RESEARCH PAPER

Effect of a Structured Supportive Counseling Intervention on Caregiver Burden, Emotional Distress, and Quality of Life Among Family Caregivers of Patients with Heart Failure

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ABSTRACT

Background: Heart failure (HF) is one of the most common chronic cardiovascular conditions worldwide and is associated with high morbidity and long-term care needs. Family caregivers play a vital role in supporting patients with heart failure and assisting in their daily management. However, the continuous responsibilities of caregiving can place a considerable physical and psychological burden on caregivers, often leading to increased stress levels and symptoms of depression.

Aim: The present study aimed to evaluate the effectiveness of a structured counseling intervention in reducing caregiver burden, perceived stress, and depressive symptoms among caregivers of patients with heart failure.

Methods: A quasi-experimental research design was used for this study. A total of 60 caregivers of patients with heart failure were recruited through consecutive sampling and assigned to experimental and control groups. Caregivers in the experimental group received a 30-minute structured counseling session delivered individually through telephone. Baseline data were collected before the intervention, and a follow-up assessment was conducted one month later via telephone. Data were collected using standardized tools including the Caregiver Burden Interview, Perceived Stress Scale (PSS), and Patient Health Questionnaire-9 (PHQ-9) to measure caregiver burden, perceived stress, and depression.

Results: The findings demonstrated that caregivers in the experimental group showed a significant reduction in caregiver burden, perceived stress, and depression scores one month after the counseling intervention (P = 0.001). Female caregivers reported significantly higher levels of caregiver burden and depression compared with male caregivers. Furthermore, caregivers living in nuclear family settings exhibited significantly greater caregiver burden and depressive symptoms. A significant positive correlation was also found between stress levels and the presence of comorbidities, as well as between depression and comorbid conditions.

Conclusion: The study findings indicate that structured counseling is an effective intervention for reducing caregiver burden and improving psychological well-being among caregivers of patients with heart failure.

Keywords: Heart failure, caregiver burden, structured counseling, perceived stress, depression, family caregivers

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Introduction

Heart failure (HF) is a complex and progressive clinical condition that represents a significant global public health challenge. It is estimated that more than 64 million individuals worldwide are affected by heart failure, making it one of the leading causes of morbidity and mortality. In developing countries such as India, the prevalence of heart failure is approximately 1% of the total population, with an estimated annual mortality ranging from 0.1 to 0.16 million individuals. The increasing prevalence and mortality associated with HF have made it a growing healthcare burden for the country. Family caregivers play a crucial role in supporting individuals living with heart failure. They assist patients in daily activities, medication adherence, symptom monitoring, and decision-making related to treatment. For patients who live alone or experience social isolation, the role of caregivers becomes even more critical in maintaining proper disease management and self-care practices. However, the continuous demands of caregiving often expose caregivers to considerable physical, emotional, and psychological strain. These challenges can contribute to increased caregiver burden and may lead to elevated levels of stress and depressive symptoms. Heart failure is characterized by a fluctuating and unpredictable disease trajectory, which requires caregivers to frequently adapt to changing responsibilities and care demands. Research indicates that caregivers of individuals with chronic illnesses are at an increased risk of experiencing various physical and psychological health problems. Maintaining the physical and emotional well-being of caregivers is therefore essential, as their health status directly influences the quality of care provided to patients with heart failure. Education and guidance for both patients and caregivers regarding the nature of the disease, treatment regimen, and self-care practices are fundamental components of effective heart failure management. Providing caregivers with appropriate knowledge and skills can improve patient outcomes and support better disease control without significantly increasing the caregiving burden. Furthermore, the active involvement of family caregivers is vital for ensuring adherence to treatment plans and facilitating effective management of the patient's condition. Reducing caregiver burden, stress, and depression can have a positive impact not only on caregivers themselves but also on the overall health and quality of life of patients with heart failure. Psychological support interventions, such as structured counseling, have been shown to be effective in helping caregivers cope with the challenges associated with long-term caregiving. Previous studies have demonstrated that counseling interventions can significantly reduce emotional distress and improve coping abilities among caregivers. Despite the growing recognition of caregiver needs, there remains limited evidence regarding structured counseling interventions specifically designed for caregivers of heart failure patients after hospital discharge. Therefore, the present study was undertaken to evaluate the effectiveness of structured counseling in improving selected outcomes, including caregiver burden, stress, and depression, among caregivers of patients with heart failure.

