding, etc.	134 (67.7)	64 (32.3)	55 (27.8)	143 (72.2)	<0.01
The birth control method is thought to affect the sexual intercourse negatively	158 (79.8)	40 (20.2)	23 (11.6)	175 (88.4)	<0.01
Couples who use birth control method have less sexual pleasure / desire	147 (74.2)	51 (25.8)	68 (34.3)	130 (65.7)	<0.01
It is difficult for women who use a birth control method to have a child again	118 (59.6)	80 (40.4)	59 (29.8)	139 (70.2)	<0.01
The man who uses condoms does not enjoy sexual intercourse	125 (63.1)	73 (36.9)	71 (35.9)	127 (64.1)	<0.01
Injections can affect ability of getting pregnant after stopping	61 (30.8)	137 (69.2)	37 (18.7)	161 (81.3)	0.005
Females who use family planning methods become masculine	147.0 (25.8)	51.0 (74.2)	23.0 (11.6)	175.0 (88.4)	<0.01
Family planning methods are useless	134.0 (32.3)	64.0 (67.7)	39.0 (19.7)	159.0 (80.3)	<0.01
Injections can cause obesity	149.0 (24.7)	49.0 (75.3)	19.0 (9.6)	179.0 (90.4)	<0.01
Pregnancy attitude					
It is believed that conceiving at intervals of less than 2 years is unfavorable for the health of children. I do not believe	107 (54.0)	91 (46.0)	76 (38.4)	122 (61.6)	<0.01
I do not believe that getting pregnant at intervals of less than 2 years is unfavorable for maternal health	122 (61.6)	76 (38.4)	62 (31.3)	136 (68.7)	<0.01

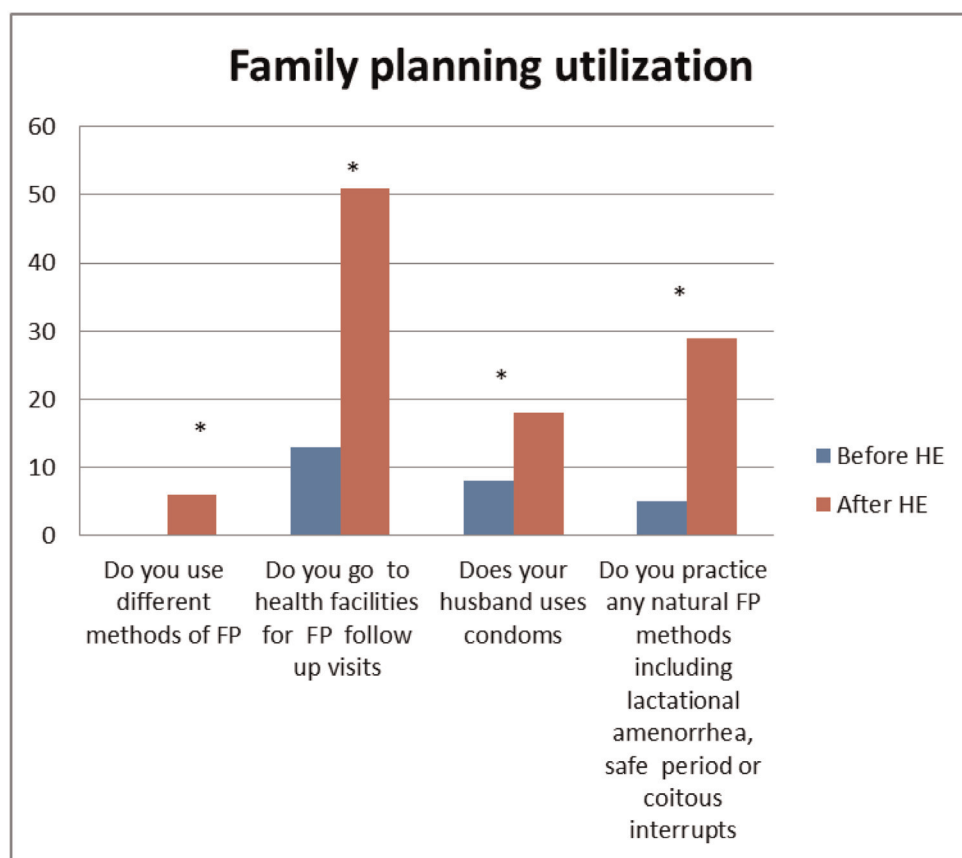
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Table 5 (Continued)

