Burden, family functioning, and psychological health of older caregivers of older adults: a path analysis

Sobrecarga, funcionalidade familiar e saúde psicológica de idosos cuidadores de idosos: uma path analysis

Carolina Gonçalves Pires, Flávia Silva Arbex Borim, Francine Nathalie Ferraresi Rodrigues Queluz, Meire Cachioni, Anita Liberalesso Neri, Samila Sathler Tavares Batistoni

Abstract

Objectives: To evaluate an explanatory model of direct and indirect associations regarding the psychological health of older caregivers of functionally dependent older adults.

Methods: This is a cross-sectional study performed with older caregivers recruited in contexts of outpatient and home care. We collected information on sociodemographic characteristics, duration of caregiving, physical and cognitive function indicators of the older care recipients, perceived burden, family functioning, and psychological health measures (psychological need satisfaction and depressive symptoms).

Results: We evaluated 133 caregivers (76% female, 69.5 ± 6.98 years). Variables that were significantly correlated with psychological health were selected to form an association model to be tested by structural equation modeling via path analysis. Depressive symptom variability was best explained by this model. Caregiver burden remained in the model as a mediator of indirect associations between physical function for instrumental activities of daily living and indicators of family functioning and psychological health. Three associative paths between caregiver burden and depressive symptoms were found — one of them was direct and the other two were mediated whether by family functioning or by the level of psychological need satisfaction.

Conclusion: Depressive symptoms were the psychological health indicator best explained by the model involving instrumental functional demands that generate burden. Clinical consequences suggested by the model indicate interventions aimed at family functioning and opportunities of psychological need satisfaction as strategies for promoting caregivers’ psychological health.

Keywords: psychological stress; caregivers; older adults; family; depression.

Resumo

Objetivos: Avaliar um modelo de associações diretas e indiretas explicativo de saúde psicológica de idosos cuidadores de outros idosos funcionalmente dependentes.

Metodologia: Estudo transversal realizado com idosos cuidadores recrutados em contexto ambulatorial e de atenção domiciliar. Foram levantadas informações sociodemográficas, tempo de exercício do cuidado, indicadores funcionais físicos e cognitivos dos idosos que recebem os cuidados, percepção de sobrecarga, funcionalidade familiar e medidas de saúde psicológica (satisfação de necessidades psicológicas e sintomatologia depressiva).

Resultados: Foram avaliados 133 cuidadores (76% feminino, 69,5 ± 6,98 anos). As variáveis correlacionadas significativamente à saúde psicológica foram escolhidas para a composição do modelo de associações testado por análise de equações estruturais via path analysis. A variabilidade em sintomatologia depressiva foi melhor explicada pelo modelo. Sobrecarga permaneceu no modelo como mediadora das associações indiretas entre funcionalidade física para atividades instrumentais da vida diária e os indicadores de funcionalidade familiar e de saúde psicológica. Três caminhos associativos entre sobrecarga e sintomatologia depressiva foram encontrados — um direto e dois mediados, ora pela funcionalidade familiar, ora pelo nível de satisfação de necessidades psicológicas.

Conclusão: Sintomatologia depressiva foi o indicador de saúde psicológica mais bem explicado pelo modelo que envolve a presença de demandas funcionais instrumentais geradoras de sobrecarga. Desdobramentos clínicos sugeridos pelo modelo apontam para intervenções com alvo em funcionalidade familiar e de oportunidades de satisfação de necessidades psicológicas como estratégias para promover a saúde psicológica do cuidador.

Palavras-chave: estresse psicológico; cuidadores; idosos; família; depressão.
INTRODUCTION
Changes in family composition and organization affect the availability of their members to take over or take part in a support network when it comes to the care needs of older family members. Increased life expectancy and especially chronic health conditions or disabilities amplify the number of older relatives that may require help, as well as the duration of caregiving. An increase in the probability of caregiving being assumed by another older family member is also reported.

These realities entail special considerations when applying psychological models dedicated to explain physical and mental health outcomes associated with caregiving. In general, these models start from the assumption that caring for a dependent older relative represents a prototypical experience of chronic stress, especially among family caregivers.

