




# Evaluation of the sense of loneliness and its selected subjective determinants in patients after stroke

## *Ocena poczucia samotności i wybranych podmiotowych jej uwarunkowań u pacjentów po udarze mózgu*

Dominika Uberman-Kluz<sup>1</sup> , Jolanta I. Szymańska<sup>2</sup> , Janusz Kirenko<sup>3</sup> 

<sup>1</sup>Clinical Department of Infectious Diseases with Hepatology Subdivision, Medical Center, Łańcut, Poland

<sup>2</sup>Department of Comprehensive Paediatric and Adult Dentistry, Medical University of Lublin, Lublin, Poland

<sup>3</sup>Chair of Pedontology and Health Education, Maria Curie-Skłodowska University, Lublin, Poland

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**Key words:** stroke, quality of life, sense of loneliness.

**Słowa kluczowe:** udar mózgu, jakość życia, poczucie samotności.

### Abstract

**Introduction:** A stroke and the related limitations in functional and emotional capacity, as well as the need for hospitalization, may contribute to the feeling of loneliness of the sick person.

**Aim of the research:** To evaluate the level of sense of loneliness as an explanatory factor and the levels of its selected subjective determinants – self-esteem, acceptance of the illness, social support and temporal quality of life – as explanatory factors in patients after stroke, taking into account sex and brain hemisphere damaged as its result.

**Material and methods:** The studies included 97 patients after stroke including 51 (52.58%) males and 46 (47.42%) females, with an average age of approximately 70 years. A diagnostic survey method was used in the study, using the research tools – 6 Scales and the authorial sociometric interview questionnaire. The obtained results were subjected to statistical analysis, taking into account gender and brain hemisphere damaged as a result of a stroke. The results obtained from the diagnostic survey and the sociometric interview were statistically analyzed and all *p*-values below 0.05 were interpreted as indicating a significant relationship.

**Results:** In our study, statistically significant differences were found between the study patients with respect to the hemisphere of the brain affected by the stroke in the dimension of actually received support. The level of romantic loneliness also showed significant differences between the genders of the study subjects. There were no statistically significant associations of the gender of the studied patients and the hemisphere of the brain affected by the stroke with the levels of self-esteem, acceptance of illness and temporal satisfaction with life. In the assessment of the level of social support, family loneliness and social loneliness also showed no significant differences between the genders of the study subjects or between the subjects grouped by brain hemisphere affected by stroke.

**Conclusions:** The average level of self-esteem, social support, temporal life satisfaction, a higher average sense of loneliness in the dimensions of romantic, family and social loneliness, and a low average level of illness acceptance indicate the need for psychological support reinforced with social support for stroke patients.

### Streszczenie

**Wprowadzenie:** Udar mózgu i związane z nim ograniczenia sprawności funkcjonalnej i emocjonalnej, a także konieczność hospitalizacji mogą sprzyjać poczuciu samotności osoby chorej.

**Cel pracy:** Ocena poziomów poczucia samotności i wybranych podmiotowych jej uwarunkowań: samooceny, akceptacji choroby, wsparcia społecznego i temporalnej jakości życia u pacjentów po udarze mózgu z uwzględnieniem płci i półkuli mózgu dotkniętej udarem.

**Materiał i metody:** Badaniem objęto 97 pacjentów po przebytych udarach mózgu, w tym 51 (52,58%) mężczyzn i 46 (47,42%) kobiet, których średni wiek wynosił około 70 lat. W pracy zastosowano metodę sondażu diagnostycznego z wykorzystaniem narzędzi badawczych – 6 skal i autorski kwestionariusz wywiadu socjometrycznego. Uzyskane wyniki poddano analizie statystycznej, uwzględniając płeć i półkulę mózgu uszkodzoną w następstwie udaru, a wszystkie wartości *p* poniżej 0,05 interpretowano jako świadczące o istotnych zależnościach.

