

Effectiveness of Acceptance and Commitment Therapy on Psychological Distress and Rumination among Colostomy Patients

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Abstract

Background and Aim: The most common conditions leading to a stoma (abdominal surgery) include bowel cancer and inflammatory diseases. This study aimed to determine the effectiveness of acceptance and commitment therapy (ACT) on psychological distress and rumination among colostomy patients.

Methods: This quasi-experimental study was conducted based on a pretest-posttest control group design and follow-up. The statistical population of this study included colostomy patients referring to the psychosomatic ward of Imam Khomeini hospital in Sari, Iran, 2019. The samples (n=50) were selected using the convenience sampling method and inclusion and exclusion criteria and divided into experimental and control groups (n=25 each). The experimental group received training in eight 120-minute sessions weekly. The required data were collected using a demographic questionnaire, the Psychological Distress Scale, and the Ruminative Response Questionnaire and analyzed in SPSS software (version 22) using covariance analysis. The significance level of the tests was 0.05.

Results: The results of this study showed that ACT was effective on psychological distress and rumination in colostomy patients ($P<0.001$ and $P<0.001$, respectively).

Conclusion: Considering the positive effect of ACT on psychological distress and rumination of colostomy patients, it is recommended to use these capacities and training in planning mental health programs, especially in colostomy patients.

Keywords: Acceptance and Commitment Therapy, Psychological distress, Colostomy

1. Introduction

The most common conditions leading to a stoma (abdominal surgery) include bowel cancer and inflammatory diseases (1). Feelings of anxiety, stress, and embarrassment caused by the existence of stoma result in changes in quality of life and other psychological complications, such as intellectual distress, low self-efficacy, decreased daily living function, reduced travel intention, and even negative mental images (2). Another psychological symptom in these patients is psychological distress related to unpleasant mental states, including depression, anxiety, and stress in patients with abdominal surgery. Psychological distress is considered as the most important and second risk factor for a large number of diseases, such as heart failure, cancers, and stoma patients (3). According to recent research, people with higher distress complain more about physical illness symptoms and have a higher frequency of physical, psychological, and social problems (4). Moreover, researches have shown significant levels of anxiety and depression in patients

with a colostomy (5).

Since the feelings of anxiety and embarrassment caused by abdominal surgery lead to changes in the patients' thoughts, rumination in these patients is defined as resistant and recurrent thoughts that bypass a common subject. These thoughts inversely enter consciousness and divert attention from current topics and objectives (6). The results of various studies investigating the relationship between rumination and different types of emotional disorders indicate that patients with a stoma have some emotional disorders due to discomfort with their posture that affects their self-efficacy and disrupts it (7).

One of the other treatments affecting ostomy patients is acceptance and commitment therapy (ACT). This treatment is the third wave of behavior therapy in which, unlike other traditional treatments (i.e., cognitive therapy), the content of thoughts and beliefs of patients is not evaluated. Instead, in ACT, the processes of psychological damage formation in the context of problems are considered (8), based on six different cores, namely acceptance, cognitive

confusion, self as context, commitment, committed action, contact with the present, which itself is summarized in two cores of the processes of commitment and behavior of awareness and mind and acceptance. In this approach, people are taught to show useful behaviors and flexibility in interaction with psychological events and problems, such as thoughts and unpleasant feelings (9). In a study, Yilmaz et al. (10) investigated the effect of acceptance and commitment therapy on the quality of life of patients with bowel cancers and colostomy. The findings of this study showed that group training programs based on the ACT were highly effective in patients' treatment. Therefore, this study aimed to determine the effectiveness of ACT on psychological distress and rumination in colostomy patients.

