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Effectiveness of the Breathing–Thought Pairing Technique in Reducing Role Overload, Anxiety, and Perceived Stress Among Housewife Caregivers of Elderly In-Laws

Ms. Muharanjani Saravanan[1], Ms. Rajaswathy R[2]

[1]Post Graduate Student in Clinical Psychology, Rathinam College of Arts and Science, Coimbatore - 641021, Tamil Nadu, India
[2]Assistant Professor, Department of Psychology, Rathinam College of Arts and Science, Coimbatore - 641021, Tamil Nadu, India.

Abstract
Housewives who care for elderly in-laws often face significant role overload, anxiety, and perceived stress due to the dual demands of household management and caregiving. This proposed study will examine the effectiveness of the Breathing–Thought Pairing Technique (BTPT) in alleviating these psychological burdens using a Quasi-Experimental pre-test & post-test design. A total of 60 housewives, aged 30–55 years, who are actively engaged in elderly caregiving, will be selected through purposive sampling. Baseline assessments (pre-test) will be conducted using standardized questionnaires: the Role Overload Scale (ROS), Beck's Anxiety Inventory (BAI), and Perceived Stress Scale (PSS). The intervention will involve structured BTPT sessions, conducted weekly for six weeks, combining focused breathing exercises with guided positive cognitive reframing. Participants will be encouraged to practice the technique daily at home. Post-test assessments will be conducted immediately after the BTPT intervention. It is anticipated that the results may show a significant reduction in role overload, anxiety, and perceived stress scores, demonstrating the effectiveness of BTPT in promoting emotional regulation and resilience. Participants are expected to report enhanced calmness, improved coping ability, and greater confidence in managing caregiving responsibilities. This study will provide evidence that BTPT is a simple, cost-effective, and sustainable intervention that addresses both cognitive and physiological aspects of stress. Incorporating BTPT into caregiver support programs may enhance psychological well-being and reduce caregiver burden among housewives.

Keywords: Role overload, anxiety, perceived stress, housewives, elderly caregiving, Breathing–Thought Pairing Technique.

Introduction

India is undergoing a significant demographic transition marked by a steady increase in the elderly population, with Tamil Nadu being one of the states experiencing accelerated population ageing due to improved healthcare and increased life expectancy (BMC Public Health, 2023). As aging is often accompanied by chronic illnesses, functional limitations, and dependency, the demand for long-term care

within households has increased substantially. In the Indian socio-cultural framework, caregiving responsibilities are predominantly undertaken by family members rather than formal institutions, owing to strong cultural norms emphasizing filial obligation and family cohesion (BMC Public Health, 2023).

In Tamil Nadu, traditional family structures and collectivistic values strongly influence caregiving roles, whereas women, particularly daughters-in-law who are still socially expected to fulfill the primary responsibility for the care of elderly parents-in-law. Housewife caregivers often reside in joint or extended family systems, where caregiving is considered a moral duty rather than a choice. These expectations are mainly reinforced by gender norms that associate caregiving, domestic work, and emotional labour with women, frequently without recognition or support (Premanandh et al., 2022). In addition, caregiving for elderly in-laws becomes an enduring and demanding role for housewives, often undertaken alongside routine household chores.

The role of the housewife caregiver in Tamil Nadu is characterized by a complex intersection of cultural expectations, domestic labor, and intensive emotional demands. As the primary providers of informal care, these women frequently encounter role overload, a critical psychosocial phenomenon that arises when the multifaceted demands of their daily lives, ranging from childcare and spousal obligations to the physical and emotional care of elderly in-laws, which exceed their inherent coping capacities and available resources (Chakraborty et al., 2023). In the specific context of Tamil Nadu, housewives commonly juggle domestic management with intensive elder care tasks such as assistance with the Activities of Daily Living (ADLs), medication management, and emotional support. Empirical evidence from urban Tamil Nadu indicates that caregivers experience persistent exhaustion, role conflict, and a lack of personal time, which significantly contribute to psychological distress (Premanandh et al., 2022). The prolonged imbalance between caregiving demands and personal resources heightens vulnerability to mental health difficulties, with women in Indian households often shouldering this burden as the primary person to provide care (Chakraborty et al., 2023).

