



CAREGIVER BURNOUT RESPONSE IN CARING FOR STROKE PATIENTS, SOCIO-DEMOGRAPHIC ANALYSIS WITH BINARY LOGISTIC REGRESSION

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ABSTRACT

Background: Over the previous two decades, various studies have looked at the burden of stroke caregivers, given that patients typically require long-term care, the role of caregivers at home is critical.

Objective: to analyze caregiver burnout response in caring for stroke patients with socio-demographic

Methods: A cross-sectional design was used in a correlational analytical study. The sampling technique used was a non-probability sampling is combined with a purposive sampling approach. The population in this study was all caregivers at Medan, North Sumatra, with an average of 113 caregivers. The independent variables were Socioeconomic status, education level, Residence, Age, Employment status, and Wealth status, and the dependent variable was burnout response. Data were collected using the instruments in this study are the Maslach Burnout Inventory (MBI) with Cronbach's α coefficient values of 0.837, 0.869, and 0.881 and test-retest reliability was high ($p < 0.001$). Statistical test using the Binary Logistic Regression.

Results: Primary education (AOR 2.525; 95% CI 2.522-2.525), Urban residence (AOR 1.092; 95% CI 1.092-1.097), 35-39 age group (AOR 1.772; 95% CI 1.772-1.774), Unemployed (AOR 1.371; 95% CI 1.371-1.375), wealth status (AOR 0.870; 95% CI 0.870-871).

Conclusion: Socioeconomic status, education level, place of residence, age, employment status, and wealth status all have a major impact on caregiver tiredness when caring for stroke patients.

Keywords: Caregiver, Burnout, Stroke, Sociodemographic, Binary logistic regression

ABSTRAK

Latar Belakang: Selama dua dekade terakhir, berbagai penelitian telah mengkaji beban pengasuh pasien stroke. Mengingat pasien biasanya memerlukan perawatan jangka panjang, peran pengasuh di rumah sangatlah penting.

Tujuan: Menganalisis respons kelelahan pengasuh dalam merawat pasien stroke dengan pendekatan sosio-demografis.

Metode: Desain cross-sectional digunakan dalam penelitian analitik korelasi. Teknik pengambilan sampel yang digunakan adalah non-probability sampling yang dikombinasikan dengan pendekatan purposive sampling. Populasi dalam penelitian ini adalah seluruh pengasuh di Medan, Sumatera Utara, dalam 2 bulan terakhir, dengan rata-rata 113 pengasuh. Variabel independen adalah Status Sosial Ekonomi, Tingkat Pendidikan, Tempat Tinggal, Usia, Status Pekerjaan, dan Status Kekayaan, sedangkan variabel dependen adalah respons kelelahan. Data dikumpulkan menggunakan instrumen dalam penelitian ini, yaitu Maslach Burnout Inventory (MBI) dengan nilai koefisien α Cronbach masing-masing sebesar 0,837, 0,869, dan 0,881, serta reliabilitas uji-ulang yang tinggi ($p < 0,001$). Uji statistik menggunakan Regresi Logistik Biner.

Hasil: Pendidikan dasar (AOR 2,525; 95% CI 2,522-2,525), Tempat tinggal perkotaan (AOR 1,092; 95% CI 1,092-1,097), kelompok usia 35-39 tahun (AOR 1,772; 95% CI 1,772-1,774), Pengangguran (AOR 1,371; 95% CI 1,371-1,375), status kekayaan (AOR 0,870; 95% CI 0,870-871)..

Kesimpulan: Status sosial ekonomi, tingkat pendidikan, tempat tinggal, usia, status pekerjaan, dan status kekayaan semuanya memiliki dampak besar terhadap kelelahan pengasuh saat merawat pasien stroke.

Kata Kunci: Pengasuh, Kelelahan, Stroke, Sociodemografi, Regresi logistik biner

INTRODUCTION

Patients with stroke frequently rely on their relatives to support their physical and emotional requirements upon hospital discharge. (Sharifian et al., 2021). Given that patients frequently require long-term care, the role of caregivers at home is vital. (Seda Gün & Altay, 2023). Stroke