	Attitude before HE [n (%)]		Attitude after HE [n (%)]		P value*
	Agree	Disagree	Agree	Disagree	
Pregnancy makes women attractive	65 (32.8)	133 (67.2)	19 (9.6)	179 (90.4)	<0.01
In terms of health, it is better to give birth than to use a birth control method	145 (73.2)	53 (26.8)	84 (42.4)	114 (57.6)	<0.01
Families with many children can follow the development of each child closely	139 (70.2)	59 (29.8)	72 (36.4)	126 (63.6)	<0.01
Pregnancy stabilizes the family and avoids divorce					
Pregnancy protects women from diseases					
I think there is no need to learn a birth control method	171 (86.4)	27 (13.6)	48 (24.24)	150 (75.8)	<0.01

HE, health education; IUD, intrauterine device.**P* value less than 0.01.

Figure 1



Family planning use before and after health education.

When the FP utilizers were asked about the sources of FP methods, 67% reported obtaining the methods from MOHP, 16% from a private health facility, and 12% from Non-Governmental Organizations. Only 3% of current users of FP methods reported obtaining the methods from their relatives and friends and 2% direct from pharmacies.

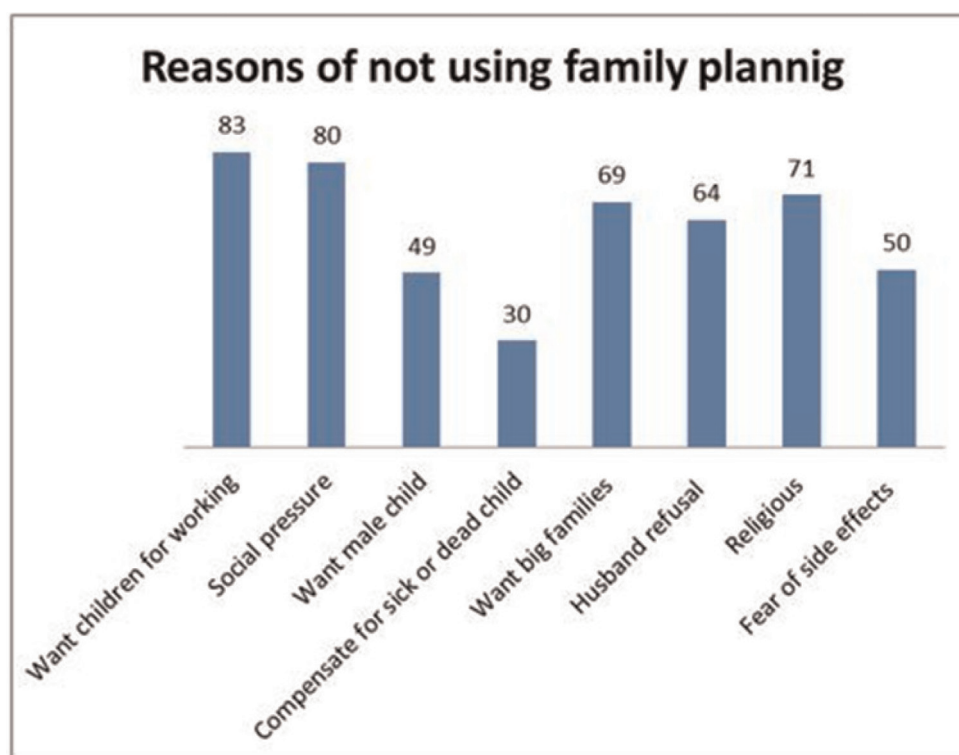
The most prevalent reason of not utilizing FP methods was to have children for working followed by social pressure.

Other reasons were desire for male children, wanted to have big families, husbands' refusal, religious issues, and fear of side effects, as shown in Fig. 2. The proportion of FP utilizers was significantly increased from 31.8 to 43.1% after implementation of health education ($P=0.02$).

Discussion

The Egyptian government has led a National FP program and exerts continuous major efforts to

Figure 2



Reasons of not using family planning methods.

increase service coverage and enhance accessibility. However, there are significant barriers facing FP services utilization. Main barriers include lack of knowledge, inadequate awareness, and misconception of women toward FP which reflected on unfavorable attitude and unreliable behavior [20]. The study aimed to assess knowledge, attitude, and practice of women toward FP and determine the effect of health educational intervention.

