



# QUALITY OF LIFE IN STROKE SURVIVORS UNDER THE SIXTY YEARS OF AGE

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## ABSTRACT

The objective of the study was to analyze the quality of life six months after the stroke in survivors under the sixty years of age, to determine which life activities was the most affected, as well as to correlate the neurological insufficiency and the quality of life.

It was monitored 200 stroke survivors under the sixty years of age treated at the Department of Neurology, University Clinical Centre Tuzla. Average age was 51,83 years ( $\pm 7,02$ ). The ischemic stroke was diagnosed in 77,5% stroke survivors, cerebral hemorrhage in 15%, and subarachnoid hemorrhage in 7,5%. Five stroke survivors suffered hemiplegia (2,5%), 24 (12%) experienced moderate consequences and 143 (71,5%) had mild consequences. No neurological deficit had 28 (14%) stroke survivors. Six months after the onset of disease all stroke survivors have been at follow-up and evaluated about quality of life by filling in a modified questionnaire: Questionnaire on Quality of Life after Stroke (2). The questionnaire contained 20 questions covering four fields of life: Working Ability, Home Activity, Family Relations and Leisure Activities.

Six months after the onset of stroke a worse quality of life in comparison to the period before the disease was noted in 172 (86%) stroke survivors, the unchanged in 19 (9,5%) and better in 9 (4,5%). The most affected is the field "Leisure Activities", followed by "Family Relations", "Home Activity", and the least affected is "Work Ability". The neurological deficit significantly correlates to the "Home Activities" and "Leisure Activities".

KEY WORDS: stroke, quality of life

## INTRODUCTION

Stroke is the third biggest cause of death and leaves physical and mental disorders among the stroke survivors, causing a great social and economic problem (1). Medical consequences are not just neurological, but also psychological making impact on patient's lives as well as lives of immediate relatives (spouse, family, living and working community). The quality of life represents a personal well-being and life satisfaction, including mental and physical health, material happiness, interpersonal relations inside and outside of the family, work and other activities in a community, personal improvement and satisfaction and regular physical activity as well. This definition is applicable to majority of people, but there is a need to be focused on a problem caused directly by disease and immobility (2). Level of independence achieved in every-days activities after hospitalization and doing long and expensive treatment is not sufficient to assess a success of therapeutic procedure. Many statistics incompletely analyze the improvement after the therapeutic procedure (3). In stroke survivor with residual neurological deficit crucial recovery takes places in first 3 to 6 months, and in very few cases the recovery can last continuously up to one year. The immobility as a consequence of cerebral/vascular disease compromises all dimension of one's activities. We pay insufficient attention to some of them in our regular work. The objective of the study was to analyze the quality of life during the period of 6 months after the stroke among stroke survivors under sixty years of age, to determine which of analyzed fields of life are the most affected, as well as to correlate the neurological insufficiency with the quality of life.