Family caregivers are more prone to present higher scores of self-perceived stress, worse self-assessed health, and a lower sense of adjustment and wellbeing when paired with samples of non-caregivers. The identification of depressive symptoms among family caregivers stands out as a negative psychological response, with prevalence rates varying from 26 to 57% between different studies.

The caregiver stress model proposed by Pearlin et al. has been the main theoretical perspective used in studies that investigate the effects or outcomes of caregiving on physical and psychological health. This model assumes that primary stressors refer to the objective health and function indicators of the care recipient, which generate routine demands due to their dependence in basic and instrumental activities of daily living or to cognitive and/or behavioral problems.

The cognitive assessment that caregivers make of stressors is key to the model by Pearlin et al. When considering the demand levels, as well as the available coping and support resources, the caregiver’s assessment may result in perceived burden. Primary stressors and the sense of burden may become additional sources of stress because they generate secondary role strains — such as family and social conflicts — or secondary intrapsychic strains — such as effects in the sense of self-adjustment and psychological need satisfaction. The interaction between the domains of stress, if not mitigated by social and psychological coping resources, may result in adverse outcomes such as impacts on psychological health.

The model by Pearlin et al. still bears explanatory potential and utility in organizing assessment and practices considering caregivers. Nevertheless, research on caregiver aging has identified potential effects of this process on caregiving outcomes. Some arguments state that older caregivers would be in a situation of “double vulnerability” to negative outcomes, since the context of caregiving and challenges associated with personal aging would be overlapped. Home of the evidence seems to suggest higher emotional preservation among older caregivers, especially when they are spouses, and studies control for schooling, family functioning, and the presence of diseases.

In face of possible particularities of the older caregiver, this study resumes the model by Pearlin et al. and proposes to test a model of relationships between classical variables of this theme in a sample of caregivers aged 60 years or older. We tested direct and indirect relationships between caregiving stressors and psychological health (psychological need satisfaction and depressive symptoms), mediated by perceived burden and family functioning.

METHODS
Study design
This is a cross-sectional analytical study developed using the database of a main study named “Psychological well-being of older caregivers of older adults in a family context,” performed by a group of researchers from the Graduate Program in Gerontology at the School of Medical Sciences of Universidade Estadual de Campinas — FCM/UNICAMP. The main objective of this study was to identify associated factors and the effects of caregiving on the physical and mental health of older caregivers. The institution’s Human Research Ethics Committee approved the main study proposal (CAAE No. 35868514.8.0000.5404) and the data collection for this study (CAAE No. 38912620.1.0000.5404). This study was financed in part by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior — Brasil (CAPES) — Finance Code 001.

Participants
The study recruited 148 older adults at home care services and public or private centers for geriatric care in four inland cities of the state of São Paulo (Jundiaí, Indaiatuba, Campinas, and Vinhedo). Inclusion criteria were: being aged 60 years or older; caring for a sick older relative who has had some degree of dependence for at least six months; and scoring above the cutoff value on the Cognitive Abilities Screening Instrument — Short Form (CASI-S). The participants signed an Informed Consent Form and were interviewed at the same health care unit that recommended them or at home. The interviews had a mean duration of 56 (± 12.2) minutes and were performed by trained interviewers.
Instruments
We selected information regarding the caregiver, the context of caregiving, perceived burden, family functioning, psychological need satisfaction, and depressive symptoms. Caregivers were characterized according to age, sex, years of formal schooling, relationship to the older care recipient, and time as the main caregiver.

Indicators of caregiving demands
Main diagnosis or health conditions of the older care recipient: data were collected from the caregiver’s answer to the question “What are the main medical diagnosis or health conditions of the older adult you provide care to”?

Basic and instrumental activities of daily living (BADL and IADL): assessment using the Katz Index and the Lawton and Brody instrument for identifying the degree of functional independence (physical and cognitive function) of the older care recipient. This assessment was performed using answers provided by the caregiver on the type and number of preserved BADL and IADL. The analyses considered the number of impaired BADL and IADL as different variables.

