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Effectiveness of an Information, Motivation and Behavior skills intervention on knowledge, practices, skills, and health-seeking behaviors on reproductive tract infections among married women – A quasi-experimental study

Ann Merrin George, Leena K Chacko¹

Abstract:

BACKGROUND: Reproductive tract infections (RTIs) are a major health problem among women of the reproductive age group in India. Most of them are incompetent to handle their sexual and reproductive health needs. Enabling them with the knowledge and ability to recognize their own symptoms will prompt them to seek treatment and lessen the complications. This study determined the effectiveness of an Information, Motivation, and Behavior skills (IMB) program on the knowledge, practices, skills, and health-seeking behaviors of RTIs among women of reproductive age.

MATERIALS AND METHODS: A quasi-experimental design was used. Ninety-nine married women who had experienced any two symptoms of RTIs in the last 3 months preceding data collection were selected using a disproportionate random sampling technique. Knowledge, practices, skills, and health-seeking behaviors were assessed before and at the end of the third and sixth months following the administration of the IMB program in the intervention group. SPSS version 16 was used for data analysis, and the effectiveness was determined using repeated measures ANOVA.

RESULTS: Both the intervention and comparison groups were homogenous with regard to the socio-personal variables and baseline scores of the outcome variables. Significant improvement was observed in the knowledge ($P < 0.001$), practice ($P = 0.002$), and skill ($P < 0.001$) scores of the women in the intervention group and not in their health-seeking behavior scores ($P = 0.830$).

CONCLUSION: The IMB program is an effective strategy for improving the knowledge, practice, and skills of the women on RTIs and can be utilized by nursing officers.

Keywords:

Health seeking, knowledge, practice, reproductive tract infections, skill

Introduction

Reproductive tract infections (RTIs) are a major health problem and rank second as the cause of healthy life lost among women of reproductive age after maternal morbidity and mortality. As per the World

Health Organization (WHO), more than one million cases of RTIs/sexually transmitted infections (STIs) occur per day globally, with 79 million annual cases in India.^[1] In Kerala, 10.5% of the women in the age group of 15–49 years reported to have

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Department of Community Health Nursing, Medical Trust College of Nursing, Ernakulam, Kerala, India, ¹Yenepoya Nursing College, Yenepoya Deemed to be University, Mangalore, Karnataka, India

Address for correspondence:

Dr. Ann Merrin George, Medical Trust College of Nursing, HOC Township Backside Road, Irimpanam PO, Ernakulam, Kerala, India. E-mail: merrindinu@gmail.com

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experienced the symptoms of RTIs (National Family Health Survey-4).^[2] The usual symptoms of RTIs are nonspecific, and women often neglect these, which leads to untoward effects on their reproductive health.^[1,3]

Evidence suggests that early identification, initiating treatment, and adopting preventive measures can lessen the transmission and associated complications of RTIs.^[1] But most of the women in India are unequipped to handle their sexual and reproductive health needs.^[3] As per the District Level Household and Facility Survey (DLHS-3), only 33.3% of the women in India are aware of RTIs/STIs,^[4] and 39.2% of the symptomatic women had sought treatment.^[5] Effective treatment is currently available for several RTIs/STIs and all of them are preventable.^[1] But to utilize these opportunities to the fullest extent, women need the capability to identify their problems, communicate them with their partners, and seek healthcare when required.^[1,6] Training programs on RTIs conducted in Egypt^[7] and Turkey^[8] among the women of the reproductive age group showed significant improvement in their knowledge, practice, and skills in the identification and management of RTIs. Counseling sessions on RTIs had shown significant improvement in the health-seeking behavior of the women in Tamilnadu.^[9]

The global strategy for women's, children's, and adolescents' health (2016–2030) envisions that this can be well achieved through community engagement by self-help groups (SHGs).^[6] Several studies have reported SHGs as a successful platform for imparting awareness of maternal and child health problems.^[10–12]

Kerala is the state with the world's largest women's SHG network called the "Kudumbashree."^[13] But in this state, this has not been tried out, and none of the studies have assessed the skills of the women in identification of the symptoms of RTIs and communicating with the partner. Hence this study was conducted to determine the effectiveness of a training program on the knowledge, practices, skills, and health-seeking behaviors on RTIs among the women belonging to the SHGs in Kerala. This program targets to impart knowledge on RTIs, skills in the identification and management of RTIs, and to promote reproductive practices and partner communication.