survivors require essential treatment to help them recover, prevent future strokes, and improve their overall health. (Kazemi et al., 2021). An informal caregiver is someone who gives continuing, unpaid support with activities of daily living or instrumental activities of daily living to someone suffering from a chronic disease. (Kum et al., 2022). Often, one person serves as the primary caregiver, responsible for the majority of physical care and monitoring. (Bakas et al., 2022). The American Psychiatric Association defines burnout as a collection of physical and mental symptoms produced by biological and environmental pressures, disease, and caring for a family member. (Hewitt et al., 2020). Its expressions differ according to local culture., Various interventions have been created to help family caregivers, lowering the negative effects of caring, such as burnout, and increasing their positive outcomes (Esposito et al., 2021). Studies have shown that methods such as education, support, and psychotherapy can minimize caregiver burnout, increase care quality, and boost caregivers' physical and emotional health. (Bakas et al., 2022). Investigated variables linked to load in older persons who care for dependent older adults (Baishya, 2024). Over the last two decades, several research have looked at the burden of stroke caregivers, but just a dozen have done so longitudinally (Vielvoye et al., 2023). According to these studies, 22.7% to 59% of caregivers experience increased burden and burnout within the first 6 months of hospital admission. (Jaracz et al., 2024), hospital discharge, or rehabilitation admission, 20.8% to 52% after a year, 43% after three years, and 30% after five years, indicating that caregivers gradually adapt to the changes brought about by their loved one's illness (Anwer et al., 2022). In the Asian community, the task of caring for post-stroke patients mostly depends on family members. (Chau et al., 2022), notably the husband or kids who can offer caregiving in a home-bound situation. As a consequence of these issues, caregivers may experience burnout. (Lau, A. W., & Gomez, 2020). Caregivers burn out because they do not have enough time for themselves throughout the care process, have a bad social-work life, and do not receive appropriate support. (Wang et al., 2025). According to studies, caregivers who care for patients with chronic diseases are more likely to experience burnout. (J.-W. Lee et al., 2024). The bivariate analysis found that family income, perceived financial inadequacy, and family dysfunction were sociodemographic characteristics linked with increased caregiver load. (Pavarini et al., 2023). Psychosocial/clinical characteristics associated with greater caregiver burden such as sleep problems, pain, perceived stress, depressive symptoms, frailty, and multimorbidity (Chiavilli et al., 2022). Furthermore, low functional and cognitive performance among care receivers was connected with an increase in caregiver burden. (M. Lee & Williams, 2023). This study was conceived and carried out to close this gap. The purpose of this study was to investigate caregivers' burnout reactions while caring for stroke patients depending on sociodemographic factors. Based on the above, the author is interested in conducting research on Caregiver Burnout Response in Caring for Stroke Patients, Socio-Demographic Analysis with Binary Logistic Regression. This research has received a letter of ethical approval from Universitas NHM with number: No. 2761/KEPK/UNIV-NHM/EC/II/2025

METHOD

Participant characteristics and research design

The topic is correlational analytic research, attempting to explain, estimate, and evaluate relationships based on current ideas to see the link between the variables of caregiver burnout response in caring for stroke patients, and sociodemographic factors. This type of research is descriptive analytic with a cross-sectional design. The population in this study was all caregivers at Medan, North Sumatra, in the last 2 months, with an average of 113 caregivers.

Sampling procedures

In this study, non-probability sampling is combined with a purposive sampling approach, and is taken according to the criteria. Inclusion criteria: caregivers who have cared for stroke patients for more than one year, living in the same house or environment, over 20 years old. Exclusion criteria: caregivers have a history of severe mental disorders such as schizophrenia, have physical limitations (blind, disabled).

Sample size, power, and precision

The Lameshow algorithm yielded a sample size of 113 respondents. The variables that are seen here are independent variables: Socioeconomic status, education level, Residence, Age, Employment status, and Wealth status, and dependent variables, which are burnout response. The instruments in this study are the Maslach Burnout Inventory (MBI). All three subscales show high internal consistency with Cronbach's α coefficient values of 0.837, 0.869, and 0.881, and test-retest reliability was high ($p < 0.001$). Testifies to fatigue at the very idea of work, chronic fatigue, trouble sleeping, and physical problems. For the MBI, as well as for most authors, "exhaustion would be the key component of the syndrome." Unlike depression, the problems disappear outside work. Total 17 or less: Low-level burnout, Total between 18 and 29 inclusive: Moderate burnout, Total over 30: High-level burnout,

Measures and covariates

The method of collecting data in this research is using primary data, because the researcher collected the data by using the Maslach Burnout Inventory (MBI), All three subscales show high internal consistency with Cronbach's α coefficient values of 0.837, 0.869, and 0.881 and test-retest reliability was high ($p < 0.001$), which had been tested for validity and reliability.

Data analysis

The univariate analysis performed produced the frequency and percentage values of each variable studied and the distribution of the Socioeconomic status, education level, Residence, Age, Employment status, and Wealth status, and dependent variables, which are the burnout response. The study initially employed the Binary Logistic Regression. A collinearity test was then used to examine whether there was a statistically significant link between the independent variables. We used IBM SPSS Statistics 26 software to conduct statistical analyses for the survey. Results were achieved with a 95% degree of significance and an error rate of 5%. If α has a p-value of 0.05, the findings can be interpreted accordingly.

