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Stress and Fatigue in Caregivers of Post-stroke Patients

Stres i zmęczenie u osób sprawujących opiekę nad chorymi po udarach mózgowych

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Abstract

Introduction. A stroke patient often requires assistance in performing daily activities and is unable to function independently. Washing, dressing, and eating independently become difficult. The patient's family must support the patient in this new situation and come to terms with their existing limitations. Caregivers for stroke patients face various challenges that impact their physical and mental health, as well as their social lives.
Aim. The aim of the study was to analyze the occurrence of stress and fatigue in caregivers of stroke patients.
Material and Methods. The study was conducted on a group of 156 individuals caring for stroke patients. The research used a diagnostic survey method using measurement and questionnaire techniques. Fatigue Assessment Scale (FAS) was used to assess the quality and level of fatigue. The standard Perceived Stress Scale (PSS-10) was used to assess the perceived level of stress, and the Coping Orientation to Problems Experienced (COPE) was used to assess the way of coping with stress. The obtained results were subjected to statistical analysis, assuming a statistically significant value of $p \leq 0.05$.
Results. The analysis of our own research showed that the selected analyzed variables did not have a statistically significant effect ($p>0.50$) on the level of stress experienced by people caring for patients after cerebral stroke. A statistically significant effect ($p \leq 0.05$) of the variables on the selected strategies of coping with stress was observed. Among these strategies were: use of instrumental social support; use of emotional social support; positive reinterpretation and growth; restrain; acceptance; denial; and alcohol or substance use. The level of fatigue was significantly related to: age ($p=0.010$), education ($p=0.032$) and socio-economic conditions of the respondents ($p=0.020$).
Conclusions. Caregivers for stroke survivors experience high levels of stress and physical and mental exhaustion. At the same time, they exhibit low levels of stress management. **(JNNN 2025;14(3):118–124)**
Key Words: fatigue, stress, stroke

Streszczenie

Wstęp. Pacjent po udarze mózgu często wymaga pomocy przy wykonywaniu czynności dnia codziennego, jest niezdolny do samodzielnego funkcjonowania. Mycie, ubieranie, czy spożywanie samodzielne posiłku staje się dla niego czymś trudnym. Rodzina pacjenta musi pomóc choremu w nowej dla niego sytuacji oraz pogodzić się z faktem istniejących ograniczeń. Osoby opiekujące się chorymi po udarze mózgu, zmagają się z różnymi trudnościami, które wpływają na ich zdrowie fizyczne, psychiczne oraz życie społeczne.
Cel. Celem pracy była analiza występowania stresu i zmęczenia u osób sprawujących opiekę nad chorymi po udarach mózgowych.
Materiał i metody. Badania przeprowadzono na grupie 156 osób opiekujących się chorymi po udarach mózgowych. W badaniach posłużono się metodą sondażu diagnostycznego z wykorzystaniem techniki pomiaru oraz ankiety. Do oceny jakości i poziomu zmęczenia posłużono się standardową Skalą Oceny Zmęczenia (FAS). Do oceny odczuwanego poziomu stresu posłużono się standardową Skalą Postrzeganego Stresu (PSS-10) a do oceny sposobu radzenia sobie ze stresem wykorzystano Wielowymiarowy Inwentarz do Pomiaru Radzenia Sobie ze Stresem (COPE). Otrzymane wyniki poddano analizie statystycznej, przyjmując za statystycznie istotną wartość poziom $p \leq 0.05$.

Wyniki. Analiza badań własnych wykazała, że wybrane analizowane zmienne nie wpływały istotnie statystycznie (p>0.50) na poziom odczuwanego stresu przez osoby sprawujące opiekę nad chorymi po udarach mózgowych. Zaobserwowano istotny statystycznie (p≤0.05) wpływ zmiennych na wybrane strategie radzenia sobie ze stresem. Wśród tych strategii znalazły się: poszukiwanie wsparcia instrumentalnego; poszukiwanie wsparcia emocjonalnego; pozytywne przewartościowanie i rozwój; powstrzymywanie się od działania; akceptacja; zaprzeczanie oraz zażywanie alkoholu lub innych środków. Występujący poziom zmęczenia istotnie związany był z: wiekiem (p=0,010), wykształceniem (p=0,032) oraz warunkami socjalno-ekonomicznymi badanych (p=0,020).