The study revealed that most of the participants did not have adequate knowledge about FP which was a major barrier for FP utilization.

The majority obtained FP information from their relatives and friends and a minority (13%) from health facilities, which can be a reason for their inadequate knowledge. This is similar to another study conducted in Pakistan [21] but contradicts the study by Eittah and Amer [15], who found that the most preferable source of FP information was health facilities.

The current study showed that 7% of the participants obtained FP information from media. Contrarily, another study in Pakistan showed that media was the main source of FP information [22]. According to 2014 EDHS, there was a sharp decline in acquiring

FP information from media [14] from 90% in 2005 to 40% in 2014. Moreover, the proportion of those obtaining the information from radio decreased from 63% in 2005 to 5% in 2014 [5,7]. Most households nowadays have got satellite and receiver. Women are unlikely to watch public channels where messages of FP are transmitted. In addition, there is scarcity of messages being publicized on public channels, especially TV, because the media decreases the time assigned to free public messages for the sake of other programs. Moreover, there is a lack of resources, as well as other managerial issues [5].

The mean knowledge score of the participants after health education significantly increased from 12 ± 7.89 to 23 ± 8.35 . These findings were consistent with the study of Eittah and Amer [15] and that of Ali *et al.* [21]. There was a depicted significant difference in the average score of knowledge before and after health education.

It was shown in the study that most women had unfavorable attitude toward FP. More favorable attitude was among mothers aged more than 25 years old, having higher number of children, working, or having husband with a job. Younger mothers had more fertility desire in contrary to elder mothers. This can be explained by early age of marriage

and multiple pregnancies, exposing mothers to health problems and labor difficulties. Moreover, the mothers felt satisfied with the number of children they had. Level of education showed to be significantly related to participants' attitude. This was similar to the study of EShak [11].

The study showed that attitude of mothers became significantly favorable after health education provision. This confirms that health education and improvement in knowledge reflects on better attitude [23].

The present study showed that 31.8% of the participants were FP utilizers using one method. This was lower than 2014 EDHS findings, as 59% of the currently married women were using contraceptive methods [7]. Moreover, the findings were lower than the studies done in India [24] and Southwest Ethiopia [25]. Although traditional methods of FP are available with no cost, health concerns, or side effects, their utilization in Egypt decreased from 2.4% in 1995 to 1.6 in 2014 [26]. In the current study, they were utilized by 5% of the participants.

Condom is a reliable method of contraception when used correctly and prevents sexually transmitted diseases. However, it has been stigmatized in many countries, and it is not a successful FP method in Egypt [27]. The study showed that a minority of participants' husband (8%) were using condoms.

Lack of knowledge and inadequate counseling is a considerable reason of the depicted low FP utilization. This was confirmed by a significant increase in utilization, reaching 43.1%, after health education provision. Most of the participants (67%) in the current study and in the study done by Eittah and Amer [15] were obtaining FP methods from MOHP facilities. This can be taken as an advantage to enhance health education and counseling in MOHP facilities.

Most of the reasons of not utilizing FP were social pressure from relatives, especially mother in law, as she wants her son to have a male child. Other reasons were husband's refusal or religious reasons, which is the same as a study done in Tanzania [28]. However, the results are in contradiction to the study by Eltomy *et al.* [10], where women had power and autonomy to make their own decisions. Nearly one-third were not using FP to compensate for sick or dead children. This was consistent with many studies showing association between child mortality and intention to have children. Parents may secure themselves by having

more children to compensate for any lost child in the future [29].

Conclusion

It is concluded from the study that the main barrier to FP utilization was lack of knowledge, awareness, and misconceptions. The current study showed the effectiveness of electronic mapping and targeting areas of low and no FP utilization.

The study had strengths in using valid reliable questionnaires, and the qualitative data gave in-depth understanding. Including the same mothers in postintervention survey ensured no dropouts. However, not including a control group was a limitation in the study.

Recommendations

The study highlights that frequent health education, counseling sessions, and outreach services are highly recommended. Electronic mapping and addressing the underlying factors hindering FP utilization can be done on a large scale. Accordingly, health education can be tailored, which is effective in improving knowledge and will be reflected on the attitude and behavior. This can help policy makers and program planners in implanting cost-effective interventions.

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Conflicts of interest

There are no conflicts of interest.

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