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ORIGINAL RESEARCH

The Effect of Family Planning Education on Knowledge, Attitude and Practice Toward Family Planning Methods Among Married Couples in Kersa and Goma Districts of Jimma Zone, South West Ethiopia

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Background: Individuals with accurate knowledge that goes beyond knowing a few contraceptive methods, such as knowledge of fertility, benefits, and contraceptive side effects, are more likely to use and less likely to discontinue using family planning.

Purpose: The aim of the study was to determine the effect of family planning education on knowledge, attitude, and practice towards family planning among married couples in Jimma Zone, Ethiopia.

Methods: A quasi-experimental study was done on 766 married couples sampled using a random sampling technique and analyzed using SPSS 23.0. The significance of differences in mean knowledge and attitude between control and experimental couples was measured using the non-parametric 2-independent sample analysis ($P < 0.05$).

Results: The comparison of knowledge score means and significance of their differences between control and experimental women was found to be significant at the posttest ($P = 0.001$; $r = 0.045$). Similarly, the experimental men's knowledge score means and their difference was significant at posttest ($P = 0.001$, $r = 0.26$). With respect to a comparison of mean score of attitude and the significance of their difference between control and experimental women at posttest was significant with ($P < 0.001$; $r = 0.13$). Similarly, the comparison of the male partners in the control and experimental groups was significant at posttest ($P = 0.001$; $r = 0.12$). At the posttest, the proportion of experimental couples using each contraceptive method relatively increased, with a shift to relatively effective ones. Two hundred and ninety five (77.6%) of the control and 318 (83.5%) of the experimental men reported supporting their wives in the use of contraceptives, showing more improvement among the experimental men than the control group.

Conclusion: Along with routine counseling, a well-structured behavioral model-based family planning education is required for effective and continuous use of contraceptives.

Keywords: knowledge, attitude, education, contraceptives, couples, IMB model

Introduction

Among the proximate determinants of fertility, contraceptives play a significant role in population stabilization by reducing total fertility rates.[1] It is also an effective method for reducing maternal morbidity and mortality by avoiding pregnancies that are too early, too close, too many, and high-risk births, which may affect the health of the mother, child, and family.[2] Contraceptive use can also improve child survival and maintain good physical and emotional health in the family.[3] Although the majority of reproductive-age married women used contraception in all regions of the world, with a double increase from 35% in 1970 to 63% in 2017, the prevalence rate in Africa is 36%, ranging from 58% in Oceania to approximately 75% in North America, Latin America, and the Caribbean is much lower.[4]

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According to the 2019 mini EDHS survey, Ethiopia's national contraceptive use coverage increased fivefold from 8% (2000 EDHS) to 41% (2019 EDHS). On the other hand, though the progress is slow, the total fertility rate has declined from 5.5 children per woman in 2000 to 4.6 in 2016.[5]

Ethiopia has taken measures to develop and implement several enabling strategies and family planning policies.[6–9] Despite these efforts, the increase in the contraceptive prevalence rate and decrease in fertility were not as intended or planned.[10,11]

Many studies have shown that various reasons and associated factors, such as knowledge and attitude towards contraceptive use, contribute to a significant portion of inconsistent use, discontinuation of methods, and nonuse.[12–14] Additionally, men's involvement in reproductive health is considered a pivotal factor for effective contraceptive use at the couple levels.[15] The literature indicates that family planning programs have viewed women as primary clients, and many men consider it irrelevant because they have little awareness of family planning.[16]

Thus, the study suggests that consistent and regular family planning education for both spouses might be more effective than targeting a specific gender only.[17]

Studies on the knowledge, attitude, and practice toward contraceptive use show that knowledge and attitude are predictors of contraceptive use. Therefore, achieving universal access to information and education, including family planning, by 2030 is necessary to enhance effective government policies and programs.[9]

Experts believe that individuals with accurate knowledge that goes beyond knowing a few contraceptive methods, such as knowledge of fertility, benefits, and contraceptive side effects, are more likely to use and less likely to discontinue using family planning to fulfill their fertility intentions[18] necessitating family planning educational intervention so that couples satisfy their need for fertility and desirable practice.[13,19,20]

Although women use family planning, some have little or no information about family planning. Some women had a negative attitude toward family planning, while others had heard of false and misleading information.[20]

According to a study conducted to determine the effectiveness of an educational program in increasing women's knowledge and awareness of contraceptive methods in Egypt, the mean scores of women's knowledge of family planning methods showed an improvement in the posttest score compared to the pre-test.[21]