Wnioski. Osoby sprawujące opiekę nad chorymi po udarach mózgowych to osoby wykazujące wysoki poziom nasilenia stresu oraz wyczerpanie fizyczne i psychiczne. Jednocześnie są to osoby wykazujący niski poziom radzenia sobie ze stresem. **(PNN 2025;14(3):118–124)**

Słowa kluczowe: zmęczenie, stres, udar mózgu

Introduction

Stroke patients often require assistance with daily activities and are unable to function independently. Washing, dressing, and eating independently become difficult. The patient's family must support the patient in this new situation and come to terms with their existing limitations [1].

People caring for stroke patients face various difficulties that affect their physical and mental health and social life. The most difficult period for families is the transition period, from the patient's hospitalization to their return home. The family is frightened by the new situation, it is a huge experience for them. They worry about whether they will be able to prepare appropriate conditions for the patient. Caregivers for stroke patients fear discharge and lack adequate knowledge about the condition and care for the patient [2–4]. This situation is inconvenient for them. The caregiver must completely reorganize their daily schedule. This involves disruptions and changes in their personal lives.

The task of those caring for a stroke patient is to meet the patient's needs to improve their quality of life. The patient's family must provide comprehensive care, tailored to the patient's independence. Caregivers should have adequate knowledge of available financial, psychological, and counseling support [5]. Stroke patients experience deficits in basic activities of daily living. Patients experience difficulty moving, eating, and dressing. The patient's family must provide assistance in performing these activities, or completely replace the patient, because he or she is unable to do it alone. A significant number of patients experience difficulty articulating words. This creates a significant communication barrier between the patient and their caregiver and can negatively impact the patient's mental health. The patient's family is at risk for anxiety and depression. The patient's negative mood leads to poor well-being among their loved ones [5–8].

The aim of this study was to analyze the prevalence of stress and fatigue in caregivers of stroke patients. Selected variables included gender, age, place of residence, education, professional activity, and socioeconomic conditions.

Material and Methods

The study employed a diagnostic survey approach, utilizing measurement and questionnaire techniques. The FAS Scale was used to assess the quality and level of fatigue. The standard PSS-10 questionnaire was used to assess perceived stress levels, and the COPE questionnaire was used to assess stress coping skills.

The PSS-10 [9] scale is used to assess adults, both healthy and sick. It contains 10 questions about various subjective feelings related to personal problems and events, behaviors, and coping methods. It assesses the intensity of stress related to one's life situation over the past month.

The COPE [10] is a self-report tool consisting of 60 statements, to which the subject responds on a 4-point scale. It allows for the assessment of 15 strategies for responding to stressful situations. These strategies are: active coping; planning; use of instrumental social support; use of emotional social support; suppression of competing activities; religious coping; positive reinterpretation and growth; restrain; acceptance; focus on and venting of emotions; denial; mental disengagement; behavioural disengagement; substance use; humor. The questionnaire has good results in terms of reliability and validity, which allows it to be used in scientific research.

The FAS scale [11] is a 10-item self-report scale that assesses chronic fatigue symptoms. To ensure that the scale assesses all aspects of fatigue, it measures both physical and psychological symptoms. This scale may be useful in tracking fatigue over time in the context of psychiatric conditions, physical illnesses, or chronic fatigue syndrome. The scale has good psychometric properties. The total score on the scale ranges from 10 to 50, with higher scores indicating more severe fatigue. Scores above 22 constitute significant fatigue. Less than 22 indicates a "normal" (i.e., healthy) level of fatigue, between 22 and 34 indicates mild to moderate fatigue, and 35 or more indicates severe fatigue. The scale also distinguishes two subscales:

mental fatigue (the sum of items 3, 6, 7, 8, and 9) and physical fatigue (the sum of items 1, 2, 4, 5, and 10).

The study was conducted on a group of 156 people caring for stroke patients. Detailed characteristics of the respondents are presented in Table 1.

The study was approved by the Bioethics Committee. The study was conducted in accordance with ethical principles and the requirements of the Declaration of Helsinki.