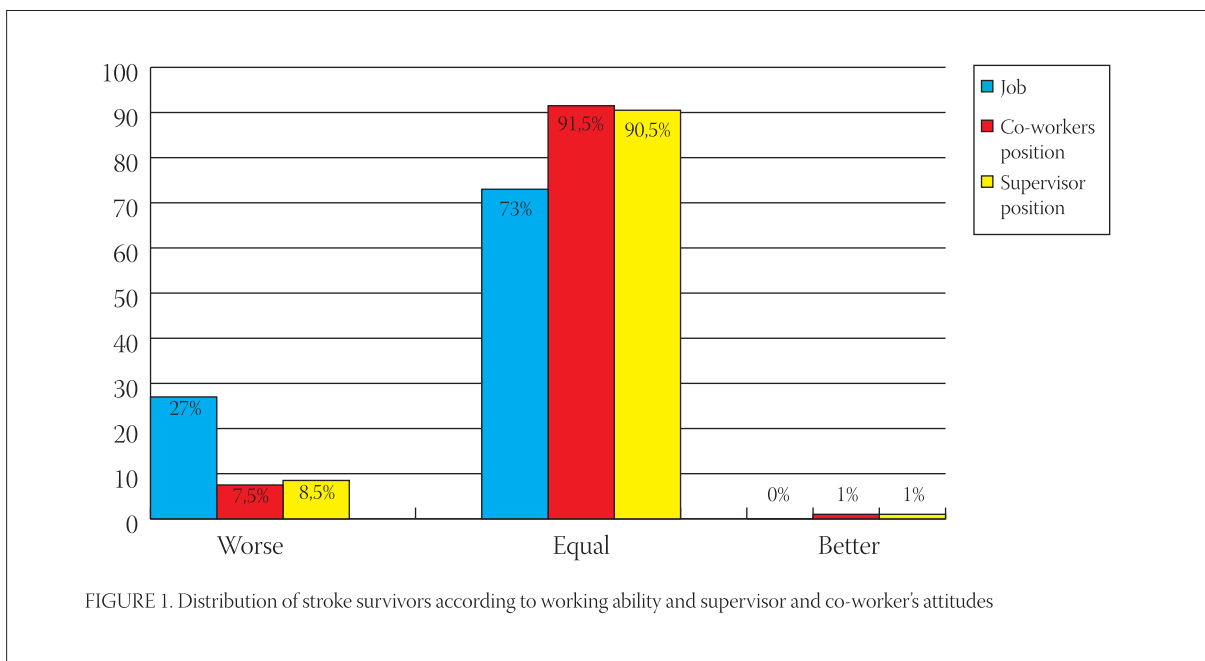
## PATIENT AND METHODS

It was monitored 200 stroke survivors (100 men and 100 women), under the sixty years of age, who have been treated as outpatients or inpatients at the Department of Neurology of University Clinical Centre Tuzla. The average age of stroke survivor was 51,83 years ( $\pm 7,02$ ). The stroke was diagnosed under neurological exam, lab tests, neurology/radiology methods (Computed tomography-CT, and/or magnetic resonance imaging-NMR, cerebral angiography). There were 77,6% (155) of stroke survivors who suffered ischemic stroke (IS), 15% (30) suffering cerebral hemorrhage (CH), and 7,5% (15) suffering subarachnoid hemorrhage (SAH). Five stroke survivors suffered severe neurological deficit (not ambulatory) (2,5%), 24 moderate (ambula-

tory with the assistance of caregiver or devices) (12%) and 143 mild (fully ambulatory) (71,5%). There were 28 stroke survivors with no neurological deficit (14%). Six months after the onset of disease all stroke survivors have been at follow-up and evaluated about quality of life by filling in modified questionnaire: (Questionnaire on Quality of Life after Stroke) (2). The questionnaire contained 20 questions covering four fields of life: Working Ability – contained 3 questions and provided informations if a stroke survivor returned to the same job six months after the stroke, if he/she was retired, if he/she was on sick leave, or if a job was changed in order to suite his/her abilities after the stroke, as well as attitudes of his/her supervisor and co-workers about them after the stroke; Home Activities – contained 6 questions related to a level of ability to perform every-day activities, such as preparing meals, keeping body hygiene, shopping for household, taking care of children, taking part in activities and making decisions of importance for family; Family Relations – covered 6 questions evaluating relations with children, personal perspectives of a patient, his/her role as parent and spouse, and sexual life of a patient; Leisure Activities – covered regular walks, participation in family events, visits to friends, religious activities and doing hobbies. The questions bear points «-1» worse than before the stroke; «0» same as before; «1» better than before the stroke. Stroke survivors were a control group to themselves, because they compared the quality of their life with the one led before the disease. In data analysis we used the SPSS (Statistical Package for Social Sciences, Inc. Chicago, IL) with the standard statistical parameters, the average value, standard deviation, with the application Chi-square test Pearson's coefficient of the correlation.

