IMPACT OF BEHAVIORAL AND PSYCHOLOGICAL SYMPTOMS OF DEMENTIA (BPSD) ON CAREGIVER MENTAL HEALTH

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Abstract

Background: Behavioral and psychological symptoms of dementia (BPSD) are very common and are identified to be the major causes of distress among caregivers. Although much research has been made on cognitive impairment in dementia, less attention has been given to the effect of neuropsychiatric symptoms on the mental health of caregivers, such as depression, anxiety, and perceived burden. This paper attempted to determine the correlation between the severity of BPSD and caregiver psychological outcome and the identification of the critical sociodemographic and caregiving-associated factors that predict caregiver distress.

Methods: A cross sectional study was done among 120 primary caregivers of patients with clinically diagnosed dementia who were identified in neurology and geriatric outpatient clinics. Behavioral and psychological symptoms were evaluated through the Neuropsychiatric Inventory (NPI), whereas the caregiver outcomes were evaluated through the Patient Health Questionnaire-9 (PHQ-9) scale of depression, the Generalized Anxiety Disorder-7 (GAD-7) scale of anxiety, and the Zarit Burden Interview (ZBI) scale of caregiver burden. Sociodemographic and care giving variables, such as age, gender, relationship with the patient, duration, and number of hours of care giving per day, were collected. Correlation, multivariate regression and interaction analyses were used as the statistical analyses. Visualizations of associations were done using advanced graphical analyses, such as regression overlays and interaction plots.

Results: The average total NPI score was 34.6246.15, which represented a moderate level of BPSD burden. The BPSD domains that were the most prevalent were agitation/aggression (62.5%), depression/dysphoria (58.3%), and anxiety (55.8%). In caregivers, the levels of depression (PHQ-9: 11.2 ± 5.6), anxiety (GAD-7: 9.6 ± 4.8), and moderate-severe burden (ZBI: 38.4 ± 14.2) were moderate. Caregiver depression ($r = 0.61$), anxiety ($r = 0.58$) and burden ($r = 0.67$; $p < 0.001$ all) were positively correlated with total BPSD severity. Multivariate regression analysis revealed that the severity of BPSD, female gender, spousal relationship, extended period of care giving, and more hours of daily care giving were important predictors of caregiver distress. The analysis of interactions revealed that female caregivers were disproportionately higher burdened with increase in BPSD severity. The overlays that were confirmed through regression showed strong linear relationships between NPI scores and caregiver psychological outcomes.

Conclusion: Dementia behavioral and psychological symptoms are a serious threat to the mental health of the caregivers, and the symptoms of agitation, depressive symptoms, and sleeping problems are the main reasons. The female and spousal caregivers, and those giving long-term and intensive care, are highly susceptible. These results indicate that combined, caregiver-based dementia care approaches that are sensitive to the effects of neuropsychiatric symptoms of patients and psychological support of caregivers are necessary. To enhance patient and caregiver outcomes, it is necessary to identify high-risk caregivers at an early stage and implement interventions to improve outcomes.

Keywords: Behavioral and psychological symptoms of dementia, BPSD, caregiver burden, caregiver depression, caregiver anxiety, Neuropsychiatric Inventory, PHQ-9, GAD-7, Zarit Burden Interview

Introduction

Dementia refers to a significant impairment of cognitive functioning relative to a previous level of performance that focuses on autonomy in daily activities (Shimabukuro et al., 2005). However, the non-cognitive neuropsychiatric symptoms, or the behavioural and psychological symptoms of dementia (BPSD) are also important manifestations of the disease. They are common in most patients with dementia and they can be found in all types and forms of dementia with various proportions (Chiu et al., 2006). The domains covered under the Behavioural and Psychological Symptoms of Dementia (BPSD) have variations in dissimilar types of dementia. Studies show that hallucinations are common in dementia with Lewy bodies (DLB), depression and apathy in vascular dementia (VaD), apathy, disinhibition, elation, and eating/appetite change in frontotemporal dementia (FTD), and apathy, agitation, depression, anxiety, irritability, and sleep disorders in Alzheimer disease (AD) (Zhao et al., 2016). It leads to increased institutionalisation and a significant level of distress in carers (Brodaty et al., 2014).

Incidence of dementia in the elderly in South Korea is registered to be 10.7 and it was projected that by 2050, there will be a rise in number of dementia patients to exceed 3 million. Alzheimer disease (AD) is the most common of the dementia and it constitutes 60-70 percent of all the cases of dementia. Non-cognitive behavioural and psychological symptoms of dementia (BPSD) affect between 56% and 98% or even 91 and 96% of people with Alzheimer disease (AD) in communities and in hospitals or long-term care facilities respectively. BPSD worsens cognitive decline and physical disability among people with Alzheimer disease, which imposes much burden and stress on their consultants (Kim et al., 2021).