Another quasi-experimental study on the knowledge of family planning methods among married women in Khartoum showed that the post-intervention knowledge score increased from 84.7% to 40.1%.[22]

Similarly, a study conducted in Turkey to evaluate the effect of family planning education provided to different gender groups showed improvement in knowledge, attitude, and behavior post-intervention in the experimental arm towards contraceptive methods.[23] A study in Iran also showed the existence of a difference between pre- and post-intervention improvements in knowledge of family planning methods during the post-test.[16]

Regarding the effect of family planning education, a quasi-experimental study aimed at evaluating the impact of health education on the knowledge and attitude of male teachers regarding their participation in family planning in Iran showed a significant difference between the pre- and post-intervention scores.[24]

Another study on the effectiveness of an educational intervention on male participation in family planning in Iran showed that knowledge of new contraceptives increased from 20% to 47% after the intervention. However, this improvement was not significant ($P = 0.08$), and men's attitudes toward contraceptive methods improved significantly from 4.8% to 83.6% after the intervention ($P < 0.05$).[16]

To date, most studies on family planning and contraception in Ethiopia have focused mainly on knowledge, attitude, and practice, and the factors associated with contraceptive use, determinants of fertility and contraceptive use, unmet need for family planning, prevalence of contraceptive use discontinuations, few on couple-based family planning education on male involvement, and contraceptive use uptake among nonusers.[12,13,22,25–32] However, there are few interventional studies using behavioral model-based family planning education that try to measure the effect of family planning education on knowledge, attitude, and practice toward family planning among married couples of reproductive age in Jimma zone, southwest Ethiopia. Thus, the purpose of this study was to undertake an information-motivation-behavioral-skill model-based family planning education intervention (provision of IEC) to determine its effects on knowledge, attitude, and practice toward family planning methods or contraception among married couples in the Kersa and Goma districts of the Jimma zone, southwest Ethiopia.

In this study, the Information-Motivation-Behavioral Skill Model (IMB) was used to guide family planning educational interventions at the community level. The information-motivation-behavioral skill (IMB) model is an empirically validated health behavioral model applied to various sexual and reproductive health issues, including HIV/AIDS prevention, condom use, diabetes, STIs, and adolescent contraceptive use. The Malawi Male Motivator project can be considered an example of the application of this model in the promotion of male involvement in contraceptive use among contraceptive nonusers.[33–35]

Methods and Materials

Study Setting, Design and Period

A quasi-experimental community-based family planning educational interventional study was conducted in the Kersa and Goma districts of the Jimma zone, southwest Ethiopia, from September 2020 to August 2021 to determine the effect of family planning education on knowledge, attitude, and practice toward family planning methods among married couples.

The major ethnic group in the Jimma zone is Oromo (87.6%), followed by Amhara (4.05%). The principal language is Oromiffa, spoken as a first language (90.43%), followed by Amharic (5.33%). Most inhabitants were Muslims (85.65%), followed by 11.18% Orthodox Christians (Wikipedia, the free encyclopedia).

Population

All married couples of reproductive age residing in the Jimma zone were the source population, and those who were new and currently using reversible modern contraceptive methods and living in the Kersa and Goma districts of the zone were the study population.

Sample Size Determination

The sample size was determined using the G*Power 3.1 Software, considering $\alpha = 0.05$, Power = (1-ß = 0.8), P_1=0.255 (Alem G, 2015) and P_2=0.170 (estimated contraceptive use discontinuation in the experimental group); allocation ratio =N_2/N_1=1, and the total sample size was 766 couples (N_1 = 383 and N_2= 383).

Sampling Procedure and Inclusion Criteria

The Kersa and Goma districts were selected based on the previous year's number of new couples initiated use of contraceptives and geographical location. New couples currently using contraceptives were selected because this study is part of a major research project on the continuation of contraceptive use. Seven Kebeles from Kersa and six from Goma districts were selected randomly (the kebele is the smallest administrative unit of the district).

Then, the total number of new contraceptive method users was obtained from family planning registration books of Kebele health posts from the two districts (N_t=803 couples), Kersa district 398 and Goma district 405. Using the G. Power when sample size was calculated, and the sample size allocated to each district was found to be 383 (Kersa district N_1=383; and Goma district, N_2=383). Based on the number of new users in the kebeles, the sample size was allocated to each Kebele using proportionate allocation formula; Xi/N*n, where Xi is the number of new users in the Kebele health post (i), N is the total number of the sample size allocated to each district, and n is the sample size allocated to each district. Then, the study unit was selected by lottery method.

