

## Effect of an Educational-Psychological Intervention on Anxiety, Bodily Embarrassment, Judgment Concern, and Comfort in Female Patients who referred to a Male General Surgeon for Colorectal Examination

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Submitted: 24 Nov 2019; Accepted: 29 Nov 2019; Published: 02 Jan 2020

### Abstract

**Introduction:** Psychological issues are big barriers for female patients referring for colorectal examination. Some interventions might reduce these issues. This study aimed to determine the effect of an educational-psychological intervention on anxiety, bodily embarrassment, judgment concern, and comfort in female patients who referred to a male general surgeon for colorectal examination.

**Methods:** This clinical trial with a pre/posttest design was conducted in Imam Hassan Mojtaba Clinic, Darab, Iran. Total of 110 female patients who referred to a male general surgeon for colorectal examination were included in this study. The participants were randomly assigned to an intervention (n=55) and control (n=55) groups. The psychological training program was conducted for 60 minutes (30 minutes for examinations and 30 minutes for the psychological counseling). Beck Anxiety Inventory and Medical Embarrassment Questionnaires were used. The data were analyzed using chi-square, independent and paired t-test.

**Results:** After the intervention, a significant difference was observed between the intervention and control groups in terms of bodily embarrassment and comfort. In addition, a significant difference was found in the intervention group regarding the mean differences of anxiety, bodily embarrassment, judgment concern, and comfort scores before and after the intervention ( $p < 0.001$ ).

**Conclusion:** The findings showed that the educational-psychological intervention reduced anxiety, bodily embarrassment, and judgment concern, and it improved comfort in female patients who referred to the male general surgeon for colorectal examination. Hence, this intervention might be used in primary, secondary and tertiary health centers to educate patients when referring to a male surgeon.

**Keywords:** Anxiety, Colorectal surgery, Psychology, Educational, Stress, Psychological

### Introduction

Good quality communication between patient and healthcare provider might affect colorectal cancer screening process [1, 2]. Poor patient-provider communication leads to poor mental and physical health, greater use of health resources such as emergency department visits, hospitalization, and higher annual healthcare

expenditures [3-5]. Gender difference between physicians and patients significantly affect the quality of communication during the treatment process. In this context, gender-specific barriers might lead to lower rates of colorectal cancer screening among women [6]. It has been maintained that fear was an obstacles against procedures, such as endoscopy and colorectal screening [6, 7]. In this regard, women were more fearful, embarrassed, felt pain, and concerned about colonoscopy in comparison to men [8]. In other words, females had more barriers against colorectal screening [9].

Colorectal screening was also associated with anxiety, psychological distress, embarrassment, and uncomfotability, especially when the colorectal examiner was from the opposite sex [10-12]. Researchers have indicated that embarrassment and fear from painful examination were associated with unwillingness to undergo screening [13]. In addition to psychological issues as a barrier and complication of colorectal screening, researchers believed that poor understanding of colorectal screening procedure, lack of information, inadequate general information, and low educational attainment were barriers against colorectal screening [7, 9, 12].

Prior studies recommended that public health education had to be performed to address psychological barriers and susceptibility to colorectal screening [8, 14, 15]. The most common interventional strategy to promote colorectal screening is one-on-one interaction [16]. By using educational and psychological interventions for female patients who refer to male general surgeons for colorectal examinations, the psychological issues might diminish. However, there is insufficient evidence to confirm this hypothesis.

Hsueh et al. reported that a health education intervention program reduced patients' anxiety and pain during colonoscopy procedure [17]. Other researchers revealed that written and telephone information improved patients' participation in colorectal screening [18]. Moreover, Sequist et al. maintained that text messages increased the rate of screening [19]. As maintained above, a limited number of studies have focused on the effect of educational interventions on colorectal screening [18, 19]. Moreover, no study has evaluated the effect of educational and psychological interventions on psychological issues of female patients referring to male general surgeons for colorectal examination. Since psychological issues are common amongst female patients referring to colorectal screening, the present study aimed to determine the effect of an educational-psychological intervention on psychological issues, such as anxiety, bodily embarrassment, judgment concern, and comfort in female patients referring to male general surgeons for colorectal examination.