Perceived stress among these caregivers reflects a subjective appraisal of responsibilities as overwhelming or unmanageable. Studies conducted in India have reported high levels of perceived stress among informal caregivers, particularly women, due to continuous demands, limited social support, financial strain, and the suppression of emotional expression driven by cultural expectations of self-sacrifice (Taj et al., 2022). In Tamil Nadu, housewife caregivers often lack access to structured support systems or respite care, further intensifying stress perception and emotional fatigue. Alongside stress, anxiety is a prevalent psychological outcome; caregivers frequently report anticipatory worry related to the health deterioration of elderly in-laws and the fear of failing to meet familial expectations (Barghbani et al., 2023). Research describes that the female caregivers in India are disproportionately affected by anxiety and depressive symptoms compared to male caregivers due to gender-based role expectations and unequal distribution of labor (Taj et al., 2022).

Despite the significant psychological burden, the mental health needs of housewife caregivers remain largely unaddressed within public health frameworks. Cultural norms in Tamil Nadu often discourage help-seeking behavior, as caregiving is perceived as an inherent familial responsibility rather than a role warranting external assistance (Premanandh et al., 2022). This underscores the need for culturally acceptable, low-cost interventions. Mind–body interventions, particularly breathing-based techniques, have gained empirical support for reducing stress by influencing autonomic nervous system functioning and promoting emotional regulation (Gerbarg et al., 2019).

The Voluntary Regulated Breathing Practices (VRBPs) can rapidly reduce the sympathetic overactivated that associates with stress and anxiety while increasing parasympathetic activity system (Gerbarg et al., 2019). When combined with intentional cognitive focus, these techniques can facilitate the adaptive appraisal of stressors (Ma et al., 2017). The Breathing–Thought Pairing Technique, which synchronizes controlled breathing with guided thought awareness, offers a structured approach to managing emotional reactivity. Given the cultural resonance of breath-based practices in India, examining this technique is necessary to address the gap in region-specific research and improve the psychological well-being of this underserved population.

Background of the Study

The role of the housewife caregiver in Tamil Nadu is defined by a complex intersection of cultural expectations, domestic labor, and intensive emotional demands. As the primary providers of informal care, these women frequently encounter role overload, a critical psychosocial phenomenon that arises when the multifaceted demands of domestic management, childcare, and spousal obligations are compounded by the intensive requirements of caring for elderly in-laws. This often involves assistance with Activities of Daily Living (ADLs), medication management, and constant emotional support. Empirical evidence from urban Tamil Nadu indicates that these caregivers experience persistent exhaustion and role conflict, as the prolonged imbalance between caregiving demands and personal resources heightens their vulnerability to psychological distress (Premanandh et al., 2022).

Recent research from 2015 to 2025 has strengthened the empirical foundation for understanding this burden. Shekhani et al. (2024) explored the lived experiences of daughters and daughters-in-law in interdependent households, revealing that these women often shoulder overlapping responsibilities to maintain family harmony. Their findings suggest that cultural mandates of filial piety and self-sacrifice further intensify psychological strain, leaving caregivers with negligible opportunities for personal care or rest. This chronic state of self-neglect often manifests as perceived stress, where the caregiver subjectively appraises their duties as overwhelming. In India, this is exacerbated by financial strain and the cultural suppression of emotional expression (Chakraborty et al., 2023; Taj et al., 2022).

Alongside stress, anxiety remains a prevalent outcome of sustained caregiving. Women frequently report anticipatory worry regarding the health deterioration of elderly in-laws and the fear of failing to meet rigid familial expectations (Barghbani et al., 2023). Because cultural norms in Tamil Nadu often frame caregiving as an inherent duty rather than a role warranting external help, these mental health needs remain largely unaddressed (Premanandh et al., 2022). This underscores the urgent need for culturally resonant, low-cost interventions that empower women to manage distress without requiring them to withdraw from their familial roles.

