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ORIGINAL PAPER

The Effect of a Mindful Self-Compassion Intervention on Burden, Express Emotion and Mental Well-Being in Family Caregivers of Patients with Schizophrenia: A Randomized Controlled Trial

Neslihan Lök[1] · **Kerime Bademli**[2]

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Abstract
The objective of this randomized controlled trial was to examine the impact of a mindful self-compassion intervention on burden, express emotion, and mental well-being in family caregivers of patients with schizophrenia. Standardized measures, including the ZARIT Caregiving Burden Scale, Expressed Emotion Scale and Warwick-Edinburgh Mental Well-Being Scale, were administered at baseline, post-intervention. Statistical analysis was conducted to assess differences between the two groups. Significant reductions in caregiver burden, expressed emotion, and enhanced mental well-being in the intervention group compared to the control group at post-intervention. The results of this randomized controlled trial indicate that the mindful self-compassion intervention significantly reduces caregiver burden, expressed emotion, and improves mental well-being in family caregivers of patients with schizophrenia. These findings underscore the potential utility of mindful self-compassion interventions as effective support for this population, highlighting the importance of integrating such interventions into caregiver support programs.

Keywords Mindful self-compassion · Burden · Express emotion · Mental well-being · Caregivers · Schizophrenia

Background

Schizophrenia is a common, severe mental illness that can negatively affect thoughts, perceptions, and behaviors and impair functionality (McCutcheon et al., 2020). The complexity of the illness presents significant obstacles for people suffering from schizophrenia as well as significant consequences for the family. People with schizophrenia often fail to fulfill their expected roles, and family members often take on the care and support of patients. A family member assumes the role of caregiver, performing roles such as performing the patient's activities of daily living, preventing accidents, administering medication, and managing behavioral problems and finances (Stanley & Balakrishnan, 2021). Caregiving responsibilities for schizophrenia patients can be stressful since they can have an impact on the caregivers' health, employment, social life, relationships, and quality of life (Shah et al., 2010). Caring for patients with long-term schizophrenia may adversely affect the mental well-being of caregivers (Siddiqui & Khalid, 2019).

Caregivers of schizophrenia patients often feel overwhelmed, stressed, drained, burdened, frustrated, or angry (Kamil & Velligan, 2019). A meta-analysis showed that feelings and emotions are at the core of caregivers' care experiences (Cleary et al., 2020). There is evidence that caregivers of patients with schizophrenia experience decreased mental well-being and a high level of burden (del-Pino-Casado et al., 2019; Alyafei et al., 2021). Previous studies have found that caregivers who reported high care burden also showed a high level of expressed emotions (Wei et al., 2022). Under these circumstances, family interventions that include coping skills to help manage pressure and negative emotions can help caregivers cope with difficulties.

A systematic review and meta-analysis of family interventions for caregivers of patients with schizophrenia concluded that psychosocial interventions could significantly

✉ Kerime Bademli
kerimedemirbas@akdeniz.edu.tr

[1] Faculty of Nursing, Psychiatric Nursing Department, Selcuk University, Konya, Turkey

[2] Faculty of Nursing, Psychiatric Nursing Department, Akdeniz University, Antalya, Turkey

improve families' psychosocial functioning and knowledge of illness/treatment. (Argolo et al., 2020; Claxton et al., 2017; Tao et al., 2021). Mindful self-compassion programs can be effective interventions for caregivers of patients with schizophrenia to cope with their burden, decrease their emotional expression, and increase their mental well-being. Neff's (2003) conceptualization of self-compassion consists of three interrelated components. Self-compassion, as opposed to self-criticism, involves responding to one's own suffering with understanding and warmth. Recognition of common humanity promotes empathy and connection by emphasizing the shared nature of human struggles. Mindfulness encourages a balanced awareness of one's feelings without being caught up in overly negative reactions. Self-compassion has been found to be positively related to psychological well-being indicators, such as life satisfaction and subjective well-being, and negatively related to anxiety and depression (Allen & Leary, 2010; Neely et al., 2009). Research by Raes (2011) suggests that self-compassion is linked to increased psychological well-being, offering caregivers a potential buffer against stress, anxiety, and depression. Krieger et al. (2013) and Germer and Neff (2013) discuss how self-compassion aids caregivers in coping with societal stigma and judgment, fostering resilience in the face of external challenges. Terry et al. (2013) and Barnard and Curry (2011) suggest that self-compassion is associated with improved emotional regulation, enabling caregivers to navigate the emotional complexities inherent in schizophrenia caregiving. One study found that self-compassionate caregivers of individuals with dementia tend to experience lower levels of caregiver burden. More importantly, preliminary evidence suggests that self-compassion can improve in caregivers (Danucalov et al., 2017). In this context, this study aimed to examine the effect of a mindful self-compassion program applied to caregivers of patients with schizophrenia on care burden, mental well-being, and emotional expression.

