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Original Article

Effectiveness of Internet Attachment-Based Compassion Therapy on Rumination and Fear of Coronavirus Disease in Elderly Women during Coronavirus Epidemics

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Abstract

Background and Objective: Based on the available data, the elderly people are the most vulnerable population during the coronavirus (COVID-19) epidemic since they both suffer from the disease and have to tolerate the quarantine that has been imposed to control the outbreak of the virus. Rumination is one of the most important variables during the COVID-19 epidemic due to the fact that people experience traumatic problems. The present study aimed to investigate the effect of Internet Attachment-based Compassion Therapy on rumination and fear of COVID-19 in elderly women during the epidemic.

Materials and Methods: This was a quasi-experimental study with a pretest, posttest design, and a control group with a one-month follow-up. The statistical population included older women at Hamedan city, Iran, in 2020. The participants included 32 individuals who were randomly assigned into two groups of experiment (n=16) and control (n=16). The experiment group received eight sessions of Internet-based compassion treatment, and the control group did not receive any intervention. The data were collected using the Ruminative Response Scale to measure the fear of COVID-19 disease. The collected data were analyzed using SPSS software (Version 25) through one-way repeated measures analysis of variance and Bonferroni test, in two levels of descriptive (mean and standard deviation) and inferential statistics.

Results: The analysis of obtained results in the post-test showed a significant decrease in rumination and fear of COVID-19 in the elderly women in the experiment group, compared to the control group during the pandemic. This result was consistent after a one-month follow-up (P<0.01).

Conclusions: According to the results, it is recommended that health professionals and therapists use the Internet attachment-based compassion therapy approach along with other training and therapeutic approaches to decrease rumination and fear of coronavirus disease in the elderly women during the coronavirus epidemic.

Keywords: Compassion Therapy, Coronavirus, Elderly Women, Fear of Disease, Rumination

Background

The new coronavirus disease (COVID-19) first emerged on December 12, 2019, in Wuhan, China. The virus spread rapidly in neighboring countries and across the world after three months of the initial outbreak, and the World Health Organization declared its outbreak as an "epidemic" on March 11, 2020 [1]. Although less information is available on severe risk factors of the disease, the available data show that elderly people and those with serious underlying conditions are at greater risk of infection with the virus [2]. In other words, the elderly people who are susceptible to the virus and have to tolerate the imposed quarantine are the most vulnerable population during the COVID-19 epidemics [3].

In this regard, studies have shown that during the first wave of the COVID-19 in China, 20% of mortalities were over 60 years old [4]. Currently, due to the higher severity and mortality of coronavirus in the elderly, it has many psychosocial consequences for them [5]. Similar to other epidemics, the coronavirus epidemic has caused global anxiety and stress [6].

On the other hand, rumination is one of the most important variables during the coronavirus epidemic due to facing traumatic challenges [7]. The research has shown that rumination may affect mental health. Bravo et al. [8] reported that rumination increases negative moods, such as depression [9, 10]. In addition, rumination can make post-traumatic stress disorder (PTSD) when the person faces a traumatic event [11]. On the other hand, due to the nature of the coronavirus epidemic and its

relatively high mortality rate, people naturally become anxious and fearful when they get in contact with people who are infected with the virus [12, 13]. Fear of the coronavirus can lead to experiencing social deprivation in patients, survivors, their families, and other persons who may have contact with the diseased people. This in turn increases the risk of mental health problems, such as emotion dysregulation and depression [14, 15].

In addition, high fear of the coronavirus may lead to unreasonable and uncertain thoughts [16]. Therefore, it is necessary to make interventions in this field to prevent the consequences of these fears. One of the most effective treatments for psychological problems is compassion-based therapy intervention [17-20], which is a new protocol of compassion [21] and its new version was distributed online due to the quarantine and traffic restrictions imposed during the epidemics [22-24].

In attachment-based compassion therapy, there are many compassion meditation techniques and compassion methods, such as self-compassion. In addition to the positive effects of this therapy on the psychological well-being of healthy individuals, it can also be used for the treatment of psychological disorders, such as depression and fibromyalgia with acceptable effectiveness [25]. Training affection and compassion-based meditation can increase acceptance in patients with personality disorders [26]. In addition, research has shown that self-compassion training reduces negative thoughts and feelings after a stressful event [27, 28]. On the other hand, attachment styles affect the way a person deals with stressful situations. People with safe attachment easily ask for help from others while accepting the situation [29, 30]. According to studies, elderly women are more likely to develop insecure attachment styles. Ilaei, Ahmadi Khatir, Azimi Lolti, and Yazdanicherati have shown that ambivalent attachment style was the most common attachment style in elderly women [31]. In another study, Fagundes, Jaremka, Malarakey, and Kiecolt-Glaser [32] concluded that avoidant attachment style was the most common attachment style in elderly women [33]. Based on the research, people with secure attachments have a higher level of mindfulness than people with insecure attachments [34].