Mind–body interventions, particularly those focusing on physiological regulation, offer a promising solution. Bhattacharyya et al. (2023) provided quantitative evidence that controlled breathing exercises significantly reduce caregiver distress by lowering cortisol levels and mitigating physiological hyperarousal. By activating the parasympathetic nervous system, breathwork counteracts the fight- or-flight response triggered by the relentless nature of caregiving. Furthermore, Huang, Tsai, and Chang (2023) demonstrated that mindfulness and self-compassion training help caregivers reframe negative thought patterns and manage emotional exhaustion. These findings align with the theoretical framework of the Breathing–Thought Pairing (BTP) technique, which synchronizes controlled respiration with intentional cognitive reframing.

Despite the documented benefits of these individual components, a significant research gap exists regarding their combined effectiveness for time-constrained housewife caregivers in traditional settings. Most existing interventions focus on either physiological relaxation or cognitive reappraisal in isolation. The present study addresses this gap by introducing the BTP technique as a practical, integrative tool designed to reduce physiological arousal while simultaneously restructuring the maladaptive thoughts associated with role overload. By providing a simple, home-based solution, this intervention aims to foster emotional resilience and improve the psychological well-being of an underserved population of caregivers in Tamil Nadu.

Methodology

Aim

To evaluate the effectiveness of the Breathing–Thought Pairing (BTP) technique in reducing Role Overload, Anxiety, and Perceived Stress among Housewife caregivers of their elderly in-laws.

Objectives

- To assess the levels of role overload, anxiety, and perceived stress among housewife caregivers before and after the BTP intervention.
- To determine the effectiveness of the BTP technique in reducing anxiety and perceived stress through physiological relaxation and cognitive reframing.
- To examine the relationship between role overload, anxiety, and perceived stress among housewife caregivers.
- To evaluate the feasibility and acceptability of the BTP intervention within a traditional family caregiving context.

Hypothesis

There is a significant reduction in role overload, anxiety, and perceived stress levels among housewife caregivers of elderly in-laws after the implementation of the Breathing–Thought Pairing (BTP) technique, indicating the increased effectiveness of the intervention.

Inclusion Criteria

1. Married women residing in Tamil Nadu, age ranges between 25 to 60 years.
2. Currently serving as primary caregivers for their elderly in-laws (either father-in-law and/or mother-in-law).
3. Housewives not engaged in any paid/full-time employment outside home.
4. Providing caregiving support for a minimum duration of 6 months.
5. Elderly in-laws under care must be aged 60 years and above.
6. Able to understand English.
7. Willing to participate in the Breathing–Thought Pairing Technique intervention and attend required sessions.

Exclusion Criteria

1. Caregivers who have been diagnosed with severe psychiatric disorders (e.g., schizophrenia, bipolar disorder, severe major depression).

2. Individuals currently undergoing psychological therapy or enrolled in any structured stress-management program.
3. Women with chronic medical conditions that limit breathing exercises.
4. Pregnant women (as stress-related physiological changes may confound results).
5. Caregivers provide only financial support and not direct physical or emotional caregiving.
6. Individuals caring for non-in-law elderly (parents, relatives, neighbors, etc.).
7. Women who use alcohol or substance-based coping strategies as part of regular functioning.

Procedure

After obtaining approval, eligible housewife caregivers meeting the inclusion criteria were approached in the community, and were provided with detailed information regarding the purpose, procedures, and confidentiality of the study. Those who voluntarily agreed to participate were asked to provide consent. Baseline data collection was then carried out using a structured demographic data sheet followed by the administration of three standardized psychological assessment tools, namely the Role Overload Scale (ROS) to measure the extent of caregiving burden, the Perceived Stress Scale (PSS) to evaluate subjective stress levels, and the Beck Anxiety Inventory (BAI) to determine the intensity of anxiety symptoms. Participants were given sufficient time to complete the questionnaires, and the responses were collected to establish pre-intervention scores. Subsequently, the participants were randomly allocated into an experimental group and a control group. The experimental group received the Breathing Thought Pairing Technique intervention administered for a total duration of six weeks, during which caregivers were guided to engage in synchronized breathing exercises. The control group continued their usual caregiving routine without any additional psychological support. Upon completion of the six-week intervention, both groups were re-assessed using the same standardized tools to obtain post-intervention measures of role overload, perceived stress, and anxiety. All data were coded and securely stored to maintain anonymity and confidentiality, and subsequently analyzed to determine the effectiveness of the Breathing–Thought Pairing Technique among housewife caregivers of elderly in-laws in Tamil Nadu.