RESULTS AND DISCUSSION

Characteristic of Respondents

The study showed that the proportion of caregivers

Table 1: The Results of Multivariate Analysis (n=113)

| Predictor | p-value | Burnout Response | |
|-----------|---------|------------------|-------------------------|
| | | | 95% Confidence Interval |

| | | Adjusted Odds Ratio | Lower Bound | Upper Bound |
|--------------------------|------|------------------------|----------------|----------------|
| Education level | | | | |
| No education | .000 | 2.457 | 2.456 | 2.460 |
| Primary | .000 | 2.525 | 2.522 | 2.525 |
| Secondary | .000 | 1.824 | 1.823 | 1.826 |
| Higher (Ref.) | .000 | 1.094 | 1.094 | 1.097 |
| Residence | | | | |
| Urban | .000 | 1.092 | 1.092 | 1.097 |
| Rural (Ref.) | - | - | - | - |
| Age | | | | |
| 15-19 | .000 | .569 | .568 | .569 |
| 20-24 | .000 | 1.394 | 1.394 | 1.398 |
| 25-29 | .000 | 1.413 | 1.413 | 1.416 |
| 30-34 | .000 | 1.292 | 1.291 | 1.294 |
| 35-39 | .000 | 1.772 | 1.772 | 1.774 |
| 40-44 | .000 | 1.472 | 1.472 | 1.479 |
| 45-49 (Ref.) | .000 | .566 | .566 | .569 |
| Employment status | | | | |
| Unemployed | .000 | 1.371 | 1.371 | 1.375 |
| Employed (Ref.) | - | - | - | - |
| Wealth status | | | | |
| Poorest | .000 | .870 | .870 | .871 |
| Poorer | .000 | 1.102 | 1.102 | 1.105 |
| Middle | .000 | 1.415 | 1.415 | 1.420 |
| Richer | .000 | 1.623 | 1.623 | 1.626 |
| Richest (Ref.) | .000 | 1.254 | 1.255 | 1.255 |

* Indicated 0.05 level

The results of multivariate analyses are displayed in Table 1. According to Education level, Primary is 2.525 times more likely than Higher to Burnout (AOR 2.525; 95% CI 2.522-2.525). Those with no education are 2.457 times more likely to Burnout than the Higher (AOR 2.457; 95% CI 2.457-2.460). Meanwhile, the Secondary is 1.824 times more likely to Burnout than the Higher (AOR 1.824; 95% CI 1.823-1.826). It means, the higher the education, the less likely to experience Burnout of caregiver. In accordance with this study, to improve the sustainability of long-term care for primary caregivers of stroke patients, it is recommended that clinics involve caregivers in health education programs. This approach will allow for a more comprehensive assessment of their needs, provide targeted and individualized disease knowledge, and care skills training to help reduce burnout in caregivers (Wang et al., 2025). This study reveals that stroke patients' and caregivers' educational recollection decreases over time, which is related to reduced patient satisfaction and perceived benefit. Reinforcement after one month can increase caregiver recall. We conclude that education for caregivers may be reinforced more consistently, implying a role in continuous patient education (Heiberger et al., 2020). According to the type of caregiver in urban areas are 1.092 times more likely than those in rural areas to experience Burnout of caregivers (AOR 1.092; 95% CI 1.092-1.097). This indicates that living in urban areas is a risk factor for caregivers to experience Burnout of caregiver. According to the findings of this study, one in every five caregivers of stroke patients who are confined to their homes and live in metropolitan areas suffer from burnout. Primary care clinicians should be more careful in screening for depression, particularly among caregivers who are older, have chronic health conditions, or are the primary caretakers of functionally dependent patients