Moreover, fewer studies on psychological problems have been observed during the COVID-19 epidemics in the elderly [35]. Therefore, it is necessary to do early interventions in this regard. Therefore, the researcher in the present study seeks to answer the question "whether Internet attachment-based compassion therapy is effective on rumination and fear of COVID-19 in older women during the epidemic?

Objectives

The present study aimed to investigate the effect of Internet Attachment-based Compassion Therapy on rumination and fear of COVID-19 in elderly women during the epidemic.

Materials and Methods

The present study was a quasi-experimental research with a pre-test, post-test design, and a control group. Group therapy was adopted in this study for which we needed between 12 and 20 people in each group. Therefore, considering the attrition rate, a total of 16 people were selected for each group. However, since no attrition occurred, the sample size in each group remained to be 16 people. It is worth mentioning that the study samples included elderly women in the age range of 60-65 years who lived in Hamedan city of Iran, in 2020. These women were invited to participate in this study if they had self-reported fear of coronavirus disease and were willing to receive therapy. Invitation to the study was sent online through social media (e.g., WhatsApp and Instagram) due to quarantine and travel restrictions imposed due to the COVID-19 epidemics.

Inclusion criteria

Criteria for entering the study include married women in the age range of 60-65 years, Iranian nationality, ability to speak Persian, not suffering from neuropsychological disorders that lead to drug use (self-reporting), minimum education level of middle school, and willingness to attend the study. However, those with a history of undergoing psychological and psychiatric interventions during the past six months or women who used psychiatric medications or left the therapy sessions were excluded from the study. The pre-test stage was performed and the research tools were sent to them electronically after the voluntary selection of the participants. Individuals who obtained questionnaire scores above average and higher than other individuals were selected as the study samples. They were randomly divided into two groups of the experiment (n=16) and controls (n=16). Internet attachment-based compassion therapy was provided to the experiment group, followed by a post-test. After one month, the follow-up retest was taken to evaluate the stability of the therapy, and the data were analyzed using SPSS software

(Version 25) in two levels of descriptive statistics (presented by mean±SD) and inferential statistics.

Coronavirus Fear Scale

This scale consists of 5 items that have been designed and standardized to measure fear of suffering from coronavirus in adults by Weissi, Imani, Behrooz, and Imani [36]. This scale is scored based on a 5-point Likert scale (1=very low grade, 2=low grade, 3=medium grade, 4=high grade, and 5=very high grade). The designers of the Scale of Fear of Coronavirus Disease used the Dark Future Scale to evaluate the convergence validity of this scale. Pearson correlation coefficient was obtained at 0.59 and using a death phobia scale, it was estimated at 0.58 [36]. The validity of the questionnaire was calculated using Cronbach's alpha coefficient of 0.81. In the present study, the validity of the questionnaire was obtained using Cronbach's alpha coefficient of 0.79.

Ruminative Response Scale (1991)

The Ruminative Response Scale was designed by Nolen, Hoeksema, and Morrow [37] to assess the negative mood response. This questionnaire includes 22 items that are stored in a Likert scale from never [1] to often [4]. The validity of this questionnaire in Iran was evaluated in the study conducted by Bagherinejad, Salehi Federdi, and Tabatabai [38] using Cronbach's alpha coefficient which was estimated at 0.88, indicating the internal consistency of the test. The retest correlation coefficient for ruminative responses was obtained at 0.67 (Laminate, 2004). In a study performed by Golzar, Aflakir, and Molazadeh [39] each item was correlated with the total score of the scale to evaluate the scale validity. The results showed that all items had a significant correlation with the total score of the scale, and the correlation coefficients were obtained between 0.30 and 0.72 (P<0.001).

Internet Attachment-Based Compassion Therapy Model

Internet attachment-based compassion therapy model [22] consisted of eight group sessions. Each session took 2 h (1 session per week) and included formal meditation and compassion training and exercises (breathing and body meditation, mindful yoga meditation, and body checking meditation), informal meditation (eating, walking, showering consciously), compassion methods, such as self-compassion, compassion to friends and people with problems, identification of self-attachment and the way it affects people's current interpersonal relationships, and daily homework that took 15 to 20 minutes. This content was provided through text, audio, videos, observation, and interactive exercises. Downloadable PDF files were available for users to study offline. Formal practices (guided meditations) were provided through the audio systems with specific guides and instructions for each meditation. In addition, copies of each guided meditation were available in form of downloadable PDF files. In addition, during the therapy sessions, the therapist made video calls to the members of the experiment group through cyberspace at the specified time, and the techniques mentioned in the following table were taught.

