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Original Article

Variables of perceived burden as factors associated with burnout among paid caregivers of institutionalized older adults

Variáveis da sobrecarga percebida como fatores associados ao *burnout* em cuidadores formais de pessoas idosas institucionalizadas

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ABSTRACT

Objective: to investigate perceived caregiver burden variables and their association with the domains of burnout syndrome among paid caregivers of institutionalized older adults. **Methods:** a cross-sectional analytical study was conducted with 92 paid caregivers, using the Zarit Burden Interview and the Maslach Burnout Inventory. **Results:** regression models showed lower Emotional Exhaustion scores among caregivers with greater satisfaction with the caregiving role, no or mild burden, and an additional paid job. Having no children was associated with higher Depersonalization scores, whereas high school education was associated with lower scores. College education and an additional paid job were associated with higher Personal Accomplishment scores, whereas being partnered was associated with lower scores. **Conclusion:** sociodemographic, occupational, and health-related factors were associated with perceived caregiver burden and burnout dimensions. **Contributions to practice:** the study provides insights for promoting occupational health and managing the work of caregivers for older adults in institutions, thereby improving quality of life and care.

Descriptors: Burnout, Psychological; Caregiver Burden; Aged; Nursing Home Residents; Caregivers.

RESUMO

Objetivo: investigar as variáveis da sobrecarga percebida e sua associação com os domínios da Síndrome de *burnout* em cuidadores formais de pessoas idosas institucionalizadas. **Métodos:** estudo transversal e analítico, realizado com 92 cuidadores formais, por meio da escala *Zarit Burden Interview* e do *Maslach Burnout Inventory*. **Resultados**: a regressão revelou que a exaustão emocional foi menor entre aqueles com maior satisfação em exercer o cuidado, sem sobrecarga ou com sobrecarga ligeira, e que possuíam uma atividade laboral. No domínio da despersonalização, não ter filhos foi associado ao aumento do escore, enquanto possuir ensino médio esteve relacionado à sua redução. Quanto à realização pessoal, possuir ensino superior e uma atividade laboral adicional foram fatores associados a maior realização, enquanto estar em relacionamento conjugal esteve relacionado à menor percepção de realização. **Conclusão:** fatores sociodemográficos, ocupacionais e de saúde mostraram-se associados à sobrecarga percebida e aos domínios do *burnout.* **Contribuições para a prática:** o estudo oferece subsídios para promoção da saúde ocupacional e gestão do trabalho de cuidadores de pessoas idosas em instituições, favorecendo qualidade de vida e cuidado.

Descritores: Esgotamento Psicológico; Sobrecarga do Cuidador; Idoso; Residentes de Casas de Saúde; Cuidadores.

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Introduction

Population aging is a global demographic shift that places structural pressure on healthcare and social service systems[1]. The shift is especially rapid in Brazil. By 2050, the country is expected to rank among those with the largest populations of older adults, with about 70 million people—nearly 30% of the national population[2].

Aging brings progressive physiological changes that compromise functional capacity and increase the prevalence of noncommunicable and degenerative diseases[1]. These conditions increase clinical and social vulnerabilities, making older adults more susceptible to dependence and frailty[3]. In this context, there is a growing need for continuous and specialized care, which requires interdisciplinary approaches that are technically sound and compassionate, with a focus on empathy and care coordination[4].

The rising demand for long-term care, particularly for older adults with cognitive, functional, or nutritional impairments, has directly affected the daily work of health professionals, especially paid caregivers in long-term care facilities (LTCFs)[5]. These caregivers are essential to residents' well-being and dignity. Their work, however, often involves heavy physical and emotional demands, long shifts, and limited psychosocial support. Such conditions expose them to high levels of occupational stress and can contribute to anxiety, fatigue, and physical and psychological exhaustion[6].

