Original Article

The Effect of an Online Mindfulness Self-Compassion Training Program on Psychological Distress in Caregivers of Patients with Cancer

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Abstract

Background: Family caregivers of patients with cancer deal with high levels of psychological distress. **Objectives:** This study aimed to investigate the effect of online mindfulness self-compassion (MSC) training programs on psychological distress in family caregivers of patients with cancer. **Methods:** This quasi-experimental study was conducted in 2020 on 92 family caregivers of patients with cancer. The participants were conveniently recruited from the family caregivers of patients referred to Seyed Al-Shohada Oncology Hospital, in Isfahan, Iran, and randomly allocated to two groups to receive either 1.5 months of online MSC training program or be treated as usual. All participants completed the Kessler psychological distress scale before, immediately after, and 1 month after the intervention. Data were analyzed using the Mann–Whitney U, Chi-square, repeated measures analysis of variance, *t,* and least significant difference *post hoc* tests. **Results:** The mean baseline psychological distress scores were 36.39 ± 4.71 and 35.97 ± 4.06 in the intervention and control groups, respectively ($P > 0.05$). Immediately after the intervention and 1 month after, the mean scores of psychological distress decreased significantly in the intervention group to reach 26.30 ± 3.91 and 27.73 ± 3.49 ($P < 0.001$), but no significant changes were found in the mean distress scores of the control group in the second and third measurements. **Conclusion:** The implementation of an online MSC training program reduced the psychological distress of family caregivers of patients with cancer. Therefore, the same program can be implemented to support such caregivers.

Keywords: *Family caregiver, Mindfulness, Neoplasm, Psychological distress, Self-compassion*

Introduction

Cancer is the second leading cause of death in Western countries.[1] In Iran, it is the third leading cause of death[2] and a major social problem that affects patients, family members, and the healthcare system.[3] Caring for patients with cancer requires a serious effort and significantly affects the lives of caregivers. Caregivers of these patients experience psychological distress, depression, reduced social relationships, and financial problems.[4] The greater the care needs of patients, the greater the burden on the caregivers.[5] In some cases, the psychological distress of caregivers is even greater than the stress of the patients themselves.

This psychological distress is much more at the time of diagnosis.[6]

Distress has been defined as an unpleasant emotional, cognitive, behavioral, social, and spiritual experience that may diminish a person's capacity to cope with a problem. It evokes a wide range of feelings of

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How to cite this article: Noei FR, Atashi V, Ashouri E. The effect of an online mindfulness self-compassion training program on psychological distress in caregivers of patients with cancer. Nurs Midwifery Stud 2022;11:90-5.

Access this article online

Quick Response Code:

Website:
www.nmsjournal.com

DOI:
10.4103/nms.nms_101_21

vulnerability, sadness, grief, and fear, and leads to depression, anxiety, social isolation, and spiritual crises.[7,8] A study from Iran reported that 54% and 64% of family caregivers of patients with cancer suffer from symptoms of psychological distress such as anxiety and depression.[9] A similar study in Germany also reported that the prevalence of distress, anxiety, and depression in families of cancer patients was 49%, 27%, and 35%, respectively.[6]

Various palliative methods have been used to alleviate the distress of patients and their caregivers, one of which is a treatment based on self-compassion. Self-compassion consists of the three main elements of self-kindness, common humanity, and mindfulness.[10] Being kind to oneself means taking good care of oneself rather than criticizing or blaming oneself in the face of difficulties, failures, or inadequacies.[11] Common humanity requires cognition of the human condition and knowing that one is not alone in one's suffering. Mindfulness, on the other hand, involves being aware of painful thoughts and feelings and perceiving them without suppressing or eliminating them.[12] Mindfulness also requires that one not become overly immersed in negative thoughts or feelings,[13] be aware of one's personal shortcomings, while focusing on current experiences, and without judging oneself, pursue important life goals.[14,15] Mindfulness self-compassion (MSC) leads to increased self-compassion, mindfulness, life satisfaction, reduced distress, and improved quality of life.[11]

Some studies have shown the effectiveness of self-compassion and mindfulness interventions on patients with diabetes[15] cancer[13,16,17] and those with depressive symptoms.[18] It has been shown that MSC programs not only improve the feeling of well-being[17] and quality of life,[16] but also decrease the depressive symptoms, distress, anxiety,[14,18,19] and even improve physical measures such as the HbA1c levels.[15] A study also examined the effects of an MSC program on patient caregivers and reported that this method acted as a moderator between stress and depression in caregivers of patients with lung cancer.[5] Another study also confirmed the effectiveness of MSC training on hopelessness and resilience in parents of children with cancer.[20] However, a meta-analysis has shown that MSC affects cognitive and psychological well-being more effectively than emotional well-being.[21] Nonetheless, people's perceptions of self-compassion are not always positive. The participants in a study regarded self-compassion as a negative trait but viewed compassion for others as a positive trait.[22] In this regard, other studies showed that self-compassion alone does not act as a mediator in reducing anxiety and stress in women with breast