The results were processed using Microsoft Excel and SPSS Statistica 10.0. Quantitative statistics and statistical description methods were used in the statistical analysis: the arithmetic mean (M) as a measure of location and the standard deviation (SD) as a measure of differentiation. Correlation tests (Spearman's R correlation coefficient) and significance tests for differences in mean values (Kruskall–Wallis test, Mann–Whitney U test) were used. A probability value of p≤0.05 was considered statistically significant.

Table 1. Characteristics of the study group (N=156)

Variable	N	%
Gender		
Women	84	53.8
Men	72	46.2
Age		
24–37 years	39	25.0
38–45 years	42	26.9
46–54 years	36	23.1
55–74 years	39	25.0
	Mean (F/M)	SD (F/M)
	46.2–46.7/45.7	11.8–12.7/10.8
Place of residence		
Village	80	51.3
City up to 100,000 inhabitants	73	46.8
City from 100,000 to 500,000 inhabitants	2	1.3
City over 100,000 inhabitants	1	0.6
Education		
Primary	8	5.1
Vocational	57	36.5
Technical secondary	43	27.6
Secondary	14	9.0
Bachelor's degree	19	12.2
Master's degree	15	9.6
Professional activity		
Full-time job	77	49.4
Part-time work	32	20.5
Sickness benefit	10	6.4
Pensioner	15	9.6
Unemployed	22	14.1
Socio-economic conditions		
Very good	39	25.0
Good	72	46.2
Medium	37	23.7
Bad	8	5.1
PSS-10		
Low stress level	5	3.2
Average stress level	31	19.9
High stress level	120	76.9
FAS — fatigue level		
Normal (i.e. healthy) levels of fatigue	8	5.1
Mild-to-moderate fatigue	102	65.4
Severe fatigue	46	29.5

N — number of observations; % — percent; SD — standard deviation; F — female; M — male

Results

The analysis of the conducted studies (Table 1) shows that the majority of the study participants were individuals with high stress intensity scores. A high score was obtained by 120 people (76.9%). The fewest participants were individuals with low stress intensity scores, with 5 individuals (3.2%) achieving low scores.

When analyzing the influence of selected variables (gender, age, place of residence, education, professional activity, and socio-economic conditions) on the level of stress intensity (PSS-10), no significant influence was observed (p>0.05) (Table 2). The analysis indicates that a slightly higher mean score for perceived stress was recorded in the group of men (21.1 points), and in the group of women — 21.08 points. The highest mean score for stress intensity was recorded in the 55–74 age group — 21.82 points, and in the 38–45 age group — 21.62 points. The lowest mean score for stress intensity was recorded in the 24–37 age group — 20.33 points. A higher mean score for perceived stress was recorded in the group of city residents — 21.49 points. In the group of village residents — 20.71 points was recorded. The education of the respondents, professional activity and socio-economic conditions were also not statistically significantly correlated with the results of stress intensity (p>0.05).

According to the study, the most frequently used stress coping strategies, according to COPE, primarily include use of instrumental social support (average score 3.01), focusing on and venting of emotions (average score 2.9), use of emotional social support (average score 2.89), active coping (average score 2.8), and suppression of competing activities (average score 2.72). The least frequently used strategies were: acceptance (average score 2.45), denial (average score 2.28), use of alcohol or other psychoactive substances (average score 1.6), and sense of humor (average score 1.04).

Table 2. PSS-10 and selected variables

Variable	N	Mean	SD	Test	p
Gender					
Women	84	21.08	3.22	0.146	0.884
Men	72	21.10	3.24		
Age					
24–37 years	39	20.33	3.50	0.063	0.437
38–45 years	42	21.62	3.00		
46–54 years	36	20.50	3.43		
55–74 years	39	21.82	2.76		
Place of residence					
Village	80	20.71	3.00	0.973	0.330
City	76	21.49	3.40		
Education					
Primary	8	22.25	2.12	–0.068	0.400
Vocational	57	21.46	3.16		
Technical secondary	43	21.05	3.16		
Secondary	14	19.71	4.18		
Bachelor's degree	19	20.42	3.39		
Master's degree	15	21.33	2.72		
Professional activity					
Full-time job	77	21.21	3.16	0.586	0.964
Part-time work	32	20.56	3.14		
Sickness benefit	10	21.00	2.40		
Pensioner	15	21.33	3.56		
Unemployed	22	21.32	3.76		
Socio-economic conditions					
Very good	39	21.05	2.67	–0.004	0.956
Good	72	20.88	3.73		
Medium	37	21.41	2.84		
Bad	8	21.75	2.49		