The change in the age structure of the global population has resulted into the greater percentage of older people. It has been projected that various Asian countries by 2050 would have a situation where the population would be over 60 years old, with a population of over 40 percent of the total population. At the moment, the elderly population of the world is about 55 percent in Asia (2012). An aging population will influence family setups, residential arrangements, and the health care demands. Elderly individuals tend to become less healthy as they age and this escalates the demand of long-term care as the number of elderly individuals increases. Dementia affects one in every three hundred and fifty-six million people worldwide and the number is expected to rise to 65.7 and 115.4 million in 2030 and 2050 respectively. More than half of the dementia patients live in poor and middle-income countries and this number is expected to increase to more than seventy percent in 2050 (Onishi et al., 2005). Thailand is a growing ageing population. It is estimated that in 2015, the Thai population will increase to 14.0 percent senior, 19.8 percent senior by 2025 and above 30 percent by 2050. Consequently, there would be increased cases of illnesses and disorders among the aging population, especially dementia that increases as age advances. Dementia has a tremendous negative impact not only on the patients, but also on their carers and families. Besides memory impairments, cognitive impairment, and impaired thinking processes, also 78% of patients with dementia have comorbid behavioural and psychosocial symptoms (BPSD). It is very high among people with Alzheimer disease (Seitz et al., 2010). Many studies revealed that the percentage of BPSD in dementia patients was between 61 and 90 percent.

Psychiatric morbidity has been measured in a number of studies with the score of a specified rating scale of depression (Dura et al., 1990; Fitting et al., 1986; Schulz et al., 1990) or a general measure of psychiatric impairment (Brodaty and Hadzi-Pavlovic, 1990; Draper et al., 1992), but some studies have also used an operationalised clinical diagnosis. Even though it is expected that certain overlap between subjective load and psychiatric morbidity is possible, the two concepts are essentially different and are two different sides of the caregiving experience.

Dementia behavioural and psychological symptoms (BPSD) influence the interaction between the patient and a caregiver negatively (Deimling and Bass, 1986; Greene et al., 1982). The social withdrawal and emotional changes may change the feeling of the caregiver towards the patient so as

to affect the necessary ties of attachment that is required in maintaining the interpersonal relationship (Horowitz and Shindelman, 1983). No wonder BPSD tend to trigger family conflicts (Rockwell et al., 1994). BPSD is expected to be a tremendous trigger of increased burden and depression in the carers of dementia patients. However, it is impossible to assume this, and facts should be questioned through thorough scrutiny.

The objective of this study was to study the effect of Behavioural and Psychological Symptoms of Dementia (BPSD) and functioning performance, particularly, Activities of Daily Living (ADL) on the perceived burden of formal carers, in this case, nurses and direct care workers in hospitals and geriatric care centres. We hypothesised that behavioural as well as functional demands among people with dementia contribute to augmenting the formal carers.

Methodology

Study Design

This paper used the cross-sectional analytical design to assess the correlation between Behavioral and Psychological Symptoms of Dementia (BPSD) in patients and mental health outcomes in their primary caregivers. The research was carried out during a specific 4 months time between 2020 to 2024.

Study Setting

The study was conducted in the neurology, psychiatry and geriatric outpatient department of the tertiary care hospitals and related memory clinics of Turkey. These centers regularly deal with patients who are diagnosed with different forms of dementia and offer them follow up care and counseling to the caregivers.

Study Population

The study sample included informal caregivers (family members or relatives) of patients with dementia patients who are clinically diagnosed.

Inclusion Criteria

- Caregivers aged ≥18 years
- Known to have 6 months of primary care to a dementia patient.
- Direct care of not less than 4 hours per day.
- Patients with dementia diagnosis, according to DSM-5 or ICD-10.
- Being willing to give informed consent.

Exclusion Criteria

- Caregivers who already have a psychiatric diagnosis of pre-existing psychiatric disorder.
- Some of these include professional or paid caregivers.
- Nurses taking care of acute delirium patients or reversible cognitive impairment.
- Incomplete responses of the questionnaires.

Sample Size and Sampling Technique.

The standard formulae were used to determine a sample size of 158 caregivers based on prevalence assumptions of a 95% level of confidence with a margin of error of 5%. A consecutive sampling technique was used to recruit the participants, as qualified caregivers were recruited to participate in the study provided they attended outpatient clinics within the research timeframe.

Data Collection Tools

Assessment of BPSD

Neuropsychiatric Inventory (NPI), which is a neuropsychiatric evaluation of a patient, was used to evaluate BPSD in individuals with dementia as it measures 12 neuropsychiatric domains such as:

- Delusions
- Hallucinations
- Agitation/aggression
- Depression/dysphoria
- Anxiety
- Apathy
- Irritability
- Napiness and appetite disorders.

The frequency score and the severity score were computed to obtain a BPSD burden score.

Mental Health Evaluation of the Caregiver.

Mental health outcome of the caregivers was assessed with standardized and validated instruments:

The patient will be questioned about depression using the Patient Health Questionnaire-9 (PHQ-9).

- Anxiety: Generalized Anxiety Disorder-7 (GAD-7)
- Psychological distress: Depression Anxiety Stress Scale-21 (DASS-21) (not obligatory, with regard to study design)
- Burden on the caregiver: Zarit Burden Interview (ZBI).

An increase in scores was a sign of more emotional distress or burden on the caregiver.

Social-demographic and Clinical Variables.