Cognitive function of the older care recipient: assessed by the answers provided by the caregiver to the Clinical Dementia Rating (CDR). This instrument estimates the degree of cognitive impairment from information on memory, orientation, judgment/problem solving, interpersonal relationships, and personal care. The CDR generates clinical classifications of cognitive impairment that vary from 0 to 3 points (0 = no changes; 0.5 = questionable; 1 = mild; 2 = moderate; and 3 = severe), being used for describing the sample in this study. Nevertheless, an approach named CDR – Sum of Boxes will be used in our analyses, with scores ranging from 0 to 18 points.

Subjective assessment of caregiving demands
Caregiver burden: identified by the Zarit Burden Interview (ZBI), which evaluates the intensity of the perceived burden as reported by the caregiver. The 22 items of this scale are answered through a 4-point Likert scale with a total score of 0 to 88 points, where an increase in the total score indicates an increased perceived burden.

Family functioning indicators
Family APGAR (Adaptability, Partnership, Growth, Affection, Resolve): assesses family functioning through five items dedicated to evaluating the degree of satisfaction of the family member (in this case, the older caregiver) with family aspects referring to adaptation, partnership, growth, affection, and resolve, expressed numerically as a 3-point scale (0 = hardly ever; 1 = some of the time; 2 = almost always). The total score ranges from 0 to 10 points.

Caregiver psychological health indicators
Psychological need satisfaction: identified from the caregiver’s answers to the CASP-19 scale (CASP: acronym for Control, Autonomy, Self-Realization, Pleasure). This scale was developed for estimating psychological need satisfaction in mature and older adults considering the perceived control, autonomy, self-realization, and pleasure in the current circumstances. It comprises 19 items, which are answered in a scale ranging from 0 to 3 (0 = never/never/almost never; 1 = sometimes; 2 = not often; 3 = often), with psychometric indicators that are valid in Brazil.

Depressive symptoms: assessed by applying the 15-item Geriatric Depression Scale (GDS-15) to the caregiver. The GDS is a screening scale with a score ranging from 0 to 15 points and identifies the presence or absence of characteristic symptoms reflected by its items. The total score for this scale was used to indicate the presence of depressive symptoms as an alternative to the categorical classification.

Statistical analyses
Descriptive analyses were performed for characterizing the sample (absolute and relative frequencies and their respective 95% confidence intervals, measures of position, and dispersion).

Variables representative of the caregiver's sociodemographic conditions — age, sex (1 = male; 2 = female), duration of caregiving (in months), levels of physical independence (BADL and IADL) and cognitive independence (CDR), caregiver burden (ZBI), psychological need satisfaction (CASP-19), and depressive symptoms (GDS-15) — were analyzed by Spearman's correlation test (p < 0.05). Significant correlations would inform the choice of variables for comprising the model to be tested.

Structural equation modeling via path analysis was used to identify direct and indirect relationships between variables, with associations being theoretically oriented by Pearlin's Caregiver Stress Model. Statistical tests and cutoff values used in the path analysis were: chi-square goodness-of-fit test > 0.05; relative chi-square (χ²/DF) < 2; standardized root mean square residual (SRMR) > 0.10; root mean square error of approximation (RMSEA) < 0.08; comparative fix index (CFI) > 0.90; and Tucker–Lewis index (TLI) > 0.90. Significance tests for betas or path coefficients (β) were performed for analyzing goodness of fit, and coefficients were considered significant when the absolute t values were > 1.96.
RESULTS
We analyzed data from 133 older caregivers from the main study who provided complete information on the main variables of interest (Table 1). Most of the sample comprised female caregivers (76%; 95%CI 0.67–0.82). The mean age was 69.50 (± 6.98) years and mean years of schooling were 5.70 (± 4.18); the mean duration of caregiving was 54.70 (± 50.40) months. The predominant relationships between the caregiver and the older care recipient were spouse (62.40%) and son/daughter (27.80%). The context of caregiving was marked by a low physical independence in IADL and BADL, with 50% of the sample being totally dependent in IADL (median = 0) and 12% being independent only in three BADL. Moderate or severe impairment were present in 30% of the older care recipients, with a variability of 0 to 18 in the total score (CDR – Sum of Boxes).