Research Objectives

The study aimed to assess the baseline levels of caregiver burden, stress, and depression among caregivers of heart failure patients. It further evaluated the effectiveness of structured counseling in reducing caregiver burden, alleviating perceived stress, and mitigating depressive symptoms among the caregivers. Additionally, the study examined the associations between selected demographic variables and caregiver burden, stress, and depression to identify factors influencing caregiver outcomes.

Research Hypotheses

Materials and Methods

H1: Structured counseling **significantly reduced** caregiver burden among caregivers of heart failure patients.
H2: Structured counseling **significantly reduced** perceived stress among caregivers of heart failure patients.
H3: Structured counseling **significantly reduced** depressive symptoms among caregivers of heart failure patients.
H4: There **was** a significant association between selected demographic variables and caregiver burden, stress, and depression.

Study Design and Setting

This study was conducted as a quasi-experimental, non-randomized controlled trial at the Heart Failure (HF) clinic, which operates as part of the outpatient services of the Department of Cardiology. The study was approved by the Institutional Ethics Committee.

Sample Size and Sampling

The sample size was calculated based on an anticipated reduction of nine points in caregiver burden scores in the experimental group compared with the control group, with a significance level of 5% and 80% statistical power. The estimated sample size was 23 participants per group. Accounting for a potential 20% dropout rate, 30 caregivers were recruited for each group, resulting in a total sample of 60 caregivers. Participants were selected consecutively from the HF clinic based on the inclusion and exclusion criteria, and verbal consent was obtained telephonically along with patient information sheets.