Prolonged exposure to chronic workplace stressors can lead to burnout. The syndrome comprises three interrelated dimensions: Emotional Exhaustion, Depersonalization, and Personal Accomplishment[7]. In the International Classification of Diseases, 11th Revision (ICD-11), the World Health Organization classifies burnout under code QD85 as an occupational phenomenon resulting from chronic workplace stress that has not been successfully managed[8].

Burnout among paid caregivers in LTCFs is multifactorial and has been associated with perceived caregiver burden, poor working conditions, and complex care demands[5-6]. Caregivers with symptoms of burnout have also reported greater acute and chronic fatigue and less recovery between shifts, which is consistent with the cumulative effects of occupational stress on their health[9].

These patterns raise questions about occupational health and the quality of care provided. One question guided this study: Which sociodemographic, economic, occupational, and health-related factors are associated with perceived caregiver burden and burnout dimensions among paid caregivers of older adults living in LTCFs? Answering this question may expand the evidence base and help inform prevention and intervention strategies aimed at improving caregivers' quality of life and, in turn, the care provided to older adults[10].

Despite the growing relevance of this topic, there is a scarcity of Brazilian studies that jointly investigate sociodemographic, economic, occupational, and health-related factors associated with both perceived caregiver burden and burnout dimensions among paid caregivers of older adults living in LTCFs. In the international context, although there are studies showing an association between burnout and working conditions in LTCFs, analyses that explore multiple variables jointly remain limited, especially in middle-income countries such as Brazil. The present study addresses this gap by examining these factors together and identifying associations relevant to the Brazilian context. In addition, it seeks to provide practical guidance for nurses and other professionals involved in LTCFs care, contributing to the planning of prevention strategies, occupational health promotion, and improvements in the quality of care.

The study therefore aimed to investigate perceived caregiver burden variables and their association with the domains of burnout syndrome among paid caregivers of institutionalized older adults.

Methods

Study design

We conducted a cross-sectional analytical study. The study was reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement.

Study setting and data collection period

This study was conducted in four privately operated LTCFs in São Paulo, Brazil, from April through September 2025. The facilities had similar physical infrastructure and staffing levels, with an average capacity of 70 residents each. The resident population consisted primarily of older adults with varying degrees of functional dependence, including those with cognitive impairment, motor limitations, and continuous care needs related to noncommunicable diseases and degenerative conditions[5].

Sample size and composition

We estimated the sample size using analysis of variance (ANOVA), a method considered appropriate for the pilot study and the objective of comparing means between two groups. However, ANOVA served only as a preliminary basis for the estimate because the primary analyses involved regression models. Although the calculation was not specifically adjusted for regression analysis, it provided adequate statistical power to detect meaningful differences.

To enable the sample size estimation, a pilot study was conducted with 20 participants; their data informed the preliminary calculations, and all 20 participants were included in the final sample. Within this analysis, targeted comparisons were performed among the dimensions of the Maslach Burnout InventoryHuman Services Survey (MBI-HSS), using the Zarit Burden Interview (ZBI) as a complementary measure, with a 5% significance level and 80% statistical power. Based on the pilot study results, the minimum required sample size was determined to be 48 participants. However, the sample was expanded to 92 participants, exceeding the initial estimate, to increase statistical precision and the reliability of the inferences.

The eligible population comprised all paid caregivers employed at the four LTCFs. Of the 97 caregivers identified across the facilities, five declined to participate, leaving a final sample of 92 and a participation rate of approximately 94.8%. No further losses occurred during the study. Participants worked day or night shifts lasting 6 to 12 hours.

To assess statistical power, a post hoc calculation was performed based on the final sample (n = 92), considering the means and standard deviations observed for the MBI-HSS dimensions in relation to the ZBI scores. For these comparisons, ANOVA was used, with a significance level of 5%. The results showed high statistical power for the Emotional Exhaustion (98.5%) and Depersonalization (91.4%) dimensions, whereas the Personal Accomplishment dimension showed lower statistical power (52%).