**Wyniki:** W badaniach własnych statystycznie istotne różnice wykazano między badanymi pacjentami z uwzględnieniem półkuli mózgu dotkniętej udarem w wymiarze aktualnie otrzymywanego wsparcia. Stwierdzono także statystycznie istotne różnice między płcią badanych pacjentów w ocenie poziomu samotności romantycznej. Nie stwierdzono statystycznie istotnych różnic między płcią badanych pacjentów i półkulą mózgu dotkniętą udarem a poziomem samooceny, akceptacji

Medical Studies/Studia Medyczne 2024; 40/1

choroby i temporalnej satysfakcji z życia. W ocenie poziomu wsparcia społecznego, samotności rodzinnej i samotności społecznej również nie wykazano statystycznie istotnych różnic między pięcią badanych oraz między badanymi z uwzględnieniem półkuli mózgu dotkniętej udarem.

**Wnioski:** Średni poziom samooceny, wsparcia społecznego, temporalnej satysfakcji z życia, wyższy średni poziom poczucia samotności w wymiarze samotności romantycznej, rodzinnej i społecznej oraz niski średni poziom akceptacji choroby wskazują na potrzebę wsparcia psychologicznego wzmocnionego wsparciem społecznym u pacjentów po udarze.

## Introduction

According to the World Health Organization, stroke is the second leading cause of death in the world and the leading cause of long-term disability in the population over 40 years of age. It has significant clinical, social and economic implications [1, 2]. Ischemic stroke is caused by occlusion or narrowing of the lumen of intracranial or pre-cranial vessels, which leads to hypoxia of a specific area of the brain supplied by a given vessel. It occurs in about 85% of cases. Hemorrhagic stroke, on the other hand, occurs as a result of damage to the cerebral vessel – arterial or venous – causing blood to leak into the central nervous system (intracerebral hemorrhage, subarachnoid hemorrhage). It accounts for about 8–18% of cases [2, 3]. Serious consequences that occur in most stroke patients include mobility impairment, cognitive impairment, depression, vascular dementia, emotional disorders, and communication difficulties. The latter, to a greater extent than movement deficits, contribute to an increase in the sense of helplessness of patients, hindering social functioning [4–6]. The condition associated with a sudden illness such as a stroke and the related limitations of functional and emotional capacity, as well as the need for hospitalization, may contribute to the feeling of loneliness of the patient [7].

## Aim of the research

The aim was to evaluate the level of sense of loneliness as an explanatory factor and the levels of its selected subjective determinants – self-esteem, acceptance of the illness, social support and temporal quality of life – as explanatory factors in patients after stroke, taking into account sex and brain hemisphere damaged as its result.

## Material and methods

The studies included 97 stroke patients hospitalized in the Department of Neurological Rehabilitation and the Department of Neurology of the Hospital of the Ministry of Interior and Administration in Rzeszów. All subjects were informed about the course and purpose of the study and gave written consent to participate in the project. The study was approved by the Bioethics Committee at the Medical University of Lublin – Resolution no. KE-0254/161/2020 of 25<sup>th</sup> June 2020.

Criteria for inclusion in the study: 1. patient after stroke, during hospital neurological rehabilitation;

2. mental capacity and verbal communication allowing for participation in the study without the need for other people – short mini-mental state examination scale (MMSE) was used for this purpose (MMSE score > 26 points and for people with primary education > 22 points); 3. written consent to participate in the study.

Criteria for exclusion from the study: 1. impaired consciousness, aphasia, low level of mental functioning and verbal communication (on the MMSE scale < 22 points); 2. lack of written consent to participate in the study.

The selection of the research group was purposeful and criterial. The study was conducted under the sanitary regime resulting from the epidemiological situation during the patients' hospitalization. The study was voluntary, could be interrupted at any time according to the patient's wishes, individual with respect to the procedures of the GDPR (General Data Protection Regulation). The time of completing the questionnaires was usually 50–90 min.

The study included 51 (52.58%) males and 46 (47.42%) females, with a mean age of approximately 70 years ( $M = 70.83$ ).

The study used the method of diagnostic survey applying the following research tools:

1. The Social and Emotional Loneliness Scale for Adults (SELSA-S) by DiTommaso, Brannen and Best (2004) [8].
2. Self-Esteem Scale (SES) by M. Rosenberg [9].
3. Acceptance of Illness Scale (AIS) by B.J. Felton, T.A. Revenson, G.A. Hinrichsen [10].
4. Berlin Social Support Scales (BSSS) by R. Schwarzer and U. Schutz [11].
5. Temporal Satisfaction with Life Scale (TSWLS) by W. Pavot, E. Diener, E. Suha [12].
6. Sociometric interview questionnaire.