Furthermore, a list of married women currently using contraceptives was obtained from the Health Post Family Planning Registration book. Finally, the sample size was allocated proportionately to each kebele, and the study units were randomly selected using lottery methods. Married participants had lived in the area for at least six months and planned to use contraceptives for at least two years were included in the study.

Procedure for Data Collection and Tool

Data were collected using a pre-tested interviewer-administered semi-structured questionnaire written in English and translated into the local (Oromo) language to ensure clarity and understanding. In general, 24 trained data collectors were

involved in the data collection at both the control and intervention sites. Data collectors were from the same community with similar social norms and cultural backgrounds.

Intervention and Outcome Measures

A quasi-experimental community-based study was conducted in which family planning information-education-communication was given to both male and female partners in a group as well on an individual basis through home-to-home visits to the experimental group (Kersa district) by 14 trained health extension workers using interactive discussions, while the control group received routine counseling services. Before the intervention, baseline data were collected on sociodemographic variables, decision power on household issues, fertility preferences, and knowledge, attitude, and practice toward family planning. Following the baseline data collection, a family planning educational intervention was provided using the module prepared for this purpose. The module includes the concept of family planning, importance of male involvement, benefits of family planning, types of reversible modern family planning methods, side effects, and measures taken at the couple level for the management of side effects.

Health education was given in four sessions over two consecutive months. The family planning education was given separately for the women and men study participants separately to allow freedom and free discussion among similar gender group. Each group had four educational sessions and each session has further session break down for various groups of 5–8 participants, based on the number of participants in the respective kebeles, but the length of time for each sub-session was 60 minutes. We used charts, pictures and samples of contraceptive methods for teaching, and field notes.

At the beginning, seven attitude item scales were designed to assess the attitude towards the use of contraceptive methods. During the reliability test of this new item scales, the Cronbach alpha value was found to be very low and to improve the alpha value, the items were removed step by stem and finally two items were retained. The remaining two items were the attitudes of the participants toward the effect of contraceptive use on maternal and child health. We measured the two items on two scales, Agree = 1 and Disagree = 0, and compared the mean attitude scores between the control and experimental groups of women and men.[36]

At the end of 12 months, end line data were collected using the same questionnaire as at baseline, except for the sociodemographic questions. The outcomes of knowledge, attitude, and practice toward contraceptive use were measured at both the husbands' and wives' levels using the overall mean scores and proportions.

Conceptual Model Used for Family Planning Health Education

For this study, the Information-Motivation-Behavioral Skill Model (IMB) was used to guide the family planning educational intervention at the community level. The information-motivation-behavioral skills (IMB) model is an empirically validated health behavioral model applied to various sexual and reproductive health issues, including HIV/AIDS prevention, condom use, diabetes, STIs, and adolescent contraceptive use.[37–39]

The Information-motivation-behavioral Skills (IMB) Model was developed in 1992 by Jeffrey D. Fisher and William A. Fisher as they sought to understand the mechanism behind HIV-risk behavior change.[37]. The IMB model includes three primary constructs that influence behavioral changes. Information and knowledge, about the behavior, the individual's motivation to perform the behavior, and the behavioral skill necessary to perform the behavior. 1) Information includes relevant knowledge on the topic under study (eg, HIV/AIDS, contraception, STIs, etc.). 2) Motivation includes both personal and social motivation. Personal motivation includes positive or negative attitude towards specific practice (eg, medication adherence, use of contraception, etc.), perceived benefits or side effects. Social motivation includes the individual perception of social support from significant others to adhere to use of drugs or treatments or use of health care services. 3) Behavioural skills are both the individual's objective ability to perform necessary drug or treatment or comply with effective contraceptive method use related activities. This model was adopted for family planning educational intervention as follows: 1) Information (included family planning knowledge-related information); 2) Motivation (included personal motivation which is related to positive or negative perception, beliefs towards the use of contraception) and 3) Behavioral skills (referred to support for effective and continuation use by the partner).

