EFFICACY OF MULTI-MODEL INTERVENTION ON REDUCING PERCEIVED BURDEN AMONG CAREGIVERS OF INDIVIDUAL WITH PSYCHIATRIC ISSUES: A SINGLE GROUP PILOT STUDY

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Abstract

Background: Despite the crucial role of caregivers in handling psychiatric patients, addressing caregivers burden in the home or hospital setting is remains a significant challenge in the psychiatric nursing. **Objective:** The purpose of this study is aimed to examine the efficacy of a newly developed Multi-Model Intervention for the caregivers who handling / taking care of psychiatric patients, specifically in Salem District. **Methods:** This is a single-group pretest-posttest study utilized with randomization. The Zarit Caregiver Burden Scale (ZCBS/CBS) was administered to 261 caregivers of patients with psychiatric illness for early screening. Thirty (30) caregivers were randomly selected who have scored higher in CBS for this study. **Results:** The results revealed that there is no significant gender difference on burden score on the baseline measure. On comparing pretest-posttest of burden score, it was found that the Multi-Model Intervention program significantly reduced the burden score of caregiver (t-value=6.39).**Conclusion:** This newly developed Multi-Model Intervention was significantly helped to reduce the burden of the caregivers and gains in handling skills, relaxed mood, reduced stress level, and were found as well. These findings provide promising evidence of the effectiveness of this newly developed Multi-Model Intervention for the caregivers as a strategy to promote caregiver's personal and psychosocial well-being.

Keywords: Multi-Model Intervention, Burden, Caregiver, Psychosocial Well-Being.

INTRODUCTION

Caregiver burden has been inspected inside a range of social, cognitive and behavioural models(Gutiérrez-Maldonado, Caqueo-Urízar, & Kavanagh, 2005). One set of models is based on stress and coping. In this different approach, indications, behaviours, and incapabilities of the patients, and difficulties in adapting with the illness operate as stressful natural components upon caregivers. When caregivers assess these objective demands as surpassing their adapting capacities, subjective burden and passionate trouble or distress are experienced. The caregiving stressors work inside the full setting of stressors experienced by the caregiver, counting disgrace concerning psychiatric issues, as well as financial issues and other family issues(Ampalam, Gunturu & Padma, 2012). Adapting or counting aptitudes and social behaviour, act as protective parameters. The identity and mental well-being of the carer moderates evaluations, concentrated of enthusiastic reactions and degrees of adapting. Net comes around can be unfavourable or valuable for carers. Thus, caregiver burden is multifaceted including social, physical, monetary, and mental

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domains and no one definition exists. Concurring to stress and coping theory caregiver burden happens when adjusting capacities or resources available to caregivers are seen to be inadequately or insufficiently to meet the demands (Dillehay & Sandys, 1990).

Expanding coping resources by giving caregivers with suitable data, abilities and support through psychosocial interventions have the potential to diminish caregiver burden(Schulze & Rössler, 2005). Interventions that have taken different approaches, rather than single, have been more effective in influencing the focused on outcome, such as caregiver burden. Intervention programs tailored to specific caregiver circumstances or to particular understanding behaviours instead of a common system or approach have been more effective in influencing the distinguished result(Siddiqui, & Khalid, 2019). At last, past research has shown that caregivers can procure skills and knowledge that allow them to carry out advanced tasks.

A meta-analysis of psycho-educationalinterventions, abilities preparing, and restorative counseling for caregivers of patients appeared caregiver burden was decreased but that enhancements in caregiver burden were misplaced with time(Sörensen et al., 2002). Numerous studies showed that advancements in symptoms associated with caregiver burden indeed when caregiver burden itself was not significantly made strides and also pilot studies conducted in various domains (Butler et al., 2005; Navidian et al., 2012; Martin-Carrasco et al., 2016; Tkatch et al., 2017; Karim & Venkatachalam, 2022). Given these broad effects on numerous troubling caregiver indications, endeavours at lower hazard interventions are likely warranted. Although numerous studies have been performed over the past three decades, more studies need to enhance the development and evaluation of effective intervention strategies incorporating with relaxation and other valuable techniques.