Summary of sessions

Session	Content	Time
First	Introduction:The participants were thought about the concept of compassion, applications of compassion, the structure, and logic of attachment-based compassion, informal and formal meditation compassion, tips on meditation practice (when, where, how much, and how to meditate), the importance of performing compassion exercises and homework.	120 minutes
Second	The participants were thought how to use compassion for coping with difficult situations and problems and how to write daily notes of self-expression rather than self-criticism.	120 minutes
Third	This session was spent on an in-depth investigation of terms of compassion and meditation conditions, terms related to compassion, fear of compassion, presentation, practice, and the meditation of compassion-based affection, the introduction of secure attachment, what makes one feel good, daily notes of compassion exercises and writing a companionate letter to oneself.	120 minutes
Forth	The session aimed to teach participants about the way compassion acts, how to increase self-compassion, different attachment styles, people with secure attachment, the importance of these attachment styles in daily life, and identification of attachment styles	120 minutes
Fifth	This session aimed to increase one's ability to receive affection (friend, carefree person, and enemy) letters from parents, and observe self-attachment styles in daily life as homework.	120 minutes
Sixth	The importance of affection to oneself and others, practicing expressing affection to friends and others, expressing self-compassion and self-affection, practicing self-loving, noting three positive aspects and three negative aspects of parents.	120 minutes
Seventh	The participants were though about the concept of forgiveness, the stages of forgiveness, the psychological benefits of forgiveness, identification of resistances to forgiveness, forgiving oneself and others, practicing compassion and forgiveness in daily life.	120 minutes
Eighth	The session was about one's values and their relationship with compassion, the benefits of positive communication with others, ways to improve positive relationships, and a review of the contents of past sessions.	120 minutes

Results

In the present study, a total of 32 participants were divided into experimental (n=16) and control groups (n=16). In this study, all participants were elderly women in the age range of 60-65 years. Table1 presents the descriptive indicators of rumination and fear of coronavirus variables.

The results of the table1 show a difference between the scores of variables of rumination and fear of coronavirus in the two experimental groups in the post-test and follow-up, compared to the pre-test. However, no difference was observed for the control group in the post-test and follow-up levels.

As indicated in Table 2, normal distribution of scores and homogeneity of variances were obtained in both study groups. Table 4 presents the results of a multivariable test to evaluate the effectiveness of Internet attachment-based compassion therapy on rumination and fear of coronavirus.

Table 1. Mean±SD of pre-test, post-test, and follow-up of rumination and fear of coronavirus variables in groups of experiment and control

Variable	Group	Pre-test		Post-test		Follow-up	
		M	SD	M	SD	M	SD
Rumination	Experimental	59. 875	6.141	46.312	7.217	45.875	7.338
	Control	60.250	7.037	60.562	6.250	58.937	6.318
Fear of coronavirus	Experimental	18.937	3.275	12.937	4.250	12.00	4.472
	Control	18.875	3.612	19.125	3.721	19.562	3.741

Table 2. Results of Shapiro-Wilk test for normal distribution of data and homogeneity of variances with Levene's test.

Variable		Group	Statistic	DF	Sig	Levene's Test	Sig
Rumination	Pre-test	Experimental	0.967	16	0.795	0.905	0.349
		Control	0.889	16	0.053		
Rumination	Post-test	Experimental	0.952	16	0.517	0.534	0.471
		Control	0.927	16	0.220		
Rumination	Follow-up	Experimental	0.969	16	0.821	0.293	0.592
		Control	0.963	16	0.722		
Fear of disease	Pre-test	Experimental	0.946	16	0.434	0.526	0.447
		Control	0.926	16	0.213		
Fear of disease	Post-test	Experimental	0.952	16	0.524	0.385	0.540
		Control	0.962	16	0.707		
Fear of disease	Follow-up	Experimental	0.953	16	0.533	0.621	0.437
		Control	0.944	16	0/.		

Considering the significance of the effect of time, the data presented in Table 5 indicate a significant difference between the mean of the pre-test, post-test, and follow-up of rumination and fear of coronavirus scores in both experimental and control groups. In other words, in this group, a significant difference was observed between scores of pre-test, post-test, and follow-up levels (P<0.001).

The results indicate the effectiveness of therapy on rumination and fear of disease. Therefore, the level of rumination and fear of disease was significantly decreased in the experiment group. Bonferroni post hoc test was used to compare binary groups (Table 6).

The scores of rumination and fear of coronavirus in the experimental group and the post-test level were less than those in the control group (Table 6).

These results also show that rumination and fear of disease in follow-up were significantly reduced in the experiment group, compared to the control group. This means that the changes in the experimental group have remained stable after one month of follow-up.