## Statistical analysis

The results obtained from the diagnostic survey and the sociometric interview were statistically analyzed and all *p*-values below 0.05 were interpreted as indicating a significant relationship.

## Results and discussion

The detailed socio-demographic data of the studied patients and the results of the analysis of these data have been compiled in 10 tables and are available from the authors' documentation. The analysis of socio-demographic data did not show any statistically sig-

**Table 1.** Structure of the studied patients, taking into account gender and damage to the right/left hemisphere

Damaged brain hemisphere	Gender		Total
	Men	Women	
Right hemisphere:			
<i>N</i>	24	24	48
% of total number	24.7	24.7	49.5
Left hemisphere:			
<i>N</i>	27	22	49
% of total number	27.8	22.7	50.5
Total:			
<i>N</i>	51	46	97
% of total number	52.6	47.4	100.0

*N* – number of respondents.

**Table 2.** Level of illness acceptance (AIS) and self-esteem (SES) in the studied patients, taking into account gender

Gender	<i>N</i>	Mean	Standard deviation	<i>Z</i>	<i>P</i> -value
AIS:					
Women	46	17.1087	8.84993	-0.985	0.325
Men	51	15.3137	7.27046		
SES:					
Women	46	28.4130	4.10190	-1.350	0.177
Men	51	27.6667	3.71304		

*AIS* – level of illness acceptance, *SES* – level of self-esteem, *N* – number of respondents, *Z* – normal distribution, *Z* test result, *p* – significance level, probability.

nificant difference for age, marital status, form of residence, source of income, or type of work performed. Statistically significant differences concerned place of residence ( $p = 0.00009$ ). The obtained results are consistent with the results of research by the international research team Courage-Collaborative Research on Aging in Europe [13].

In our own research, the level of explanatory variables was assessed in the following dimensions: self-esteem (SES), illness acceptance (AIS), social support (BSSS), temporal satisfaction with life (TSWLS) and the explained variable of loneliness (SELSA-S) taking into account gender and brain hemisphere affected by a stroke.

The structure of the studied patients, taking into account the gender and brain hemisphere affected by the stroke, is presented in Table 1.

In the dimension of illness acceptance (AIS), there were no statistically significant gender differences (Table 2). The subjects showed a low mean level of disease acceptance compared to the normalization groups [10].

The adaptation of a person to a health situation caused by a sudden illness requires acceptance of oneself as a patient; therefore the higher the degree of acceptance of the disease, the better is the adaptation and the lower is the sense of mental discomfort [10]. There were also no statistically significant differences in self-esteem (SES) between female and male subjects (Table 2). The respondents presented a moderately positive attitude towards themselves and an average level of self-esteem compared to the normalization groups for the Polish population [9, 14]. It should be emphasized that a decrease in the level of self-esteem may intensify a number of somatic symptoms [15, 16].

With regard to the level of acceptance of the disease (AIS), there were no statistically significant differences between the group of subjects with damage to the right hemisphere of the brain and the group of subjects with damage to the left hemisphere of the brain. Respondents at a low mean level accepted their disease, lower than average, compared to normalization groups in Poland [10]. In the self-esteem dimension (SES), there were no statistically significant differences between the group of subjects with damage to the right hemisphere and the group of subjects with damage to the left hemisphere. The respondents accepted themselves to an average degree compared to the normalization groups for the Polish population [9, 14].

The general acceptance of illness index (AIS) in the study group was  $M = 15.3$  for men,  $M = 17.10$  for women,  $M = 16.54$  for patients with damage to the right hemisphere and  $M = 15.79$  for patients with damage to the left hemisphere. The studied patients showed a low average degree of acceptance of their disease, relatively good adaptation to the disease, a strong sense of mental discomfort, moderately recognized the limitations resulting from the disease, and showed readiness to accept themselves as a patient. Average higher results compared to those obtained in our own research were found among patients hospitalized due to critical ischemia of the lower limbs ( $M = 32$ ) [17], among chronically ill patients (diabetics –  $M = 24.81$ ; dialysis patients –  $M = 25.32$ ; patients with multiple sclerosis –  $M = 24.59$ ; with cancer –  $M = 28.13$ ) [10] as well as patients treated in the surgical ward ( $M = 27.04$ ) and those suffering from paranoid schizophrenia ( $M = 24.7$ ) [18].