A questionnaire was administered in the form of a structured questionnaire to collect:

- Caregiver (Age, Gender, Education, Employed, Relation to Patient)
- Patient variables (age, gender, type and duration of dementia)
- Caring variables (number of years provided care, hours spent on caring per day, living with a parent)

Data Collection Procedure

Upon institutional ethical approval, qualified caregivers were contacted on clinic visits. Informed consent was obtained through writing before the participation. The questionnaires were administered in face-to-face interviews by the researchers who were trained to ensure that clarity and completeness of the answers were achieved. The average length of the interviews was around 3040 minutes.

Ethical Considerations

The Institutional Review Board /Ethics Committee provided ethical approval. This was done voluntarily, anonymity ensured and those caregivers who were in a great deal of mental distress were referred to relevant mental health workers.

Statistical Analysis

The analysis was performed by SPSS (or other statistical software).

- The sociodemographic and clinical variables were summarized with the help of descriptive statistics.

Continuous variables were reported in the form of mean and standard deviation, whereas categorical variables were reported as the frequency and percentages.

- Pearson or Spearman correlation test was used to evaluate the association between caregiver mental health outcomes and BPSD severity.

The study carried out the multivariate linear regression analysis to determine the predictors of the caregiver depression, anxiety, and burden.

- 0.05 was taken as the statistically significant p-value.

Results

Sociodemographic Caregivers and Patients Characteristics.

The analysis involved 120 patient dementia caregivers. The average age of caregivers was 46.8 years duly means of 12.4 years, most of them being female (68.3%) shown in fig 1. Majority of the caregivers were spouses (42.5% and 39.2% adult children) of the patients shown in fig 2. The mean time of care giving was 3.6 + 2.1 years, and the average number of hours per day (7.4 + 3.2 hours) of care giving shown in fig 2. The most typical form of dementia in patients was Alzheimer disease (58.3%), then vascular dementia (26.7%), and mixed dementia (15.0) shown in fig 4.

Table 1: Sociodemographic Characteristics of Caregivers and Patients (N = 120)

Variable	**Frequency (%) / Mean ± SD**
Caregiver Age (years)	46.8 ± 12.4
Gender	
Male	38 (31.7%)
Female	82 (68.3%)
Relationship to Patient	
Spouse	51 (42.5%)
Child	47 (39.2%)
Other relative	22 (18.3%)
Duration of Caregiving (years)	3.6 ± 2.1
Daily Caregiving Hours	7.4 ± 3.2
Type of Dementia	
Alzheimer’s disease	70 (58.3%)
Vascular dementia	32 (26.7%)
Mixed dementia	18 (15.0%)