Considering the above existing literature, the present study investigated the efficacy of newly developed multi-model intervention in reducing caregiver burden of psychiatric patients.

MATERIALS AND METHODS

A total of 261 caregivers were screened from September, 2021 to December, 2022, who attended Government Mohan Kumaramangalam Hospital, Outpatient Psychiatric ward in the city of Salem, Tamil Nadu. The methodology was based on a single-group pretest-posttest with a randomized trial. Caregivers for patients with psychiatric illnesses were evaluated at the Psychiatric Outpatient ward after obtained from the hospital dean and the consent with the participants.

Participants were administered using Tamil version of the Zarit Caregiver Burden Scale and it was standardized by the researcher and obtained high Cronbach's alpha coefficient of 0.769 (Bagavathi et al., 2023). The ZCBS revealed acceptable internal consistency showed that adequate test-retest reliability of the scale (0.824; Bagavathi et al., 2023). The original Zarit Caregiver Burden Scale was developed by Zarit (Zarit, Reever, & Bach-Peterson, 1980) and team to measure the Burden of caregivers.

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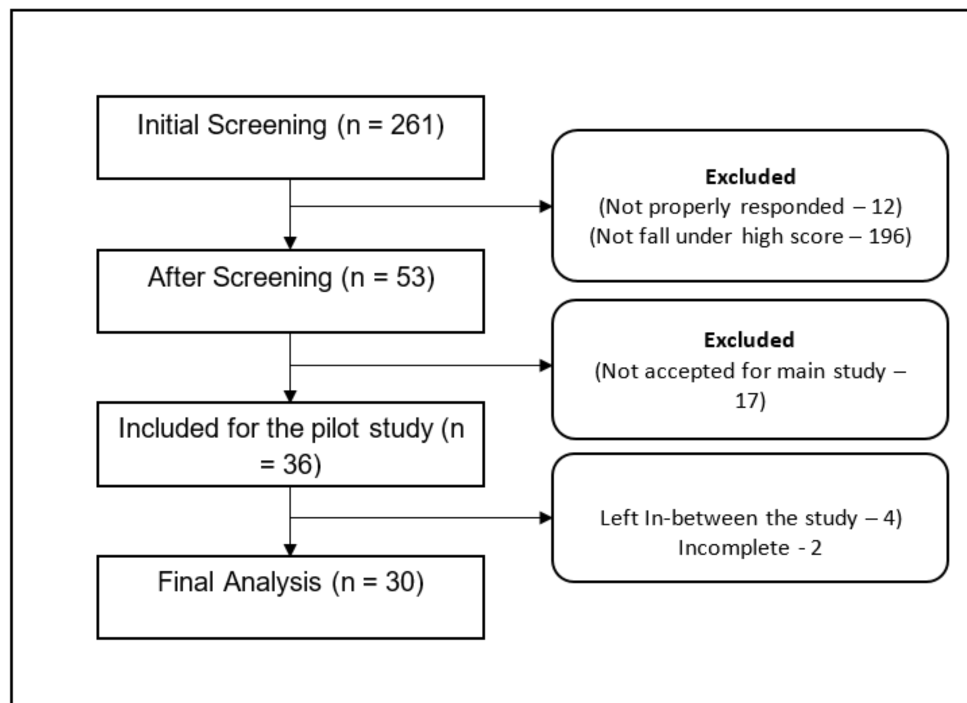
Figure 1: A flow chart demonstrating the participants screening and final selection process