The level of perceived burden varied from 0 to 67 points, with a mean score of 26 ± 13.06, which indicated a low intensity considering the median score of 24 points in samples of younger caregivers. The assessment of family functioning varied from 0 to 10 points, with a mean value of 9 points, reflecting highly positive perceptions by half of the respondents. The psychological need satisfaction indicator (CASP-19) does not have a cutoff value for classification. In this sample, the score varied from 18 to 46 points, with a mean value of 34.30 ± 5.97. Considering our sample distribution,

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total</th>
<th>n (%)/[95%CI]</th>
<th>M ± SD</th>
<th>Median (min-max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>133</td>
<td>32 (24.06)/[0.17 – 0.32]</td>
<td>------</td>
<td>-----</td>
</tr>
<tr>
<td>Female</td>
<td>101</td>
<td>101 (75.94)/[0.67 – 0.82]</td>
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<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60-69 years</td>
<td>133</td>
<td>69 (51.88)/[0.43 – 0.60]</td>
<td>69.50 ± 6.98</td>
<td>68 (60 – 86)</td>
</tr>
<tr>
<td>70 years or older</td>
<td>64</td>
<td>64 (48.12)/[0.39 – 0.56]</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Years of schooling</td>
<td>130</td>
<td>5.70 ± 4.18</td>
<td>4 (0 – 19)</td>
<td></td>
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<tr>
<td>Kinship</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Spouse</td>
<td>83 (6.41)/[0.53 – 0.70]</td>
<td>------</td>
<td>------</td>
<td></td>
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<tr>
<td>Son/Daughter</td>
<td>37</td>
<td>27(27.82)/[0.20 – 0.36]</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Others</td>
<td>13</td>
<td>13 (9.77)/[0.05 – 0.16]</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Duration of caregiving (months)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>&lt; 24</td>
<td>37 (28.68)/[0.21 – 0.37]</td>
<td>54.70 ± 6.98</td>
<td>36 (6 – 240)</td>
<td></td>
</tr>
<tr>
<td>24 – 59.9</td>
<td>47</td>
<td>47 (36.43)/[0.28 – 0.45]</td>
<td>54.70 ± 4.00</td>
<td>36 (6 – 240)</td>
</tr>
<tr>
<td>≥ 60</td>
<td>45</td>
<td>45 (34.88)/[0.27 – 0.43]</td>
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<tr>
<td>Independence in IADL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-2</td>
<td>110</td>
<td>110 (82.71)</td>
<td>1.04 ± 1.75</td>
<td>7 (0 – 7)</td>
</tr>
<tr>
<td>3-5</td>
<td>16</td>
<td>16 (12.03)</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>6-7</td>
<td>7</td>
<td>7 (5.26)</td>
<td>------</td>
<td>------</td>
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<tr>
<td>Independence in BADL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-1</td>
<td>59</td>
<td>59 (44.36)/[0.36 – 0.52]</td>
<td>3.04± 2.55</td>
<td>3 (0 – 6)</td>
</tr>
<tr>
<td>2-3</td>
<td>16</td>
<td>16 (12.03)/[0.07 – 0.18]</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>4-6</td>
<td>58</td>
<td>43.61)/[0.35 – 0.52]</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Cognitive impairment (CDR – Sum of boxes) (CDR – Clinical classification)</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>0-0.5</td>
<td>58</td>
<td>58 (52.73)/[0.43 – 0.61]</td>
<td>8.90 ± 7.07</td>
<td>7.5 (0 – 18)</td>
</tr>
<tr>
<td>1-2</td>
<td>33</td>
<td>33 (30.00)/[0.22 – 0.39]</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>3</td>
<td>19</td>
<td>19 (17.27)/[0.11 – 0.25]</td>
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<tr>
<td>Measures derived from the caregiver’s subjective assessment</td>
<td></td>
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</tr>
<tr>
<td>Perceived burden (ZBI)</td>
<td>133</td>
<td>------</td>
<td>26.60 ± 13.06</td>
<td>24 (6 – 67)</td>
</tr>
<tr>
<td>Family functioning (APGAR)</td>
<td>133</td>
<td>------</td>
<td>7.70 ± 2.52</td>
<td>9 (1 – 10)</td>
</tr>
<tr>
<td>Psychological need satisfaction (CASP-19)</td>
<td>133</td>
<td>------</td>
<td>34.30 ± 5.97</td>
<td>35 (18 – 46)</td>
</tr>
<tr>
<td>Depressive symptoms (GDS-15)</td>
<td>133</td>
<td>------</td>
<td>3.70 ± 2.73</td>
<td>3 (0 – 11)</td>
</tr>
</tbody>
</table>