Materials and Methods

Study design and setting

This quasi-experimental study was conducted during the period from October 20, 2020, to August 09, 2021, among the women of the reproductive age group belonging to the SHGs of the Kudumbashree mission (government sponsored SHG initiative) in the Kunnathunad Taluk of Ernakulam District in Kerala.

Study participants and sampling

The subjects of the study were 99 married women of the reproductive age group (18–49 years) who had experienced symptoms of RTIs within the last three months preceding data collection. The study participants had a regular menstrual cycle and cohabitated with their husbands. Those who had a debilitating neuro-medical illness, psychiatric problems, missed periods, underwent hysterectomy, or were previously exposed to a similar study were excluded. The women meeting the eligibility criteria were selected from among the women SHGs in the Kunnathunadu taluk of Ernakulam district. About 640 women were screened for the presence of symptoms of RTIs using a checklist developed based on the syndromic management protocol in the Sexually Transmitted and Other Reproductive Tract Infections – A Guide to essential practice by the WHO.^[14]

The sample size was estimated from the pilot study conducted in a different taluk among 63 women using the equation for two-way repeated measures ANOVA (RM-ANOVA). With 90% power, 5% level of significance, and expecting 30% sample attrition rate, the minimum sample size estimated in each group was 35. But due to subject availability, 55 women were recruited in each group using disproportionate stratified random sampling techniques with rural and urban as stratifying units.

Data collection tools and technique

After explaining the nature and purpose of the study, written informed consent was obtained. The pretest was conducted on day one using the socio-personal proforma, knowledge questionnaire, rating scale on preventive practices, vignettes for skill assessment on identification and management of RTIs and health-seeking behavior questionnaire. All these tools were self-developed, and their scale content validity index ranged between 0.905 and 0.982. The reliability scores were established for internal consistency and stability. The Cronbach's alpha score of the tools ranged between 0.78 and 0.87, and the Intra class correlation score ranged between 0.71 and 0.93.

The socio-personal variables included age, religion, educational status, socioeconomic status, occupation, type of family, area of living, age at marriage, duration of marital life, number of pregnancies, mode of delivery, place of last delivery, obstetric/gynecologic risk factors, menstrual absorbent used, contraceptive method practiced and source of information on RTIs. The knowledge questionnaire had 30 items under the areas of causes, risk factors, mode of transmission, diagnosis, signs and symptoms, complications, prevention, and management of RTIs, with an aggregate score of 30. A three-point rating scale with 28 items distributed under the areas of genital hygiene, menstrual hygiene, and sexual hygiene was used to assess the practices of the women. The total

possible score on the rating scale ranged between 0 and 56. In the skill assessment questionnaire, four case vignettes, each followed by five questions, were used for measuring the competencies in the identification of the presence of RTIs and management, identifying the need for seeking treatment and communicating with the partner on safe sex practices. Each vignette had a score of 5, and the maximum attainable score was 20. The health-seeking behavior questionnaire had 10 items under the areas of seeking treatment, treatment adherence, treatment of partner, message on prevention, and the total score was 10.