Multi-Model Intervention

In this study, Multi-Model Intervention was incorporated with (1) Progressive Muscle Relaxation Techniques, (2) Box Breathing Techniques, and (3) Psycho education for the caregivers included. Progressive Muscle Relaxation (McCallie et al., 2006; Matsumoto & Smith, 2001)means that one of the body's reactions to fear and anxiety is muscle tension. This can result in feeling "tense", or relaxation can lead to muscle aches and pains, as well as leaving some people feeling exhausted. Think about how you respond to anxiety. Muscle relaxation can be particularly helpful in cases where anxiety is especially associated to muscle tension. Secondly, Box Breathing Techniques(Gholamrezaei et al., 2021; Ahmed et al., 2021) refers to "Box" breathing uses the count of 4 to guide your breathing and find a comfortable place to sit or lie down. Close the participants' eyes and take a deep breath in through nose for a count of 4. And ask to breathe deep into their lower lungs and hold their breath for a count of 4. Followed that exhale through your mouth for a count of 4.As you continue to breathe deeply, you can chose to silently say a mantra. "Breathing in peace and calm" on the inhale and "breathing out worry and tension" on the exhale. Thirdly, a psycho-education mediation module was planned for the caregivers conveyed in six week by week sessions. Caregivers were asked to take an interest in 5 minutes sessions once each two weeks, in this way accepting psycho-education over a four month period. The primary two sessions were utilized to supply data around the sickness, its course, forecast, result, and its impact on the patient's feelings and behaviours.

Statistical analysis

Data analysis were performed using the Jamovi software (Jamovi, 2021). The paired-t test method was used to assess the significant differences in their pre and post-test ratings.

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RESULTS

Sample characteristics

Characteristics of the participants are provided in Table 1. Participants were 41.3 years of age, on average. Out of 30 participants, 13 were male (43.33%) and 17 were female (56.67%). Over half of the participants were educated above 6th grade and 25 participants were Hindu (83.33%) and 73.34% of participants lived and categorized under single family (22). Three participants were not studied and they comes under illiterate category. Only two participants were under the category of Post Graduate and above (06.66%). As based on income, six participants were under the category of earning five thousand and below, followed by, only two participants were under the category of earning fifteen thousand and above (06.66%). Further, three (3) participants were muslin and two (2) as Christian community and 30.00% of participants were not having any income (9).

Table 1: Participants characteristics (N = 30) and baseline score on ZCBS

	n	%	ZCBS (SD)
Gender			
Male	13	43.33	50.90 (3.25)
Female	17	56.67	49.90 (4.57)
Age Category			
20-30 Years	9	30.00	50.90 (3.66)
31-40 Years	4	13.33	49.30 (3.20)
41-50 Years	8	26.67	50.50 (5.01)
51-60 Years	9	30.00	50.10 (4.25)
Education			
Illiterate	3	10.00	51.70 (2.08)
Upto 5th Grade	9	30.00	49.70 (5.50)
6th to 12th Grade	8	26.67	50.50 (3.30)
Diploma or UG	8	26.67	50.50 (4.21)
PG and Above	2	06.66	50.00 (2.83)
Income			
Nill	9	30.00	51.90 (3.72)
1 to 5,000	6	20.00	50.30 (5.09)
5,001 to 10,000	6	20.00	47.70 (2.07)
10,001 to 15,000	7	23.34	50.60 (4.12)
15,001 and above	2	06.66	50.50 (6.36)
Religion			
Hindu	25	83.33	50.50 (4.11)
Christian	2	06.66	46.00 (2.83)
Muslim	3	10.00	52.00 (2.00)
Family			
Single family	22	73.34	50.40 (3.89)
Joint family	6	20.00	51.50 (4.76)
Extended family	2	06.66	46.50 (0.71)

Further, Table 1also shows that participants' mean scores on the Zarit Caregiver Burden Scale (ZCBS)were used during screenings. The mean pre-test ZCBS score based on gender for the male was 50.90 (SD=3.25), and the female mean score was 49.90 (SD=4.57). On Age-based category, the mean score for 20-30 years age group, was 50.90 (SD=3.66), followed by the mean score for 31-40 years age group was 49.30 (SD=3.20),the mean score for 41-50 years age group was 50.50 (SD=5.01),and the mean score for 51-60 years age group, was 50.10 (SD=4.25). The education-based classification revealed that the mean score for illiterate category was 51.70

(SD=2.08), followed by the mean score for upto 5th grade was 49.70 (SD=5.50), and only the score was 50.00 (SD=2.83) secured by the category of who have studied above post graduate. On religion based classification, Hindu religious group participants were secured 50.50 (SD=4.11), whereas the mean score for Christian group was 46.0 (SD=2.83), and the Muslim group was scored as 52.00, which is the highest among religion based groups (SD=2.00). Based on family type, single family group mean score was 50.40 (SD=3.89), joint family group mean score was 51.50 (4.76) which is the high among the group, and the extended family group mean score was 46.50 (SD=0.71), which is the low as compare to all the groups. Analysis also showed that there is no group difference on baseline score of ZCBS scores among gender, age-category, education, Income, Religion, and family type.