CI: confidence interval; M: average; SD: standard deviation; IADL: instrumental activities of daily living; CDR: Clinical Dementia Rating; ZBI: Zarit Burden Interview; APGAR: Adaptability, Partnership, Growth, Affection, Resolve; CASP-19: Control, Autonomy, Self-Realization, Pleasure; GDS: Geriatric Depression Scale.
the median CASP-19 score was 35 points, which was similar to the distribution found in community-dwelling older adults in Brazil. Depressive symptoms suggesting depressive disorder were found in 24.60%, with a mean of 3.75 ± 2.73 points and a median of 3. None of the caregivers reached the maximum score for depressive symptoms, which varied from 0 to 11 points.

Figure 1 presents the distribution (in absolute data) of caregivers according to the diagnosis or clinical condition of the older care recipient. The context of caregiving was especially marked by neurological and cerebrovascular diseases, conditions that cause immobility, and cancer.

Table 2 describes correlations between variables in this study. We observed correlations between variables concerning the sex of the caregiver and measures of physical independence (IADL and BADL) and cognitive impairment of the care recipient. Variables revealing correlations with at least one caregiver psychological health indicator were: IADL, BADL, caregiver burden, family functioning. These correlations directed the choice of variables to be included in the psychological outcome model tested in this study, in addition to the correlations between psychological need satisfaction and depressive symptoms.

In accordance with the logical reasoning of Pearlin’s model, our initial model considered the level of independence/dependence of the older care recipient as a possible primary stressor. Caregiver burden is a product of a subjective assessment by the caregiver, with possible effects on intrapsychic strains (or psychological need satisfaction) and depressive symptoms. Family functioning is a potential mediator between perceived burden and psychological outcomes in terms of psychological need satisfaction and depressive symptoms.

The initial model was revised twice for reaching acceptable values for all goodness-of-fit criteria adopted in the path analysis. In the first review step, we suggested the exclusion of direct relationships that did not present a significant difference in coefficient estimates. In the second review, performed with the suggested variables and paths, all goodness-of-fit criteria were reached (Figure 2). Direct associations were found for levels of functional independence in IADL and caregiver burden. Caregiver burden was associated with family functioning, psychological need satisfaction, and depressive symptoms. Family functioning and psychological need satisfaction were also directly associated with depressive symptoms.

We then tested indirect relationships between the studied variables in the final analysis model. Perceived burden was a mediator of an indirect relationship between functional independence in IADL and family functioning, psychological need satisfaction, and depressive symptoms. Family functioning,
in turn, was a mediator of an indirect relationship between perceived burden and depressive symptoms.

Psychological need satisfaction was also a mediator of relationships between caregiver burden and depressive symptoms. The variable related to the level of functional independence in BADL, present in the initial model, did not present direct or indirect associations. For the psychological need satisfaction outcome, the coefficient of determination was $R^2 = 0.07$, whereas for depressive symptoms it was $R^2 = 0.45$, which explained around 45% of the variance for this variable.