Hypotheses of the Study

Hypothesis (H1): Caregivers of patients with schizophrenia who underwent a mindful self-compassion program had a lower care burden than the control group.

Hypothesis (H2): Caregivers of patients with schizophrenia who received a mindful self-compassion program had less emotional expression than the control group.

Hypothesis (H3): The mental well-being of caregivers of patients with schizophrenia who were given a mindful self-compassion program was lower than that of the control group.

Methods and Materials

Study Design

The present study was a randomized controlled study with two groups and was designed in the experimental pretest-posttest pattern. This randomized controlled study was conducted at the psychiatry policlinic of one University Hospital. The randomized controlled trial had two conditions: the intervention condition and a waiting list control condition. To explore the effect of the Mindful Self-Compassion Intervention on the caregiver's outcome measures, data was collected at two measurement occasions, pre-intervention and post-intervention, in both experimental and control groups.

Participants

The population of the study consisted of 80 caregivers registered at the psychiatry policlinic who are also the first-degree relatives of individuals diagnosed with schizophrenia according to DSM V. The selection of the individuals who participated in the study was carried out at the psychiatry policlinic. A list of schizophrenia patients was obtained from the psychiatry policlinic after which the experiment and control groups were determined via simple randomization method. The caregivers who agreed to participate in the study were classified into two groups of 40 people as intervention and control groups via full randomization method without carrying out sample size calculation. The study's inclusion criteria were: consenting to participate in the study; being literate and over the age of 18, being the primary caregiver responsible for the care and treatment of a patient diagnosed with schizophrenia, and having been in the care and treatment of a patient diagnosed with schizophrenia for at least one year prior to the study for a period of more than three months. In our study, having a diagnosed and untreated mental illness and the caregiver not attending at least two sessions were determined as exclusion criteria.

Sample size

In calculation of the sample size, effect size was taken as 0,5634242 (Cohen d) (Murfield et al., 2020), power as 0.95, and type I margin of error as 0.05, and the sample size was calculated as 80 caregivers.

Randomization

Caregivers of patients with schizophrenia who met the inclusion criteria were randomly allocated to the experimental group or the control group. The caregivers of patient with

schizophrenia who agreed to participate in the study were selected randomly using the simple randomization method. The participants were assigned to the experimental ($n=40$) and control groups ($n=40$). First, the socio-demographic characteristics of patients with schizophrenia and their caregivers were collected using the records, and the caregivers were selected. Then, the author contacted all the selected primary caregivers of the patients. Samples in the control group received routine care. After the experimental phase of the research started, no participants left or were expelled for any reason. The CONSORT Scheme of the study is shown in Fig. 1. No blinding was made in the study.

Measurements

The information form developed by the researchers for evaluating the sociodemographic properties of the individuals in the intervention and control groups, the ZARIT Caregiving Burden Scale, Expressed Emotion Scale and Warwick-Edinburgh Mental Well-Being Scale were used as data acquisition tools in the study.