## Methods

This was a clinical trial with pre/posttest design including an intervention (received educational-psychological interventions) and a control group (received routine care). The study was conducted in Imam Hassan Mojtaba Clinic, Darab, Fars province, Iran. The study population consisted of all female patients who referred to a general surgeon for colorectal examination. The inclusion criteria of this study were age 18-60 years, willingness to participate, and ability to attend meetings in the intervention group. On the other hand, the exclusion criteria were cases with psychiatric disorders such as general anxiety disorder, major depression, psychosis, etc., participation in similar intervention within the past three months, and lack of participation in intervention sessions.

Based on a pilot study and considering 95% confidence interval,  $\beta=0.2$ ,  $\mu_1-\mu_0=3.25$  for anxiety, and  $\delta=6$ , the sample size was estimated as 54 subjects in each group. Moreover, considering 95% confidence interval,  $\beta=0.2$ ,  $\mu_1-\mu_0=8$  for medical embarrassment, and  $\beta=14$ , the sample size was estimated as 49 subjects in each group. Since anxiety required a larger sample size and by considering the dropout rate of 2%, a 110-subject sample size was determined for the study (55 subjects in the control group and 55 in the intervention group). In the first step, simple randomization was used. In doing so, six

patients who referred to the clinic for colorectal examination were randomly selected using the table of random numbers. Then, the selected patients were assigned to the intervention or control groups using block randomization. In so doing, a week was divided into odd and even days. Four days of each week was selected, even and odd days were assigned to A and B, two blocks with block size of 2 were determined using a computer "creates a blocked randomization list" tool. Then, based on the day of the week, the subjects were assigned to either intervention or control groups.

In this study, the individual who collected the data and the statistician who analyzed the data were blinded to the study group allocation. This study involved an educational and a psychological intervention. The educational intervention was held in a 30-minute session. This session was performed in groups of 4-6 patients by a nurse who had a Master degree in nursing. This intervention included information on the gastrointestinal system, importance, procedures, and implications of colorectal examination, and complications of delay in and non-adherence to colorectal examination. Moreover, some information about what to be reported to the surgeon, and the reasons for questions asked by the surgeon was explained to the subjects. The participants were asked to trust the surgeon and to be honest in reporting their signs, symptoms, and duration of symptoms to help the surgeon with the diagnosis. In addition, they were informed about how to prepare for colorectal examination, the body areas supposed to be exposed for examinations, and the required positions. This information was presented by PowerPoint in form of lecture (text and picture), simulation, and group discussion. After this session, two pamphlets including written and pictorial information about colorectal examination were given to the subjects. After the educational intervention, a 30-minute psychological intervention session was held for groups of 4-6 subjects. The psychological intervention aimed to change cognition, behavior, or both. In this step, a psychologist with a Master degree prepared each group for colorectal examination. She asked the subjects to explain their emotions, thoughts, attitudes, doubts, and fears as well as their religious beliefs about colorectal examination. The subjects were also required to explain the reasons for their thoughts and beliefs towards colorectal examination. Then, the patients proposed some strategies. After that, the psychologist explained the definition of embarrassment with regard to colorectal examination, psychological barriers, and perceptions and beliefs toward colorectal examination follow-up. Then, strategies for coping with colorectal examination, such as problem solving, overcoming embarrassment, and situation acceptance, were discussed by the psychologist. It should be noted that the proposed solutions might have been different from subject to subject, due to the participants' different attitudes and feelings. At the end of the session, the subjects' questions were answered and they waited to be visited.