Research by other authors showed that social ties have a disproportionate impact on the health and well-being of the individual [19, 20]. Cohen and Syme [21] pointed to the importance of support in the illness and recovery process, and also to its positive role in maintaining health as well as supporting the healing process [20, 21]. Essentially, the empirical focus is on explanations related to the direct impact of social support on health, as well as of the buffer effect, when maintaining positive close relationships with others positively influences the psychosocial functioning of the subject, already after a stressor has occurred –

e.g. a sudden illness such as a stroke [20–24]. Statistical analysis conducted in our own study showed no significant gender-related differences in determining the level of social support. Respondents rated individual subscales of social support at the theoretical mean level. The highest rated factor was perceived available support (BSSS-PS). On the basis of statistical analysis, a statistically significant difference was found between the group of subjects with right-hemisphere damage and the group of subjects with left-hemisphere brain damage in the dimension of actually received support (BSSS-RS) ( $p < 0.0001$ ) ( $d = 0.696$ ). It is a moderate, statistically significant difference. Respondents with right hemisphere damage rated each of the social support factors higher than respondents with left hemisphere damage. Respondents with right-hemisphere damage rated the perceived available support (BSSS-PS) the highest and the need for support (BSSS-NS) the lowest. In the group of subjects with left hemisphere damage, similarly to the subjects with right hemisphere stroke, the highest rated indicator was perceived available support (BSSS-PS), while the lowest rated one was protective buffering support (BSSS-PB).

The conducted studies confirm the relevance of social support in the situation of a condition caused by a stroke and its consequences difficult to accept mainly for reasons of disability, depression, loneliness and rejection [24]. An important source rated highest by those included in the self-study was perceived support relating to a subjective sense of potential availability of support. From a psychological point of view, as indicated by Łuczyńska and Cieślak [25] and Smoktunowicz *et al.* [26], perceived support is a better predictor of health compared to received support.

There was no statistically significant gender difference in the level of temporal satisfaction with life (TSWL) among the studied patients. There is a noticeable increase in hope for a satisfying future among the surveyed women (FUT). In all subjects, statistically significant differences ( $p < 0.001$ ) between the dimensions of: past (PAS) – present (PRE) ( $t = 6.100$ ); present (PRE) – future (FUT) ( $t = 8.228$ ) and past (PAS) – future (FUT) ( $t = 1.725$ ) are observed.

In the dimension of temporal satisfaction with life (TSWL), a statistically significant difference was found between the group of subjects with right hemisphere brain damage and the group of subjects with left hemisphere brain damage in the dimension of temporal past (PAS). In the group of subjects with right hemisphere damage, statistically significant differences ( $p < 0.001$ ) between the dimensions past (PAS) – present (PRE) ( $t = 5.852$ ) and present (PRE) – future (FUT) ( $t = -6.679$ ) were noted. Statistically significant differences ( $p < 0.005$ ) in the past (PAS) – present (PRE) ( $t = 2.994$ ) and present (PRE) – future (FUT) ( $t = -4.999$ ) dimensions were noted in the group of subjects with left-hemisphere brain damage.

A statistically significant difference was found between male and female respondents ( $p < 0.001$ ) ( $d = 1.694$ ) in sense of loneliness in the romantic dimension (SELSA-RL). In the dimension of social loneliness (SELSA-SL) and family loneliness (SELSA-SF), no statistically significant differences were observed in relation to gender. Men are more likely than women to experience a deficit in intimate partner relationships. The results of the surveyed men are high, such as in Canada [27] or Turkey [28], compared to the normalization groups in Poland [8]. It can be concluded that male respondents are more likely than female respondents to manifest negative affective states with a predominant sense of loneliness, with lowered self-esteem and a belief in a lack of recognition and acceptance, especially from those the subject particularly cares about [29–31]. A deficit of intimacy in a partner-intimate relationship or with a person or persons of emotional attachment adversely affects the patient's state of health, his/her treatment, and his/her return to the greatest possible overall functional capacity.