(Omar et al., 2021). This study strengthens our knowledge and understanding of factors associated with increased risk of burnout in informal caregivers of stroke patients. In this cross-sectional study of informal caregivers of stroke patients in urban Malaysia, 18.5% experienced depression. However, this study differs from the findings in that stroke patients on the West Coast have much easier access to rehabilitation facilities, which may explain the lower rates of depression in urban areas than in rural areas, as patients may experience fewer interruptions during rehabilitation therapy (Wan Ab Rahman & Mazlan, 2024). Furthermore, the study finds three demographic characteristics associated with Burnout among caregivers: age, Employment status, and Wealth status. According to the caregiver in the 35-39 age group are 1.772 times more likely than the 45-49 age group to be Burnout of caregiver (AOR 1.772; 95% CI 1.772-1.774). Meanwhile, the caregiver in the 40-44 age group are 1.478 times more likely than the 45-49 age group to be Burnout of caregiver (AOR 1.472; 95% CI 1.472-1.479). The caregiver in the 25-29 age group are 1.413 times more likely than the 45-49 age group to experience Burnout of caregiver (AOR 1.413; 95% CI 1.413-1.416). On the other hand, the caregiver in the 20-24 age group are 1.394 times more likely than the 45-49 age group to be Burnout of caregiver (AOR 1.394; 95% CI 1.394-1.398), Caregiver in the 20–24-year age group and those aged 45-49 have the same probability of 0.566 to be Burnout of caregiver (AOR 0.566; 95% CI 0.566-0.569). This information suggests that an older caregiver has a higher risk of experiencing caregiver burnout. This condition is corroborated by the study, which found that caregivers' older age, gender, marital status, unemployment rate, site of residence, and higher education level are connected with greater unmet requirements. Caregivers with the aforementioned qualities should be addressed with programs that detect unmet needs and provide assistance customized to the appropriate need categories. Older, less educated, and jobless caregivers who have been providing care for a long time and reside in urban or rural regions should be included in burnout prevention initiatives. Meeting unmet needs in caregivers is critical not just for developing support services, but also because there is an ambiguous link between unmet requirements and increased emotional stress, depersonalization, and personal accomplishment (Szlenk-Czyczerska et al., 2020). Clarified by the results of this study revealed that the detection rate of anxiety among primary caregivers of stroke patients was 51.4%, and the detection rate of depression was 49.4%. The majority of primary caregivers were under 60 years old with a higher proportion of patients with moderate to severe dependence on self-care in this study. In addition, research has shown that younger caregivers, especially those caring for patients with higher levels of dependence, are more likely to experience higher levels of anxiety and depression. The sudden onset of stroke is an unexpected crisis for families, and younger caregivers, who are still working, are often forced into the role of caregiver without preparation (Wang et al., 2025). Regarding, the Employment status caregiver with Unemployed are 1.371 times more likely than caregiver with employed to be Burnout of caregiver (AOR 1.371; 95% CI 1.371-1.375). This analysis indicates that caregiver with Unemployed have a higher risk of Burnout of caregiver than caregiver with employed. Other research has found that caregiver interdependence, education level, full-time employment or retirement, monthly income, having a shared caregiver, and having a father as the care recipient are all significantly positive predictors of caregivers' perceptions of social support (Baharudin et al., 2021). On the other side, the Wealth status to the caregiver with richer is 1.623 times more likely than the caregiver with richest to be Burnout of caregiver (AOR 1.623; 95% CI 1.623-1.626). Meanwhile, the Wealth status to the caregiver with Middle are 1.419 times less likely than caregiver with richest to be Burnout of caregiver (AOR 1.415; 95% CI 1.415-1.420). The wealth status to the caregiver with Poorer is 1.102 times less likely than the caregiver with the richest to experience Burnout of caregiver (AOR 1.102; 95% CI 1.102-1.105). Regarding the wealth status to the caregiver with poorest are 0.870 times less likely than caregiver with richest to be Burnout of caregiver (AOR 0.870; 95% CI 0.870-871).

Finally, this analysis indicates that the wealth status to the caregiver with richer have a higher risk of Burnout of caregiver than caregiver with poorest. This study lends credence to the notion that stroke incidence, prevalence, treatment, and outcomes differ significantly by race and ethnicity across the United States. Stroke disparities are primarily caused by a number of poor socioeconomic factors of health. Systemic and institutional racism, unequal distribution of income, employment opportunities, quality education, and political representation are all major contributors to these discrepancies (Towfighi et al., 2023).

LIMITATION OF THE STUDY

The researchers acknowledged the limitations of this study. First, caregivers' competencies in caring for stroke patients need to be assessed, as this can lead to burnout. They were unable to assess the availability and needs of stroke patients. Therefore, it would be beneficial to include a more uniform measure of caregiver competency in caring for stroke patients, including cultural and spiritual aspects of caregivers, although cultural aspects have not been studied in meeting the availability and needs of stroke patients.

CONCLUSIONS AND SUGGESTIONS

Sociodemographic variables influence the tiredness response when caring for stroke patients. Future researchers should investigate caregiver skills, access to healthcare, culture, and spirituality in relation to stroke care.

ETHICAL CONSIDERATIONS

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Conflict of Interest

No conflict of interest that is directly or indirectly related to the current article was found.

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