The control group only received the routine care without any educational-psychological interventions. The data collection instruments consisted of three parts. The first part included some information regarding demographic characteristics, such as age, marital status, and education level. The second part contained the 21-item Beck Anxiety Inventory (BAI). In this inventory, each item was scored based on a Likert scale ranging from never (score=zero) to severe (score=3). Thus, the total score ranged from 0 to 63, with higher scores representing higher severity of anxiety. BAI had good internal consistency ( $\alpha=0.92$ ) and test-retest reliability over one week ( $r=0.75$ ). The Persian version of BAI also had acceptable test-

retest reliability ( $r=0.67$ ), internal consistency ( $\alpha=0.88$ ), convergent validity (0.40-0.44), and divergent validity with Beck Depression Inventory-II ( $r=0.21$ ) (20). The internal consistency of this instrument was also confirmed in the current study ( $\alpha=0.96$ ). The third part of the instrument included the Medical Embarrassment Questionnaire (MEQ) designed by Consedine et al. in 2007. This questionnaire included 53 questions classified in three categories, namely bodily embarrassment (22 items), judgment concern (18 items), and comfort with medical examinations (7 items). However, the categories of seven items were not clear. The scores of bodily embarrassment, judgment concern, and comfort with medical examinations could range from 22 to 110, 18 to 90, and 7 to 35, respectively. The validity of the questionnaire was approved by Consedine et al. in 2007. Indeed, factor analysis explained 72.39% of the variance by the 53 items [21]. The reliability of the questionnaire was also approved with Cronbach's alpha = 0.96 for bodily embarrassment (22 items), 0.92 for judgment concern (18 items), and 0.79 for comfort with medical examinations (7 items) [21]. The forward-backward method was used to linguistically validate the Persian version of MEQ. The content validity of the Persian version was approved by 10 faculty members in the field of nursing and medical surgery. Additionally, the internal consistency of the questionnaire was confirmed with Cronbach's alpha = 0.91 for bodily embarrassment, 0.77 for judgment concern, and 0.75 for comfort with medical examinations.

The outcomes of this study were anxiety, bodily embarrassment, judgment concern, and comfort with medical examinations. The outcomes were measured before and immediately after the intervention. This study was approved by the local Ethics Committee of Shiraz University of Medical Sciences (code: IR.SUMS.REC.1396.166) and Iranian Registry of Clinical Trials (IRCT)

(IRCT20170928036465N2). The permission for data collection was taken from Imam Hassan Mojtaba Clinic. The objectives of the study were explained to the subjects. In addition, they were informed that participation in the study would be voluntary and that they could leave the study at any time. They were also reassured that the data would be published in general and their personal information would be kept confidential. In the following, the subjects were asked to attend the clinic 1.5 hours prior to the visit. The data were collected before the intervention. The intervention was performed in the afternoon before the surgeon's visit. The data were collected again immediately after the intervention before the surgeon's visit. The data were analyzed using the SPSS statistical software, version 21. Descriptive (frequency, percentage, mean, and standard deviation) and inferential statistics (chi-square and independent and paired t-test) were used. It should be noted that normal distribution of the data was confirmed by Kolmogorov-Smirnov test.  $P<0.05$  was considered to be statistically significant.

## Results

Majority of the subjects were married and aged 21-40 years in the intervention and control groups. Besides, most participants in both groups had secondary and high school education. Therefore, two groups were homogenous regarding demographic characteristics (Table 1). As shown in Table 2, before the intervention, the mean score of anxiety was  $15.31\pm 5.73$  in the intervention group and  $12.91\pm 10.44$  in the control group. The results indicated no statistically significant differences between the intervention and control groups with regard to anxiety before the intervention ( $t=-1.49$ ,  $p=0.13$ ). After the intervention, the mean score of anxiety was  $10.18\pm 6.23$  in the intervention group and  $12.22\pm 10.45$  in the control group, but this difference was not statistically significant ( $t=1.24$ ,  $p=0.21$ ).