Eligibility criteria

Participants were eligible if they were aged 18 years or older, worked as paid caregivers of older adults in an LTCF, and had worked at the participating facility for at least three consecutive months.

We excluded caregivers who were absent during data collection or had been transferred to another unit, as well as those whose roles were limited to managerial and/or administrative duties and did not involve direct care.

Study instruments and variables

After consent was provided, a structured instrument was administered covering sociodemographic variables (sex, age, marital status, educational attainment, skin color, number of children, comorbidities, and medication use), economic variables (month-

ly family income and base salary), occupational variables (length of caregiving experience, weekly work hours, number of residents under their care, specific training, intention to leave, and job satisfaction), and health-related variables (level of fatigue, self-perceived health, and time devoted to leisure).

To measure perceived caregiver burden, the ZBI was used, an instrument employed in research on the health of caregivers of older adults. The Brazilian version was translated and validated for use in Brazil, with Cronbach's α = 0.88. The ZBI consists of 22 items scored on a scale from 0 (never) to 4 (nearly always), according to the presence and intensity of burden. The total score is obtained by summing the item scores and ranges from 0 to 88, with higher values indicating greater perceived burden[11].

Although the ZBI was originally developed for informal caregivers, its use with paid caregivers is methodologically appropriate because many of the aspects assessed by the instrument also apply to the professional context. Issues related to emotional stress, perceived burden from caregiving tasks, and the impact on personal life have parallels in the experience of paid caregivers, who deal with intense and continuous demands on a daily basis. By capturing these subjective perceptions, the ZBI makes it possible to identify aspects shared across different forms of caregiving and facilitates comparison of the results with the established literature[12].

Burnout was assessed using the MBI-HSS, a psychometric instrument widely used to assess occupational burnout among health care and social service professionals. The Brazilian version was translated and adapted for use in Brazil and showed high internal consistency, with Cronbach's α = 0.88. The instrument consists of 22 items distributed across three subscales: Emotional Exhaustion (9 items), Depersonalization (5 items), and Personal Accomplishment (8 items). Responses are rated on a Likert-type scale ranging from 0 to 6 points. The Personal Accomplishment dimension is interpreted inversely in relation to burnout; that is, lower scores indicate greater impairment in occupational well-being and lower perceived accomplishment at work[13].

High scores on the Emotional Exhaustion and Depersonalization dimensions, together with low scores on the Personal Accomplishment dimension, are strongly indicative of burnout. This analytical approach is particularly useful in heterogeneous samples because it facilitates comparisons among individuals and subgroups. Burnout is identified when substantial impairment is present in all three dimensions; impairment in two dimensions is already considered to indicate a high risk of developing burnout[13].

Data collection

Initially, the management of each facility was formally contacted to obtain the institutional authorization required to conduct the study. After authorization was granted, a structured operational plan was developed to ensure the organization and standardization of the data collection process. Meetings were held with facility coordinators to obtain detailed information about the professionals working as paid caregivers, including their names and respective work shifts.

Subsequently, the caregivers were approached individually and invited to participate in the study. During these contacts, the study objectives were presented clearly and objectively, with emphasis on the scientific relevance of the research to understanding factors associated with perceived caregiver burden. The information provided was intended to ensure that all potential participants fully understood the nature and purpose of the study before providing consent.

Professionals who expressed interest and agreed to participate formalized their participation by signing the informed consent form, with one copy provided to the participant and the other retained by the researchers. Data collection was conducted by a nurse with a specialization in gerontological nursing who had been trained to administer the instruments. Interviews were conducted in a private, quiet setting within each facility and lasted approximately 15–20

minutes, to provide comfort, ensure privacy, and minimize external stimuli that could interfere with respondents' concentration.

Participant selection was based on convenience sampling, with direct recruitment of paid caregivers working at the facilities. To reduce potential bias and control for confounding variables, uniform inclusion criteria were established, ensuring that all participants shared a common set of minimum characteristics related to their work as paid caregivers. In addition, analyses were conducted separately for each MBI-HSS subscale, allowing the different aspects of burnout and perceived caregiver burden to be evaluated separately and increasing the consistency and internal validity of the findings.