N — number of observations; SD — standard deviation; p — level of statistical significance

The analysis of the collected material (Table 3) showed that there were statistically significant differences between the gender groups regarding the strategies: use of emotional social support (p=0.020) and using alcohol or other psychoactive substances (p=0.037). It was also shown that the age of the respondents remained in a statistically significant, low correlation with the results of the strategy: use of instrumental social support (p=0.040), and the education of the respondents with the results of the strategy: acceptance (p=0.030). Statistically significant differences were also noted between the professional activity groups regarding the strategies: positive reinterpretation and growth (p=0.044) and acceptance (p=0.029). Socio-economic conditions remained in a statistically significant, low correlation with the results of the strategies: positive reinterpretation and growth (p=0.047), restrain (p=0.018), and denial (p=0.003). However, no statistically significant differences were noted. between place of residence groups and selected strategies (p>0.05).

The analysis of the conducted studies (Table 1) shows that the largest group consisted of subjects with mild/moderate fatigue results — 102 individuals (65.49%), while the smallest group had no fatigue results — 8 individuals (5.1%). The mean FAS score was — 30.77 points, indicating that the subjects as a group were individuals with mild/moderate fatigue. The standard deviation constituted over 18% of the mean value, indicating insignificant variation in results. The minimum score was — 18 points, and the maximum was 44 points. A slightly higher score was recorded for mental fatigue — 15.54 points.

Analysis of the collected material (Table 4) showed that variables such as gender, place of residence, and occupational activity did not significantly correlate (p>0.05) with fatigue assessed on the FAS scale. It was found that age of the participants remained in a statistically significant, low correlation with the FAS and subscale scores (p≤0.05), meaning that the highest scores for both physical and mental fatigue, as well as the level of fatigue, were recorded in the 55–74 and 46–54 age groups. The lowest scores for mental fatigue and the level of fatigue were recorded in the 38–45 age group and for physical fatigue in the 24–37 age

Table 3. COPE and selected variables

COPE (strategy)	(Test/p)					
	Gender	Age	Place of residence	Education	Professional activity	Socioeconomic conditions
Active coping	0.209/0.834	0.040/0.619	–0.194/0.846	–0.005/0.946	3.719/0.445	–0.145/0.071
Planning	1.006/0.315	0.005/0.947	–1.546/0.122	0.046/0.566	6.395/0.171	–0.051/0.531
Use of instrumental social support	0.926/0.354	0.165/0.040	0.583/0.560	0.019/0.815	7.665/0.105	0.015/0.848
Use of emotional social support	2.332/0.020	–0.035/0.668	0.584/0.559	0.030/0.710	2.743/0.602	0.118/0.143
Suppression of competing activities	1.370/0.171	0.044/0.583	–0.128/0.898	0.095/0.240	2.309/0.679	–0.038/0.637
Religious coping	1.717/0.086	0.081/0.315	–0.107/0.915	–0.104/0.195	5.544/0.236	0.007/0.935
Positive reinterpretation and growth	1.482/0.138	–0.031/0.700	–0.189/0.850	0.137/0.089	9.767/0.044	–0.159/0.047
Restrain	0.283/0.777	–0.032/0.689	–0.136/0.891	0.095/0.240	3.155/0.532	–0.190/0.018
Acceptance	–0.914/0.361	–0.148/0.066	–0.506/0.613	0.174/0.030	10.802/0.029	–0.069/0.392
Focus on and venting of emotions	1.511/0.131	0.044/0.586	0.056/0.956	–0.081/0.316	2.467/0.650	0.035/0.663
Denial	0.422/0.673	–0.012/0.886	0.449/0.653	0.065/0.420	5.881/0.208	–0.233/0.003
Mental disengagement	–0.852/0.394	–0.048/0.549	0.518/0.605	–0.070/0.385	4.458/0.348	0.010/0.902
Behavioural disengagement	–0.107/0.914	0.092/0.252	–0.070/0.944	–0.057/0.482	1.458/0.834	0.020/0.806
Substance use	–2.082/0.037	0.012/0.882	–1.221/0.222	–0.053/0.510	7.436/0.115	0.033/0.679
Humor	0.100/0.920	0.080/0.322	–1.382/0.167	–0.001/0.992	5.370/0.251	–0.080/0.318

