ORIGINAL PAPER

The Relationship between Quality of Life and Perception Over Social Reintegration in Patients Suffering from Aphasia: the Mediating Role of Social Support and Moderator Role of Gender and Family Support

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Abstract

Background. The quality of life in patients suffering from aphasia, survivors of a stroke, is considerably lower compared to patients who have suffered from other types of stroke. In order to observe the changes that occur at a psychological level in patients suffering from aphasia, it is necessary to investigate the relationship between quality of life and their social reintegration. **Objectives.** This cross-sectional research aims to identify those elements of quality of life that can enhance a healthy and stable social reintegration over time in patients suffering from aphasia. **Materials and methods.** The research was performed on a sample of 103 patients suffering from aphasia. Participants answered four questionnaires: Stroke and Aphasia Quality of Life Scale-39 (SAQOL-39), The Community Integration Questionnaire Revisited (CIQ), Perceived Social Support Questionnaire (F-SozU) and Perceived Social Support - Family Form (PSS- Fa). The data were processed via SPSS V28 and Process V3.5. **Results.** The quality of life is a statistically significant predictor for the social reintegration of patients suffering from aphasia. Gender and family support were not found to be significant moderators of the relationship between quality of life and social reintegration. Social support was found to be a statistically insignificant mediator in the relationship between quality of life and social reintegration of patients suffering from aphasia.

Keywords: aphasia, stroke, quality of life, social reintegration, social support, family support.

Rezumat

Cadrul. Calitatea vieții pacienților afazici, supraviețuitorii accidentului vascular cerebral este considerabil mai scăzută comparativ cu pacienții care au suferit alte tipuri de tulburări cerebrale. Pentru a observa modificările care au loc la nivel psihologic la pacienții afazici, este nevoie să se investigheze relația dintre calitatea vieții și reintegrarea socială a acestora. **Obiective.** Acest studiu cross-sectiional își dorește să identifice care sunt acele elemente ale calității vieții care pot spori o reintegrare socială sănătoasă și stabilă în timp a pacienților cu afazie. **Materiale și metode.** Cercetarea s-a realizat pe un eșantion de 103 pacienți afazici. Participanții au răspuns la un număr de patru chestionare: Stroke and Aphasia Quality of Life Scale-39 (SAQOL-39), The Community Integration Questionnaire Revisited (CIQ), Perceived Social Support Questionnaire (F-SozU) și Perceived Social Support - Family Form (PSS- Fa). Datele au fost prelucrate prin intermediul SPSS V28 și Process V3.5. **Rezultate.** Calitatea vieții este un predictor semnificativ statistic pentru reintegrarea socială a pacienților afazici. Genul și suportul familial, acestea nu au fost găsite ca fiind moderatori semnificativi ai relației dintre calitatea vieții și reintegrarea socială. Suportul social, de asemenea a fost găsit ca fiind un mediator nesemnificativ statistic în relația dintre calitatea vieții și reintegrarea socială a pacienților afazici

Cuvinte-cheie: afazie, accident vascular cerebral, calitatea vieții, reintegrare socială, sprijin social, sprijin familial.

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INTRODUCTION

Stroke causes major difficulties for patients and their families, due to the significant changes in the health status, functional ability and a significantly decreasing quality of life. Generally speaking, stroke patients survive the initial episode, but the biggest problem is the disabling consequences¹, with effects on the social life, mental health, as well as on the financial status and daily activities².

A decreased quality of life can lead to social isolation, addiction, emotional lability and depression³. Thus, it can be said that this concept of quality of life, represents the gap between the real functional level of patients and the ideal standard that they have regarding a quality life. For example, a patient who can adjust his expectations can better adapt to the disease and treatment. Thus, different levels of therapeutic response may occur.

Aphasia affects the quality of life, in a negative and significant way, because no matter how much it improves, language proficiency remains far below comparing to healthy people⁵. Rehabilitation techniques are based on the neurophysiological principles of motor control and recovery by applying electrical stimuli to facilitate or inhibit an activity⁶ or by using motor re-learning methods⁷.