2. Methods

This quasi-experimental study was conducted based on a pretest-posttest control group design and follow-up. The statistical population of this study included colostomy patients referring to the psychosomatic ward of Imam Khomeini Hospital, Sari, Iran, 2019. The samples (n=50) were selected using the convenience sampling method based on inclusion and exclusion criteria. According to the inclusion and exclusion criteria, these subjects were randomly divided into two groups of experimental and control (n=25 each). The inclusion criteria were having a colostomy, aging 30-60 years, having the ability to participate in treatment sessions, lacking acute psychosis, lacking neurological disorders, such as brain injury, stroke, Alzheimer's disease, Parkinson's disease, having a belief in the Islamic religion, having reading and writing literacy, and giving informed consent. On the other hand, the patients who were unwilling to complete the course or fill out the questionnaire had a debilitating physical illness and refused to continue the study were excluded from the research.

At first, in coordination with the authorities of Imam Khomeini Hospital, a letter of cooperation with the researcher was sent to the authorities of the psychosomatic department, physicians, and nurses affiliated with the hospital. After attracting cooperation with specialist physicians, the names of patients were extracted from the discharge and archive unit. Afterward, based on the inclusion criteria, the subjects were invited to participate in the briefing, which was held in two sessions due to a large number of patients. The participants were explained about the process and plan of the present study, holding training sessions, and the possibility of the positive effect of the treatment methods in the process of their disease. Subsequently, they were asked to participate in the present research project and cooperate in completing the questionnaires. At the end of the training sessions, a demographic information questionnaire, the Psychological Distress Scale, and the Ruminative Response Questionnaire were completed again by colostomy patients to investigate the effect of the interventional method. Furthermore, follow-up of the treatment status of these patients was performed 6 months after the study.

The research process lasted for 2.5 months, during which the participants in the experimental group received

ten sessions of acceptance and commitment therapy, while the control group did not receive any training. Subsequently, the participants of the experimental and control groups were followed up after 45 days of training. After reviewing the files of stoma patients hospitalized in the psychosomatic ward of the hospital and identifying them during a phone call, the purpose of the study was explained to them and they were asked to participate in the present research project and cooperate in completing the questionnaires. Regarding the ethical considerations of the present study, the research objectives were explained to all individuals in written form, and they were informed of the right to leave the study at any time. Moreover, all participants were assured of anonymity and confidentiality in this study. More effective treatment was performed for the control group subjects after the completion of the study.

Demographic information form: This researcher-made questionnaire included age, gender, marital status, education level, consumption of liquor, history of blood pressure, history of diabetes, history of psychiatric disease, debilitating and chronic physical illness, time of abdominal surgery, and type of stomia.

Psychological Distress scale (K-10): This 10-item tool, developed by Kessler et al. (2002) (11), identifies mental disorders in the general population and six questions (11). The items are scored on a 5-Likert scale (0=any time, 1=rarely, 2=to some extent, 3=sometimes, and 4=always), with a total range score of 0-40, according to which higher scores indicate a higher amount of psychological distress and vice versa. Its reliability, calculated by Jacobian (12) using Cronbach's alpha coefficient, was obtained at 0.93, and its Spearman-Brown reliability coefficient was estimated at 0.91.

Ruminative Responses Questionnaire: This 12-item scale, designed and developed by Nolen-Hoeksema and Morrow in 1993, measures rumination. This study aimed to introduce rumination within response styles theory and its consequences for sad mood and depression disorder. The replies to the questionnaire are rated on a 4-point Likert scale ranging from 1 (never) to 4 (always), with a total ranging from 22 to 88. The scores between 22 and 33, 33 and 55, and above 55 suggest low intellectual, moderate, and high rumination. The reliability of this tool was calculated by Mahmoodi (13) using Cronbach's alpha coefficient ($\alpha=0.87$). Moreover, the correlation coefficients for social and caring subscales of self-efficacy were obtained at 0.91 and 0.86, respectively. The validity of this questionnaire was confirmed by internal correlation with Cronbach's alpha coefficient ($\alpha=0.88$) (14). In the present study, the reliability of this instrument was estimated at 0.88 using Cronbach's alpha coefficient.

Acceptance and commitment therapy was performed based on the training package proposed by Burckhardt et al. in eight 120-minute sessions twice a week for 2 months (14). Additionally, the content validity of the educational package used in this study was confirmed by three clinical psychologists and then used in this study.