cancer and found such outcomes to be influenced by other factors as well, such as connection to God.[23] All of the aforementioned studies have conducted their interventions through face-to-face interactive methods. Nonetheless, a few studies have used online methods to implement self-compassion for psychology trainees[24] or young people with chronic diseases.[25] However, no study has examined the effect of online MSC programs on patients with cancer or their family caregivers. Due to the COVID-19 pandemic and the dangers of face-to-face interventions,[25] the question arises, can an online MSC training program reduce the psychological distress of family caregivers of patients with cancer?

Objectives

This study aimed to investigate the effect of an online MSC training program on the psychological distress of family caregivers of patients with cancer.

METHODS

Study design and participants

A quasi-experimental study with a pretest-posttest design was conducted in 2020 in Seyed Al-Shohada Hospital in Esfahan, Iran. This hospital is a center for providing specialized care to patients with cancer. The study subjects included 92 family caregivers of patients with cancer.

We calculated the sample size based on the results of an earlier study,[11] where an MSC program for women suffering from breast cancer could reduce the mean psychological distress from 27.76 ± 4.20 to 18.23 ± 3.13. Accordingly, with type I of 0.05, a power of 0.80, a $\mu 1$ of 27.76, a $\mu 2$ of 18.23, an $S1$ of 4.20, and $S2$ of 3.13 the sample size was determined to be 32 per group. However, due to the COVID-19 pandemic, and the high possibility of dropout, we recruited 46 caregivers in each group.

$$n = \frac{\left(z_{1-\frac{\alpha}{2}} + z_{1-\beta}\right)^2 \left(\sigma_1^2 + \sigma_2^2\right)}{\left(\mu_1 - \mu_2\right)^2}$$

Family caregivers with the inclusion criteria were recruited conveniently and randomly allocated to an intervention and a control group. For this purpose, a list of patients with cancer and their main family caregivers who met the inclusion criteria as well as their telephone numbers was prepared from the hospital's archives department. Then, the main family caregivers were contacted and invited to the study. Those who agreed to participate were then registered in a new list, were arranged numerically, and were divided into two groups

according to even (control group) and odd (intervention group) numbers [Figure 1].

Inclusion criteria were age of 18 years and over, being the main caregiver of a patient with cancer, caring for a patient with cancer for at least the past 2 months, having no acute physical or mental disability, having a smartphone, and knowing how to use "WhatsApp" software and the Internet, and an inclination to participate in the study. Absence from more than two training sessions, not doing the recommended homework, incomplete response to the questionnaires, and the decision to withdraw from the study were the exclusion criteria.

Data collection instruments

We used a two-part instrument. The first part included 8 questions about the participants' gender, age, marital status, occupation, comorbidities, place of residence, the type of kinship with the patient, and the type of care he/she provides.

The second part of the instrument was the 10-item Kessler psychological distress scale (K10). The K10 is designed to identify mental disorders in the general population and assesses the mental status over the past month.[26] All items are rated on a 5-point Likert scale ranging from "1: always" to "5: never." The overall score can range between 10 and 50, and the lower score indicates a better psychological condition.[27] Vaziry and Kashani evaluated the validity and reliability of the Persian translation of K10 and its Cronbach's alpha and split-half correlation coefficient were reported 0.94 and 0.86, respectively.[28] All participants have completed the study instrument in three stages before, immediately after, and 1 month after the intervention.

Intervention

As the study coincided with the COVID-19 pandemic, the MSC sessions were mostly held online through the "BigBlueButton" and assignments were followed through the WhatsApp messenger. Therefore, the MSC program was held in two face-to-face and eight online sessions. The first and last sessions were held face-to-face in one of the educational classes of Seyed Al-Shohada Hospital. These two sessions lasted 2 h and the other (online) sessions lasted about an hour. Participants were also encouraged to perform MSC practice at home for approximately 20 min a day. The therapist also encouraged them to practice daily by sending text messages, reminders, and recorded voices to the WhatsApp group.

All training sessions were conducted by a therapist in collaboration with an expert psychologist, who had experience in holding self-compassion workshops. Before the project, the therapist participated in the MSC training course and extensively studied related texts in this field.[11,13] The educational materials of each session were approved by a clinical psychologist before each session is held. The project advisor and a psychologist supervised all the sessions. Caregivers in the control group received no intervention but completed the K10 at the same time as patients in the intervention group.