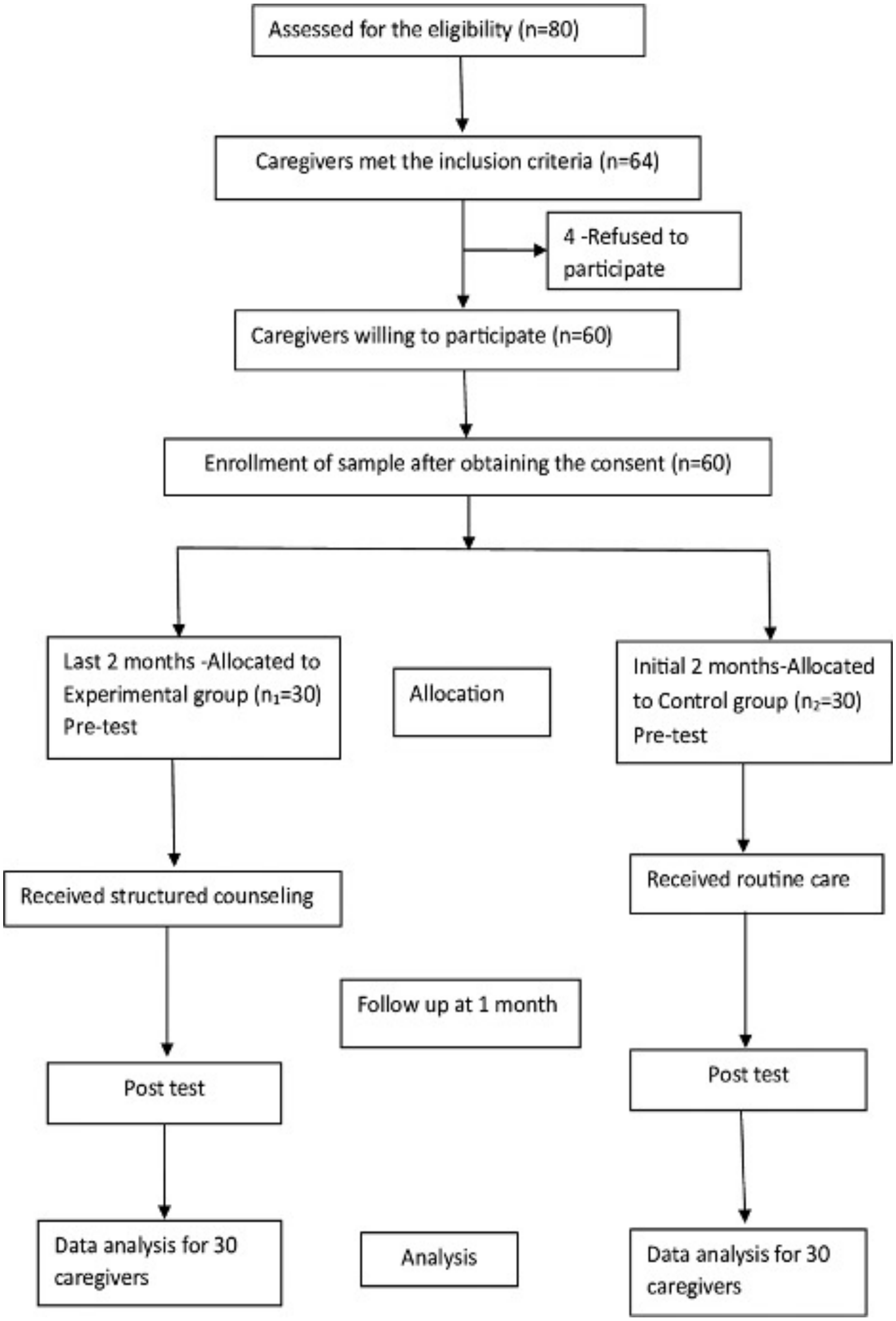
Inclusion Criteria

- Adult caregivers of patients diagnosed with heart failure for more than one year.
- Blood relatives who have been living with the patient for at least one month.
- Patients classified under NYHA Class I–IV.
- Caregivers who could understand Urdu or English and had access to a phone or smartphone.

Exclusion Criteria

- Paid caregivers.
- Caregivers with hearing impairment, cognitive impairment, or diagnosed mental illnesses.
- Caregivers with comorbid chronic conditions such as stroke, dementia, cancer, diabetes, or other mental health disorders.

A schematic representation of the study design is presented in the CONSORT diagram (Figure 1).


Assessed for the eligibility (n=80)
Caregivers met the inclusion criteria (n=64)
4 -Refused to participate
Caregivers willing to participate (n=60)
Enrollment of sample after obtaining the consent (n=60)
Last 2 months -Allocated to Experimental group (n₁=30) Pre-test
Allocation
Initial 2 months-Allocated to Control group (n₂=30) Pre-test
Received structured counseling
Received routine care
Follow up at 1 month
Post test
Post test
Data analysis for 30 caregivers
Analysis
Data analysis for 30 caregivers

Data Collection Instruments

Demographic and Clinical Data:

A structured self-developed questionnaire was used to collect demographic and clinical information of caregivers and patients.

Primary Outcome Measures:

1. Caregiver Burden: Assessed using the Zarit Caregiver Burden Interview (ZBI), a 22-item self-reported questionnaire on a 5-point Likert scale (0 = never, 4 = nearly always). Higher scores indicate greater caregiver burden. The reliability of the tool is 0.92. Permission to use the tool was obtained from the original author.
2. Perceived Stress: Measured using the Perceived Stress Scale (PSS), a 10-item self-administered questionnaire rated on a 5-point scale (0 = never, 4 = almost always). Higher scores indicate higher stress levels. The tool has a reliability of 0.82 and is in the public domain.
3. Depression: Assessed using the Patient Health Questionnaire-9 (PHQ-9), a self-administered tool with scores ranging from 0 (not at all) to 3 (nearly every day). Higher scores indicate greater severity of depressive symptoms. The reliability of PHQ-9 is 0.84 and is freely available for use.