Zarit Caregiver Burden Scale

The Zarit Caregiver Burden Scale was used to measure burden. This scale was developed by Zarit et al. (1980), and was utilized to examine the stress experienced by those who provide care to individuals with special needs or to older adults. The scale can be completed by the caregivers or the researchers by asking questions. It consists of 22 statements that determine the effect of caregiving on the individual's life. This was a Likert-type scale including items scored from "0" to "4", which refer to never, rarely, often, or almost every time. A minimum of 0 (zero) points and a maximum of 88 points could be received from the scale. The scale had no cut-off point. Scale items referenced to social and emotional concerns. Higher scale points meant the respondents had a higher level of difficulty (Zarit et al., 1980). The validity of the Caregiver Burden Scale was examined by İnci in İnci, 2006 using the language equivalence, content equivalence, and structural equivalence methods of the scale. Reliability of the scale was examined using internal consistency, item analysis, and test-retest reliability methods. In the

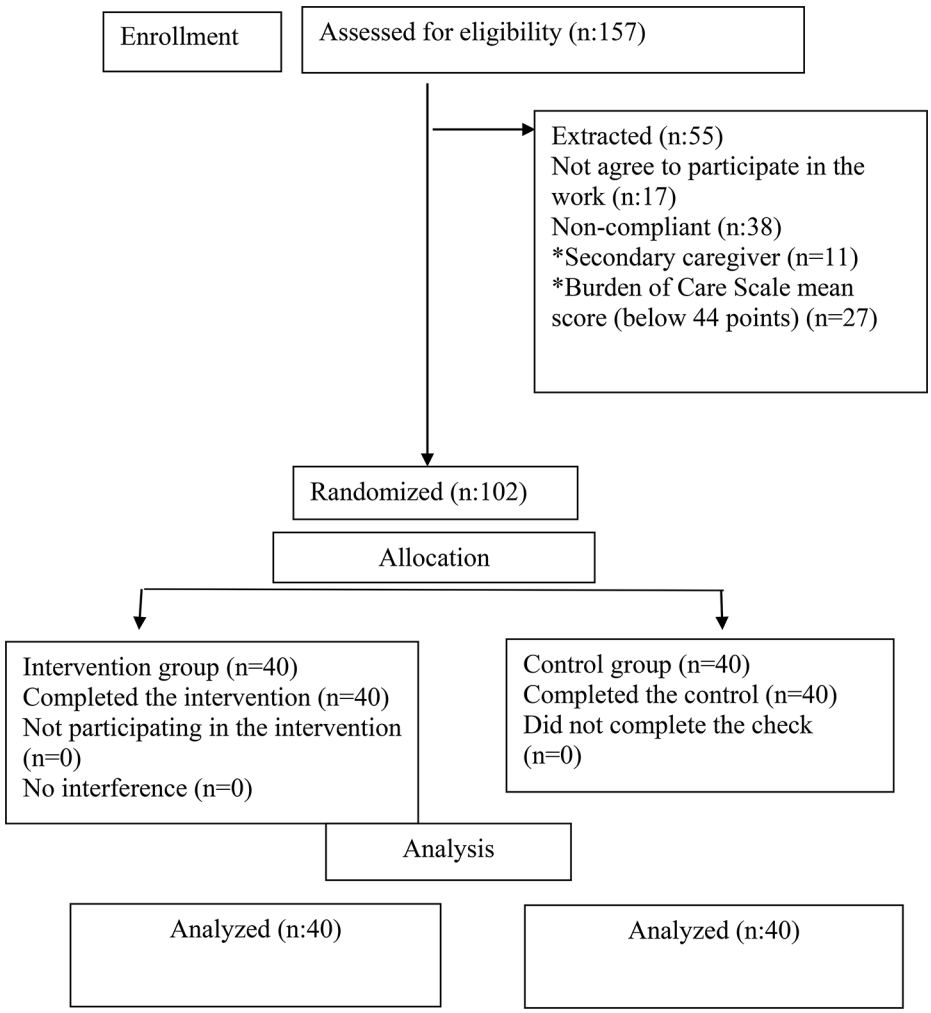

Fig. 1 CONSORT schema

study, the internal consistency of the scale was determined as (alpha:0.91), test-retest reliability (0.86), and inter-rater consistency (0.63) (İnci, 2006). The alpha score obtained in this study was 0.87.