There were no statistically significant differences in the level of sense of loneliness in the compared groups of patients. The analysis showed that the respondents from the compared groups felt lonely to a high degree in the dimension of Romantic Loneliness (SELSA-RL), and to a low degree in the dimension of Family Loneliness (SELSA-FL). In the dimension of Romantic Loneliness (SELSA-RL), the results are above average. The respondents of both compared groups had higher scores in the Social Loneliness (SELSA-SL) dimension than the normalization group [8].

## Conclusions

The average level of self-esteem, social support, and temporal life satisfaction, a higher average sense of loneliness in the dimensions of romantic, family and social loneliness, and a low average level of illness acceptance indicate the need for psychological support reinforced with social support for stroke patients.

## Conflict of interest

The authors declare no conflict of interest.

## References

1. World Health Organization. The top 10 causes of death, Fact Sheet, Updated 9 December 2020; <https://www.who.int/news-room/fact-sheets/detail/the-top-10-causes-of-death>.
2. Ryglewicz D. Epidemiologia udaru mózgu. In: Udar mózgu. Szczudlik A, Członkowska A, Kwieciński H, Słowik A (eds.). Wydawnictwo Uniwersytetu Jagiellońskiego, Kraków 2007; 85-95.
3. Chang JC. Stroke Classification: Critical Role of Unusually Large von Willebrand Factor Multimers and Tissue Factor on Clinical Phenotypes Based on Novel "Two-Path Unifying Theory" of Hemostasis. *Clin Appl Thromb Hemost* 2020; 26: 1-26.