Intervention: Structured Counseling

The experimental group received a 30-minute individualized structured counseling session delivered telephonically. The counseling content was developed using a PowerPoint presentation and covered multiple components:

- Stress Management: Definition, signs and symptoms, impact on caregiver and patient health, coping strategies.
- Time Management: Importance of personal time and strategies to enjoy and utilize time effectively.
- Medication Compliance: Information on HF medications (beta-blockers, diuretics, ACE inhibitors), side effects, importance of adherence, and vaccination.
- Routine Assessment: Monitoring vital parameters including weight, pulse, and blood pressure, with guidance on normal ranges.
- Delegation of Responsibilities: Encouraging caregivers to share duties with family members or friends.
- Relaxation/Self-Care: Training in Jacobson's Progressive Muscle Relaxation (JPMR) and deep breathing exercises via WhatsApp video call.
- Caregiver Education: Diet, lifestyle management, hydration, exercise, physician visits, and adoption of healthy coping strategies.
- Diet, Rest, and Sleep: Guidance on sodium and water restriction, cholesterol avoidance, adequate rest, and sleep hygiene.

Each session included a 10–15-minute rapport-building phase, followed by counseling, and concluded with a Q&A session allowing caregivers to clarify doubts.

Delivery Schedule:

- One session per caregiver, conducted telephonically on Day 0 after the pretest.
- Exercises and relaxation techniques were demonstrated online via WhatsApp video call.
- Sessions were scheduled at the caregiver's convenience.

The control group received routine care provided by the HF clinic without additional counseling.

Outcome Assessment and Follow-Up

Pretest assessments of caregiver burden, perceived stress, and depression were conducted telephonically before the intervention. Follow-up assessments were conducted one month after the intervention using the same standardized tools. Data were analyzed to compare pretest and posttest scores within and between groups to determine the effectiveness of the structured counseling intervention.

Heart Failure Caregivers Intervention Format (Summary Table)

Component	Details
Name of intervention module	Structured counseling for HF caregivers
Duration	30 minutes
Rapport building duration	10–15 minutes
Format	Individual, one-on-one
Time of delivery	At caregiver convenience
Intervention aids	PowerPoint presentation, caregiver education materials
AV aids used	Yes
Interaction/Q&A	Yes, for clarification of doubts

Component	**Details**
Relaxation exercise included	Yes (JPMR & deep breathing)
Frequency	One session, Day 0 after pretest

Development of Intervention

The structured counseling intervention for caregivers of heart failure (HF) patients was developed following a comprehensive review of the literature and under the guidance of the research supervisors. The PowerPoint presentation and relaxation exercises were prepared to provide caregivers with practical guidance on stress management, patient care, and self-care. The content was validated by a panel of experts, and modifications were incorporated based on their feedback to ensure relevance and feasibility. The intervention included educational content, relaxation exercises, and guidance for coping with caregiver responsibilities. Follow-up data were collected at baseline and one-month post-intervention for both the experimental and control groups.

Statistical Analysis

Data analysis was performed using STATA 14. Descriptive statistics were reported as frequencies and percentages for categorical variables. Quantitative data were assessed for normality using the Shapiro–Wilk test. Normally distributed data were expressed as mean ± standard deviation (SD), while skewed data were expressed as median (minimum–maximum). Comparisons between the experimental and control groups were conducted using Chi-square or Fisher's exact test for categorical variables. Independent t-tests, paired t-tests, and ANCOVA were used for normally distributed data, and non-parametric tests (Wilcoxon rank-sum, Mann–Whitney, Wilcoxon signed-rank) were used for skewed data. Associations between variables were evaluated using Spearman's correlation, independent t-tests, and Kruskal–Wallis tests with post-hoc Dunn's test where applicable. A p-value < 0.05 was considered statistically significant.

Results

The mean age of caregivers was 42.1 ± 12.68 years in the experimental group and 40.1 ± 10.79 years in the control group. Most caregivers were female, and demographic and clinical characteristics were comparable between groups (Tables 1 and 2).