Data processing and analysis

After data collection, the data were organized, tabulated, and entered into an electronic database using a structured Microsoft Excel® spreadsheet (.xlsx format). The statistical analyses were performed using the SPSS®, version 20.0 for Windows.

Categorical variables were summarized using absolute and relative frequencies, whereas continuous variables were summarized using the mean, standard deviation, median, minimum, and maximum.

The Chi-square test was used to examine the association of sociodemographic, economic, occupational, and health-related variables with ZBI burden categories. The Kruskal–Wallis test was employed to compare MBI HSS subscale scores across ZBI burden categories. MBI-HSS subscale scores were also compared by sociodemographic, economic, occupational, and health-related characteristics using the Mann–Whitney U test for dichotomous variables and the Kruskal–Wallis test for variables with three or more categories.

A multinomial logistic regression model was fitted to identify factors associated with ZBI burden categories and separate multiple linear regression models for each MBI-HSS subscale score. Given the large number of independent variables, candidate variables were prescreened based on the bivariate analyses and retained those with $p<0.20$. This process yielded up to 13 variables for inclusion in the regression models.

To reduce the risk of overfitting given the sample size (n = 92), we used stepwise variable selection and included only variables that met the bivariate screening criterion. Entry and removal probabilities were set at 0.05 and 0.10, respectively.

We evaluated the regression models by assessing multicollinearity using the VIF. VIFs ranged from 1.01 to 1.29, indicating no multicollinearity. In addition, linear regression assumptions were assessed, including residual normality using the Shapiro–Wilk test. A Durbin–Watson value close to 2 indicated no autocorrelation among the residuals, confirming their independence. Graphical analysis showed that the points were randomly distributed, with no widening or narrowing pattern, curvature, or systematic clustering, and with uniform dispersion across the range of predicted values, indicating homoscedasticity.

Ethical considerations

The Research Ethics Committee of the *Escola Paulista de Enfermagem, Universidade Federal de São Paulo*, approved the study under Opinion No. 7.431.422/2025 and Certificate of Presentation of Ethical Consideration No. 85029624.4.0000.5505, in accordance with Brazilian National Health Council Resolution No. 466/2012.

Results

Women accounted for most of the sample (n = 71; 77.2%). Participants aged 40–49 years formed the largest age group (n = 40; 43.5%). Fifty-five participants (59.8%) self-identified as Brown or Black; 68 (73.9%) were not partnered.

Spinal musculoskeletal conditions were the most commonly reported comorbidities (n = 42; 45.7%). More than half of the caregivers used medications (n = 52; 56.5%), and 50 (54.3%) reported tak-

ing up to five medications daily. Fifty-two participants (56.5%) had children, and Catholicism was the most commonly reported religion (n = 58; 63.0%).

Most participants had completed high school (n = 72; 78.3%). Thirty-nine (42.4%) reported a monthly family income of R$1,200–R$2,400. Forty-two caregivers (45.7%) had 1–4 years of experience caring for older adults, and 62 (67.4%) reported caring for more than six residents per day.

More than half of the participants had no specific training in geriatric care (n = 52; 56.5%), and 62 (67.4%) were dissatisfied with the caregiving role. Nevertheless, 49 (53.3%) did not intend to leave caregiving. Forty-eight (52.2%) worked 12-hour shifts, and 41 (44.6%) earned more than R$2,000 per month. Most participants had no additional paid job (n = 78; 84.8%), and 48 (52.2%) reported devoting no time each day to leisure activities or hobbies.

Regarding perceived well-being, 74 (80.4%) reported feeling extremely tired, and 55 (59.8%) were dissatisfied with their health. Table 1 presents descriptive statistics for the MBI-HSS subscale scores.