The Information Motivation and Behavior (IMB) skills program was delivered to the women in the intervention group only. The program was conducted on 2 days, having four sessions with a total duration of 3.5 hours. The first two sessions were delivered on day 1 immediately after the pretest, and the other two sessions were imparted on day 2, conducted a week apart as per the participant's convenience. The program was developed on the basis of IMB skills model.^[15] The program covered sessions on information on RTIs, preventive practices on RTIs (health information component), identification of signs and symptoms of RTIs, seeking treatment, and communication with the partner on safe sex practices (behavior skills component). On day 2, an information booklet covering the contents of the program was also distributed. The program had three follow-up sessions (motivation component), each of 20–30 minutes duration, and was held in the second, fourth, and fifth months following the intervention. The health-related behavior expected out of the program was following the preventive practices and seeking appropriate healthcare. The sessions were conducted in small groups with 8–12 participants each. The training methodology included lecture, group discussion, PowerPoint presentation, case narrations, demonstration of male condom insertion on wooden penile model, and role play. The posttests were conducted at the end of the third and sixth months in both groups. During the posttests, the women were again screened for the presence of symptoms of RTIs in the last three months preceding the time point of data collection. The health-seeking behavior questionnaire was distributed only to those women who reported having any two of the elicited symptoms. Other tools were distributed to all women irrespective of the presence of symptoms. The women were informed about the follow-up sessions and posttests through telephone a few days before the scheduled date and were reminded on the previous day. The information booklet was distributed to the women in the comparison group after posttest two. The data collection process is shown in Figure 1.

The data were analyzed using SPSS package version 16. The socio-personal variables were summarized using

frequency and percentage. The homogeneity of the groups in terms of socio-personal variables was assessed using Chi-square/Fisher's exact test. The normality of the data was assessed using the Kolmogorov–Smirnov test, and the skill and health-seeking variables violated the normality assumption. Quantitative variables were summarized using mean and standard deviation or median and interquartile range. The baseline comparison of the outcome variables was done using an independent sample *t*-test/Mann–Whitney *U*-test. The effectiveness of the IMB program was determined using RM-ANOVA, and Bonferroni correction was done to adjust the type I error.^[16]

Ethical considerations

The study was approved by the Institutional Ethics Committee (Ref no. MTH/EC/0805/2018 dated March 17, 2018) of Medical Trust Hospital, Ernakulam, Kerala. All the women participated in the study voluntarily, and written informed consent was obtained.

Results

Most of the participants in the intervention group were in the age group of 34–41 years (38%), and the comparison group were in the age group of 42–49 years (46.94%). Majority of them in the intervention (54%) and comparison groups (69.38%) followed Hinduism. Nearly 54% of the women in the intervention group lived in the rural area, whereas 55.1% of the women in the comparison group were from urban areas. Both the groups were homogenous in terms of all the socio-personal variables except the duration of marital life ($P = 0.013$), presence of obstetric and gynecologic risk factors ($P = 0.014$), and source of information on RTIs ($P = 0.042$) [Tables 1 and 2].

The experimental and the comparison groups were homogenous with regard to the baseline scores of the knowledge ($P = 0.255$), practices ($P = 0.720$), skills ($P = 0.207$), and health-seeking behavior variables ($P = 0.520$). As described in Table 3, the knowledge, practice, and skill scores of the women in the intervention group showed significant improvement after the IMB program. The number of women in both the groups who reported to have symptoms of RTIs at each time point of observation had decreased over time [Figure 2]. The analysis of the health-seeking behavior variable was performed on the scores obtained from the women who were present at all three time points of observation, and it was noticed that the IMB program could not bring a significant change among the women in the intervention group [Table 4].

Discussion

This study was conducted with the objective to determine the effectiveness of the IMB program on the knowledge,