Table 1: Comparison of sociodemographic profile between the experimental and control group (n=60)

Variables	Control group (n_1=30), f (%)	Experimental group (n_2=30), f (%)	*P*
Age (years), mean±SD	40.1±10.79	42.1±12.68	0.527
Gender			
Male	9 (30.00)	4 (13.33)	0.209
Female	21 (70.00)	26 (86.67)	
Occupational status			
Employed	7 (23.33)	4 (13.33)	0.402
Self-employed	3 (10.00)	6 (20.00)	
Unemployed	20 (66.67)	20 (66.67)	
Educational qualification			
Uneducated	4 (13.33)	3 (10.00)	0.696
Elementary	2 (6.67)	3 (10.00)	
Senior secondary school	9 (30.00)	13 (43.33)	
Graduation and above	15 (50.00)	11 (36.67)	
Marital status[b]			
Married	24 (80.00)	24 (80.00)	0.99
Unmarried	5 (16.67)	6 (20.00)	
Widow	1 (3.33)	0	
Place of residence			
Rural	12 (40.00)	11 (36.67)	0.791
Urban	18 (60.00)	19 (63.33)	
Monthly family income (Rs.)[b]			
<10,000	4 (13.33)	6 (20.00)	0.883
10,000–<20,000	8 (26.67)	6 (20.00)	
20,000–<40,000	7 (23.33)	6 (20.00)	
40,000 and above	11 (36.67)	12 (40.00)	
Nuclear	15 (50.00)	17 (56.67)	0.605
Extended	15 (50.00)	13 (43.33)	
Relationship with patient[b]			
Wife	10 (33.33)	12 (40.00)	0.688
Husband	5 (16.67)	3 (10.00)	
Daughter	3 (10.00)	1 (3.33)	

Son	2 (6.67)	3 (10.00)	
Mother	5 (16.67)	8 (26.67)	
Father	2 (6.67)	0	
Others	3 (10.00)	3 (10.00)	
Duration of caregiving (years)/time (months)^{c}, median (minimum–maximum)	42 (13-240)	47.5 (13-288)	0.744

^{i}independent *t*-test, ^{b}Fisher's exact test or Chi-square, ^{c}Wilcoxon rank-sum or Mann–Whitney test, $P<0.05$. SD: Standard deviation

Caregiver Burden

At baseline, caregiver burden scores were higher in the experimental group compared with the control group. Following the intervention, ANCOVA analysis revealed a significant reduction in caregiver burden within the experimental group (adjusted mean ± SE: 23.0 ± 1.13, p < 0.001), whereas the control group showed a slight increase in scores. Female caregivers and those living in nuclear families reported higher caregiver burden (p = 0.046 and p = 0.016, respectively).

Table 2: Comparison of clinical variables of experimental and control group (*n*=60)

Variables	Control group (n_1=30), f(%)	Experimental group (n_2=30), f (%)	P
NYHA functional class^{b}			
I and II	15 (50.00)	8 (26.67)	0.178
III	13 (43.33)	18 (60.00)	
IV	2 (6.67)	4 (13.33)	
Number of medication^{c}, median (minimum–maximum)	6 (3–10)	5 (3–10)	0.580
Number of co-morbidities^{c}, median (minimum–maximum)	0 (0–3)	1 (0–3)	0.134

^{b}Fisher's exact test, ^{c}Wilcoxon rank-sum or Mann–Whitney test, $^{*}P<0.05$. NYHA: New York Heart Association

Table 3: Comparison of pre- and posttest scores of caregiver burden between the experimental and control group (*n*=60)

Caregiver burden scores	Mean±SD		Effect size (95% CI)	*P*
	Control group (n_1=30)	Experimental group (n_2=30)		
Pretest	23.9±9.34	36.9±9.61	−12.9 (−17.8– −8.0)	<0.001*
Posttest (at 1 month)				
Unadjusted^{a}	27.8±9.20	27.7±8.17	0.16 (−4.3–4.6)	0.9411
Adjusted^{b} (mean±SE)	32±1.13	23.0±1.13	9.3 (5.85–12.87)	<0.001*

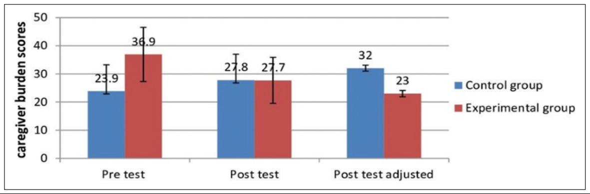
^{a}Independent *t*-test, ^{b}ANCOVA test, $^{*}P<0.05$. ANCOVA: Analysis of covariance, SD: Standard deviation, CI: Confidence interval

Table 4: Comparison of pre- and posttest scores of caregiver burden within the experimental and control group (*n*=60)

Caregiver burden scores	Mean±SD		*P*c
	Pretest	Posttest (at 1 month)	
Control group (n_1=30)	23.9±9.34	27.8±9.20	0.002*
Experimental group, (n_2=30)	36.9±9.61	27.7±8.17	<0.001*

^{c}Paired *t*-test, $^{*}P<0.05$. SD: Standard deviation

Figure 2: Bar diagram showing a change in caregiver burden scores in the control and experimental group.