Studies show that speech therapy interventions to recover aphasia are insufficient to improve quality of life⁸, and the prevalence of depression in patients with aphasia reaches 62% a year after stroke⁹, being associated with poor functional abilities, poor social reintegration, as well as with excessive health care¹⁰⁻¹². All these lead to the stringency of the investigation of treatments, so that it can be objectively evaluated according to clear criteria¹³ in order to facilitate the benefits of these interventions, but with certain limitations in terms of the application of certain interventions using technology, without additional support from qualified personnel in medical and speech therapy recovery¹⁴.

Social participation is the involvement of individuals in real activities in various fields of social life through interaction with others in the context of the environment they live in¹⁵. The Classification of Functioning, Disability and Health (ICF) defines social participation as an involvement in a life situation, with an emphasis on social life, the way people live, their health condition and also on the way in which these conditions can be improved to achieve a satisfactory life¹⁶. Other authors¹⁷ argue that social reintegration depends

on two factors: (1) personal factors (demographic, cultural, educational, professional, economic and domestic) and (2) environmental factors (physical, social and environmental), which can have an important impact on the socialization of patients with aphasia.

One of the consequences of a decreasing quality of life is social isolation and the impact it has on the social reintegration of aphasic patients. People suffering from aphasia resort to minimal exposure to social situations and become very busy and anxious when trying to participate in social life, which often leads to self-isolation¹⁸.

Social withdrawal and a decreased productive activity reach dramatic levels after some strokes, and most patients suffer from a decrease in activities that cause them pleasure¹⁹. Another research²⁰ suggests that out-of-home activities, through social participation, decrease significantly in patients with aphasia, these preferring to spend most of their time with their families and in familiar places, no further from the marketplace or medical institutions. In the absence of specialized support, when aphasic patients return to the community they belong to, there is a high probability that they will be socially excluded^{21,22}, thus reaching to a negative distorted self-identity²³.

According to Hupcey²⁴, social support has been classified in 5 categories over time, depending on: the type of support provided, the perception of the one getting support, the intentions and behaviours of the one offering support, the mutual support and the social network. Generally speaking, the social support can be defined as the feeling of being well cared for, of one's needs being satisfied and of getting help from someone else²⁵, respectively a significant social relationship that influences and equilibrates the cognition, emotions and behaviour of individuals²⁶. A number of studies have shown that the social support is closely linked to the protection against negative events, taking into account both the quantity and quality of social support. Thus, individuals with strong social relationships have a lower level of mortality²⁷, a greater capacity to recover from negative experiences²⁸, or from diseases²⁹, thus increasing the quality of life and the psychological well-being³⁰. Reducing the negative impact is associated with a constant social network of close people, which results in an increasing self-esteem, occurrence of feelings of security and protection³¹, which also influences healthy balancing behaviours, on both physically and psychologically levels.

METHODOLOGY

The present research aims to investigate the relationship between quality of life and social reintegration of patients suffering from aphasia as a result of a stroke episode. Therefore, the correlations between the elements that make up the global quality of life and the elements of global social reintegration are pursued. As a result, we start from the premise that there are statistically significant positive correlations between the quality of life and the elements of social reintegration both globally and between their subscales. The second objective concerns the degree of prediction of the quality of life over social reintegration and, especially, the extent to which social support mediates the relationship between quality of life and social reintegration through gender as a moderating variable between quality of life and social support. Thus, it is assumed that the quality of life variable is a statistically significant positive predictor of social reintegration in patients suffering from aphasia due to stroke and it is expected that a statistically significant relationship of moderated mediation of social support and gender in the relationship between quality of life and social reintegration of patients with secondary stroke aphasia occurs. The last objective aims to investigate family support as a moderator of the relationship between quality of life and social reintegration. As a result, family support is a significant moderator of the relationship between quality of life and social reintegration in patients suffering from aphasia, due a stroke episode.