Elements of the IBM Model Pertaining to Family Planning

Contraceptive Use Related Information

To assess the knowledge of the study participants toward family planning methods, an interviewer-administered questionnaire consisting of four items was used, including the concept of family planning (4 items), benefits of family planning (6 items having 36 sub-items), types of modern reversible contraceptive methods (5 items), and side effects (12 sub-items) making overall 55 sub-items. The outcome was measured by considering the overall mean knowledge score differences between the control and experimental arms of the study participants.[36]

Motivation Related Information (Personal Motivation)

This refers to attitude which is the state of mind, whereas motivation is the reason for behaving in a certain manner. However, attitude and motivation are two closely related constructs, with an attitude laying the basis for the motivation of an individual or groups of individuals towards action, and an attitude has the capability to positively or negatively influence motivation. Thus, attitude towards contraceptive use was considered a variable of interest under the construct motivation in the model.[40]

Behavioral Related Information (Practice)

We assessed the practice of family planning by married couples at two levels. Concerning the women's side, the assessment included contraceptive method choice, method switching, abandonment, and report of husband contraceptive use support. At the male level, the measurement encompassed the male-controlled method (condom) and wives' support for contraceptive practice. Contraceptive use support refers to the wife's support from her husband, so that the woman uses contraceptive methods continuously for the desired period until she or they need no more children or contraceptives. The husband can support his wife in family planning and contraceptive use in four ways: The support may be in the form of accompanying her to the family planning clinic, providing her with money to buy contraceptive materials and transportation, and helping her remember the appointment date. Responses were yes = 1 or no = 0.

Procedure for Data Processing and Analysis

The collected data were cleaned, coded, and entered into a computer for analysis, using SPSS version 23.0 software for Windows. Descriptive statistical analysis was used for socio-demographic/economic characteristic variables and the knowledge and attitude items, and the results are presented in tables. Furthermore, a non-parametric two-independent sample analysis was performed. The Mann–Whitney *U*-test was used to compare the mean differences in knowledge and attitude scores between the control and experimental groups. The Mann–Whitney *U*-test is a non-parametric test for non-normally distributed variables and is comparable to the *t*-test.

Data Quality Assurance

A data-collection tool was developed after a thorough literature review and pre-tested on 5% of the sample size of the same population but at different sites in the study area (Seka Chokorsa district) to ensure clear understanding, logical sequencing, and wording of the questions. Based on the findings of the pretest, some items and their responses were modified. For the reliability test, Cronbach's alpha was calculated (0.79).

Additionally, during data collection, the data were checked daily for completeness, and during data analysis, the data were cleaned, coded, and entered into a computer (SPSS).

Ethics Approval and Informed Consent

Before the data collection, ethical approval and clearance letter was obtained from Jimma University Institutional Review Board (IRB) that declared "… this research protocol as presented to the IRB meets the ethical and scientific standards outlined in national and international guidelines" (Letter Ref. No. IRB000385/2012) including the approval of verbal informed consents to be obtained from study participants. Furthermore, letter of permission was obtained from Jimma University Population and family health department to the Jimma Zonal health bureau to allow the study in Kersa and Goma districts, then, to the study kebeles (the primary administrative units of the districts) for selection of the study sites.

Verbal informed consent was obtained from the study participants for the fact that the study was carried out in rural community where majority of the study participants are farmers and less educated to properly read, understand and sign the consents. To ensure that they understood the information related to the study, it was explained in their local language and before proceeding with the study feedback was asked if they clearly understood the information and asked for whether they were willing to participate in the study or not. Then, for those who were willing the investigator made "√" sign in the box placed at the end of consent form, and "x" sign if they were not willing. We also would like to note that for the age range from 15 to 19, all the participants in this group were 18–19 years. Secondly, the study does not involve invasive/operative or diagnostic procedures and drug administration that puts study participants at risk. Instead, it is the provision of information education and communication on family planning methods and measuring the changes on knowledge, attitude and the contraceptive methods they have been already practicing after the provision of information education communication (IEC). Thirdly, trying to obtain written consent from this big sample size of couple participants who cannot properly read and understand is also difficult and time consuming. The participants were provided with information comprising the purpose of the study, expectation, potential risk or benefits of participating on the study, withdrawal from the study if they want to, and that their responses will be handled anonymously for presentation and publication purposes.

All methods in the study were performed according to the declaration of Helsinki as a statement of ethical principles for medical research involving human subjects.

Result

The Sociodemographic Characteristics of the Study Participants

A community-based quasi-experimental family planning educational intervention based on the IBM model was carried out in the Kersa and Goma districts of the Jimma zone, southwest Ethiopia, on a sample of 766 married couples of reproductive age, with a response rate of 762 (99.5%). The control and experimental arms had equal sample sizes (383 each) of couples currently using contraceptives.

The study showed that the age of couples demonstrated a similar distribution among similar sex groups. Accordingly, the majority of the experimental and control groups of women 124 (32.6%) and 127 (33.3%), respectively, were aged 25–29 years.