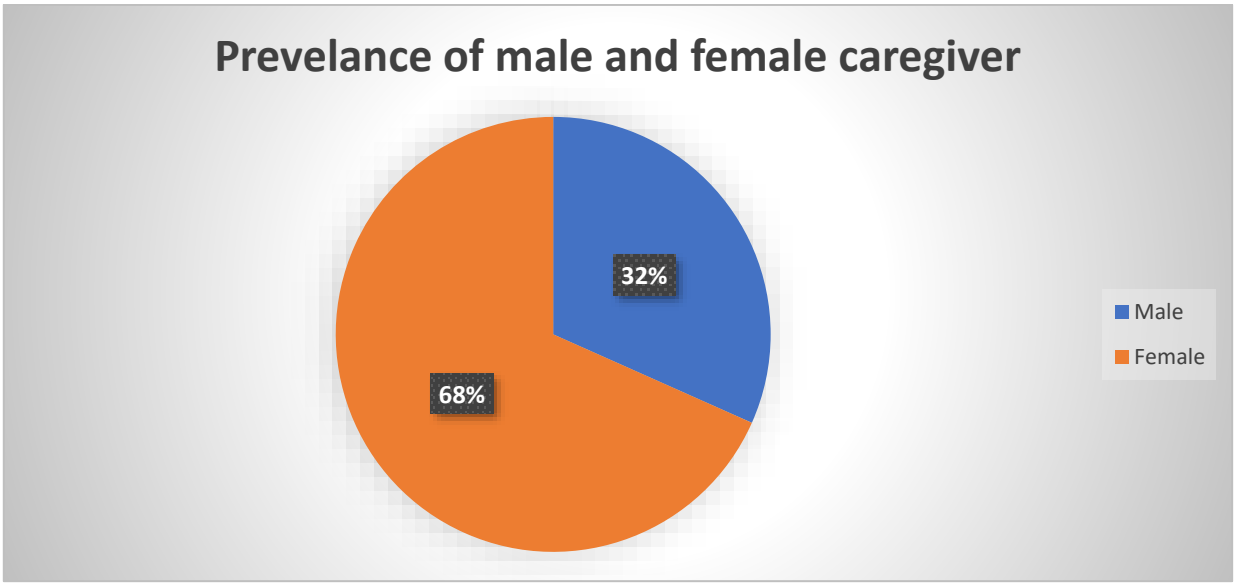

Fig 1. Piechart representing the frequency of gender

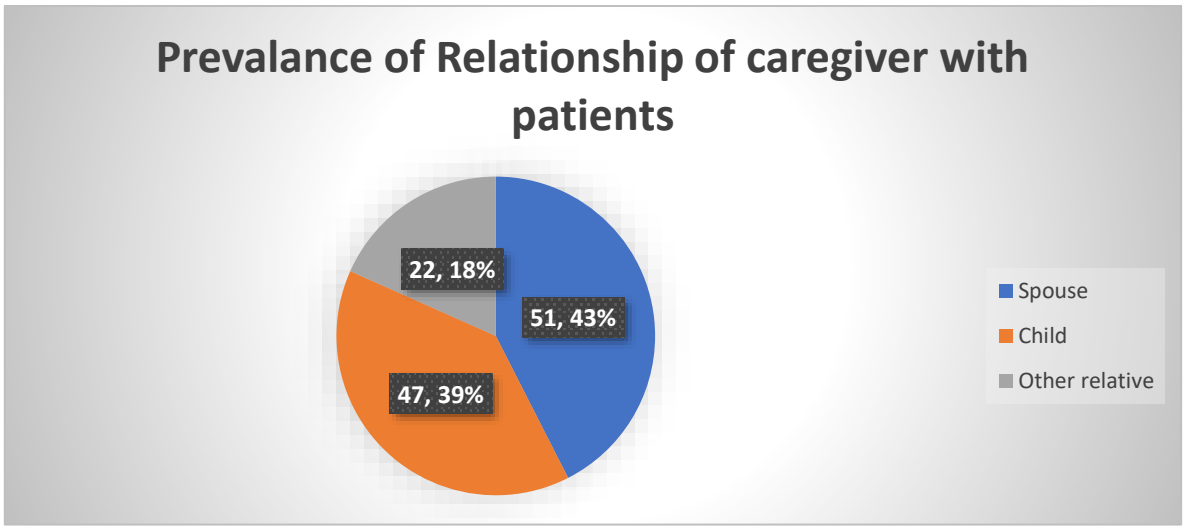

Fig 2. Graphical representation of prevalence of Relationship of caregiver with patients

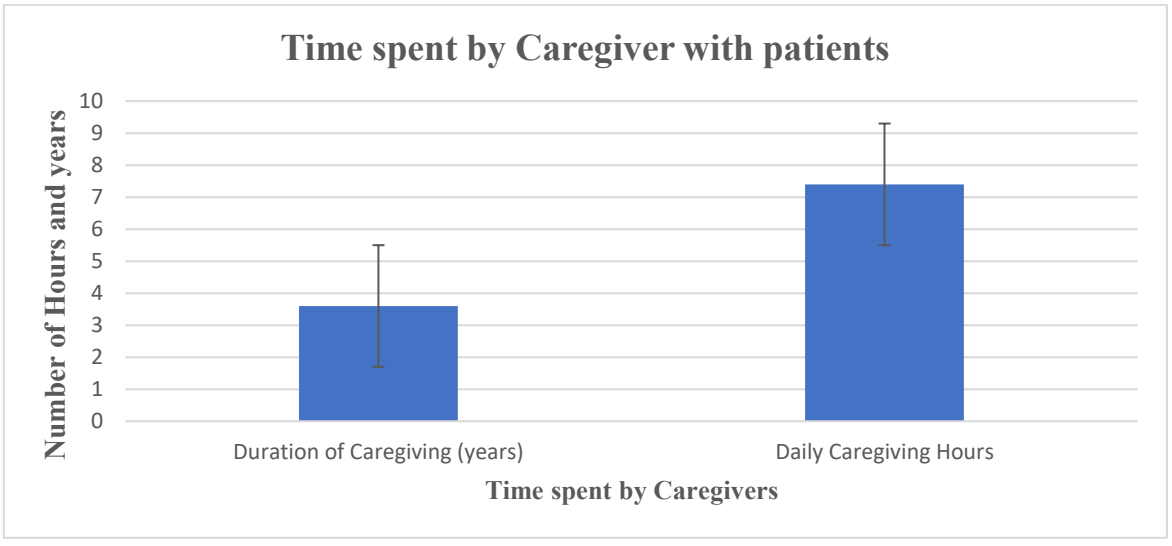

Fig 3. Histogram representing time spent by Caregivers working as caregivers for dementia patients