Expressed Emotion Scale

This scale was adapted from Expressed Emotion Level Scale, which was developed by Cole & Kazarian, 1988. The validity and reliability study of The Turkish version of the adapted scale was conducted by Oguz Berksun in 1992 with a Cronbach alfa score of 0.893. This 41-item scale includes questions related to how the family members perceive the patient and themselves which are graded between 0 and 1. The scale has two subscales, the first of which is Criticism and Hostility, including 29 items, and the second of which is Excessive Emotional Over-Involvement, comprising 12 items. When items 3, 8, 14, 28, 30, 36, 39 and 41 are marked as 'false', one point is given. When the other 17 items are answered as 'true', one point is given and when the contrary, no point is given. Positive views and attitude expressions are scored in reverse. High scores on the scale indicate that the emotional state being expressed is high; in other words, high scores show that the family's critical/hostile or over-protective/protective attitudes towards the patient are high (Berksun, 1992). In this study, its Cronbach's alpha internal consistency coefficient was determined as 0,81.

Warwick-Edinburgh Mental Well-Being Scale

The scale was developed by Tennant et al., 2007 to assess mental well-being. The scale has 14 items rated in a 5-point Likert type scale. The lowest and highest scores of the scale are 14 points and 70 points, respectively. Higher scores signify higher mental well-being. The scale consists of a single factor. In the Turkish version, the Cronbach's alpha internal consistency coefficient of the scale was found to be 0.92. In item analysis, factor load values of the scale items ranged from 0.55 to 0.82 (Keldal, 2015). In this study, its Cronbach's alpha internal consistency coefficient was determined as 0,73.

Intervention

The content of the program was designed in accordance with the relevant literature before the study was implemented entia (Neff, 2004, Neff, 2013, Neff & Beretvas, 2013, Neff & Germer, 2013, Neff & Dahm, 2015, Smeets et al., 2014, Bluth et al., 2016). While preparing the program, the concepts and techniques of the individual-centered approach and the cognitive-behavioral approach were used. The sessions were administered to the participants individually by face-to-face meeting. A quiet environment with little stimulation was chosen for the sessions. The program was carried out as a 6-week session every week to help participants gain awareness-based self-compassion skills. Sessions lasted an average of 60 min. The program consists of six sessions for strengthening the caregiver, decreasing the caregiving burden, expressed emotion and developing mental wellbeing behaviors. Detailed information about the sessions is presented in Table 1.

Data Analysis

Data of the study were evaluated using SPSS for Windows 25.0 (Statistical Package for Social Science) statistical package software. The total scores of individuals for each scale were calculated after the pre-test and post-test data were collected. First number and percent distributions were examined for evaluating the data after which the variables of the two groups were compared among each other and t-test was used for those that fit the normal distribution and Wilcoxon sign test for those that do not. Intergroup homogeneity chi-square analysis was used for the comparison of the independent variables of both groups. The results were evaluated to be within the% 95 reliability interval and $p < 0.05$ statistically significance level.

Ethical Procedures

Ethical approval was obtained (27.02.2023/9) from the University Ethical Council in order to be able to carry out the study, whereas corporate approval was obtained from University Hospital. The name, objective, duration and type of the study were explained to all individuals assigned to the intervention and control groups and consent forms were read. Thus, it was ensured that they understood the objective and scope of the study. Written consents were taken from patients who accepted to participate in the study. Data acquisition and application were started after taking the consent of the participants. Details of the intervention were explained to the members of the intervention group.

Results

The distributions of the caregivers of patients with schizophrenia in the experiment and control group of the study with regard to their descriptive properties are given in Table 2.