Similarly, the majority of the experimental and control men 142 (37.3%) and 136 (35.6%), respectively, were aged 35–39 years indicating that most of the female spouses had older husbands. Ninety-nine point seven percent of the experimental couples and about 91% of the control couples were Oromo by ethnicity, while about 99% of the experimental women and 90% of the control men were Muslim by religion.

Regarding occupational status, the majority of the women in the experimental 369 (96.9%) and 367 (96.6%) of the control group were housewives, and the majority of the men in both the experimental and control groups, 379 (99.5%) and 358 (94%), respectively, were farmers. Regarding educational status, 164 (43%) participants in the experimental group and 111 (29%) in the control group were illiterate. Similarly, 106 (27.8%) of the experimental men and 145 (38.1%) of the control group were illiterate and in grades 5–8, respectively, and almost all study participants were inhabitants of rural areas (Table 1).

Pre and Posttest Comparison of Family Planning Knowledge Items Score Between Control and Experimental Groups of Married Couples

The study showed that almost all participants had heard about family planning and could mention at least one contraceptive method at the baseline. Their sources of information were mass media (17%), HEW (25.4%), other health professionals (nurses, midwives, and Doctors) 2.6%, and more than one source (mass media, HEW, and health professionals) 55.1%.

The pre- and post-test comparisons of the proportions of couples related to their mean family planning knowledge score across the four family planning knowledge item components with an overall 55 sub-items showed that the percentage of women and men in the control and experimental couples at the pretest was similar with slight differences at all levels of the items. However, in the post-test, women and men in the experimental group showed improvement in

Table 1 Sociodemographic Characteristics of Married Couples in Kersa and Goma Districts of Jimma Zone, Southwest Ethiopia, 2023 (N = Con=381, Exp = 381)

Variables		Group of Participants			
		Control Couples		Experimental Couples	
		Women (N0/%)	Men (N0/%)	Women (N0/%)	Men (N0 (%)
Age	15–19	1(0.3)	0(0)	7(1.8)	0(0)
	20–24	44(11.6)	1(0.3)	75(19.7)	13(3.4)
	25–29	127(33.3)	34(8.9)	124(32.3)	67(17.6)
	30–34	118(31)	114(29.9)	123(32.30	106(27.8)
	35–39	74(19.4)	136(35.6)	46(12.1)	142(37.3)
	40–44	17(4.5)	80(21)	6(1.6)	40(10.5)
	45–49	0	17(4.5)	0	13(3.4)
Education	Illiterate	74(19.4))	26(6.8)	164(43)	106 (27.8)
	Reads &writes	32(8.4)	50(13.1)	57(15)	94(27.9)
	1–4 grade	105(27.6)	96((25.2)	84(22)	83(21.8)
	5–8 grade	111(29.1)	145(38.1)	58 (16.2)	65(17.1)
	9–10 grade	54(14.2)	49(12.9)	17(4.5)	25(6.6)
	11–12 grade	2(0.5)	7(1.8)	1(0.3)	4(1.1)
	College/Univ.	3(0.8)	8(2.1)	0	4(1.1)
Ethnicity	Oromo	358 (94)	350(91.9)	380 (99.7)	380 (99.7)
	Amhara	14(3.7)	23(6)	0	1(0.3)
	Dawuro	4 (1)	4(1)	1 (0.3)	0
	Others*	5(1.3)	4(1)	0	0
Religion	Muslim	345(90.6)	346(90.6)	378(99.2)	378(99.2)
	Orthodox	33 (8.7)	33(8.7)	2 (0.5)	3(0.8)
	Others[@]	3 (0.8)	2(0.5)	1(0.3)	0
Occupation	House wife	370(97.1)	NA[#]	370(97.1)	NA[#]
	Farmer	0	358(94)	0	379(99.5)
	Merchant	5(1.3)	11(2.9	9(2.4)	6(1.6)
	Daily laborer	2(0.5)	6(1.6)	2(0.5)	6(1.6)
	Employed	3(0.8)	0	0	0
Distance from health facility	30 minutes	243(65.6)		120(31.5)	
	1:00 hour	112(29.4)		154(41)	
	1:30 hours	24(6.3)		54(14.2)	
	≥2:00 hours	2(0.5)		53(10.5)	

Notes: Ethnicity: *Others Gurage, Tigre; Religion: [@]Others Protestant, Catholic; Occupation.
Abbreviation: [#]NA, not applicable.

contraceptive method knowledge score on each item compared with their counterparts. The comparison of pre- and post-test of overall knowledge score percentages showed that an improvement was observed in overall contraceptive method knowledge score by both control and experimental groups of couples, with more improvement by experimental groups. The finding showed that 54% of control women and 45.3% of men scored ≥50%, while 78.5% of the women and 59.5% of men scored >50% among the experimental group (Table 2).