Table 2: Comparison of pretest-posttest scores on ZCBS

		Mean Difference	Paired t-test
Pretest ZCBS	Posttest ZCBS	3.67	6.39*

Note: *<0.05 level of significance

Table 2 shows that paired t-test analysis of baseline and posttest score of burden scale which undergone to know the effect of Multi-Model Intervention. Through the analysis, it was found that the Multi-Model Intervention program significantly improved and reduce the burden of the caregiver who undertake psychiatric patients in their family (t-value = 6.39). It showed that the ZCBS score decreased as compare to the baseline score of ZCBS (50.30 ± 4.02 vs. 46.70 ± 5.23).

DISCUSSION

The main results of this present study is that those related with primary outcomes (ZCBS), support a moderate efficacy of the newly developed multi-model intervention administered in a single group format to reduce the subjective burden associated with caregiving of patients with psychiatric illness. The ZCBS score diminishment at postintervention presents a direct impact in support of the mediation gather and the change is kept up at follow-up, with a critical interaction of treatment by time. The same drift of caregiver burden lessening over time was found with the education that covers with the burden of the ZCBS. Portion of the disparity watched between the results of both scales might be clarified by the distinctive builds they degree. Focusing on the caregivers who had the Multi-model intervention, those more likely to diminish the burden would be the ones with higher levels of burden at the starting of the mediation(Tkatch et al., 2017). On the other hand, caregivers with outside offer assistance don't appear to diminish the burden as much as caregivers who had no get to outside assets (basicallyfinancial benefits for caring). Likely, they speak to caregiver clusters with diverse requests on caring related with seriousness of the infection(Yilmaz et al., 2019; Çapacı et al., 2022).

Although the study provided some positive outcomes, there are some confinement or limitations on consider that mainly the study utilized single group study without control group and hence there is no way of comparing to the control group. The nonappearance of a control group avoids assessing the influence of the intervention compared to a no intervention group. Without a doubt in show disdain toward of the truth that the result of this consider proposes that a promising approach to reduce

the caregiver burden of the participants undertaking psychiatric patients, progress think around is required to confirm the revelations. Additionally future study about the fundamental to evaluate the practicality of this newly developed Multi-Model Intervention program by utilizing the longitudinal consider or with the control group consider.

CONCLUSION

In spite of the limitations, the Multi-model intervention provide a solid evidence to reduce the caregivers' burden. By and large, this ponder gives preparatory back for the possibility and potential adequacy of the relaxation intervention when conveyed to the caregiver. The comes about of this pilot think about back avoiding outburst with the psychiatric patients or deferring change of mental status through diminishing based on the newly intervention associated with caregivers. As within the setting, this interventional program is viable and a follow-up stage is additionally required to affirm the discoveries of the ponder. Moreover, extra considers ought to too examine with larger sample specifically, longitudinal or randomized controlled trial based study, and replicating the findings of the study can offer assistance to prove the adequacy of the intervention program as well. This intervention that diminish caregiver burden can empower caregivers' psychological well-being to delay arrangement of the person in any setting and make strides quality of life for both the caregiver and care beneficiary.

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Disclosure

The authors report no conflicts of interest in this work.

References

1) Ahmed, A., Gayatri Devi, R., & Jothi Priya, A. (2021). Effect of Box Breathing Technique on Lung Function Test.

2) Ampalam, P., Gunturu, S., & Padma, V. (2012). A comparative study of caregiver burden in psychiatric illness and chronic medical illness. *Indian journal of psychiatry*, *54*(3), 239.

3) Bagavathi, K., Sangeetha, S., Annam, S., Subramani, G., & Geetha, P. (2023). Psychometric Properties of Tamil Version of the Caregiver Burden Scale in Caregivers of Patients with Psychiatric Illness. *Indian Journal of Natural Sciences, 13*(76), 52437-52443.