Table 1 – Descriptive statistics for MBI-HSS subscale scores among paid caregivers of older adults living in long-term care facilities (n = 92). São Paulo, SP, Brazil, 2025

Subscales	Median	Minimum/Maximum
Emotional exhaustion	33	(10-54)
Depersonalization	19	(1-29)
Personal accomplishment	20	(7-46)

ZBI scores indicated varying levels of perceived caregiver burden among the paid caregivers. Of the 92 participants, 19 (20.7%) were classified as having no burden, 30 (32.6%) as having mild burden, and 43 (46.7%) as having high burden.

Chi-square tests identified statistically significant associations of ZBI burden categories with several independent variables. Caregivers who self-identified as Asian or Indigenous were more frequently classified as having mild burden (χ^2 = 10.60; df = 4; p = 0.023). Medication use was associated with high burden (χ^2 = 9.29; df = 2; p = 0.009), as was having children (χ^2 = 8.90; df = 2; p = 0.038).

Lack of specific training in geriatric care was associated with mild burden (χ^2 = 6.61; df = 2; p = 0.036). No time devoted to leisure activities or hobbies was associated with high burden (χ^2 = 14.20; df = 4; p = 0.007), as was a high level of fatigue (χ^2 = 13.70; df = 4; p = 0.001). In contrast, caregivers who were satisfied with their health were more frequently classified as having no burden (χ^2 = 15.20; df = 2; p < 0.001).

Table 2 presents the factors associated with ZBI burden categories in the multivariable multinomial logistic regression model.

Table 2 – Multivariable multinomial logistic regression analysis of factors associated with ZBI burden categories among paid caregivers of older adults living in long-term care facilities (n = 92). São Paulo, SP, Brazil, 2025

ZBI burden category / Factor	Estimate	OR	95% CI
Mild burden			
Intercept	-0.12	–	–
Level of fatigue (high vs low)	0.07	1.07	0.22; 5.23
Satisfaction with one's health (no vs yes)	2.43	11.35	2.2; 58.61
Depersonalization	-0.04	0.96	0.87; 1.06
High burden			
Intercept	-3.90		
Level of fatigue (high vs low)	2.17	8.75	1.62; 47.19
Satisfaction with one's health (no vs yes)	0.85	2.34	0.52; 10.51
Depersonalization	0.14	1.15	1.03; 1.28

ZBI: Zarit Burden Interview; OR: Odds Ratio; CI: Confidence interval

Caregivers dissatisfied with the caregiving role had higher Emotional Exhaustion scores (median, 34.5; range, 10–54; p = 0.009), as did those reporting a high level of fatigue (median, 34; range, 10–54; p = 0.028).

Medication use (median, 20; range, 1–29; p = 0.034), having children (median, 20; range, 6–29; p = 0.011), dissatisfaction with the caregiving role (median, 20; range, 1–29; p = 0.027), no time devoted to leisure activities or hobbies (median, 20; range, 8–29; p = 0.041), and dissatisfaction with one's health (me-

dian, 18; range, 2–29; p = 0.016) were associated with higher Depersonalization scores.

Participants who were not partnered had significantly higher Personal Accomplishment scores (median, 21; range, 7–46; p = 0.035). Table 3 presents the multiple linear regression results for factors associated with the three MBI-HSS subscale scores.

Table 4 summarizes the associations of MBI-HSS subscale scores with ZBI burden categories.