A Mann–Whitney *U*-test was employed to compare the means of the family planning knowledge scores and determine the significance of the differences between the control and experimental groups of married couples. At baseline, the mean knowledge score difference between the two groups was insignificant (control women mean rank = 391.04; n = 381 and experimental women = 371.96, n = 381), U = 68946.5; Z = −1.201; P = 0.230; r = 0.04, whereas at the end line, the results showed a significant difference in their means (control women mean rank = 293.94; n = 381 and experimental women = 469.06, n = 381), U = 39220.0; Z = −10.99; P < 0.001; r=0.0.45. The comparison of males in the control and experimental groups showed that there was no difference in knowledge between the two groups at baseline

Table 2 Pre and Posttest Comparison of the Proportion of Married Couples by Their Family Planning Knowledge Items Score, 2023 (N = Con=381; Exp = 381)

Knowledge of Modern Contraceptive Methods		Base Line				End Line			
		Control Couples		Experimental Couples		Control Couples		Experimental Couples	
		Women	Men	Women	Men	Women	Men	Women	Men
		N0 (%)	N0 (%)	N0 (%)	N0 (%)	N0 (%)	N0 (%)	N0 (%)	N0 (%)
Knowledge of FP (5 items)	<50%	267(70.1)	293(74)	248(65.1)	295(77.4)	175(45.9)	169(44.4)	16(4)	118(31)
	≥50%	114(29.9)	88(26)	133(34.9)	86(22.6)	206(54.1)	212(55.6)	365(96)	263(69)
Knowledge of concept of FP (4 items)	<50%	115(30)	166(44)	154(40)	193(51)	61(16)	89((23)	35(9)	67(18)
	≥50%	266(70)	215(56)	277(60)	188(49)	320(84)	291(77)	346(91)	314(82)
Knowledge of benefits of FP (34 sub-items)	<50%	272(71)	320(84)	331(87)	349(92)	193(51)	258(68)	110(29)	195(51)
	≥50%	109(29)	61(16)	50(13)	32(8)	198(49)	123(32)	271(71)	166(49)
Knowledge of FP side effects (12 sub items)	<50%	291(76)	345(91)	244(64)	278(73)	272(71)	317(83)	167(44)	233(61)
	≥50%	90(24)	36(9)	137(36)	103(27)	109(29)	64(17)	214(56)	148(39)

Abbreviation: FP, family planning.

(control men mean rank = 396.73; n = 381 and experimental men = 366.27; n = 381), U=66778.5.0; Z = −1.913; P = 0.056; and r = 0.07, whereas at the end line, the mean difference was significant (control men mean rank = 324.28; n = 381), and experimental men = 438.72; n = 381), U = 50778.0; Z=−7.185; P < 0.001; r = 0.26.

Pre and Posttest Comparison of Attitude Toward the Use of Family Planning Methods Between the Control and Experimental Groups of Married Couples

The comparison of pre and posttest overall attitude score percentages showed that both the control and experimental groups scored <50% at baseline, while women and men in the experimental group scored ≥50% (74.0% and 55.1%, respectively) at the end line, showing an improvement in their overall knowledge score.

The Mann–Whitney *U*-test was performed to determine whether there was a mean difference in attitude scores towards the practice of modern reversible family planning or contraceptive methods between the control and experimental groups of married couples. At the baseline, the test showed that the mean difference in attitude was insignificant (control women mean rank = 385.97; n = 381), and (experimental women = 377.03; n = 381), U = 70876.5; Z= – 0.597 P = 0.550; r = 0.02, whereas, at the end line, the findings showed that there was a difference between the control and experimental women attitude scores with (control women, mean rank = 406.70; n = 381) and (experimental women = 356.30; n = 381) U = 62,979.5; Z=−3.706; P < 0.001 and r = 0.13.

Similarly, the comparison of male partners in the control and experimental groups at baseline showed that there was no difference in mean attitude scores between the two groups (control men, mean rank = 372.16; n = 381) and experimental men (=390.84; n = 381), U = 69022.50; Z = −1.264; P = 0.206; and r = 0.01. However, at the end line, the test showed the existence of a difference in mean attitude scores between the control and experimental men (control men mean rank = 404.82, n = 381) and (experimental men = 358.18, n = 381); U = 63695.5, Z = −3.389; P = 0.001 and r = 0.12) respectively.