Table 4. FAS and selected variables

FAS	(Test/p)					
	Gender	Age	Place of residence	Education	Professional activity	Socioeconomic conditions
Physical fatigue	1.362/0.173	0.209/0.009	–0.353/0.724	–0.048/0.551	7.914/0.095	0.090/0.265
Mental fatigue	0.340/0.734	0.184/0.021	0.249/0.804	–0.198/0.013	7.275/0.122	0.197/0.014
Fatigue level	0.602/0.547	0.206/0.010	0.085/0.932	–0.172/0.032	9.101/0.059	0.186/0.020

group. It was also found that the participants' education and socioeconomic conditions remained in a statistically significant, low correlation with the results of mental fatigue (p=0.013 and p=0.014) and the level of fatigue (p=0.032 and p=0.020).

Discussion

The study aimed to analyze the impact of selected variables such as gender, age, place of residence, education, occupational activity, and socioeconomic conditions on the occurrence of stress and fatigue in caregivers of stroke patients.

According to the PSS-10 scale, the highest percentage of respondents were those with high stress scores — 120 (76.9%). The fewest people had low results — 5 people (3.2%).

As reported by other authors [12], caregivers' problems concern the physical, emotional, and social spheres of life. Nearly 20% of caregivers feel angry at the patient, and 43% claim that the patient is spite them. Of the respondents, 53% did not feel guilty about experiencing negative emotions towards the patient. The study by Sohkhlet et al. [13] demonstrated that the occurrence of stress in caregivers of stroke survivors may also be related to other factors that influence the patient's rehabilitation process.

According to the COPE questionnaire results, the most frequently used stress coping strategies included use of instrumental social support (mean score 3.01), focusing on and venting of emotions (mean score 2.9), use of emotional social support (mean score 2.89), active coping (mean score 2.8), and suppression of competing activities (mean score 2.72). The least frequently used strategies were: acceptance (mean score 2.45), denial (mean score 2.28), use of alcohol or other psychoactive substances (mean score 1.6), and a sense of humor (mean score 1.04). Our own research has shown that, according to the COPE questionnaire, stroke caregivers have a low level of stress coping.

A similar topic was also addressed in a study conducted at the Provincial Hospital in Poznań in 2005, among 30 pairs of caregivers of people after cerebral stroke. The severity of anxiety on the Hospital Anxiety and Depression Scales (HADS) scale was 7.7 points, and the severity of depressive symptoms was 4.9 points. Elevated anxiety levels were found in 53% of the participants, and the presence of depressive symptoms in 30% [14]. In a study by other authors conducted on a group of 120 individuals, the analysis showed that caring for an older adults had a negative impact on almost one in four caregivers (23.3%) [15]. Other studies noted that as caregivers' emotional exhaustion increased, the rates of using effective stress coping methods decreased [16].

Our own research also showed that caregivers of stroke patients are significantly fatigued physically and mentally, according to the FAS scale. The largest group was those with mild/moderate fatigue scores — 102 (65.4%), while the smallest group had no fatigue scores — 8 (5.1%).

In a study conducted in 2023 at the Geriatrics Clinic of the University Hospital No. 1 in Bydgoszcz, among a group of 117 caregivers, more than half of the surveyed caregivers (58%) demonstrated a high degree of burden in caring for geriatric patients with diseases of the nervous system. Most caregivers assessed their health as average (52%). Self-assessment of very good or good health was reported by 38% of respondents [17].

Conclusions

Caregivers for stroke survivors experience high levels of stress and physical and mental exhaustion. At the same time, they demonstrate low levels of stress management.

Implications for Nursing Practice

This research highlights the issues of stress and fatigue, as well as the ways/styles of coping with stress among caregivers of stroke patients. From a practical perspective, several important issues emerge from the research. These include: insufficient knowledge about stroke care among caregivers and the lack of adequate support during care, including psychological support.

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