The difference between the caregiving burden scale score averages in the experiment and control groups were evaluated via t- test. Whereas no statistically significant difference was determined between the two groups prior to the

Table 1 Mindful self-compassion program

Session	Content of the Session	Goals
Session 1 Introduction of the content of the program, Information about Schizophrenia, Definition of Mindfull Self-compassion	An overview of the program Caregivers were informed about schizophrenia. Definition of mindful self-compassion is explained. How do I behave especially towards my loved ones I care for? How do I approach myself with self-compassion? How much compassion am I showing myself? It includes several hands-on activities, such as the self-compassion break, that encourage participants to self-discover mindful self-compassion.	Burden of Care, Expressed Emotion Mental Well-Being
Session 2 Gaining mindfulness skills	The focus is on the mindfullness of the participants. Practices were made for careful breathing and physical sensations to be realized with mindfullness. In this session, a connection was established between Self-compassion and mindfulness through practices such as compassionate breath meditation and body and breath mindful meditation. The relationship of self-compassion with body and breath mindfulness was emphasized.	Burden of Care, Expressed Emotion Mental Well-Being
Session 3 Loving-kindness and compassion	The participants were taught to develop loving kindness and to approach themselves with kindness. In this session, exercises such as loving kindness meditation for a loved one, walking with loving kindness, using loving kindness expressions, being loving kindness for ourselves, and three-minute breath awareness were performed.	Burden of Care, Expressed Emotion Mental Well-Being
Session 4 Finding compassionate and loving voice	Participants were directed to an exercise to find the "compassionate and loving voice" within them, and they were allowed to express this by choosing a writing or an art activity. Compassion meditation exercise was given to them to discover the effect of self-compassion on the body.	Burden of Care, Expressed Emotion Mental Well-Being
Session 5 Learning to identify and cope with difficult emotions	The relationships between self-compassion and forgiveness and self-compassion and anger were explained to the participants. They were asked to describe the difficult feelings they stated about caregiving. They are encouraged to discuss difficult feelings in depth. Afterwards, they were given the opportunity to reflect on the concepts of forgiving themselves and forgiving others. Mountain meditation and the meditation of facing difficulties were applied to help them cope with challenging emotions.	Burden of Care, Expressed Emotion Mental Well-Being
Session 6 Positive Thinking and Self-Acceptance General evaluation and closure	Participants were taught to realize positive feelings and generate positive emotions, to appreciate themselves and to transfer their self-compassion skills to their daily lives. Participants were supported to choose the most appropriate self-compassion practices for them. Afterwards, a general evaluation of the program was made.	Burden of Care, Expressed Emotion Mental Well-Being

program (p:0.72), it was determined after the program that the caregiving burden score averages of the caregivers in the experiment group were lower in comparison with those of the control group and that the difference was statistically significant (p:0.00) (Table 3).

Pre-test and post-test score averages for the Expressed Emotion Scale were compared for caregivers in the experiment and control groups. The difference with respect to time between the Expressed Emotion Scale of the experiment and control groups were evaluated via t test. According to the analysis, a statistically significant difference ($p < 0.05$) was determined between the experiment group before and after the program, whereas no statistically significant difference was determined for the control group ($p > 0.05$) (Table 4).

It was indicated that the mean mental well-being of individuals in the experimental group increased after intervention relative to mindful self-compassion program (day 0) and the difference was statistically significant ($p < 0.05$). Although there was no statistically significant difference between the mean scores of the Warwick-Edinburgh Mental Well-Being Scale experimental and control groups pre-mindful self-compassion program, the average score of the experimental group was higher than the control group after the program and the difference was found to be statistically significant ($p < 0.05$) (Table 5).

Table 2 Comparison of the sociodemographic properties of the experiment and control groups

Sociodemographic characteristics	Experimental group (n:40)		Control group (n:40)		p
	n	%	n	%	
Gender					
Female	23	57,5	22	55,0	0,822
Male	17	42,5	18	45,0	
Marital status					
Married	23	57,5	21	52,5	0,653
Single	17	42,5	19	47,5	
Education status					
Primary scholl	11	27,5	10	25,0	0,789
High scholl	15	37,5	18	45,0	
University	14	35,0	12	30,0	
Perceived health status					
Good	9	22,5	18	45,0	0,079
Middle	21	52,5	17	42,5	
Bad	10	25,0	5	12,5	
Perceived income					
Good	26	65,0	18	45,0	0,195
Middle	10	25,0	15	37,5	
Bad	4	10,0	7	17,5	
	Experimental group		**Control group**		**p**
	$\bar{X}$ **±SD**		$\bar{X}$ **±SD**		
Age	43,75 ± 4,92		42,40 ± 3,35		0,457
Year of care	4,92 ± 1,65		3,35 ± 1,18		0,348