Table 3 – Multiple linear regression analysis of factors associated with MBI-HSS subscale scores among paid caregivers of older adults living in long-term care facilities (n = 92). São Paulo, SP, Brazil, 2025

Dimension/variable	Estimate	p-value	R^{2}*	VIF†	Durbin-Watson
Emotional Exhaustion					
Constant	41.13	< 0.001			
Satisfaction with the caregiving role	-4.43	0.004		1.06	
Age group – 19–39 years	6.85	0.000	0.35	1.06	2.26
ZBI‡ – No burden	-7.87	0.000		1.24	
ZBI – Mild burden	-5.53	0.000		1.29	
Additional paid job	-4.48	0.022		1.04	
Depersonalization					
Constant	0.65	< 0.001			
No children	0.27	0.007	0.13	1.03	1.90
Educational attainment – High school	-0.29	0.015		1.11	
Personal Accomplishment					
Constant	13.45	<0.001			
Educational attainment – College	9.16	0.008	0.18	1.01	1.65
Additional paid job	6.98	0.004		1.02	
Partner status – Partnered	-4.56	0.019		1.01	

*R^{2}: Coefficient of determination; †VIF: Variance inflation factor; ‡ZBI: Zarit Burden Interview

Table 4 – Association of MBI-HSS subscale scores with ZBI burden categories among paid caregivers of older adults living in long-term care facilities (n = 92). São Paulo, SP, Brazil, 2025

MBI-HSS subscale	ZBI burden category			p-value
	No burden (n = 19)	Mild burden (n = 30)	High burden (n = 43)	
	Median (Min-Max*)	Median (Min-Max)	Median (Min-Max)	
Emotional Exhaustion	30 (10-37)	32.5 (10-49)	36 (24-54)	0.006
Depersonalization	17 (2-28)	17 (1-28)	25 (6-29)	< 0.001
Personal Accomplishment	22 (9-46)	20 (8-46)	19 (7-33)	0.259

*Minimum/Maximum

Discussion

Significant associations were found between sociodemographic, occupational, and health-related variables and perceived caregiver burden and burnout dimensions. These findings demonstrate the complex and interdependent nature of the factors associated with occupational strain, encompassing individual, institutional, and contextual dimensions.

The historically and socially prominent role of women in caregiving is particularly evident among paid caregivers of older adults living in LTCFs. This predominance is not an isolated phenomenon but a widely documented pattern, although the percentages vary: 84.5% in China[14], 86.2% in Chile[15], 75.7% in Ecuador[16], 90.8% in Portugal[17], 90% in South Korea[18], and 75.8% in Iran[19]. This convergence reflects persistent sociocultural determinants that associate women with caregiving activities, perpetuating the gendered division of labor and the devaluation of caregiving occupations[20].

Musculoskeletal disorders of the spine are

among the main health problems affecting paid caregivers of older adults. International evidence indicates that caregivers frequently report musculoskeletal disorders, with low back pain being the most prevalent[17,21]. These findings reinforce caregivers' exposure to biomechanical strain, repetitive exertion, and awkward postures, often without breaks or ergonomic support.

The lack of specific training to address the demands of aging reveals a concerning gap in caregivers' professional practice. In Brazil, similar findings were observed in a study conducted in Belém, Pará, where 78.7% of caregivers had no formal qualifications in the field[12]. This training gap remains a persistent challenge in Brazilian care settings and may intensify perceived caregiver burden and compromise the quality of care[22]. The lack of ongoing training, together with insufficient institutional recognition, limits the development of the technical and emotional competencies needed to address the complex demands of aging.

Caregivers' marital status provides relevant information for understanding their work experience. Although marital status was not found to be a determining factor, Brazilian and international studies have reported a higher proportion of married caregivers[14,16,19,23], suggesting that additional family and household responsibilities may intensify physical and emotional strain[24]. Thus, marital status may influence perceived exhaustion and the ability to cope with work-related pressures, reinforcing the importance of considering personal and contextual factors in occupational health analyses.

The absence of leisure activities and reported dissatisfaction with physical and mental health characterize a context of psychosocial vulnerability. Previous studies also indicate that work–life imbalance, combined with emotional burden, may contribute to chronic stress, fatigue, and reduced functional capacity[12,18]. These factors compromise not only caregivers' well-being but also the quality and safety of care provided to older adults[9].

Although economic variables did not show statistically significant associations in this study, the sample was characterized by precarious socioeconomic conditions. This finding highlights the adverse socioeconomic conditions experienced by these professionals, which may contribute to increased stress levels and greater psychosocial burden associated with their work responsibilities[12].