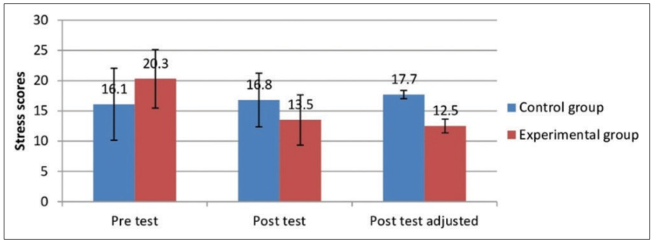


Table 5: Comparison of pre- and posttest scores of stress between the experimental and control group (*n*=60)

Stress scores	Control group (n_1=30)	Experimental group (n_2=30)	Effect size (95% CI)	*P*
Pretest, mean±SD	16.1±5.95	20.3±4.83	−4.2 (−7.0–−1.4)	0.003*
Posttest (at 1 month)				
Unadjusted[a], mean±SD, mean±SD	16.8±4.44	13.5±4.15	3.3 (1.1–5.5)	0.004*
Adjusted[b] (mean±SE)	17.7±0.69	12.5±0.69	5 (3.1–7.18)	<0.001

[a]Independent *t*-test, [b]ANCOVA test, **P*<0.05. ANCOVA: Analysis of covariance, SE: Standard error, CI: Confidence interval, SD: Standard deviation

Table 6: Comparison of pre- and posttest scores of depression within the experimental and control group (*n*=60)

Demographic data	Mean±SD	*P**
Gender[b]		
Male	24.8±9.36	0.046*
Female	31.9±11.57	

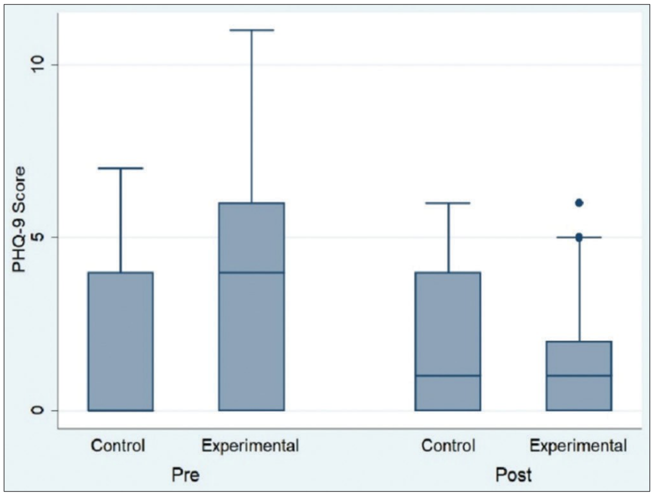


Table 7: Association between depression and selected demographic variables (*n*=60)

Demographic data	Median (minimum–maximum)	*P**
Gender[b]		
Male	0 (0–6)	0.019*
Female	3 (0–11)	
Type of family[b]		
Nuclear	4 (0–11)	0.027*
Extended	0 (0–7)	
II	0 (0–11)	
III	3 (0–10)	
IV	2 (0–6)	

[b]Wilcoxon rank-sum test, **P*<0.05

Table 8: Correlation between depression and stress with selected demographic variables (n=60)

	Demographic data	r	P
Depression	Number of comorbidities^{a}	0.262	0.042*
Stress	Number of comorbidities^{a}	0.1482	0.021*

^{a}Spearman correlation (r), *P<0.05

Stress

Baseline stress scores were not comparable between groups. Post-intervention, the experimental group demonstrated a significant reduction in stress scores (adjusted mean ± SE: 12.5 ± 0.69, $p < 0.001$) compared with the control group.