**Table 1: The demographic characteristics of the participants in the intervention and control groups**

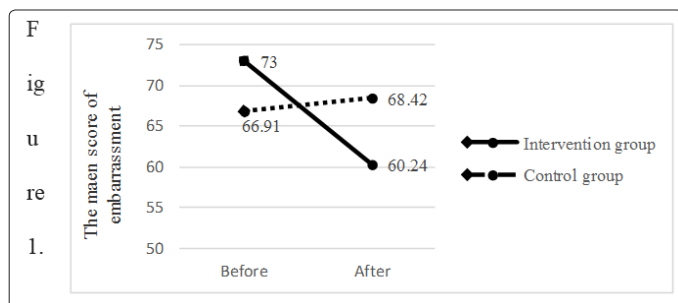
	Groups		Test P-value
	Intervention	Control	
<b>Marital Status</b>			
Married	54 (98.2)	50 (90.9)	$\chi^2=2.82$ $p=0.09$
Single	1(1.8)	5 (9.1)	
<b>Age groups (years)</b>			
Less than 20	5 (9.1)	4 (7.3)	$\chi^2=3.82$ $p=0.43$
21-30	15(27.3)	23 (41.8)	
31-40	20 (36.4)	19 (34.5)	
41-50	12 (21.8)	6 (10.9)	
51-60	3 (5.5)	3 (5.5)	
<b>Education level</b>			
Illiterate	10 (18.2)	9 (16.4)	$\chi^2=2.22$ $p=0.69$
Secondary school	11 (20)	6 (10.9)	
High school	23 (41.8)	27 (49.1)	
Academic	11 (20)	13 (23.6)	

**Table 2: Comparing the mean scores of anxiety, bodily embarrassment, judgment concern, and comfort in the intervention and control groups before and after the intervention**

	Before	After	Mean differences, t, p-value
<b>Anxiety</b>			
Intervention	15.31 (5.73)	10.18 (6.23)	5.12, 10.04, <0.001*
Control	12.91 (10.44)	12.22 (10.45)	0.69, 2.04, 0.05
t, p	-1.49, 0.13	1.24, 0.21	
<b>Bodily embarrassment</b>			
Intervention	73.13 (9.54)	60.24 (14.94)	12.89, 3.54, 0.001*
Control	66.91 (7.63)	68.42 (16.93)	-1.50, -1.22, 0.22
t, p	-1.611, 0.10	2.658, 0.008*	
<b>Judgment concern</b>			
Intervention	68.62 (6.60)	60.78 (7.98)	7.83, 3.73, <0.001*
Control	64.27 (9.34)	61.76 (8.41)	2.50, 2.07, 0.5
t, p	-1.859, 0.06	0.628, 0.53	
<b>Comfort</b>			
Intervention	21.89 (7.28)	27.60 (5.63)	-5.70, -5.64, <0.001*
Control	24.27 (6.41)	25.05 (7.11)	-0.72, -0.98, 0.32
t, p	1.82, 0.07	-2.07, 0.04*	

\*, Significant

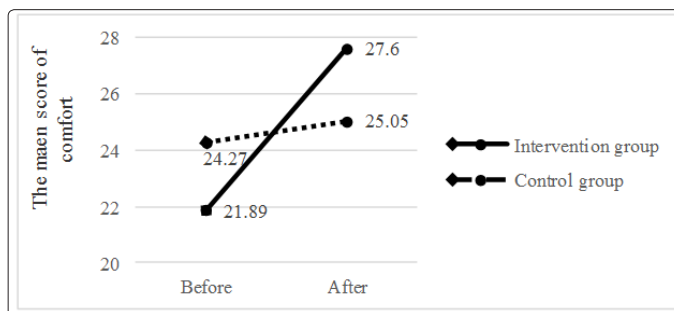
Based on Table 2 and Figure 1, before the intervention, the mean score of embarrassment was 73.13±9.54 in the intervention group and 66.91±7.63 in the control group. No significant difference was observed between the two groups regarding embarrassment before the intervention ( $t=-1.61$ ,  $p=0.10$ ). However, after the intervention, the mean score of embarrassment was 60.24±14.94 in the intervention group and 68.42±16.93 in the control group, and the difference was statistically significant ( $t=2.65$ ,  $p=0.008$ ). According to Table 2, before the intervention, no significant difference was observed between the intervention and control groups regarding judgment concern ( $t=-1.85$ ,  $p=0.06$ ). After the intervention, the mean score of judgment concern was 60.78±7.98 in the intervention and 61.76±8.41 in the control groups. The results showed no significant differences between the two groups regarding judgment concern after the intervention ( $t=0.628$ ,  $p=0.53$ ).