Pre and Posttest Comparison of Family Planning Method Practice Between the Control and Experimental Groups of Married Couples

The comparison of pre- and post-test use of contraceptive methods showed that, at baseline, 244 (64.0%) of the control and 256 (67.2%) of the experimental women used injectable, followed by 98 (25.7%) and 88 (23.1%) oral contraceptives, respectively. In the post-test, the proportion of women in the experimental group who used implants increased by 13 (38.9%), and the use of injectable was still higher than that in the control group. In both the control and experimental groups, there was no mention of IUCD or condom use (Table 3).

Table 3 Pre and Posttest Comparison of Proportion of Married Couples by Their Attitude Items Score in Kersa and Goma Districts of Jimma Zone, South West Ethiopia, 2023 (N = Con=381, Exp.=381)

Attitude Toward Use of Family Planning or Contraceptive Methods		Baseline				End Line			
		Control Couples		Experimental Couples		Control Couples		Experimental Couples	
		Women	Men	Women	Men	Women	Men	Women	Men
		N0 (%)	N0 (%)	N0 (%)	N0 (%)	N0 (%)	N0 (%)	N0 (%)	N0 (%)
Has effect on mother health	Agree	219(57.5)	174(44)	197(53)	197(55)	147(39	145(29)	94(25)	105(37.)
	Disagree	162(42.5)	207(56)	184(47)	184(45)	234(61)	236(71)	287(75)	276(63)
Has effect on child's health	Agree	118(31)	108(26)	131(34)	122(37)	72(19)	83(21.8)	69(18.1)	49(12.9)
	Disagree	263(69)	273(74)	250(66)	259(63)	309(81)	298(78.2)	312(81.9)	332(87.1)

Regarding contraceptive use support, 249 (65.4%) control and 266 (69.8%) experimental women at baseline reported that their partners supported them in the use of contraceptives, whereas at posttest, 267 (70.1%) control and 300 (78.7%) experimental women reported that their partners supported them.

Similarly, 257 (67.5%) controls and 271 (71.1%) experimental men at baseline reported supporting their wives. At the end line, 273 (71.7%) men were in the control group, and 306 (80%) in the experimental group reported supporting their wives in the use of contraceptives. Differences were noted between wives' reports and their husbands' support for the use of contraceptives.

Discussion

The study showed that almost 100% of the control and experimental women and 99.1% and 96.8% of the control and experimental men, respectively, had heard about family planning and could mention at least one contraceptive method at the baseline. This study showed that the findings in men were inconsistent with those in Hawasa town (91.2%).[3] These differences may be attributed to the differences in the sociodemographic characteristics of the study population. Additionally, awareness of family planning is not equivalent to knowledge of family planning, where knowledge differs by the scope of the detailed understanding of facts, phenomena, and objects acquired by teaching.[41] Thus, although the awareness of contraceptive methods seemed to be high in this group, the actual assessment of knowledge of family planning methods may differ. The study showed no significant difference between the mean knowledge scores of the control and experimental groups at the baseline. However, at the end line, there was a difference in the mean knowledge score between the women in the control and experimental groups (control women, mean rank = 283; n = 381) and (Experimental women = 479.28; n = 381) U = 35,326.5; Z = 12.274; $P<0.001$ and r = 0.45. This finding is consistent with a study conducted by Eittah and Amer that evaluated the effectiveness of educational programs in raising the knowledge and awareness of women regarding family planning methods in rural areas in Egypt.[21] Similarly, the findings of this study are also consistent with a quasi-experimental study evaluating the effectiveness of community-based family planning education programs on knowledge of family planning methods among married women in Khartoum state.[22]

Similarly, in the comparison of men's knowledge scores, a mean difference was noted at the end line between the two groups control men (mean rank = 315.94; n = 381) and experimental men (mean rank = 447.06; n = 381), U = 47602.0; Z = 8.232; P < 0.001; and r = 0.3. The findings of this study are also consistent with the findings of Turkey to evaluate the effect of family planning education provided to different gender groups where there has been an improvement in knowledge, attitude, and behavior post-intervention in the experimental arm towards contraceptive methods.[23] Furthermore, it is also consistent with the study findings of Iran, which indicated the existence of differences between pre- and post-intervention, showing an increase in knowledge towards family planning methods.[16]