This research involved 103 patients from the neurology clinic of Colentina Clinical Hospital, aged between 30 and 59 years, with an average of 45.72 and a standard deviation (AS) of 7.33. Of the 103 participants, 52 (50.5%) are female. Most are of high school level (N = 55, 53.4%), followed by university level (N = 40; 38.8%), and the rest of the participants with general level, post high school or post-university (N = 8; 7.8%). In terms of marital status, 88 of them are married, 10 are in a relationship, and 5 are single or widowed. All patients in the research suffered from a stroke. Of these, 92 (89.3%) were diagnosed with ischemic stroke, and the other 11 (10.7%) with haemorrhagic stroke, with an average of 7.1 (AS = 7.6) days after the onset of the condition (Table 1). The sample used in the present research was one of convenience, appealing to the availability of patients to participate in the research. Patients were contacted, either in the hospital, being hospital-

ized at the time of data collection, or through other means, these having been discharged from the hospital at the time of data collection. Participants or their legal representatives were presented with the purpose of the research in accordance with the approval of the Ethics Commission, and they were free to decide to participate in the research, their consent being a voluntary act.

Quality of life was measured using the Stroke and Aphasia Quality of Life Scale-39 (SAQOL-39)³². This is a self-reporting tool, in which the respondent is instructed to refer to the time interval, representing the last week or since the stroke installation. The evaluation is performed by scores on a scale from 1 to 5, where 1 = much worse and 5 = better than before the stroke. To identify the quality of life, both the overall score and the subscale score are calculated by summing the participants' answers. For the current research, the Cronbach Alpha coefficient is .985.

Social integration was evaluated through The Community Integration Questionnaire Revisited (CIQ)³³. The questionnaire is self-reporting, the participants being instructed to refer to the activities carried out and the habits they have, referring to the time interval from the last period / week or from the onset of the stroke. To identify social reintegration, both the overall score and, optionally, the subscale score are calculated by summing the scores to the participants' responses. For the current research, the Cronbach Alpha coefficient is .788.

Social support was evaluated using the Perceived Social Support Questionnaire (F-SozU)³⁴. The respondent refers to the relationships with others at the present time. F-SozU investigates the extent to which the patient has access to emotional and instrumental help from others, but also the extent to which he has the ability to seek support from others. To identify social support, the overall score is calculated by summing the scores of participants' responses. For the current research, the Cronbach Alpha coefficient is .950.

Family support was measured through Perceived Social Support - Family Form (PSS-Fa)³⁵. It investigates the family dynamics of the participants, the extent to which they perceive themselves as having support from those close to them. The patient evaluates the perception he has about his relationships with his family, respectively with his life partner or with his parents and siblings if they are not married. To identify family support, the overall score is calculated by summing the scores of participants' responses. For the current research, the Cronbach Alpha coefficient is .902.

The patients of the Colentina Clinical Hospital were contacted and presented with the purpose of the research and the consent form for filling up the questionnaires. Sampling was not randomized, the selection of subjects depending on their availability. Each participant was explained the purpose of the research, followed by informed consent in accordance with research ethics. They were asked to complete the questionnaires as honestly as possible and were informed that the data collected would remain confidential. In addition to the questionnaires targeted by the research variables, a series of socio-demographic data were also collected, such as: gender, age, marital status, level of education, data on the medical condition.

The questionnaires were applied electronically, in the Google Forms application, between June and July 2021. The collected data were entered in the program using SPSS V28 and Process V3.5 software so that the relationships between them could be analysed.