Table 3. Presumption results of homogeneity of covariances of rumination and fear of coronavirus variables, based on Mauchly's sphericity test

Dependent variables	W Mauchly	Chi-squared	DF	Sig
Rumination	0.822	5.672	2	0.059
Fear of disease	0.862	4.316	2	0.116

Table 4. Results of multivariable test for the evaluation of the effectiveness of Internet-Based Compassion Therapy on rumination and fear of coronavirus

Tests	Value	F	Sig	η^2	Statistical power
Pillai's Trace	0.817	30.212	0.001	0.817	1
Wilks Lambda	0.183	30.212	0.001	0.817	1
Hotelling's Trace	4.476	30.212	0.001	0.817	1
Roy's Largest Root	4.476	30.212	0.001	0.817	1

Table 5. Repeated measures analysis of variance for the comparison of pre-test, post-test, and follow-up variables of rumination and fear of coronavirus in the groups of experiment and control

Scale	Source of effect	SST	DF	MSE	F	Sig	η^2
Rumination	Time	1104.771	2	552.385	40.247	0.001	0.573
	Time*Group	946.396	2	473.198	34.477	0.001	0.535
	Error	823.500	60	13.725	-		
Fear of disease	Time	193.00	2	96.500	45.441	0.001	0.602
	Time*Group	264.250	2	132.125	62.217	0.001	0.675
	Error	127.417	60	2.124	-		

Table 6. Results of Bonferroni post hoc test for the comparison of rumination and fear of coronavirus

Variable	Group	Levels	MD	SE	Sig
Rumination	Pre-test	Post-test	6.625	0.940	0.001
		Follow-up	7.656	1.076	0.001
	Post-test	Pre-test	-6.625	0.940	0.001
		Follow-up	1.031	0.730	0.504
Fear of disease	Pre-test	Post-test	2.875	0.386	0.001
		Follow-up	3.125	0.406	0.001
	Post-test	Pre-test	-2.875	0.386	0.001
		Follow-up	0.250	0.290	1

Discussion

The present study aimed to investigate Internet attachment-based compassion therapy on rumination and fear of COVID-19 disease in elderly women during the epidemic. The results showed that the Internet attachment-based compassion therapy has been effective on rumination and fear of coronavirus and the results were stable after one month of follow-up.

These results are consistent with the findings of Montreo-Marin et al. [25], Garcia et al.[21], and Macintosh et al. [24] on the effectiveness of attachment-based compassion therapy. In addition, the findings of this study are consistent with many studies that support the benefits of using the Internet in providing evidence-based interventions [22; 41-40].

In the explanation of this finding, it can be said that training compassion-based kindness and meditation can increase the acceptance level [26]. On the other hand, attachment styles affect the way a person deals with stressful situations, and people with safe attachment easily ask for help while accepting the situation [29]. Therefore, elderly women in the stressful condition of the coronavirus epidemic, which can cause more rumination, learn to accept the critical condition of the pandemic after the therapy sessions. Moreover, rather than engaging in repetitive thoughts that exacerbate fear and anxiety, they learned to seek help and practice self-care to maintain health and stop anxiety over diseases, such as coronavirus. In fact, they learn to improve their health by loving themselves, instead of engaging in repetitive and useless thoughts.

In explaining the effectiveness of attachment-based compassion therapy on the fear of coronavirus, one can explain that although all pain can not be resolved or treated, all sufferings can be relieved by compassion. In fact, one can face the problems and sufferings of life through meditation techniques and gain the ability to effectively deal with them with compassion [42]. On the other hand, compassion exercises reduce the frequency of negative thoughts and feelings after a traumatic event [27]. Therefore, during and after therapy sessions, elderly women learned that rather than avoiding fearful thoughts of disease, they can reduce cortisol levels by short-term self-compassion training when experiencing stress. In addition, this training increase heart rate variability, which is associated with higher ability of self-relaxation during a stressful situation [43]. Therefore, it is normal for elderly women in the experiment group to reduce their stress response after therapy sessions by decreasing cortisol levels, which would in turn reduce their fear of disease. On the other hand, people can control their fear of the coronavirus by identifying their attachment style and correcting inappropriate attachments by improving their relationship with others, using appropriate coping strategies.

Regarding the limitations of the present study, one can refer to the fact that this study was conducted on a group of elderly women in Hamedan city, Iran.

Conclusions

Therefore, the generalization of results to other people in different cities with different cultures should be done with caution. It is recommended that similar studies should be conducted in different cities. Moreover, the study results can be used to facilitate planning for psychological interventions in critical conditions of coronavirus or psychological disorders, such as PTSD, obsessive-compulsive disorder, and other anxiety disorders.

Compliance with ethical guidelines
Following ethical guidance, written informed consent was obtained from the participants.

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Authors' contributions
All authors contributed to the preparation of the study manuscript.

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Conflicts of Interest
The authors declare that they have no conflicts of interest regarding the publication of this study.

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