Ethical considerations

The present research has been registered in the Ethics Research Committee of Isfahan University of Medical Sciences (ethics code: IR.MUI.RESEARCH.REC.1399.507). The objectives of the study were explained to all of the participants before participating in the study and they were assured that their information will be kept confidential. Participants were fully informed of their free will to participate and withdraw from the study and the informed consent form was completed by them.

Data analysis

The data were analyzed using the SPSS software version 16 (SPSS, Inc., Chicago, IL, USA). Descriptive statistics such as frequency, percent, mean and standard deviation were used to describe the data. The Kolmogorov–Smirnov test was used to examine the normality of quantitative variables. To compare the two groups in terms of demographic variables, Mann–Whitney U, Chi-square, and *t*-tests were used. Furthermore, *t*-test, repeated measures analysis of variance, and least significant difference *post hoc* tests were used to compare the two groups in terms of psychological distress. The significance level was set at 0.05 for all statistical analyses.

RESULTS

Among the 92 caregivers who enrolled, 33 ones in the intervention group and 36 ones in the control group completed the study. The mean age of caregivers was 38.52 ± 11.14 and 35.22 ± 9.16 in the intervention and the control groups, respectively ($P > 0.05$). The majority of caregivers in the two groups were female, married, and housekeepers. The two groups did not significantly differ respecting their demographic characteristics [$P > 0.05$, Table 1].

The results showed that the mean baseline psychological distress was not significantly different between the two groups ($P = 0.69$). Repeated measures analysis was performed to compare changes in psychological distress scores over the three consecutive measurements. Mauchly's test showed that sphericity was not assumed ($\chi^2[2] = 49.47$, $P < 0.001$). Therefore, the degrees of freedom were corrected using the Greenhouse–

Table 1: Demographic characteristic of family caregivers of cancer patients

Demographic characteristics of family caregivers	Groups, *n* (%)		df	*P*
	Intervention	Control		
Sex				
Male	13 (39.4)	14 (38.9)	1	0.97
Female	20 (60.6)	22 (61.1)		
Marital status				
Single	5 (15.2)	9 (25)	3	0.31
Married	26 (78.8)	24 (66.7)		
Divorce	1 (3)	3 (8.3)		
Widow	1 (3)	0		
Job				
Self-employed	8 (24.2)	12 (33.2)	5	0.61
Unemployed	3 (9.1)	5 (13.9)		
Employee	8 (24.2)	6 (16.7)		
Manual worker	0	1 (2.8)		
Housekeeper	13 (39.5)	10 (27.8)		
Retired	1 (3)	2 (5.6)		
Residency				
Urban	31 (93.9)	30 (83.3)	-	0.16
Rural	2 (6.1)	6 (16.7)		
Comorbidity				
Yes	9 (27.3)	8 (22.2)	1	0.63
No	24 (72.7)	28 (77.8)		
Caregiver family relationship				
Sister	5 (15.2)	4 (11.1)	5	0.06
Brother	6 (18.2)	1 (2.8)		
Mother	6 (18.2)	10 (27.8)		
Father	1 (3)	5 (13.9)		
Child	8 (24.2)	13 (36.1)		
Spouse	7 (21.2)	3 (8.3)		

Data presented as *n* (%)

Geisser test. The results showed that over time, the use of MSC program could significantly decrease the mean psychological distress score in the intervention group (*F* = 148.26, df = 1.31, and *P* < 0.001). In fact, the mean score of psychological distress in the intervention group decreased immediately after the intervention (*P* < 0.05) and then remained almost stable.

Given the significant interaction between the measurement time and the type of intervention (group) (*F* = 134.36, df = 1.31, and *P* < 0.001), the *t*-test was used to conduct pair-wise comparisons between the two groups at the three measurement time points. The results illustrated that the mean psychological distress was significantly different between the two groups both at the second (*P* < 0.001) and third measurements (*P* < 0.001) [Table 2]. Also Table 2 shows the mean psychological distress did not significantly change in the control group over the three measurement time points.
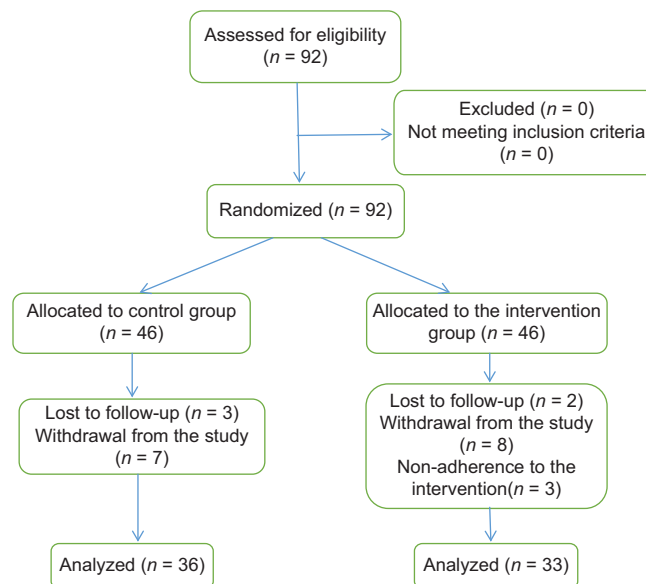
Figure 1: The consort diagram of study