Table 3 Zarit caregiving burden scale score averages comparison for the experiment and control group

Bakım Verme Yükü Ölçeği	Experimental group (n:40) Mean ± SD	Control group (n:40) Mean ± SD	t**	p
Baseline	58,92 ± 6,24	58,12 ± 6,81	0,547	0,72
Post intervention	46,75 ± 5,24	58,97 ± 7,27	0,116	0,000***
t*	t:-7,774	t:-4,567		
p	0,000***	0,15		

*t = t-test in dependent groups

**t = t-test in independent groups

***$p < 0.05$

Table 4 Expressed emotion scale score averages comparison for the experiment and control group

Expressed emotion scale	Experimental group (n:40) Mean ± SD	Control group (n:40) Mean ± SD	t**	p
Baseline	28,50 ± 3,25	29,00 ± 3,65	0,646	0,520
Post intervention	24,17 ± 3,27	29,72 ± 3,70	7,098	0,000***
t*	t:7,696	t:5,706		
p	0,000***	0.63		

*t = t-test in dependent groups

**t = t-test in independent groups

***$p < 0.05$

Table 5 Warwick-Edinburgh mental well-being scale score averages comparison for the experiment and control group

Warwick-Edinburgh mental well-being scale	Experimental group (n:40) Mean ± SD	Control group (n:40) Mean ± SD	t**	p
Baseline	36,92 ± 5,22	36,12 ± 5,21	0,685	0.49
Post intervention	44,80 ± 5,15	35,72 ± 5,15	9,780	0.000***
t*	t:1,47	t:2,49		
p	0,000***	0,495		

*t = t-test in dependent groups

**t = t-test in independent groups

***$p < 0.05$

Discussion

The purpose of this study was to determine the efficacy of a mindful self-compassion program for improving burden, expressed emotion and mental well-being among caregivers of patients with schizophrenia by analyzing the results of a randomized controlled study of a mindful self-compassion program versus a control group. The results of this randomized controlled trial provide valuable insights into the potential benefits of a mindful self-compassion program intervention for family caregivers of patients with schizophrenia. The study found that participants who underwent the 6-week mindful self-compassion program experienced a significant reduction in caregiver burden, emotional expression, and improved mental well-being compared to the

control group. The observed reduction in caregiver burden aligns with previous research emphasizing the benefits of mindfulness-based interventions in ameliorating the psychological and emotional strain experienced by caregivers. A meta-analysis by Neff and Germer (2013) demonstrated that mindfulness programs can effectively mitigate burden by fostering a non-judgmental awareness of stressors and promoting adaptive coping strategies. The current study's findings support and extend this body of evidence, suggesting that the incorporation of self-compassion principles enhances the positive impact of mindfulness interventions on caregiver burden. A short-term psychoeducation program may not reduce the burden on caregivers of people with psychosis or improve mental health outcomes. However, integrating mindfulness into a traditional psychoeducation program for families may reduce caregiver burden (Zhang et al., 2023). In the Goodridge et al. (2021) study, a mindfulness-based self-compassion program similar to this study was implemented, but it was reported that the program did not significantly change caregiver burden but did increase caregivers' emotional well-being. The observed reduction in caregiver burden is consistent with previous research on mindfulness-based interventions. Studies have shown that mindfulness practices can enhance caregivers' coping strategies, reduce stress, and improve overall well-being (Neff & Germer, 2013; Zhang et al., 2019). The mindful self-compassion intervention's emphasis on cultivating self-compassion may have empowered caregivers to be more understanding and kind to themselves while facing the challenges of caregiving for a loved one with schizophrenia. This self-compassion may have provided a buffer against the emotional toll of caregiving, leading to reduced feelings of burden.