In descriptive statistics, central and dispersion indices, such as mean and standard deviation were used. Inferential statistics section: Repeated measure ANOVA was used.

To investigate the assumptions of the inferential test, Levene's test (to examine the homogeneity of variances), Kolmogorov-Smirnov test (for normality of data distribution), Mbox test, and Mauchly sphericity test were used. The Chi-square test was also used to compare the two groups in terms of demographic variables (gender, marital status, age, and education). The above statistical analysis was performed in SPSS software (version 22). The significance level of the tests was considered 0.05.

3. Results

The mean scores of age were calculated at 39.11 ± 7.80 and 40.80 ± 7.81 in the experimental and control groups, respectively. No significant difference was observed between the two groups in terms of age ($P=0.448$). Regarding the gender of the participants, 20 (80%) and 18 (72%) of the cases were female and in the experimental and control groups, respectively. There was no significant difference between the two groups in terms of gender distribution ($P=0.18$). Descriptive indicators (mean and standard deviation) of psychological distress and rumination scores in the experimental group and control group obtained from the pretest-posttest and follow-up stages are presented in Table 1.

Repeated measure analysis of variance was used to evaluate the significance of the difference between the scores of resilience in the three groups (Table 2). Before the performance of repeated measure analysis of variance, the results of Mbox and Levene's tests were examined to comply with the pre-assumptions. Since the Mbox test was not significant for any of the research variables

(Box's $M=10.10$; $P>0.05$), the condition of homogeneity of variance-covariance matrices was observed. Non-significance of any of Levene's test variables was indicative of the observance of the equality of intergroup variances, and the amount of variance of the dependent variable error was equal in all groups. According to the results, Wilks' Lambda test with a value of 0.13 and F-value of 46.51 indicated a significant difference between the three groups of ACT and the control group in psychological distress and rumination ($P<0.001$). The results of repeated measure analysis of variance are presented in Table 2.

The results in Table 2 indicate that psychological distress ($F=10.25$) and rumination ($F=17.48$) are significant at the level of 0.001. Bonferroni post hoc test was also used for paired comparison of groups.

Table 3 shows that the mean of psychological distress and rumination in ACT at the end of the posttest and follow-up period was lower than the control group ($P<0.01$).

4. Discussion

This study aimed to determine the effectiveness of ACT on psychological distress and rumination in colostomy patients. The results showed that ACT effectively influenced psychological distress and rumination in colostomy patients. Rahnema et al. investigated the effectiveness of psychological distress-based therapy and adherence therapy in coronary heart patients (12). Heidari et al., in a study, examined the effectiveness of ACT on psychological flexibility and rumination in patients with chest heart pain (13). The results of the mentioned research were in line with those of the present study.

Table 1. Mean and standard deviation of research variables in the experimental and control groups

Variable	Group	Pretest		Posttest		Follow-up	
		M	SD	M	SD	M	SD
Psychological distress	Experimental	23.00	5.90	18.44	4.19	17.15	6.12
	Control	24.95	6.54	23.71	5.62	23.45	5.68
Rumination	Experimental	39.86	7.41	29.21	6.11	30.49	6.01
	Control	38.70	7.36	38.15	7.54	38.01	7.43

Table 2. Repeated measure analysis of variance to compare pretest and posttest in experimental and control groups

Variables	Source of effect	F	P	Eta square
Psychological distress	Time	34.70	0.001	0.45
	time*group	14.81	0.001	0.41
	Group	10.25	0.001	0.30
Rumination	Time	9.02	0.001	0.17
	time*group	4.42	0.005	0.17
	Group	17.48	0.001	0.42

Table 3. Results of Bonferroni post hoc test to compare research variables

Variable	Time (i)	Time (j)	Mean difference	P-value
Psychological distress	Pretest	Posttest	4.56	0.001
		Follow-up	5.85	0.001
	Posttest	Follow-up	1.29	0.596
Rumination	Pretest	Posttest	10.65	0.001
		Follow-up	9.37	0.001
	Posttest	Follow-up	-1.28	0.687