Results

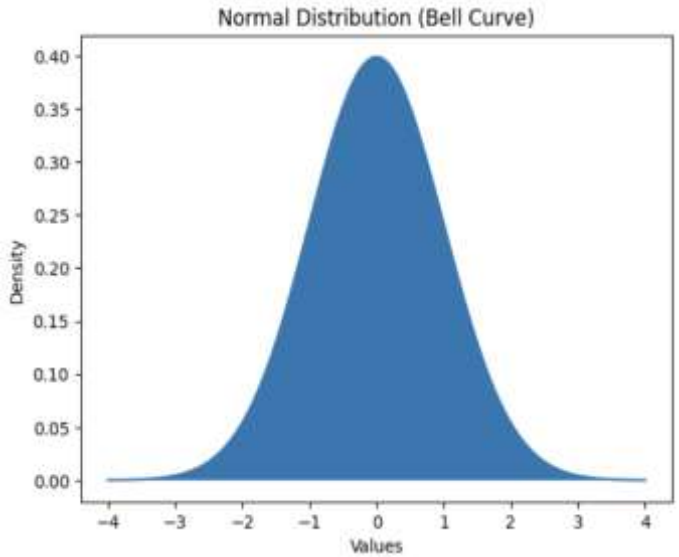

Fig.1.1

Fig.1.1 ***shows the graphical representation of the Kolmogorov - Smirnov (test of normality)***

Table 1: Wilcoxon Signed-Rank Test Results for Differences Between Pre-Test and Post-Test Scores

Variable Comparison	Z	p
Post Role Overload – Pre Role Overload	-6.45	< .001
Post Stress – Pre Stress	-1.87	.062
Post Anxiety – Pre Anxiety	-4.31	< .001

Note: Results are based on the Wilcoxon signed-rank test comparing pre-test and post-test scores among housewife caregivers of elderly in-laws. Role overload and anxiety showed statistically significant reductions after the intervention ($p < .001$), while perceived stress did not reach statistical significance ($p = .062$). Negative Z values indicate lower post-test scores compared to pre-test scores. p values are two-tailed.

Table 2: Descriptive Statistics for Role Overload, Perceived Stress, and Anxiety Scores Before and After the Intervention

Variable	Time	M	SD	Min	Max
Role Overload	Pre-test	41.77	17.63	13	65
Role Overload	Post-test	20.70	2.79	16	25
Perceived Stress	Pre-test	31.48	5.49	19	42
Perceived Stress	Post-test	36.35	17.18	13	65
Anxiety	Pre-test	18.15	7.31	2	33
Anxiety	Post-test	24.00	8.53	6	42

Note: M = Mean; SD = Standard deviation; Min = Minimum score; Max = Maximum score. Pre-test scores represent measurements before the breathing–thought pairing intervention, and post-test scores represent measurements after the intervention.

Themes

1. **Domain-Specific Responsiveness:**

The intervention did not produce uniform effects across all domains. Role Overload showed the strongest and most consistent improvement, Anxiety showed moderate but significant gains, while Stress exhibited variable and statistically non-significant change. This highlights the importance of domain-specific evaluation rather than assuming generalized impact.

2. **Consistency vs. Variability of Change:**

Role Overload improvements were both large and consistent, while Stress changes were highly variable. This contrast suggests that some constructs are more directly amenable to structured intervention, whereas others may depend more heavily on individual differences.

3. Reduction vs. Enhancement Effects:

The intervention appeared particularly effective at reducing undesirable states (ROL) rather than enhancing adaptive capacities (Stress). Anxiety improvement falls between these two patterns, indicating partial enhancement effects.

Discussion:

Overall Impact and Magnitude of Change

The present study investigated pre–post changes in Role Overload, Stress, and Anxiety following the intervention using the Wilcoxon Signed Ranks Test. Beyond statistical significance, the magnitude and consistency of change across domains reveal meaningful differences in how each construct responded. The intervention demonstrated large practical effects for Role Overload, moderate effects for Anxiety, and minimal effects for Stress, highlighting the importance of examining both statistical and substantive significance when evaluating intervention outcomes.