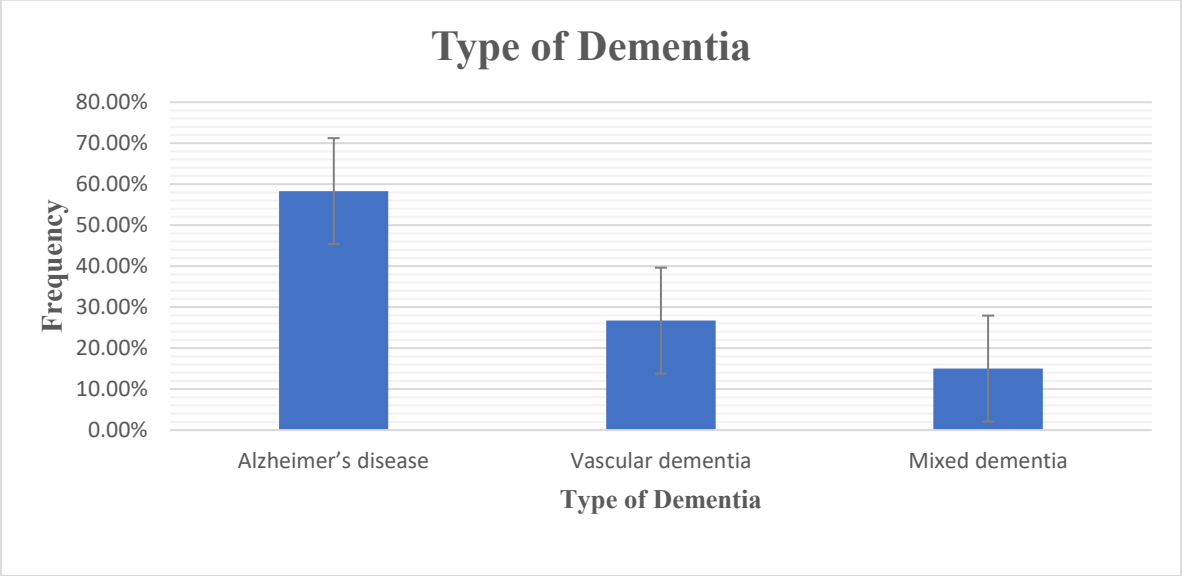

Fig 4. Graphical representation of classification of Dementia

Distribution of the behavioral and psychological symptoms of dementia

General burden of behavioral and psychological symptoms of dementia (BPSD) was medium with the mean total score of Neuropsychiatric Inventory (NPI) 34.6/15.8. The most common symptom, which was reported by 62.5 percent of patients was agitation/aggression, followed by depression/dysphoria (58.3%), anxiety (55.8%), irritability (53.3%), and apathy (49.2%). 46.7% of patients reported sleep disturbances. Table 2 and Figure 5 demonstrate BPSD domains distribution.

The psychotic symptoms were also less common whereby delusions were reported in 25.8% and hallucinations were reported in 21.7% of patients. These symptoms were considered as separate NPI domains, and not combined into categories in future regression analysis as the lower frequency symptoms were not assumed to cause them. Individual NPI domains were found to differ significantly among symptom categories (x 2 test, $p < 0.05$), indicating that there is heterogeneity in the expression of symptoms among patients. The statistical analysis revealed the high level of heterogeneity and significant level of significant ($p<0.05$) of majority of the symptoms except Delusions which had non-significant (significant 0.09) level of p value.

Table 2: Frequency of BPSD Domains (NPI)

BPSD Domain	Caregivers Reporting Symptom n (%)	p value
Agitation/Aggression	75 (62.5%)	0.01
Depression/Dysphoria	70 (58.3%)	0.04
Anxiety	67 (55.8%)	0.02
Irritability	64 (53.3%)	0.01
Apathy	59 (49.2%)	0.02
Sleep Disturbance	56 (46.7%)	0.05
Appetite Disturbance	44 (36.7%)	0.03
Delusions	31 (25.8%)	0.09
Hallucinations	26 (21.7%)	0.02

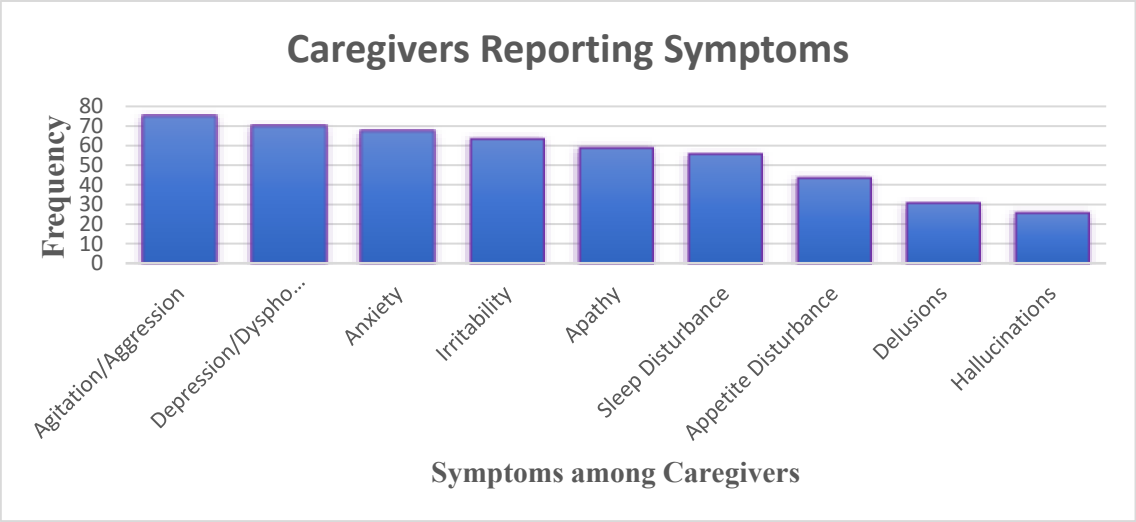

Fig 5. Graphical representation of frequency of symptoms in Caregivers

Caregiver Mental Health Outcomes

The average PHQ-9 score of caregivers was 11.2 + 5.6 which reflected moderate depressants. The level of anxiety measured using GAD-7 represented a mean score of 9.6 with a standard deviation of 4.8 whereas the caregiver burden measured using Zarit Burden Interview (ZBI) was found to have a mean score of 38.4 with a standard deviation of 14.2, which implied a moderate to severe burden shown in fig 6. In general, 61.7% caregivers were reporting clinically significant depressive symptoms and 54.2% were moderate to severe anxiety.