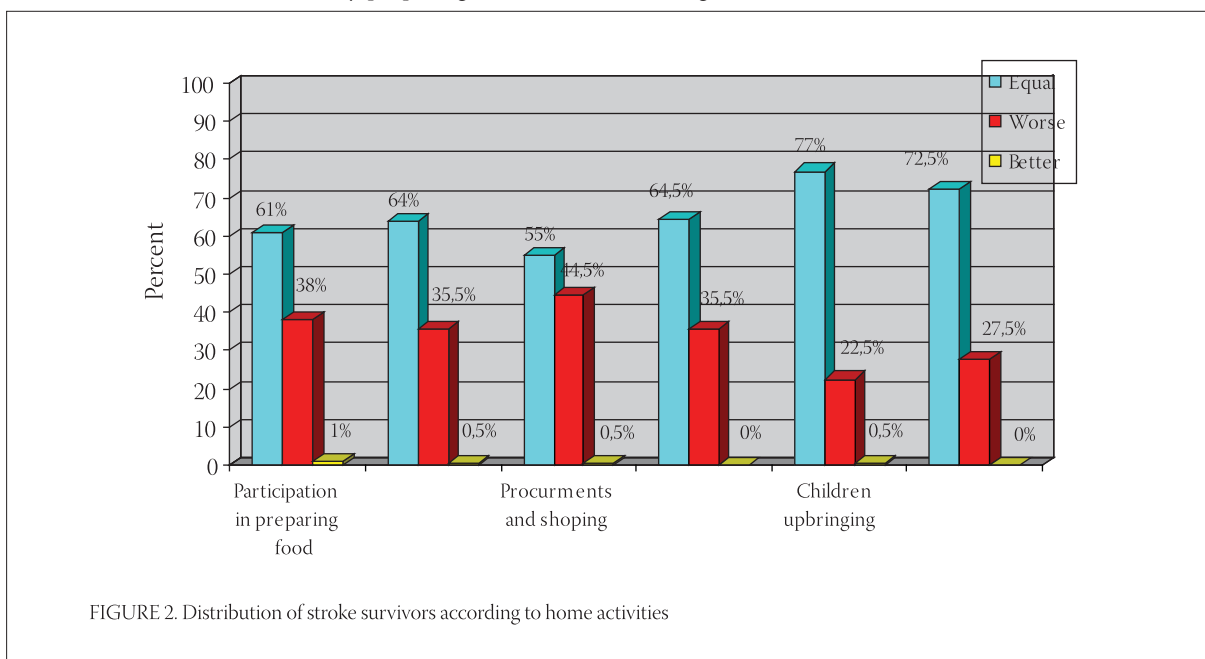
## RESULTS

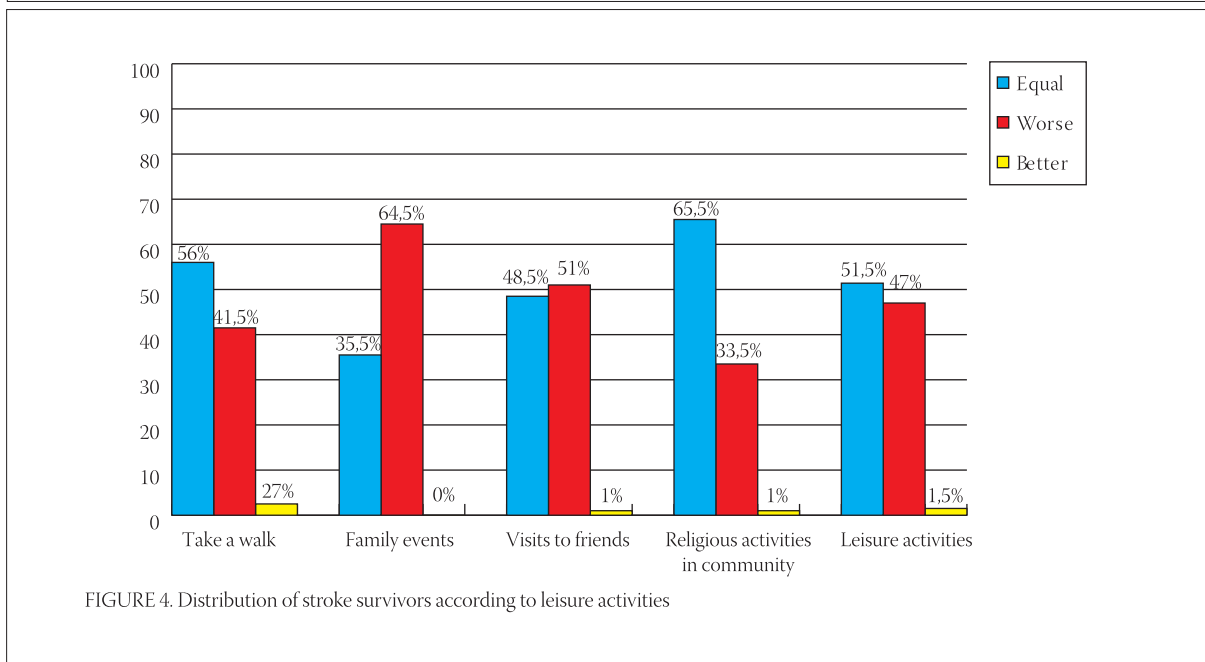
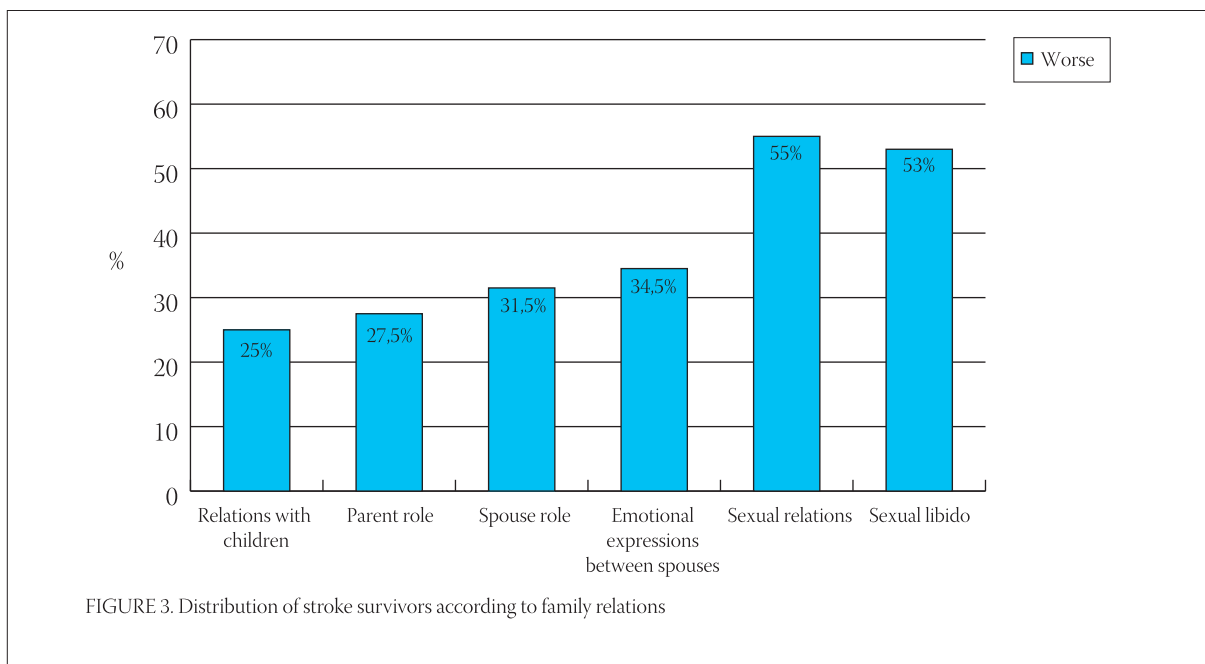
Six months after the onset of stroke, a worse quality of life in comparison to prior period experienced 172 stroke survivors (86%), somewhat more women comparing to men, but not statistically significant (88% / 84%,  $p=0,4$ ). The same quality of life had 9,5% (19) stroke survivors (8% women and 11% men). Better quality of life compared to the period before the disease (4 women and 5 men) had 9 stroke survivors (4,5%). Decrease of working abilities, six months after the stroke had 54 (27%) stroke survivors (51% men and 13% women). The same remained in 144 (72%) and only 2 (1%) assessed their working ability as better compared to the period



before the disease. Analyzing working ability it was noted that the employment rate was the most affected. Six months after the disease the labor rate was reduced in 27% (54) of stroke survivors. The personal assessment of 8,5% (17) stroke survivors was that “the position of supervisors” changed for worse. The least difference was in the field “Relations with co-workers”. The change to worse was noted in only 7,5% (15) stroke survivors (Figure 1). The home activities have been reduced in 116 stroke survivors (58%) (59% men and 57% women). The unchanged activity level was in 41% (82), and better in 2 stroke survivors (1%). Figure 2 shows that participation of the stroke survivors in shopping for family needs decreased in 44,5% (89) stroke survivors, followed by preparing meal 38%