**DISCUSSION**

Except for the mean age, the sociodemographic characterization of our sample tended to maintain the profile described in the literature as the “typical caregiver,” that is, mostly female daughters or spouses of care recipients. Correlations between measures of function for IADL and BADL and cognitive impairment of the care recipient also replicated the tendency of women to care for impaired older people, meaning a higher caregiving demand in their day-to-day life. Sex, as a variable, did not present correlations with perceived burden.
(such as in Nunes et al.\textsuperscript{22}), family functioning, and psychological health.\textsuperscript{25} Since most caregivers are also spouses, socio-cultural issues may act on the perceived burden, attributing a degree of normativity to caring for a spouse during old age.

The literature frequently reports that dependence in BADL and the presence of behavioral problems related to presentations of dementia are among the main sources of stress for caregivers in general.\textsuperscript{1} In this sample, however, the level of independence in IADL was notable, revealing significant negative correlations especially with caregiver burden and depressive symptoms in relation to other measures of physical and cognitive function (BADL and CDR). The decrease in levels of independence in IADL was the only maintained variable when explaining variability in psychological health, revealing a direct positive relationship with perceived burden.

In light of the diagnoses or physical and functional impairment in this sample, it is possible to interpret that, when compared to BADL, assisting in IADL was the most characteristic demand for caregivers. This interpretation is in line with the available literature on older caregivers. In the continuum of care, a high level of dependence in BADL is associated with institutionalization and/or hospitalization or predicts the need to share caregiving with other people or family members,\textsuperscript{1,10} making it less probable that older adults assume the care of other older individuals with this profile by themselves.

Just as in the model tested by Del-Pino-Casado et al.,\textsuperscript{7} perceived burden mediates relationships between the objective stress of caregiver demands and the implications of caregiving to caregiver wellbeing. According to the model by Pearlin et al.,\textsuperscript{8} cognitive assessments of caregiving demands have a central role in the caregiver’s physical and mental health outcomes. However, caregiver aging may add possible specificities to the manifestation of this phenomenon as well as its intensity. In this sample, we observed a smaller mean score in the Zarla burden scale than that found in younger caregivers.\textsuperscript{24} The aforementioned relationships with IADL are possible partial explanations for this occurrence. However, the scientific literature enumerates other possible influences that stem from the psychological aging process. The degree at which caring for an older relative may be experienced as a normative event in life and the interference of coping strategies and more mature emotion regulation skills are plausible explanations. Previous publications have suggested these possibilities.\textsuperscript{11,25} The study by Lemos,\textsuperscript{26} for example, suggests that older caregivers, despite their frailty, enact coping resources such as those linked to religiousness and spirituality to ensure psychological need satisfaction, such as control over life.

Significant correlations with psychological health measures (psychological need satisfaction and depressive symptoms) were used as criteria for selecting variables to comprise the model to be tested. The order of these variables was inspired in the model by Pearlin et al.,\textsuperscript{8} aiming to explain psychological health indicators. According to this criterion for selecting and ordering variables, the value of the model’s coefficient of determination led to the interpretation that it has a better fit for explaining the variability of depressive symptoms. In order for the model to explain psychological need satisfaction more robustly, we would need to include measures not considered in this study — such as aspects of lifestyle habits, social support, spirituality, and economic and environmental conditions — since a positive measurement of psychological health and/or perceived quality of life is, in general, multidetermined.\textsuperscript{11}

The model revealed three paths through which caregiving demands, mediated by the level of perceived burden, affect the presence of depressive symptoms among older caregivers: one direct path and two indirect paths, mediated at times by psychological need satisfaction, at other times by family functioning measures.

Part of the explanation involves the recognition of overlaps between aspects present in the operationalization of the perceived burden construct. Caregiver burden refers to a state of discomfort, identified by a declaration of emotional experiences of displeasure, decreased experiences of pleasure, social strains relative to the role, and changes in positive expectations and sense of competence.\textsuperscript{26} Direct and positive relationships between burden and depressive symptoms may express the overlap between negative emotional experiences. Direct negative relationships between caregiver burden and psychological need satisfaction stem from overlaps between decreased experiences of pleasure, sense of competence and control, as measured by the CASP-19 instrument. Direct negative relationships with perceived family functioning may be a reflex of perceived strains regarding one’s role in the family context.