RESULTS

The 103 patients recorded scores between 39 (minimum) and 102 (maximum) in Global Quality of Life, with an average of 78.87 and a standard deviation of 22.77. At the Quality of Life subscales, participants recorded the following scores: Physical - minimum score of 16 and maximum score of 48, with an average of 32.66 and standard deviation of 11.01; Social - minimum score of 12 and maximum score of 37, with an average of 25.08 and a standard deviation of 7.10; Communication: minimum score of 7 and maximum score of 23, with an average of 12.77 and a standard deviation of 4.01; and Energy with a minimum score of 4 and a maximum of 12, with an average of 8.37 and a standard deviation of 2.61. Regarding Social Integration, they recorded scores between 3 (minimum) and 21 (maximum), with an average of 13.36 and a standard deviation of 4.54. For the Social Support variable, they recorded scores between 28 and 70, with an average of 58.35 and a standard deviation of 9.72, and for the Family support variable, the scores are between 6 and 19, with an average of 14.71 and a standard deviation of 2.17 (Table 1).

Regarding the correlations of the global scales, the analysis had the following results: there was a statistically significant positive correlation between Quality of Life and Social Integration ($r = .34, p < .001$). Social support positively statistically significantly correlates with Family Support ($r = .74, p < .001$). Positive but sta-

tistically insignificant correlations were found between Quality of Life and Social Support, respectively Family Support.

Regarding the correlation on subscales, the results show that: The quality of physical life is correlated with Household Competences and Community Integration ($r = .35, p < .001$, respectively $r = .34, p < .001$). The quality of social life correlates with Household Competences and Community Integration ($r = .21, p < .001$, respectively $r = .27, p < .05$). Energy quality correlates with Household Competences and Community Integration ($r = .24, p < .05$, respectively $r = .31, p < .001$). Household skills statistically negatively correlate with Social Support ($r = -.27, p < .001$) and Family Support ($r = -.27, p < .001$). Community integration is positively statistically significantly correlated with Social Support ($r = .43, p < .001$) and Family Support ($r = .36, p < .001$). Productive activities are positively statistically significantly correlated with Social Support ($r = .28, p < .001$). No statistically significant correlations were found between the Quality of communication subscale and any other subscales of the research variables. Also, Social Support and Family Support do not correlate with any of the Quality of Life subscales. All these results can be found in Table 1.

Thus, the regression analysis indicated that the quality of life predicts 17.9% of the variance of the Social integration variable ($R = .342, R^2 = .117, p < .001$). When the variables on the Quality of Life subscales are also introduced in the model, Physical quality brings a statistically significant increase of 5.4% ($R = .414, R^2 = .171, p < .05$) of the variance of the variable Social integration, which suggests that its presence improves the prediction model. The rest of the models, which involve Social Quality, respectively Energy Quality do not statistically significantly improve the prediction model of the research.

Table 1. Descriptive Statistics and Correlations of Variables

Variables	Descriptive statistics M (AS)	Cronbach's Alpha	No. of Items	Correlations of Variables										
N (103)				1	2	3	4	5	6	7	8	9	10	11
Gender Female (N; %) 52 (50.5) Male (N; %) 51 (49.5)	1.5 (.5)													
Level of Education General (N; %) 6 (5.8) High school (N; %) 55 (53.4) Post-high school (N; %) 1 (1) University (N; %) 40 (38.8) Post-university (N; %) 1 (1)	2.8 (1.1)													
Marital Status Single (N; %) 3 (2.9) In a relationship (N; %) 10 (9.7) Marries (N; %) 88 (85.4) Widowed (N; %) 2 (1.9)	2.9 (.5)													
Time since the onset of the illness (days)	7 (7.6)													
Type of stroke Ischemic (N; %) 92 (89.3) Haemorrhagic (N; %) 11 (10.7)	1.1 (.3)													
1. Quality of life	78.9 (22.8)	.985	39	-										
2. Physical Quality	32.7(11)			.95**	-									
3. Social Quality	25.1 (7.1)			.95**	.81**	-								
4. Communication Quality	12.8 (4.1)			.83**	.66**	.85**	-							
5. Energy quality	8.4 (2.6)			.87**	.81**	.82**	.63**	-						
6. Social Integration	13.4 (4.5)	.788	13	.34**	.40**	.28**	.17	.29**	-					
7. Household skills	3.4 (3.2)			.29**	.35**	.21*	.13	.24*	.85**	-				
8. Community integration	5.9 (1.8)			.31**	.35**	.27**	.14	.31**	.68**	.27**	-			
9. Productive activities	4.1 (1.2)			.06	.04	.091	.07	-.00	.50**	.16	.32**	-		
10. Social Support	58.4 (9.7)	.950	14	.09	.06	.11	.11	.06	.06	-.27**	.43**	.28**	-	
11. Family support	15.8 (4.1)	.902	20	.12	.05	.16	.16	.13	-.03	-.27**	.36**	.08	.74**	-