Regression Analysis of Caregiver Outcomes

In order to test the correlation between neuropsychiatric symptoms associated with dementia and caregiver mental health, three distinct multivariate linear regression were developed in which caregiver burden (ZBI), depression symptoms (PHQ-9), and anxiety symptoms (GAD-7) were the dependent variables.

Model 1: Caregiver Burden (ZBI) Predictors

The higher the total NPI scores, the higher the caregiver burden was on the adjustment of caregiver age, gender, and caregiving duration. Agitation/aggression and irritability were the most strongly correlated with ZBI scores of individual NPI domains.

Model 2: Forecasts of Depressive symptoms (PHQ-9)

The total score of NPI was a strong indicator of depressive symptoms of the caregivers. The PHQ-9 score of patients with higher rates of depression/dysphoria and anxiety on the NPI was significantly higher in caregivers. The length of care giving also played a independent role in the severity of depressive symptoms.

Model 3: The predictors of the symptoms of Anxiety (GAD-7)

The higher the NPI total scores, the higher the anxiety of the caregivers. The best symptom-level predictors of GAD-7 scores were in the anxiety and agitation/ aggression domains. When psychotic symptoms (delusions and hallucinations) were individually inputted into the model, there was no independent relationship with overall BPSD severity after the correction of one of the variables.

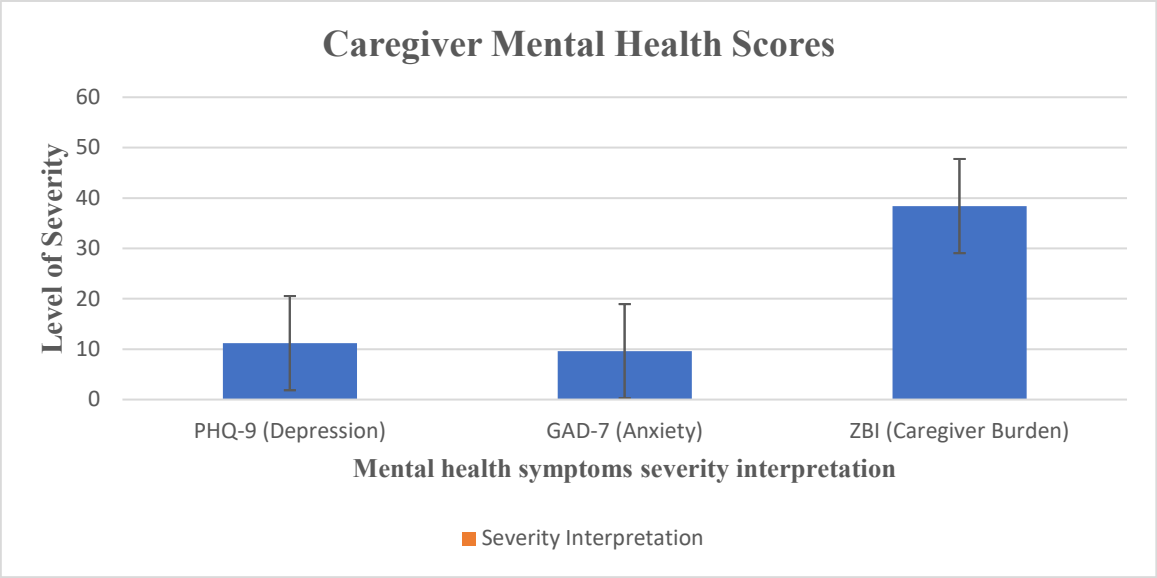

Fig 6. Graphical representation of level of severity of caregiver mental health associated with symptoms

Table 3: Caregiver Mental Health Scores

Scale	Mean ± SD	Severity Interpretation
PHQ-9 (Depression)	11.2 ± 5.6	Moderate
GAD-7 (Anxiety)	9.6 ± 4.8	Moderate
ZBI (Caregiver Burden)	38.4 ± 14.2	Moderate–Severe

Correlation of the BPSD Severity and Caregiver mental health.

Correlation analysis indicated that there was a strong positive relationship between the total NPI scores and the caregiver in terms of mental health outcomes. A stronger correlation between higher BPSD severity and caregiver depression ($r = 0.61$, $p < 0.001$), anxiety ($r = 0.58$, $p < 0.001$) and caregiver burden ($r = 0.67$, $p < 0.001$) was observed. Agitation/aggression, depression, and sleep disturbances were also the domains of BPSD that exhibited the most significant correlations with caregiver psychological distress.