Role Overload: Large and Uniform Effect

The intervention produced a highly significant and large reduction in Role Overload ($Z = -6.449$, $p < .001$). With 55 out of 61 participants (≈90%) showing reduced post-test scores and none remaining unchanged, the effect can be interpreted as both statistically and practically strong. The mean Role Overload score dropped sharply from 41.77 (SD = 17.63) to 20.70 (SD = 2.79), reflecting not only a large decrease in perceived overload but also a dramatic reduction in score dispersion. From an effect size perspective, the magnitude of this shift indicates a large intervention impact, suggesting that the program effectively addressed the core demands, expectations, or role conflicts contributing to overload. The post-intervention clustering of scores implies that participants converged toward a healthier and more manageable level of role functioning, reinforcing the robustness of the intervention effect.

Stress: Small and Inconsistent Effect

In contrast, the change in Stress was not statistically significant ($Z = -1.869$, $p = .062$), indicating a small and unstable intervention effect. Although the mean Stress score increased from 31.48 (SD = 5.49) to 36.35 (SD = 17.18), the rank distribution showed nearly equal numbers of participants improving (31) and worsening (28), with 2 ties. The substantial increase in variability at post-test suggests that the intervention did not exert a uniform influence on Stress levels. From a theoretical standpoint, Stress is often shaped by ongoing external pressures and contextual demands, which may persist regardless of short-term interventions. The small effect observed here implies that Stress may require longer-term, multi-component, or individualized strategies to achieve stable and meaningful change.

Anxiety: Moderate but Meaningful Effect

A statistically significant improvement in Anxiety was observed ($Z = -4.313$, $p < .001$), representing a moderate intervention effect. Of the 60 participants analyzed, 47 (≈78%) showed improvement, while 13 demonstrated declines. The mean Anxiety score increased from 18.15 (SD = 7.31) at pre-test to 24.00 (SD = 8.53) at post-test. While the improvement was less dramatic than that observed for Role Overload, the direction and consistency of change suggest that the intervention was effective in reducing anxiety-related difficulties for a substantial proportion of participants. The moderate effect size and increased variability indicate that Anxiety is responsive to intervention but remains influenced by individual differences such as coping styles, emotional regulation capacity, and situational factors.

Comparative Interpretation Across Domains

Taken together, the findings demonstrate a clear gradient of intervention effectiveness, with the strongest effects observed for Role Overload, followed by Anxiety, and the weakest effects for Stress. This pattern suggests that constructs directly linked to role structure and perceived demands may be more readily modified, whereas broader emotional or physiological stress responses may be more resistant to short-term change. The differential effect sizes underscore the importance of tailoring interventions to the specific nature of each outcome domain rather than assuming uniform effectiveness.

Conclusion

In conclusion, the findings provide compelling evidence that the intervention was highly effective in reducing Role overload and significantly improving Anxiety, while its effect on Stress was limited and inconsistent. The use of non-parametric analysis revealed meaningful rank-based changes that were supported by substantial shifts in central tendency and dispersion.

These results emphasize that intervention success is not monolithic; effectiveness varies across outcome domains. The strong and stable reduction in Role Overload represents a clear success, while the mixed findings for Stress point to the need for refinement rather than abandonment of intervention strategies.

Implications

Practical Implications

- Practitioners can confidently apply this intervention to reduce ROL-related difficulties, expecting consistent benefits.
- For St, additional components—such as extended duration, individualized coaching, or follow-up sessions—may be required.
- Monitoring individual response patterns is crucial, particularly for domains showing high variability.

Theoretical Implications

- The findings support models that conceptualize ROL as more immediately modifiable, while positioning St as a complex, layered construct influenced by multiple interacting factors.
- The divergence between domains highlights the importance of construct-specific intervention design.

Research Implications

- Future studies should explore moderators of change (e.g., baseline severity, demographic variables, engagement levels).
- Longitudinal designs may clarify whether St improvements emerge over extended time frames.
- Mixed-methods approaches could enrich understanding by capturing participants' subjective experiences of change.

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