It seems that ACT can greatly reduce negative emotions, such as anxiety, stress, and depression, by changing the type of thought and way of thinking and suffering that are involved in human life. The literature review has shown that negative emotions are associated with the disease, and stress is a first-rate factor for readmission of these patients (14). Therefore, ACT has enabled such patients to cope with life's sufferings by teaching them techniques and strategies, identifying their life values and walking in line with them, considering their negative and unclear emotions as part of their human stages, and learning how to deal with emotions. The reason for this effect is the change in the negative and defective cycle of these thoughts and the purpose of treatment, the onset of awareness-based exercises, and the creation of innovative distress toward past solutions, cognitive faults, and emphasis on committed action (15). The encouragement of patients to clarify values, set goals, predict obstacles, and finally, commit to accomplishing actions to achieve goals and move towards values, despite the existence of the disease, causes the achievement of the goals, results in the happiness to improve their quality of life, and free themselves from being trapped in a circle of negative thoughts and feelings. In other words, it can be said that ACT causes therapeutic changes through reducing stress, anxiety, and depression by creating and improving acceptance and increasing the practice of values in clients (16).

According to the findings, it can be noted that ACT had an effect on rumination in colostomy patients. In explaining these results, it can be said that individuals can reduce the emotional reactions usually provoked by anxiety symptoms through constant non-judgment of feelings related to anxiety and without trying to escape or avoid them. Acceptance and commitment therapy causes a person's mind to be unfocused on repetitive thought patterns and reduce rumination. In this way, acceptance and commitment therapy brings people to their distracting thoughts. It makes their thoughts refocus on other aspects of the present, such as breathing, conscious walking, or environmental sounds, be in the present time, and the way it reduces rumination. Enhanced awareness of the present moment is one of the most important skills in the ACT program that facilitates cognitive and behavioral flexibility and allows the individual to give more adaptive responses to situations and useless habitual or impulsive responses. The approach is based on acceptance and commitment of psychopathology with disabilities, conflict with internal experiences, such as the content of thoughts, which leads to patients' efforts to control, deform, and avoid and prevent thoughts. These avoidances often have contradictory and traumatic effects on patients and increase rumination (17). Acceptance and commitment therapy openly promotes acceptance of psychological experiences and commitment and is considered as the content of psychological experiences to emphasize increasing meaningful adaptive and flexible activities. This treatment reduces avoidance of negative psychological experiences without focusing on realistic, logical, and effective thinking and aims to make the individual aware of these experiences in the present time.

One of the limitations of this study was related to the limited samples of the study, which were the colostomy patients selected from patients receiving treatment in Imam Khomeini Hospital in Sari. In this respect, the generalization of the results to other regions of the province and the country should be performed with caution. Another limitation of this research was regarding the instrument used in this study, which was a self-report questionnaire, and therefore, the subjects may have answered the questions under social desirability. The research project was semi-experimental, which does not provide the benefits of real experimental projects. Other limitations of this study were the problems related to coordination with patients and some patients' reluctance to attend meetings due to disease during the disease series. It is suggested that further researches be conducted in a wider geographical area to be more confident about the generalization of the results.

5. Conclusion

Considering the positive effect of ACT on psychological distress and rumination of colostomy patients, it is recommended to use these capacities and training in planning mental health programs, especially in colostomy patients.

Ethical Considerations

Compliance with ethical guidelines

All ethical principles were considered in this research. The participants were informed about the purpose of the research and its stages. Informed consent was obtained from the subjects. They were also assured of the confidentiality of their information. Moreover, the subjects were free to withdraw from the study if desired. They were also informed that they would be provided with the results of the research.

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Authors' contributions

Conceptualization [Mahmoud Reza Hashemvarzi]; Methodology [Ghodratollah Abbasi]; Investigation [Hamzeh Hosseini]; Writing – Original Draft [Omid Moradi]; Writing – Review and Edit, Author names [all authors]; Funding Acquisition, [all authors]; Resources, [all authors]; Supervision, [Ghodratollah Abbasi].

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