Regarding perceived caregiver burden, most caregivers had moderate to high levels, in contrast to studies that identified mild[22] or moderate burden[14]. These differences may reflect variations in working conditions, employment arrangements, physical infrastructure, and institutional support, highlighting the role of organizational contexts in the experience of caregiver burden[25]. In addition, the statistically significant association between perceived caregiver burden and variables such as having children, medication use, and no time devoted to leisure activities highlights the multifactorial nature of occupational strain[26].

The associations identified between individual, relational, and occupational characteristics and burnout dimensions may be understood in light of contextual factors that shape experiences of strain and accomplishment at work. Factors such as social support, overlapping family and professional roles, and level of work engagement[23] appear to be differently associated with perceived Depersonalization and satisfaction with the caregiving role, potentially representing sources of vulnerability or protective mechanisms[25].

Regarding burnout, the results indicated different levels of risk among caregivers, ranging from the possibility of developing burnout to more pronounced manifestations of the syndrome. Brazilian and international studies report similar findings, despite methodological and contextual differences[9,12,24]. The regression analysis performed in this study showed that variables associated with perceived caregiver burden were identified across the three burnout dimensions, supporting the relevance of perceived caregiver burden as a factor associated with burnout. Similarly, an association has been identified between caregiver burden, socioeconomic conditions, and the number

of older adults cared for, highlighting the relevance of working conditions to caregivers' well-being[14].

Preventing burnout and perceived caregiver burden requires integrated institutional strategies and public policies aimed at promoting mental health and recognizing the value of caregivers. Interventions such as psychological support groups, spaces for supportive listening, continuing education programs, and adjustments to work hours are important for strengthening resilience, reducing occupational stress, and improving the quality of care[14]. Such measures should be implemented through human-centered management models that recognize caregivers as people who also need care and as active participants in the healthy aging process.

Study limitations

Although the study identified statistically significant associations, the modest coefficients of determination indicate that the models explained only part of the variability in the outcomes and that unmeasured factors may account for additional variation. The use of the ZBI with paid caregivers is also a limitation because the instrument does not capture objective aspects of work organization, thus restricting the analysis to caregivers' subjective perceptions of burden. Nonprobability convenience sampling and the sample size relative to the number of variables may have further limited sample representativeness and the robustness of the analyses.

Other limitations include the restriction of the study to private LTCFs in São Paulo, which limits external validity, and the low statistical power for the Personal Accomplishment dimension, which increases the likelihood of failing to detect relevant associations. The cross-sectional design precludes establishing causality, and the exclusive use of self-reported measures may introduce response bias. Even so, the findings provide important insights into factors associated with burnout among paid caregivers.

Contributions to practice

This study contributes to knowledge in health and nursing by showing that burnout dimensions are associated with factors spanning sociodemographic, occupational, and health-related domains. In addition, the findings provide empirical evidence that may inform occupational health promotion initiatives and the development of work organization and management strategies in LTCFs, with the potential to improve caregivers' quality of life and the quality of care provided to older adults.

Conclusion

Perceived caregiver burden among paid caregivers of older adults living in LTCFs was significantly associated with medication use, having children, no time devoted to leisure activities, dissatisfaction with one's health, and a high level of fatigue. Each of these factors was also associated with at least one MBI--HSS subscale score. The results show that psychosocial vulnerability and adverse working conditions are strongly associated with the manifestation of burnout in this occupational group.

Author contributions

Conception and design or analysis and interpretation of data; drafting the manuscript or revising it critically for important intellectual content; final approval of the version to be published; and agreement to be accountable for all aspects of the work by ensuring that questions related to the accuracy or integrity of any part are appropriately investigated and resolved: **Barbosa IEB, Okuno MFP**.

Data availability

The data are available only within this article because the study is part of a doctoral dissertation that has not yet been defended.

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