Regarding the differences in mean attitude score, the Mann–Whitney *U*-test showed that there was a significant difference in attitude mean score between the control and experimental women at the end line, control women (mean rank = 319.90; n = 381) and experimental women (mean rank = 443.1; n = 381) U = 49,111.0.5; Z = 7.950; P < 0.001 and r = 0.3. The findings of this study are also consistent with the quasi-experimental study where there has been an

improvement in attitude post-intervention in Turkey, showing the existence of a significant difference in attitude among the experimental group of women towards contraceptive methods.[23]

Similarly, a comparison of the means of attitude scores between the control and experimental groups of men showed that differences existed between the two groups, control men (mean rank = 327.25; n = 381) and experimental men (mean rank = 435.75; n = 381), U = 51909.5; Z = 7.169; P < 0.001; and r = 0.3. The findings are in line with the quasi-experimental study done in Iran to evaluate the effect of health education on the awareness and attitude of male teachers regarding their participation in family planning, where there was a significant difference between the pre- and post-intervention awareness and attitude.[24] Concerning contraceptive use practice, the majority of both control [251 (65.9%)] and experimental women [251 (65.9%)] used Injections followed by the oral contraceptive method. At the end line, among the experimental women, 16% of the users of oral contraceptives shifted to Implanon, and 22.3% discontinued. The discontinuation rate was lower, and switching to long-acting contraceptives was higher in the experimental group than in the control group 34 (8.9%) vs 49 (13.6%).

Regarding the contraceptive use support report by the couples, 281 (73.8%) control and 272 (71.4%) experimental women at baseline and 286 (75.1%) and 311 (81.6%) at the end line reported that their husbands supported them in their contraceptive use, respectively, whereas the experimental group showed improvement in partners' support in contraceptive use. This finding was lower than that of Angola, where partner support for contraceptive use was 66.4%.[42] This may be related to the differences in socio-demographics, settings, and sample sizes. Similarly, 282 (74.0%) control and 281 (73.8%) experimental men at baseline and 295 (77.6%) and 318 (83.5%) at the end line reported that they helped their wives use contraceptive methods, indicating that family planning education improved male support for their wives. This finding was consistent with the study conducted in KwaZulu-Natal, South Africa, which showed that male partners positively influenced contraceptive use through the provision of adequate information and shared responsibilities.[43] There was a discrepancy observed in the reports of the wives and their husbands; the husbands reported more support for their wives than for their wives, and this may be associated with the social desirability effect of the fact that although some husbands may not support their wives, they may respond positively to the interview. A mere dissemination of information of contraception through pamphlets, radio and TV is not adequate to address information or knowledge-related contraception, personal and social motivation towards family planning, and effective use of contraceptives. Thus, family planning policy makers and national family planning guideline developers need to address these three areas of constructs to address behavioral changes towards family planning, particularly incorporating in the Community health extension workers package.

Conclusion

The IMB-model-based family planning health educational intervention for married couples helped to address important information that could influence knowledge, attitude, and practice toward family planning. Pre and posttest comparisons of the levels of knowledge, attitude, and practice toward family planning showed better improvement among the experimental groups of women and men than the control group.

Despite the availability of various sources of information on family planning and routine counseling, this study showed the existence of knowledge, attitudes, and practice gaps.

Thus, the context-based, well-structured, and behavioral model-based family planning education is essential for family planning service consumers, particularly for married couples.

The national family guideline and policy also need to be analyzed for the presence and contents of the couples family planning education (information to be included, personal and social motivational components, and necessary behavioral skills for both the husbands and wives) need to be done and updated.

Abbreviations

AIDS, acquired immunodeficiency syndrome; CPR, contraceptive prevalence rate; CIMBCs, contraceptive-induced menstrual changes; Df, degree of freedom; EDHS, Ethiopian Demographic Health Survey; FP, Family planning; HIV, human immunodeficiency virus; HSDP, Health Sector Development Program; IMB, Information-Motivation-Behavioral Model; IEC, Information education communication, IRB, Institutional review board, MDGs, Millennium Development

Goals; MOH, Ministry of Health; OCPs, Oral Contraceptive Pills; SDG, Sustainable Development Goals; SPSS, Statistical Package for Social Sciences; TFR, Total Fertility Rate.

Data Sharing Statement

The individual data underlying the results reported in the article will be shared with anyone who wishes to access the data, after de-identification in the form of text, tables, and figures immediately following publication of the article for any purpose except for commercial benefit through open access journals with no time limitation.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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