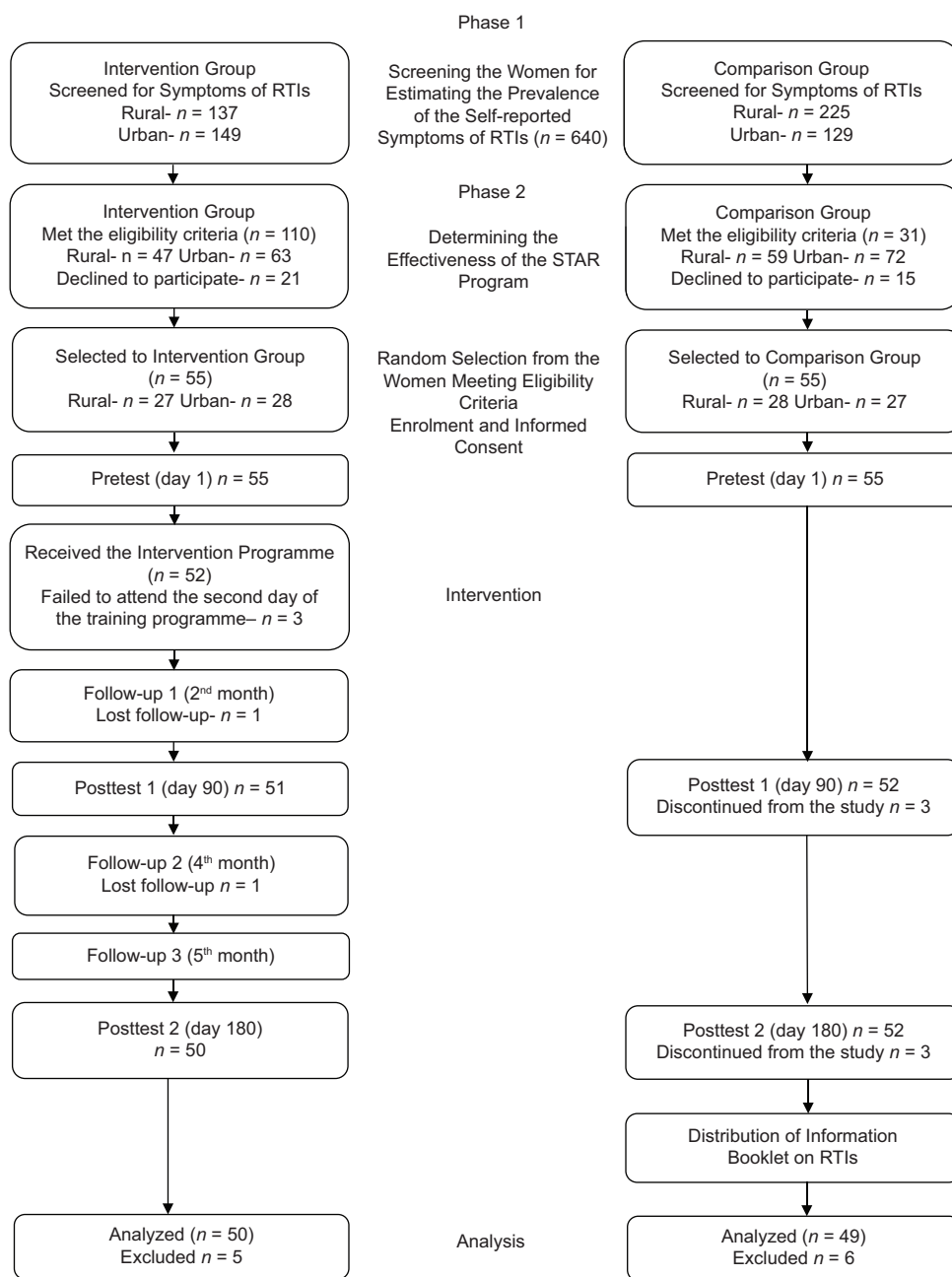


Figure 1: Schematic Representation of the Process of Data Collection

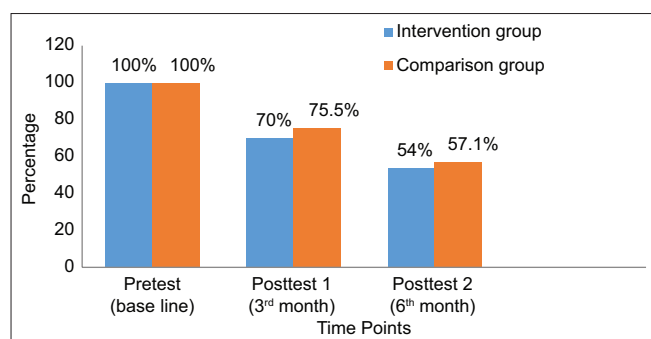


Figure 2: Bar Diagram showing the Distribution of Women on the basis of the Presence of the Symptoms of RTIs