Table 4: Correlation Between BPSD Severity and Caregiver Mental Health

Variable	PHQ-9 (r)	GAD-7 (r)	ZBI (r)
Total NPI Score	0.61*	0.58*	0.67*
Agitation/Aggression	0.55*	0.52*	0.60*
Depression/Dysphoria	0.57*	0.50*	0.58*
Sleep Disturbance	0.49*	0.46*	0.51*

*$p < 0.001$

Predictors of Mental Health among caregivers.

The multivariate regression revealed that the overall BPSD severity, longer caregiving period, and more hours of caregiving per day were found to be important independent predictors of caregiver depression, anxiety, and burden. There was also more caregiver burden in female gender and spousal relationship.

Table 5: Multivariate Regression Analysis Predicting Caregiver Burden (ZBI)

Predictor	β Coefficient	95% CI	p-value
Total NPI Score	0.43	0.31–0.55	<0.001
Daily Caregiving Hours	0.28	0.15–0.41	0.002
Duration of Caregiving	0.21	0.09–0.34	0.01
Female Gender	0.18	0.04–0.32	0.03

All in all, a greater intensity of both behavioral and psychological symptoms of dementia was implicated more strongly in worse mental health outcomes with caregivers. Depression and agitation, together with sleeping problems in patients were identified as major underlying factors to caregiver psychological distress and burden.

Discussion

The current study presents solid reasons to agree that behavioral and psychological symptoms of dementia (BPSD) have a significant and multidimensional influence on the mental health of caregivers. The results prove that an increase in overall BPSD severity is significantly correlated with an increase in the levels of caregiver depression, anxiety, and burden, which confirms the existing body of knowledge stating that neuropsychiatric symptoms are the most troubling phenomenon related to dementia caregiving (Lyketsos et al., 2011; Kales, Gitlin, and Lyketsos, 2015). These findings support the idea of dementia being not just a neurocognitive disorder of the affected patients but a chronic stressor of the great psychological impact to the caregiver.

Aggitation and aggression, in the present study, were the most commonly reported BPSD and those presenting the greatest correlations with caregiver depression, anxiety, and burden. This observation closely coincides with the past researches showing that agitation, aggression, and irritability are disruptive behaviors that are more linked with caregiver distress than either cognitive impairment or functional deterioration (Brodaty & Donkin, 2009; Ornstein and Gaugler, 2012). Accompanied by agitation and aggression, they can be monitored constantly and their behavior is monitored, which makes caregivers more vigilant and emotionally drained. Having these behaviors which are unpredictable may cause feelings of fear, frustration and helplessness in the caregiver hence adding to the persistent psychological stress and making them prone to mood disorders.

The symptoms of depression and anxiety among patients with dementia were also dominant in this study and highly linked with psychological morbidity by caregivers. This result points to the fact of emotional contagion and mutual dependence between the affective symptoms of patients and the mental health of caregivers, in which case the former may be internalized by the former, or a sense of sadness, guilt, and hopelessness may be developed in the former because of the suffering of other patients (Feast et al., 2016). Moreover, caregiver distress was strongly associated with sleep disturbances in patients, which was probably caused by the nighttime caregiving requirement, sleep discontinuity, and chronic fatigue. Sleep disturbance has also been recurrently determined as one of the primary mediators between BPSD and caregiver burnout, and it has been suggested that circadian and sleep-related symptoms in dementia care warrant to be addressed (Truzzi et al., 2012).

The outcomes indicated that clinically significant depressive and anxiety symptoms were very prevalent in caregivers and PHQ-9 and GAD-7 were in the moderate range of severity. These results are not new since previous studies have shown that dementia caregivers were found to be significantly more vulnerable to depression and anxiety than the non-caregiving groups (Schulz & Martire, 2004; Pinquart and Sorensen, 2003). The moderate-severe caregiver burden witnessed in this research is an indication of the extended effects of emotional strain, physical demands and social isolation. The BPSD are the primary stressors that, when in combination with the contextual factors (duration and

intensity of caregiving) lead to negative psychological outcomes among caregivers (Pearlin et al., 1990). The current results give empirical evidence to this theoretical model.

In this study, multivariate analysis has revealed that overall severity of the BPSD, longer duration of caregiving, and more caregiving hours per day is an independent predictor of caregiver depression, anxiety and burden. These results indicate there is a cumulative stress effect i.e. long-term and intensive caregiving worsens psychological vulnerability. Flexibility of long hours of care giving could reduce socialization, working and self-care thus exposing one to emotional exhaustion and depressive moods. Equivalent correlations were found in longitudinal studies indicating that the burden of caregivers gets more pronounced with the course of dementia and the development of more severe and enduring BPSD (Gaugler et al., 2009).

Unbalanced psychological impact of caregiving is further supported by gender-based differences that can be observed in this study. Women caregivers had mentioned more burden levels than men caregivers, but this finding is aligned with a lot of literature reporting more caregiving-related psychological morbidity in women (Yee and Schulz, 2000; Adelman et al., 2014). The roles of caregiving are frequently disproportionately allocated to women, so they might have a higher level of emotional involvement and role strain. Moreover, there was evidence of increased burden on spousal care givers as compared to non-spousal care givers, probably because of emotional attachment, companionship loss and time consuming nature of care giving. The changes in identity and anticipated grief can be felt by spousal caregivers, which worsens the psychological distress (Brodaty & Hadzi-Pavlovic, 1990).