Depression

Depression scores were significantly reduced in the experimental group after the intervention (adjusted $p < 0.001$). Female caregivers and caregivers from nuclear families exhibited higher depression scores than male caregivers and those from joint families ($p = 0.019$ and $p = 0.027$, respectively).

Correlation

A positive correlation was observed between the presence of comorbidities and caregiver stress ($r = 0.148$, $p = 0.021$) and depression ($r = 0.262$, $p = 0.042$). No significant associations were found between stress or depression and other demographic variables.

Discussion

The structured counseling intervention was effective in reducing caregiver burden, stress, and depression among caregivers of HF patients. Caregiver burden was significantly reduced in the experimental group after one month, consistent with prior studies showing that structured educational and supportive interventions improve caregiver outcomes. Stress levels also decreased significantly in the experimental group, supporting findings from previous research in caregivers of patients with chronic conditions, which reported improvements in coping and psychological well-being following counseling or educational interventions. Depression scores were significantly lower in the experimental group compared with controls, consistent with studies demonstrating the mental health benefits of caregiver education, relaxation techniques, and structured support. The study also found that female caregivers and those living in nuclear families experienced higher levels of burden and depression, highlighting the influence of gender and family structure on caregiver stress. A positive correlation between comorbidities and both stress and depression emphasizes the importance of caregiver health in delivering effective care. Strengths of the study include its quasi-experimental design and careful sequential recruitment to prevent contamination between groups. Limitations include a small sample size, single-center setting, a single counseling session, a short one-month follow-up, and inability to conduct face-to-face relaxation sessions. Future research should include larger samples, extended follow-up, multiple counseling sessions, and consideration of physiological and other psychosocial outcomes for caregivers.

Conclusion

Structured counseling is an effective intervention to reduce caregiver burden, stress, and depression in caregivers of HF patients. This approach equips caregivers with practical strategies, education, and psychological support, enhancing the quality of care and improving the overall quality of life for both caregivers and patients.

Limitations and Future Recommendations

1. **Small Sample and Single-Center Design:** The study included a small sample (n = 60) from one center, limiting generalizability. Future studies should use larger, multicenter samples to validate findings.
2. **Short Intervention and Follow-Up:** Only a single 30-minute telephonic counseling session was delivered with a one-month follow-up. Future research should explore **multiple sessions with longer follow-up** to assess sustained effects on caregiver burden, stress, and depression.
3. **Self-Reported Measures and Lack of Physiological Data:** Outcomes were based on self-reports, which may introduce bias. Future studies should include **objective measures** such as blood pressure, heart rate variability, or biomarkers of stress.
4. **Limited Scope of Outcomes:** Only psychological outcomes (burden, stress, depression) were assessed. Future interventions should examine **quality of life, coping strategies, social support, and caregiver self-efficacy** to provide a more comprehensive evaluation.
5. **Delivery Mode and Personalization:** The intervention was telephonic and standardized, without tailoring for individual caregiver needs. Future programs should consider **personalized counseling**

and hybrid delivery methods (telehealth + face-to-face) to improve engagement and effectiveness.