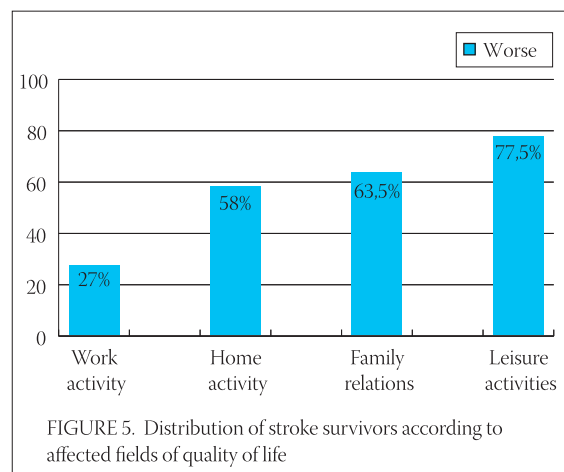
(76), then keeping hygiene 35,5% (71). Participation in family events reduced in 35,5% (71) and stroke survivors stated to feel less capable compared to the period before the disease. The least affected activity is the role in making decisions important for family(27,5%; 55), as well as in taking care of children (22,5%; 45). Worsening of their activities in family relations had 127 stroke survivors (63,5%), unchanged remained in 59 (29,5%), and the improvement has been noted in 14 (7%). Figure 3 shows that in family relations, relations with children and role of parent were the list affected. Otherwise, sexual life of stroke survivors was affected the most. The field «Leisure activities» is the most affected field in the period of six months after the stroke. Worsening was in 155 stroke survivors (77,5%) (38% man





and 39% women), unchanged in 42 (21%), and better were in 3 (1,5%) stroke survivors. The participation in family events was reduced in 64,5% (129) stroke survivors, and visits to friends in 51% (102) comparing to the period before the disease, while 47% (94) neglected the hobbies. Taking walks was reduced in 41,5% (83) stroke survivors, and reduced practice of religion was noted in 33,5% (67) (Figure 4). According to affected fields of quality of life, that the most affected was the leisure activity fields (Figure 5). The neurological deficit that remained six months after the stroke has shown a significant correlation in the fields of “the home activity” and “the leisure activity” ( $p < 0,01$ ), and in the field of “the family relations” ( $p < 0,05$ ). Otherwise, neurological deficit did not show

a significant correlation ( $p > 0,05$ ) in comparison to the working ability and general quality of life (Table 1).



	Neurological deficit of control	Total work activity	Total home activity	Total family relations	Total leisure activities	Total life quality
Neurological deficit of Control Pearson Corr. (2-tailed)	1,000	-,092	-,383**	-,154*	-,224*	-,074
N	200	200	200	200	200	200
Total work activity Pearson Corr. (2-tailed)	-,092	1,000	,149*	,095	,031	,139*
N	200	200	200	200	200	200
Total home activity Pearson Corr. (2-tailed)	-,383**	,149*	1,000	,315**	,374**	,291*
N	200	200	200	200	200	200
Total family relations Pearson Corr. (2-tailed)	-,154*	,095	,315**	1,000	,090	,355*
N	200	200	200	200	200	200
Total leisure activities Pearson Corr. (2-tailed)	-,224*	,031	,374**	,090	1,000	,503*
N	200	200	200	200	200	200
Total life quality Pearson Corr. (2-tailed)	-,074	,139*	,291*	,355*	,503*	1,000
N	200	200	200	200	200	200

\* p<0,05; \*\* p<0,01

TABLE 1. Correlation of the neurological deficit and the quality of life

## DISCUSSION

The results show that the quality of life six months after the stroke was reduced in 172 stroke survivors (86%). Niemi et al. (2) analyzed the quality of life in 46 stroke survivors under the age of 65 four years after the stroke. The worse quality of life experienced 83% stroke survivors. This small difference in the percentage of recovery (six months vs. four years after the stroke) can be explained with the fact that dramatic recovery is actually taking place during first six months after the disease, while later progress is small. The results obtained by Sinanović (4) show those 4 to 7 years after the stroke the general ability to perform every-day activities have been preserved in only 14,3%, while 55% required assistance of caregiver, and 30,2% was capable to perform with a minimum of self-assistance. The present results suggest that the quality of life assessed six months after the stroke can represent relevant measure of long-term forecast for stroke survivors.