** significant at $p < 0.01$ * significant at $p < 0.05$

Table 2. Regression analysis

Un-randomized coeff.			Stand. Coeff.					
Model	<i>B</i>	<i>Err. Standard</i>	<i>Beta</i>	<i>t</i>	<i>95% CI</i>	<i>R</i>	<i>R</i> ²	<i>F</i>
Quality of life	.07**	1.53	.34	5.77**	.31; .11	.34	.12	13.38**
Physical Quality	-.30*	.12	.72	2.56	.67; .53	.41	.17	6.53*
Social Quality	.31	.33	.48	.94	-.34; .96	.42	.18	.89
Energy Quality	.09	.34	.05	.27	-.58; .76	.42	.18	.73

** significant at $p < 0.01$ * significant at $p < 0.05$

Moderated mediation analysis (Figure 1). For the first model of the analysis, the results show that gender is not a significant moderator of the relationship between Quality of Life and Social Support ($R^2 = .22$, $B = .127$, $p > .05$) (Figure 2). Regarding model 2 of the analysis, the results show that Social Support is a significant mediator of the relationship between Quality of Life and Social Integration ($B = 5.12$, $p < .01$). The direct effect of Quality of Life on Social Integration

is statistically significant ($B = .068$, $p < .01$), while the indirect effect is statistically insignificant ($B = .001$, $p > .05$) (Table 3). Therefore, it can be stated that there is no moderated mediation relationship between the target variables of the present research.

Following the correlation analysis, it results that family support is not a statistically significant moderator of the relationship between quality of life and social integration.

Table 3. Moderated mediation analysis

Variables	<i>R</i> ²	<i>F</i>	<i>B</i>	<i>Err. St</i>	<i>t</i>	<i>95% CI</i>
Model 1	.055	1.93				
Constant			75.08	10.75	6.99**	53.76; 96.41
Quality of Life			-.152	.13	-1.18	-.41; .10
Gender			-13.10	6.86	-1.91	-26.71; .50
Interaction	.022	2.30	.13	.08	1.52	-.03; .29
Model 2	.118	6.66**				
Constant			7.32	2.89	2.54*	1.60; 12.05
Quality of Life			.68	.01	3.60**	.03; .10
Social Support			.01	.04	.27	-.08; .09
Interaction		5.12*				
Direct effect			.07**	.01	3.60	.03; .11
Indirect effect			.001	.008		-.01; .02

Figure 1. Graph of the moderated mediation model

Figure 2. Gender as a moderator in the relationship between Quality of Life and Social Support

DISCUSSION

These results are consistent with the results of previous studies which argue that important aspects of social integration are closely linked to the quality of life of patients which, in turn, help them to become involved in daily activities and social relationships^{20,36,37}. Analysing the association between the subscales of the two variables, it could be observed that they are also positively and significantly associated, which indicates that it is appropriate that, when referring to quality of life, this should be seen as composed of different elements that may influence the social dynamics of patients to a greater or lesser extent. Therefore, it could be observed that the field of communication quality does not significantly correlate with any of the social Integration subscales. Such a result contradicts the specialized studies that claim that one of the central elements of social reintegration lies in interpersonal communication^{38,39}. Or the patients rather look at social integration in terms of their usefulness in society, physical abilities, energy to perform activities, the aphasic patients tend-

ing to approach other mechanisms of social reintegration when the ability to speak is low¹⁵, as well as of the number of friends they have and can rely on. All these elements can be explained from a cultural perspective, which shows that people from different cultures emphasize different elements of social integration^{40,41}.