4. Spetruk P, Opala G. Wieloaspektowy charakter depresji występującej po udarze mózgu. *Multiaspect character of depression after stroke*. *Udar Mózgu* 2005; 1: 25-30.
5. Rykała J, Kwolek A. Wpływ wybranych czynników na jakość życia oraz stan funkcjonalny pacjentów po udarze mózgu. *Przegląd Medyczny Uniwersytetu Rzeszowskiego*, 2009; 4: 384-391.
6. Jaracz K, Kozubski W. Jakość życia po udarze mózgu. Część II: Uwarunkowania kliniczne, funkcjonalne i społeczno-demograficzne. *Udar Mózgu* 2001; 3: 63-70.
7. Dołęga Z. Samotność jako stan psychiczny – samotność jako cecha psychologiczna. In: *Zrozumieć samotność. Studium interdyscyplinarne*. Domeracki P, Tyburski W (eds.). Wydawnictwo Uniwersytetu Mikołaja Kopernika, Toruń 2006; 253-276.
8. Adamczyk K, DiTommaso E. Psychometric properties of the Polish version of the Social and Emotional Loneliness Scale for Adults (SELSA-S). *Psychologiske teme* 2014; 23: 327-341.
9. Dzwonkowska I, Lachowicz-Tabaczek K, Łąguna M. Samoocena i jej pomiar. Polska adaptacja Skali SES M. Rosenberga. *Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego*, Warszawa 2008.
10. Juczyński Z. Narzędzia Pomiaru w Promocji i Psychologii Zdrowia. *Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego*. Warszawa 2012.
11. Łuczyńska A, Kowalska M, Schwarzer R, Schutz U. Berlińskie Skale Wsparcia Społecznego (BSSS): Wyniki wstępnych badań nad adaptacją skal i ich właściwościami psychometrycznymi. *Stud Psychol* 2006; 44: 17-27.
12. Byra S. Satysfakcja z życia osób z uszkodzeniem rdzenia kręgowego w pierwszym okresie nabycia niepełnosprawności – funkcje wsparcia otrzymywanego i oczekiwanego. *Med Og Nauk Zdr* 2011; 2: 64-70.
13. Rico-Urbe LA, Caballero FE, Olaya B, Tobiasz-Adamczyk B, Koskinen S, Leonardi M, Haro JM, Chatterji S, Ayuso-Mateos JL, Miret M. Loneliness, social networks, and health: a cross-sectional study in three countries. *PLoS One* 2016; 13: e0145264.
14. Łąguna M, Lachowicz-Tabaczek K, Dzwonkowska I. Skala samooceny SES Morrisa Rosenberga – polska adaptacja metody. *Psychol Społ* 2007; 2: 164-176.
15. Rosenberg M. *Society and adolescent self-image*. Wesleyan University Press, Middletown 1989.
16. Białkowska J, Idźkowska B. Ocena częstości występowania zespołów depresyjnych u chorych po udarze mózgu hospitalizowanych w oddziale rehabilitacji. *Rocz Med* 2007; 14: 49-51.
17. Skotnicka-Graca U. Stopień akceptacji choroby wśród pacjentów i ich rodzin, przed i po zabiegu chirurgicznym z powodu krytycznego niedokrwienia kończyn dolnych. *Annales Universitatis Mariae Curie-Skłodowska* 2004; 59: 145-148.
18. Lelonek B, Kaczmarczyk M. Przystosowanie do choroby u pacjentów leczonych na oddziale chirurgicznym. *Med Stud* 2011; 24: 45-52.
19. Buszman K, Przybyła-Basista H. Polska adaptacja wielowymiarowej Skali Spostrzeganego Wsparcia Społecznego. *Polskie Forum Psychologiczne* 2017; 22: 581-599.
20. Kirenko J. *Wsparcie społeczne osób z niepełnosprawnością*. Wydawnictwo WSUPIZ, Ryki 2002.
21. Cohen S, Syme SL. Issues in the study and application of social support. In: *Social Support and Health*. Cohen S, Syme SL (eds.). Academic Press, San Francisco 1985; 5-25.
22. Bovier PA, Chamot E, Perneger T. Perceived stress, internal resources, and social support as determinants of mental health among young adults. *Qual Life Res* 2004; 13: 161-170.
23. Schwarzer R, Knoll N. Functional roles of social support within the stress and coping process: a theoretical and empirical overview. *Int J Psychol* 2007; 42: 243-252.
24. Sęk H, Cieślak R. Rola wsparcia społecznego w sytuacjach stresu życiowego. O dopasowaniu wsparcia do wydarzeń stresowych. In: *Wsparcie społeczne, stres i zdrowie*. Sęk H, Cieślak R (eds.). Wydawnictwo PWN, Warszawa 2012; 49-67.
25. Łuczyńska A, Cieślak R. Protective, promotive, and buffering effects of perceived social support in managerial stress: the moderating role of social support. *Anxiety Stress Coping* 2005; 18: 227-244.
26. Smoktunowicz E, Cieślak R, Żukowska K. Rola wsparcia społecznego w kontekście stresu organizacyjnego oraz zaangażowania w pracę. *Studia Psychol* 2013; 51: 25-37.
27. DiTommaso E, Turbide J, Poulin C, Robinson B. L'echelle de Solitude Sociale et Emotionnelle (ESSE): a French-Canadian adaptation of the Social and Emotional Loneliness Scale for Adults. *Social Behavior and Personality* 2007; 35: 339-350.
28. Cecen RA. The Turkish short version of the Social and Emotional loneliness scale for Adults (SELSA-S): Initial development and validation. *Soc Behav Personal* 2007; 35: 717-734.
29. Ross L, McKim M, DiTommaso E. How do underlying "self" and "other" dimensions define adult attachment styles? *Can J Behav Sci* 2006; 38: 294-310.
30. Hazan C, Shaver P. Romantic love conceptualized as an attachment process. *J Pers Soc Psychol* 1987; 52: 511-524.
31. DiTommaso E, Spinner B. The Development and initial validation of the Social and Emotional Loneliness Scale for Adults (SELSA). *Pers Individ Dif* 1993; 14: 127-134.

#### Address for correspondence:

Prof. Jolanta Irena Szymańska  
 Department of Comprehensive Paediatric  
 and Adult Dentistry  
 Medical University of Lublin  
 Lublin, Poland  
 Phone: +48 601165205  
 E-mail: szymanska.lublin@gmail.com

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