practices, skills, and health-seeking behaviors of the women with regard to RTIs. The findings of the study revealed that the intervention could bring a significant improvement in the knowledge, practice, and skill scores of the women in the intervention group, whereas the health-seeking behavior scores did not show any significant change. Similarly, Kazemi *et al.*^[17] had reported significant improvement in the knowledge ($P < 0.001$) and preventive practices ($P < 0.003$) of the Iranian women following RTI/STI preventive intervention. Significant improvement ($P < 0.001$) was also observed in their skill in identifying the time, place, and person to be

Table 1: Comparison of the Intervention and Comparison Groups in terms of their socio-personal variables, n=99

Socio-personal Variables		Intervention Group (n=50)		Comparison Group (n=49)		Chi-square P
		f	%	f	%	
Age in Years	26-33	14	28	16	32.65	0.148
	34-41	17	34	23	46.94	
	42-49	19	38	10	20.41	
Religion	Hindu	27	54	34	69.38	0.244
	Christian	15	30	8	16.33	
	Muslim	8	16	7	14.29	
Educational Status	Upto tenth standard	23	46	12	24.49	0.080
	Higher Secondary	14	28	13	26.53	
	Diploma/Graduate	9	18	17	34.69	
	Postgraduate or above	4	8	7	14.29	
Socioeconomic Status	Above poverty line	27	54	27	55.10	0.912
	Below poverty line	23	46	22	44.90	
Occupation	Homemaker	32	64	31	63.26	0.248
	Coolie worker/Self-employed/Public sector	6	12	11	22.45	
	Private sector	12	24	7	14.29	
Type of Family	Nuclear	34	68	35	71.43	0.711
	Joint and Extended	16	32	14	28.57	
Area of Living	Rural	27	54	22	44.90	0.365
	Urban	23	46	27	55.10	
Age at Marriage (in years)	16-20	16	32	9	18.37	0.244
	21-25	28	56	35	71.43	
	≥26	6	12	5	10.20	

Level of significance $P < 0.05$ **Table 2: Comparison of the Intervention and Comparison Groups in terms of their socio-personal contd, n=99**

Socio-personal Variables		Intervention Group (n=50)		Comparison Group (n=49)		Chi-square/Fisher's exact P
		f	%	f	%	
Duration of Marital Life (in years)	1-5	2	4	3	6.12	0.013*
	6-10	12	24	11	22.45	
	11-15	9	18	16	32.65	
	16-20	9	18	15	30.61	
	>20	18	36	4	8.16	
Number of Pregnancies	≤1	7	14	8	16.33	0.825
	2	27	54	28	57.14	
	≥3	16	32	13	26.53	
Mode of Delivery	Vaginal delivery	31	62	25	51.02	0.366†
	Cesarean Section	17	34	18	36.73	
	Both	2	4	4	8.16	
	Nulliparous	0	0	2	4.08	
Obstetric/Gynecologic Risk Factors	Present	10	20	21	42.86	0.014*
	Absent	40	80	28	57.14	
Place of Last Delivery	Hospital	50	100	46	93.88	0.117†
	Nulliparous	0	0	3	6.12	
Menstrual Hygiene Product used	Cloth	10	20	7	14.29	0.107
	Sanitary pad	18	36	28	57.14	
	Both	22	44	14	28.57	
Contraceptive Practice	None	33	66	36	73.47	0.419
	Currently practicing	17	34	13	26.53	
Source of Information on RTIs	Friends and family	11	22	8	16.33	0.042**†
	Health personnels	33	66	23	46.94	
	Mass media	4	8	12	24.49	
	None	2	4	6	12.24	

Level of significance $P < 0.05$ *Significant †Fisher's exact

Table 3: RM-ANOVA on Effectiveness of the IMB program on Knowledge, Practices, and Skills of the women, $n=99$