DISCUSSION

This study is one of the few studies that used the MSC program to reduce the psychological distress of family caregivers of patients with cancer. According to the findings of the present study, a 10-session MSC training program could reduce the psychological distress in caregivers of patients with cancer. Family caregivers of patients with cancer are distressed by new roles and responsibilities and changes in their personal lives. These life changes increase their psychological burden, distort their perception of the current situation, and even caused them to forget many of their activities.[8] These caregivers can also pass on their psychological distress to their patients. Studies have shown the effectiveness of MSC training in reducing psychological burden. Therefore, such interventions can benefit caregivers of patients with cancer.[15] The findings of the present study showed a reduction in psychological distress in caregivers. In line with our results, an earlier study showed that caregivers' mindfulness and self-compassionate can alleviate their stress and depression.[5] Our results are also consistent with the studies of Poorhosseini *et al.*,[11] Brooker *et al.*,[13] and Friis *et al.*[15] who showed that self-compassion not only improves the self-kindness and resilience of women with breast cancer but also enhances their ability to fulfill their personal responsibilities.[11] Studies also showed that learning self-compassion has emotional and physical benefits in patients with diabetes[15] and those with nonprogressive cancer.[13]

In line with our findings, mindfulness and self-compassion have been reported to improve communication and performance in couples facing cancer

Table 2: Mean score of psychological distress in the intervention and control groups before and after the intervention

Time	Mean±SD		P^a	P, (RM ANOVA)	
	Intervention	Control		The effect of group	The interaction between time and group
Before	36.39±4.71	35.97±4.06	0.69	<0.001	<0.001
Immediately	26.30±3.91	35.69±4.13	<0.001		
1 month after	27.73±3.49	35.81±4.27	<0.001		
P^b	<0.001	0.54			

[a]*t*-test, [b]ANOVA in *post hoc* analysis, in the intervention group showed that the scores at 2nd and 3rd measurement did not significantly differ (*P*=0.42). However, the scores at 1st and 2nd measurements (*P*<0.001) and also at 1st and 3rd measurements significantly (*P*<0.001) differed from each other). SD: Standard deviation, RM ANOVA: Repeated measures analysis of variance

and reduce their psychological distress.[29] Furthermore, mindfulness can eliminate the negative impact of stress on mental health.[11,13] Increased mindfulness also reduces disturbing thoughts and uncontrolled, sudden, and inconsistent responses; thus, caregivers can make more conscious actions and respond to stress in more adaptive ways.[30] Mindfulness seems to improve the caregivers' thought process and their personal and social interactions, allowing to them make better decisions. Mindful caregivers tend to seek more information about cancer and its treatment, improve communication with patients, and encourage patients to communicate and help themselves. The combination of these factors might help reduce the psychological distress of both the caregiver and the patient.

Our results show that the effects of MSC programs last for at least a month. Self-compassion involves both listening to and accepting oneself, and along with mindfulness, it can reduce anxiety, prevent confusion and daydreaming, and have a positive effect on lifestyle and quality of life over time.[5] The combination of these factors can cause the long-term continuity of the effects of the educational program. Therefore, it seems that the use of MSC skills can reduce the psychological distress of cancer caregivers both in the short and long term.

In summary, our results showed that an online MSC training program was effective in relieving psychological distress among family caregivers of patients with cancer. These findings were congruent with earlier studies in different groups of patients[25,31] or students.[24] However, in this study, due to the nature of the study, we were not able to make the study blind from the participants. Moreover, the rate of attrition was high among our participants in the two groups. Furthermore, many caregivers were reluctant to participate in the study due to the outbreak of COVID-19. Therefore, caregivers of all types of cancers were enrolled in this study to reach the required sample size. Further studies, on specific groups of caregivers, with longer follow-up, and blind designs are suggested.

CONCLUSION

The findings of this study revealed that family caregivers of cancer patients experience psychological distress, and the online MSC program has had beneficial effects on reducing this distress. Due to the feasibility and cost-effectiveness of online MSC programs, health-care providers, especially nurses and physicians are recommended to pay attention to the psychological health of caregivers of patients with cancer and implement similar programs to improve their mental health and decrease their distress. Family caregivers will then be able to provide better care for themselves and their patients.

Conflicts of interest

There are no conflicts of interest.

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