The field of «the work ability» covers the labor rate, his/her status with the supervisor and interpersonal relations with co-workers. The confusing fact is that six months after stroke 144 stroke survivors (72%) had unchanged working ability. According to Hudić et al. (5) two years after the ischemic stroke only 26% stroke survivors were able to continue their job. Concerning their study, in the post-war period, large number of stroke survivors had no employment even before the stroke or was laid-off and their status did not change after the disease and thus this is the very likely reason for a high percentage of the

same level of working ability and obtained results should be accepted with a reserve. It is noteworthy that only 8,5% of stroke survivors thought that the attitude of their supervisor changed to worse after the stroke, and of co-workers in 7,5%. This indicates indirectly that the stroke survivors were accepted with the understanding by respective working community. The field «the home activity» relates to every-day activities and a functional status of a stroke survivor in family. In this field worse results have been noted in 116 (58%) stroke survivors. In the same field Niemi *et al* (2) reported that 30,1% stroke survivors experienced worse results. A difference in our results can be explained with large presence of subarachnoidal hemorrhage in a overall sample as mentioned in the study of named authors (23,9% / 7,5%), and it is known that subarachnoidal hemorrhage generally does not result in neurological insufficiency, therefore it is less functional incapability. «The family relations, including intimate and sexual relations» - analyses patient's relations with immediate family members, and personal impression on his/her role as a parent and spouse. This field reflects the emotional status of a stroke survivor. Affected family relations were noted in 127 cases (63,5%). Within this field the least changed are relations with children in 50 (25%) stroke survivors. There are 55-stroke survivors (27,5%) who think that after the disease they perform badly as parents, particularly men. The following is the role as spouse, which was reduced in 63 (31,5%), significantly worse in men (p<0,05). The emotional relation between partners was evaluated as «bad» by 69 stroke survivors (34,5%), again more in men. Poor results noted by men within the personal impression of

a role as parent and the emotional relations between partners, and significantly bad impression as a spouse, can be partially explained by traditional roles: «father is the head of family». After the stroke a patient can think such as follows: «As disabled person how can I act appropriately as parent and spouse?». “What rights do I have to show my emotions to my spouse if I represent nothing but an additional burden?». On the other hand it is possible that the depression following the disease, than quality of family relations before the disease and the social-economic status of a stroke survivor can also make an impact on results in this field. Items from the field of the sexual life of stroke survivor show the highest level of reduction within the field of the family relations. Sexual relations are worse in 110 stroke survivors (55%) (less frequent and less successful compared to the prior period). Carod et al. (6) found a significant reduction of sexual function one year after the stroke in 71,5% stroke survivors (72,7% women and 70,8% men). Less percentage of the affected sexual life in this study compared to the results obtained by Carod et al. (6) can be explained with a fact that the study was conducted six months after the stroke, i.e. during the period when the neurological recovery is

the most intensive, and thus stroke survivors expect recovery of sexual function. Additionally, the assessment of the sexual life was done through an interview, which certainly causes intimidation among certain number of stroke survivors, providing possible incorrect answers. Korpelainen et al. (7) found an improvement of sexual life in 19 out of 122 stroke survivors monitored after the stroke, but not the cases of hypersexuality. Increased sexual desire was noted in only 5 stroke survivors, and improved sexual relations in 2 stroke survivors monitored in this study. The authors explained that with the improvement in relations between spouses and possibility of other positive changes. The field “leisure activities” analyses the functioning of stroke survivors in the surrounding, his/her interests, hobbies, and it is analog to the socialization of a stroke survivor outside home. Worse results have been noted in 155 stroke survivors (77,5%), and therefore this field of the quality of life was the most reduced one, which is in correlation with other authors (2,8). Such results in the field of the leisure activities can be explained with a presence of the neurological deficit, a loss of interest for the surrounding and social status, but also with stigmatization for the physical appearance.

## CONCLUSION

The quality of life six month after the stroke is worse in 86% stroke survivors and the most affected is the field of the leisure activities. Neurological deficit significantly negative correlates to the home activities and the leisure activities.

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