Outcome Variable	Groups	Mean (SD)						Within Group Comparison (Bonferroni adjusted)		Between Group Comparison <i>P</i>
		Pretest		Posttest 1		Posttest 2		<i>F</i>	<i>P</i>	
		Mean	SD	Mean	SD	Mean	SD			
Knowledge	Intervention Group [<i>n</i> =50]	9.88	4.741	17.76	3.668	19.24	3.915	112.38	<0.001*	<0.001*
	Comparison Group [<i>n</i> =49]	10.86	3.680	10.67	3.688	11.00	4.148	0.283	0.754	
Practice	Intervention Group [<i>n</i> =50]	43.40	5.288	48.14	5.103	49.18	5.074	112.38	<0.001*	0.002*
	Comparison Group [<i>n</i> =49]	43.02	5.222	44.14	5.817	44.63	5.476	3.091	<0.050*	
Skill	Intervention Group [<i>n</i> =50]	5.14	4.772	11.68	4.569	12.66	3.745	142.627	<0.001*	<0.001*
	Comparison Group [<i>n</i> =49]	5.90	4.307	6.02	4.294	6.71	4.835	2.427	0.094	

Level of significance $P<0.05$ *Significant**Table 4: RM-ANOVA on the Effectiveness of IMB program on Health seeking behavior of the women $n=51$**

Groups	Health Seeking Behavior Score: Mean (SD)						Within Group Comparison (Bonferroni adjusted)		Between Group Comparison <i>P</i>
	Pretest		Posttest 1		Posttest 2		<i>F</i>	<i>P</i>	
	Mean	SD	Mean	SD	Mean	SD			
Intervention Group [<i>n</i> =24]	1.29	2.971	2.50	3.587	3.83	4.007	4.591	0.015*	0.830
Comparison Group [<i>n</i> =27]	2.67	3.101	2.15	2.878	2.33	3.442	0.359	0.736	

Level of significance $P<0.05$

approached on identification of RTIs/STIs and partner communication. Also, significant improvement in the knowledge scores ($P < 0.001$) was observed among the married women in the reproductive age group in Turkey following a genital infection awareness program based on the IMB model.^[8]

Suresh *et al.*^[9] reported significant improvement in the knowledge ($P < 0.001$) among the women in Tamilnadu following behavioral change communication on RTIs. Another health belief model-based intervention in Egypt showed significant change ($P < 0.05$) in the knowledge and practices of the women of the intervention group.^[7] Gupta *et al.* identified that workshops on RTIs could bring significant change in the knowledge ($P < 0.001$), capability in the identification of the symptoms of RTIs, and skill in communicating with the partner ($P < 0.01$) among the women belonging to SHGs in Karnataka.^[18]

Congruent with our study, an IMB model-based training could not bring significant improvement in the help-seeking behaviors of the STI-infected Chinese women.^[19] In contrast, counseling sessions on STI showed significant ($P < 0.001$) change in health-seeking behavior scores of the women in the age group of 30–35 years.^[20] In the present study, the COVID-19 scenario and the lockdown imposed by the government during the period of data collection may have hindered the women from seeking healthcare. Even the government, STI/RTI clinic was not functioning for three months during the period of intervention. Although telemedicine services were available, most of the women could not utilize it due to privacy concerns and technological ignorance.

The study had some limitations. The possibility of self-reported bias could not be ignored. Privacy during data collection and confidentiality of the information collected was assured to overcome this. Randomization of the groups was not possible as there were chances of the mingling of the women during weekly SHG meetings. The women were selected using a stratified random sampling technique, and homogeneity with regard to the socio-personal variables was ensured.

Conclusion

The IMB program had created a positive effect on the knowledge, practices and skills of the SHG women regarding RTIs. This program can be utilized by the nursing officers at health centers to sensitize women to RTIs. Organized women's groups can be utilized as effective platforms for addressing women's health issues.

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Conflicts of interest

There are no conflicts of interest.

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