**Figure 1:** The mean scores of embarrassment in the intervention and control groups before and after the intervention

Based on Table 2 and Figure 2, before the intervention, the mean score of comfort was 21.89±7.28 in the intervention group and 24.27±6.41 in the control group, but the difference was not statistically significant ( $t=1.82$ ,  $p=0.07$ ). However, after the intervention, the mean score of comfort was 27.60±5.63 in the intervention group and

25.05±7.11 in the control group, and the difference was statistically significant ( $t=-2.07$ ,  $p=0.04$ ). In the intervention group, a significant difference was found regarding the mean difference of anxiety, bodily embarrassment, judgment concern and comfort scores before and after the intervention (Table 2).



**Figure 2:** The mean scores of comfort in the intervention and control groups before and after the intervention

## Discussion

This study showed that the educational-psychological intervention reduced anxiety, bodily embarrassment, and judgment concern as well as improved comfort level of the female patients who referred to a male general surgeon for colorectal examination. In the intervention group, a significant difference was found regarding the mean difference of anxiety scores before and after the intervention. Consistently, it has been reported that using educational pamphlets before colonoscopy decreased overall anxiety level and led to better colon preparation [22]. Moreover, educational intervention reduced examination-related anxiety in patients undergone colonoscopy [17]. A systematic review also showed that psychological-educational interventions had a small but significant effect on anxiety prevention in all populations [23]. Furthermore, it was maintained

that educational interventions increased subjects' knowledge and improved their perception, attitude, and willingness to participate in colorectal screening [24]. Overall, increasing knowledge and performing psychological interventions might improve subjects' attitude and reduce their anxiety.

In the present study, the educational-psychological intervention decreased bodily embarrassment of the female patients who referred to a male general surgeon for colorectal examination. Similarly, it was found that women with reproductive cancers were embarrassed when they referred for screening and prevention during their first visit. However, they did not feel embarrassed any more after several educational meetings. It was claimed that when a woman knows that there is a need for another examination, they would overcome embarrassment more effectively [25]. In the current study, a significant difference was observed in the intervention group regarding the mean difference of judgment concern scores before and after the intervention. Another study indicated that roughly half of the subjects who referred to a community clinic for colorectal cancer screening, experienced moderate to high levels of worry regarding cancer [26]. Even though providing written and telephone information improved preparation for colorectal screening [18]. Nonetheless, fear has been considered to be a barrier against rectal examination [27]. In this context, increasing female patients' awareness regarding colorectal examination by a male general surgeon could reduce their fear, enhance their preparation, and decrease their judgment concern.

This study indicated that the educational-psychological intervention increased comfort in female patients referring to a male general surgeon for colorectal examination. In the same line, Sequist et al. reported that the rate of screening was higher among the subjects who had received text messages compared to those who had not [19]. Hence, providing an effective educational intervention program improved the subjects' colorectal screening knowledge, intention to get screened, and comfort to talk to others about colorectal screening [28]. One of the limitations of this study was that there was no follow-up period; hence, another study with a long-term follow-up is recommended. The long-term consequences of reducing anxiety, bodily embarrassment, and judgment concern as well as improvement of comfort are also suggested to be evaluated in future studies.

## Conclusion

The study findings showed that the educational-psychological intervention reduced anxiety, bodily embarrassment, and judgment concern, and improved comfort amongst female patients who referred to a male general surgeon for colorectal examination. Hence, this intervention can be of assistance in primary, secondary and tertiary health centers to increase patients' awareness regarding colorectal examination when referring to a male surgeon.

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