The relationship between the severity of total BPSD and the mental health outcome of caregivers is of significant clinical implications. These are the findings indicating that the effective management of neuropsychiatric symptoms could not only enhance patient outcomes but also become one of the essential interventions to preserve the mental health of caregivers. It has been proven that non-pharmacological interventions (caring education, behavioral management training, structured activity programs, and psychosocial support) may help to decrease BPSD severity and burden on caregivers (Gitlin, Kales, and Lyketsos, 2012; Livingston et al., 2014). The interventions enable the caregivers to have coping strategies, enhance self-efficacy, and minimize helplessness.

Pharmacological treatment of BPSD could also be required in some cases; nevertheless, due to the adverse effects of psychotropic medications in elderly individuals, such as the tendency to fall and develop cerebrovascular disorders and death, it should be used with caution (Ma et al., 2014). Consequently, a stepped-care model that assigns non-pharmacological intervention, and pharmacological intervention is applied in case of severe or refractory symptoms is suggested. Considering the fact that caregivers are the most vital part of dementia care, implementation of caregiver-related interventions into regular dementia care would help improve the effectiveness and sustainability of the treatment process.

In the context of the public health, the results demonstrate the necessity to acknowledge the caregivers as secondary patients in the systems of dementia care. Caregiver depression, anxiety, and burden screening should become a routine in clinical practice, especially in the outpatient and community environments where caregivers are the primary providers of care. Certain models of care that are multidisciplinary and caregiver-inclusive, involving neurologists, psychiatrists, psychologists, nurses and social workers are necessary to meet the complex and interrelated requirements of patients and caregivers (World Health Organization, 2012). Caregiver distress can also be minimized by providing access to respite care services, caregiver support groups and mental health resources that will delay institutionalization of patients with dementia (Gaugler et al., 2009).

Nevertheless, in spite of the advantages, such as the application of validated assessment instruments and assessment of the various BPSD domains, this research has several limitations. The cross-sectional design excludes causal inference and the use of caregiver-reported measures can be associated with reporting bias. Also, tertiary care settings could have restricted the generalizability of recruitment to

caregivers in rural or community-based settings. Longitudinal studies are required in future to investigate time lapses between BPSD progression and caregiver mental health as well as the effectiveness of caregiver interventions in the long term. Particularly, interventional studies using culturally sensitive caregiver support programs would be useful.

To sum up, this research offers strong proof that behavioral and psychological dementia symptoms are significant predictors of psychological distress and burden of the caregiver. The severity of BPSD has been strongly correlated with depressive, anxious, and burden among caregivers, pointing to the severe significance of early diagnosis and proper treatment of neuropsychiatric symptoms. As it would enhance patient and caregiver outcomes and ensure family- and community-wide long-term dementia care, it is necessary to have caregiver assessment, education, and mental health support become part of standard dementia care.

Conclusion

The present paper illustrates the fact that the behavioral and psychological symptoms of dementia (BPSD) may be significantly influencing the mental health of the caregiver. Greater severity of BPSD was closely linked to augmented degrees of caregiver melancholy, stress, and load underlining neuropsychiatric symptoms as a crucial predictor of caregiver mental sufferings. Out of the BPSD domains, agitation, aggression, depressive symptoms, and sleep disturbances have proven to be some of the most significant factors affecting the morbidity of caregivers, which is why it is important to shift to the cognition-based approach of dementia care.

The results underline that the process of taking care of people with dementia is not a supportive process but a long-term psychological stressor that exposes caregivers to a high risk of developing mental health issues. Long care giving time, higher number of hours dedicated to care giving per day, gender and spousal care giving were found to be major vulnerability factors which imply that distress among caregivers accrues over time and is influenced by clinical and sociodemographic factors. These findings justify the need to identify high-risk caregivers early and intervene promptly to avoid the psychological repercussions of such high risks in the long-term.

Clinically, the close relationship between the severity of BPSD and the mental well-being of caregivers underscores the immense significance of assessment and management of neuropsychiatric symptoms. Caregiver-centered screening, education, and psychosocial support as an element of the regular dementia care could be effective in two ways: the positive outcome of the patient and, at the same time, supporting the health of the caregiver. Caregiver-sensitive interventions that are non-pharmacological must come first, followed by pharmacological interventions in cases of severe or even refractory symptoms.

On a more generalized scale, the findings highlight how caregivers should be involved in models of dementia care and supportive health policies, which refer to caregivers as critical collaborators in care. The effectiveness of multidisciplinary strategies, increasing access to mental health care, and caregiver support programs can help mitigate the morbidity of caregivers and make home-based dementia care more sustainable.

Conclusively, behavioral and psychological symptoms of dementia are the key elements to the quality of life of the dementia patients, and the mental health and strength of the caregivers, as well. Future studies need to involve longitudinal and interventional studies to derive and test specific strategies that are effective at reducing BPSD and alleviating caregiver psychological distress resulting in better patient and caregiver outcomes throughout the dementia care continuum.

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