4) Butler, S. S., Turner, W., Kaye, L. W., Ruffin, L., & Downey, R. (2005). Depression and caregiver burden among rural elder caregivers. *Journal of Gerontological Social Work*, *46*(1), 47-63.

5) Çapacı, S., Aşiret, G. D., & Kapucu, S. (2022). Effect of progressive muscle relaxation on caregiver satisfaction, caregiver burden and depression levels of the caregivers of older patients: A randomized control trial. *European Journal of Integrative Medicine*, *50*, 102114.

6) Dillehay R & Sandys M. (1990). Caregivers for Alzheimer's patients: What we are learning from research. Int J Aging and Hum Dev; 30(4): 263–285.

7) Gholamrezaei, A., Van Diest, I., Aziz, Q., Vlaeyen, J. W., & Van Oudenhove, L. (2021). Psychophysiological responses to various slow, deep breathing techniques. *Psychophysiology*, *58*(2), e13712.

8) Gutiérrez-Maldonado, J., Caqueo-Urízar, A., & Kavanagh, D. J. (2005). Burden of care and general health in families of patients with schizophrenia. *Social psychiatry and psychiatric epidemiology*, *40*, 899-904.

9) Karim, M., & Venkatachalam, J. (2022). A randomized pilot study of a cognitive intervention for the elderly with Mild Cognitive Impairment. *ECS Transactions*, *107*(1), 8383.

10) Martin-Carrasco, M., Fernandez-Catalina, P., Dominguez-Panchon, A. I., Gonçalves-Pereira, M., Gonzalez-Fraile, E., Munoz-Hermoso, P., & Ballesteros, J. (2016). A randomized trial to assess the efficacy of a psychoeducational intervention on caregiver burden in schizophrenia. *European Psychiatry*, *33*(1), 9-17.

11) Matsumoto, M., & Smith, J. C. (2001). Progressive muscle relaxation, breathing exercises, and ABC relaxation theory. *Journal of clinical psychology*, *57*(12), 1551-1557.

12) McCallie, M. S., Blum, C. M., & Hood, C. J. (2006). Progressive muscle relaxation. *Journal of human behavior in the social environment*, *13*(3), 51-66.

13) Navidian, A., Kermansaravi, F., & Rigi, S. N. (2012). The effectiveness of a group psycho-educational program on family caregiver burden of patients with mental disorders. *BMC research notes*, *5*, 1-7.

14) Schulze, B., & Rössler, W. (2005). Caregiver burden in mental illness: review of measurement, findings and interventions in 2004–2005. *Current opinion in Psychiatry*, *18*(6), 684-691.

15) Siddiqui, S., & Khalid, J. (2019). Determining the caregivers' burden in caregivers of patients with mental illness. *Pakistan journal of medical sciences*, *35*(5), 1329.

16) Sörensen, S., Pinquart, M., & Duberstein, P. (2002). How effective are interventions with caregivers? An updated meta-analysis. *The gerontologist*, *42*(3), 356-372.

17) The Jamovi Project. jamovi-1. Published online 2021. https://www.jamovi.org

18) Tkatch, R., Bazarko, D., Musich, S., Wu, L., MacLeod, S., Keown, K., ... & Wicker, E. (2017). A pilot online mindfulness intervention to decrease caregiver burden and improve psychological well-being. *Journal of evidence-based complementary & alternative medicine*, *22*(4), 736-743.

19) Yilmaz, C. K., Aşiret, G. D., Çetinkaya, F., OludaĞ, G., & Kapucu, S. (2019). Effect of progressive muscle relaxation on the caregiver burden and level of depression among caregivers of older patients with a stroke: A randomized controlled trial. *Japan Journal of Nursing Science*, *16*(2), 202-211.

20) Zarit S, Reever K, Bach-Peterson J. (1980). Relatives of the impaired elderly: Correlates of feeling of burden. Gerontologist; 20: 649–655

21) GMKMC & H/4341/2019-567/ overnment Mohan Kumaramangalam medical college