REFERENCES

1. Savarese G, Becher PM, Lund LH, Seferovic P, Rosano GM, Coats AJ. Global burden of heart failure: A comprehensive and updated review of epidemiology. Cardiovasc Res 2023;118:3272-87.
2. Heart Failure in India: The INDUS (INDia Ukieri Study) Study. Available from: https://www.j-pcs.org/article.asp?issn=2395-5414;year=2016;volume=2;issue=1;spage=28;epage=35;aulast=Chaturve di. [Last accessed on 2023 Mar 25].
3. Dunbar SB, Clark PC, Quinn C, Gary RA, Kaslow NJ. Family influences on heart failure self-care and outcomes. J Cardiovasc Nurs 2008;23:258-65.
4. Family Caregiving in Heart Failure: AHA Scientific Statement. American College of Cardiology. Available from: https://www.acc.org/latest-in-cardiology/ten-points-to-remember/2020/05/14/14/56/http%3a%2f%2fwww.acc.org%2flatest-in-cardiology%2ften-points-to-remember%2f2020%2f05%2f14%2f14%2f56%2ffamily-caregiving- for-individuals-with-heart-failure. [Last accessed on 2023 Mar 25].
5. Ishida H, Matsuoka S, Nakatsugawa E, Saka M, Tsuchihashi-Makaya M. Abstract 16251: Health literacy of heart failure patients and their caregivers is independently associated with caregiver burden. Circulation 2017;136 Suppl 1:A16251.
6. Lacerda MS, Prado PR, Barros AL, Lopes JL. Depressive symptoms in the family caregivers of patients with heart failure: An integrative review. Rev Gaucha Enferm 2019;40:e20180057.
7. Durante A, Greco A, Annoni AM, Steca P, Alvaro R, Vellone E. Determinants of caregiver burden in heart failure: Does caregiver contribution to heart failure patient self-care increase caregiver burden? Eur J Cardiovasc Nurs 2019;18:691-9.
8. Agren S, Evangelista L, StrömbergA. Do partners of patients with chronic heart failure experience caregiver burden? Eur J Cardiovasc Nurs 2010;9:254-62.
9. Chiang LC, Chen WC, Dai YT, Ho YL. The effectiveness of telehealth care on caregiver burden, mastery of stress, and family function among family caregivers of heart failure patients: A quasi-experimental study. Int J Nurs Stud 2012;49:1230-42.
10. Deyhoul N, Vasli P, Rohani C, Shakeri N, Hosseini M. The effect of family-centered empowerment program on the family caregiver burden and the activities of daily living of Iranian patients with stroke: A randomized controlled trial study. Aging Clin Exp Res 2020;32:1343-52.
11. Spalding-Wilson KN, Guzmán-Vélez E, Angelica J, Wiggs K, Savransky A, Tranel D. A novel two-day intervention reduces stress in caregivers of persons with dementia. Alzheimers Dement (N Y) 2018;4:450-60.
12. Hajisadeghian R, Ghezelbash S, Mehrabi T. The effects of a psychosocial support program on perceived stress of family caregivers of patients with mental disorders. Iran J Nurs Midwifery Res 2021;26:47-53.
13. Umadevi P, Ramachandra, Varambally S, Philip M, Gangadhar BN. Effect of yoga therapy on anxiety and depressive symptoms and quality-of-life among caregivers of in-patients with neurological disorders at a tertiary care center in India: A randomized controlled trial. Indian J Psychiatry 2013;55:S385-9.
14. Smith GC, Egbert N, Dellman-Jenkins M, Nanna K, Palmieri PA. Reducing depression in stroke survivors and their informal caregivers: A randomized clinical trial of a Web-based intervention. Rehabil Psychol 2012;57:196-206.
15. Yu Y, Zhou W, Liu ZW, Hu M, Tan ZH, Xiao SY. Gender differences in caregiving among a schizophrenia population. Psychol Res Behav Manag 2019;12:7-13.
16. Swinkels J, Tilburg TV, Verbakel E, Broese van Groenou M. Explaining the gender gap in the caregiving burden of partner caregivers. J Gerontol B Psychol Sci Soc Sci 2019;74:309-17.
17. Toledano-Toledano F, Domínguez-Guedea MT. Psychosocial factors related with caregiver burden among families of children with chronic conditions. Biopsychosoc Med 2019;13:6.
18. Grover S, Kate N, Chakrabarti S, Avasthi A. Positive aspects of caregiving and its correlates among caregivers of bipolar affective disorder.

East Asian Arch Psychiatry 2017;27:131-41.

19. Lukhmana S, Bhasin SK, Chhabra P, Bhatia MS. Family caregivers' burden: A hospital based study in 2010 among cancer patients from Delhi. Indian J Cancer 2015;52:146-51.

Coping among caregivers of patients suffering from bipolar affective disorder. Available from: https://www.jmhhb.org/article.asp?issn=0971-8990;year=2019;volume=24;issue=2;spage=139;epage=143;aulast=Ga nia. [Last accessed on 2023 Mar 25].