Regarding the prediction between the quality of life and social integration, the results are consistent with many of the previous researches that argue that a higher quality of life leads to a better perception of patients suffering from aphasia on the functional abilities they have^{36,42,43}. As a result, the more the patient feels that he has a good quality of life, the healthier he will socially reintegrate. They, due to the positive perception of their quality of life, may efficiently carry out their daily activities, may return to work and may have qualitative and healthy relationships with colleagues and the close ones⁴⁴.

Contrary to expectations, no significant relationships of mediation and moderation of the gender and social support variables were found in the relationship between quality of life and social integration among patients suffering from aphasia. As a result, it can be said that these people may interpret the support of loved ones as implicit, as a status quo and that the support of others is not an important element in their social reintegration, but rather these relationships established before the onset of the disease are part of life and remain a constant without substantial contribution to improving social reintegration. Moreover, they can refuse support from others, triggering a mechanism to avoid social contact by analysing the differences in medical condition and usefulness they have compared to their group of friends. Health-related inequalities lead to cognitive processes of social comparison, feelings of disadvantage, which can create the feeling of loneliness⁴⁵.

Following the results, it can be interpreted that a social reintegration of these patients is predicted only by the individual abilities they have after the stroke episode^{8,46}. Physical condition, the way of communication, as well as the level of energy they possess are the individual elements that, when improved, can influence a great social reintegration.

Moreover, the patients who participated in this research are, mostly, active people, who still work and for whom, individual skills are indispensable for social reintegration. The more physically capable they feel, the more they perceive that social reintegration is easier and

at a higher level⁴⁷. Gender also does not seem to moderate the relationship between quality of life and social reintegration. Thus, there are no gender differences in terms of perception of quality of life, respectively social reintegration.

Regarding family support, the results show, surprisingly, that it does not correlate with any of the main variables of the research, respectively, does not moderate the relationship between quality of life and social reintegration, some studies even showing that people suffering from aphasia tend to push away their family²⁰. Thus, it can be stated, as in the case of social support that for these people family support is not a significant element for reintegration, because it is an external contribution that they cannot value, compared to their own abilities that they see as being the most impactful in the process of their social reintegration.

LIMITATIONS

A number of limitations of the present research may be observed and taken into account for future ones. First, the reduced number of the participants may affect the statistic results of the moderation and mediation analysis. Then, the moment that the patients participated to the research was close to the time of stroke. Also, another limitation may be the fact that all research variables were measured at one time, without taking into account that they may change as the person has been experiencing aphasia for a longer period of time. In addition, these variables may change depending on the regression and worsening of aphasia.

Future research directions: For future researches it is recommended to address a longitudinal design, which could more accurately capture the extent to which changes in quality of life are reflected in the social reintegration of patients over several stages. It is also recommended that future researches involve a higher number of patients for a higher level of generalization of results.

Practical implications: The quality of life of patients suffering from aphasia is very important, both for their social reintegration and for their own mental functioning and internal emotional dynamics. This research is significant in terms of associating the elements that make up the quality of life with the elements of social reintegration. Moreover, taking into account the fact that specific scales were used for patients suffering from aphasia, the identified results are even more relevant for the studied field, representing an important starting point for research. Identifying significant correlations between quality of life and social reintegration in patients suffering from aphasia may highlight the importance of developing educational interventions to increase physical quality. Moreover, these interventions may focus on individual skills and less on social or family support, as it has been addressed in many of the previous researches. Interventions focused on increasing the quality of life will have significant effects on the social, professional and domestic reintegration of patients suffering from aphasia. As a result of educational interventions, patients may acquire all the necessary skills for a healthy social reintegration for the future.

Compliance with ethics requirements: The authors declare no conflict of interest regarding this article. The authors declare that all the procedures and experiments of this study respect the ethical standards in the Helsinki Declaration of 1975, as revised in 2008(5), as well as the national law. Informed consent was obtained from all the patients included in the study.

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