Nevertheless, indirect paths between caregiver burden and depressive symptoms suggest mechanisms through which this burden acts. The first mechanism would be decreasing psychological need satisfaction. Caregiving may reduce objective chances of participating in social, leisure, self-care, or personal development activities, minimizing the occurrence of pleasurable events, chances of positive emotional contagion, and highlighting experiences of decreased control, autonomy, and self-realization.\textsuperscript{11}

The CASP-19 measure, used as a psychological health indicator, is also considered a measure of quality of life in old age, and increased scores reflect processes of adaptation.
to the challenges of aging. In many domains of life, older adults adjust to changes and losses, decrease their expectations, and adjust their internal standards to level the discrepancy between the possible and the real situations. However, the assessment of intense burden, especially in the absence of internal and external resources that help with adaptation, decreases the perceived quality of life, reflecting as cognitions, emotions, and motivational states that are characteristic of depression.

The second mechanism is represented by indirect relationships between burden and depression, mediated by family functioning conditions. Family functioning is a robust indicator used in national and international research on mental health and wellbeing. The APGAR measure of family functioning is one of the most widely used for providing information on the satisfaction of caregivers with the family resources in terms of adaptation, partnership, opportunities of growth, affection, and resolve.

In addition to the nature of relationships or living arrangements in objective terms, family functioning reveals aspects on the quality of exchanges and comparisons with norms of solidarity and family retribution. In the context of caregiving, the processes of assessing family functioning are constantly activated in face of the demands and level of emotional or instrumental support perceived while assuming the caregiver role, affecting global wellbeing measures such as quality of life. According to Lins et al., comparisons between what is observed and what is expected in terms of norms, values, and individual and social expectations affect the level of satisfaction with relationships and determine the emotional climate of the relationships and caregiving process.

The mediation role of family functioning between caregiver burden and depression has been shown and/or advocated by studies. Kusaba et al. highlight its effect in exacerbating or attenuating stress and depression in the caregiver, and demonstrated that better psychological wellbeing, including less depression and stress, emerged in family caregivers who noticed higher flexibility and family communication. McAuliffe et al., in a study with older spousal caregivers, suggested that the social support of family may be particularly important due to the health vulnerability of this group and to fewer opportunities for social participation. Good indices of perceived family functioning in our sample partially explain the low levels of depression among older caregivers.

Methodological limitations demand careful interpretation regarding the generalization of our findings. The cross-sectional design of our study limits the establishment of causal relationships. The composition of our sample, from convenience criteria, favors a higher suitability of our data to older caregivers who are linked to public or private centers for guidance, support, or clinical care, which indicates the presence of some level of formal support to caregiving. Although there were missing data for the schooling and cognitive demands variables, this did not alter the path analysis, since it only considered individuals with complete data for all variables selected for the association tests.

CONCLUSION

The aging of caregivers of older adults invites the academic community to a theoretical examination of the universality or specificity of the paths through which psychological health is affected by this role during old age. This study, by testing an association model, identified three possible paths through which depressive symptoms may manifest in the presence of objective and subjective stressors related to caregiving. Investing in strategies that promote wellbeing, aiming to provide psychological need satisfaction and promote family functioning throughout life and during old age, is a potential consequence both to clinical practice and public policies that seek to prevent depression among older caregivers.

This study approached the psychological health of older caregivers with a strategy of analyzing simultaneous interrelationships between important variables in the study of older adult care. Association models have the potential to guide assessments and practices and reinforce public interest and policies for older caregivers. Future studies should invest in perfecting the model, using a longitudinal design capable of confirming the associative paths and the mediation role of family functioning and psychological need satisfaction on depression measures.

Conflicts of Interest

The authors declare no conflicts of interest.

Funding

This study was financed in part by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brasil (CAPES) – Finance Code 001.

Authors’ Contributions

CGP: conceptualization, writing – original draft, writing – review & editing. FSAB: formal analysis, writing – review & editing. FNFRQ: formal analysis, writing – review & editing. MC: methodology, project administration. ALN: methodology, project administration. SSTB: methodology, project administration, writing – original draft, writing – review & editing.
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