The decrease in expressed emotion among participants who received the mindful self-compassion intervention is a noteworthy finding. Caregivers often face significant emotional suppression, as they may feel the need to remain strong and composed for the sake of their loved ones with schizophrenia (Chien et al., 2016). However, such emotional suppression can lead to emotional exhaustion and negatively impact mental well-being. The mindful self-compassion intervention likely encouraged caregivers to acknowledge and express their emotions more openly, fostering a healthier emotional processing and allowing for a release of emotional tension. The improvement in mental well-being among the mindful self-compassion intervention group is a crucial outcome. Caregiving for individuals with schizophrenia can take a toll on caregivers' mental health, leading to increased risks of depression, anxiety, and burnout (Liu et al., 2019). High levels of expressed emotion within the family environment have been linked to increased rates of relapse and poorer outcomes for individuals with schizophrenia (Butzlaff & Hooley, 1998). Therefore, interventions that effectively reduce expressed emotion among caregivers are of great significance. The incorporation of mindful self-compassion interventions in the context of schizophrenia caregiving is a novel and promising approach. Mindful self-compassion involves cultivating mindfulness and self-compassion skills to navigate difficult emotions with kindness and non-judgment (Neff & Germer, 2013). Such interventions have demonstrated efficacy in reducing caregiver burden and improving mental well-being in various populations (Poulin et al., 2008).

The mindful self-compassion intervention's focus on self-compassion and self-care likely contributed to enhanced resilience and reduced psychological distress among participants. Furthermore, the improvement in mental well-being among caregivers in the intervention group supports the notion that mindful self-compassion interventions may serve as a valuable resource for promoting psychological resilience and coping strategies (Khoury et al., 2013). Caregivers are often vulnerable to mental health challenges due to the chronic stress associated with their role, and interventions that enhance mental well-being can contribute to the overall quality of caregiving.

Strengths and Limitations

The study's specific focus on family caregivers of patients with schizophrenia provides a targeted and in-depth exploration of the potential benefits of a mindful self-compassion program within a specific caregiving context. This focused approach allows for a detailed understanding of the challenges unique to schizophrenia caregiving. The study demonstrates short-term efficacy, showing significant improvements in caregiver burden, expressed emotion, and mental well-being following the 6-week mindful self-compassion program. This suggests that the intervention has the potential to yield relatively quick benefits for caregivers dealing with the stressors associated with schizophrenia caregiving.

While the findings of the current study on the efficacy of a mindful self-compassion program for family caregivers of patients with schizophrenia are promising, several limitations should be acknowledged, highlighting areas for future research and refinement. The absence of long-term follow-up assessments is a notable limitation. The study's design primarily focused on short-term outcomes, and the lack of extended follow-up data impedes a thorough understanding of the intervention's lasting effects. Caregiver experiences are dynamic, and the sustainability of the observed benefits over time remains uncertain. In conclusion, while the current study offers valuable insights into the positive effects of a mindful self-compassion program for family caregivers

of patients with schizophrenia, the aforementioned limitations underscore the need for cautious interpretation and continued investigation. Addressing these limitations in future research will contribute to a more robust understanding of the intervention's generalizability, long-term efficacy, and potential confounding factors, ultimately enhancing the applicability and impact of mindful self-compassion programs in diverse caregiving contexts.

Conclusion

The present randomized controlled trial demonstrates the potential of a Mindful Self-Compassion intervention in reducing caregiver burden, expressed emotion, and enhancing mental well-being among family caregivers of individuals with schizophrenia. These findings have significant implications for developing targeted interventions to support and enhance the well-being of caregivers in similar populations. Encouraging caregivers to practice self-compassion and mindfulness may lead to better caregiving outcomes and improved overall quality of life for both caregivers and their loved ones with schizophrenia.

Data Availability

The data that support the findings of this study are not openly available due to reasons of sensitivity and are available from the corresponding author upon reasonable request.

Declarations

Conflict of Interest The authors declare no conflict of interest.

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