**Evaluation of Stroke Survivor Quality of Life and Perceived Stress**

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| **Abstract** Stroke survivors may experience changes in mood, personality, and cognitive abilities, affecting their overall mental health. This study aimed to evaluation stroke survivor's quality of life and perceived stress. A cross-sectional descriptive study was conducted between 1 April-30July 2022 in Iraq. The study sample consisted of 205 patients who agreed to participate in the study at the time of data collection. Personal Information Form and the Perceived Stress Scale, and Stroke Survivor Quality of Life were used to collect the data. It was observed that the average age of the participants was 55, 54.1% male and 57.6% married, 36.6% were high school graduates, 29.3% were university graduates and most of them had ischemic stroke. The perceived stress, and quality of life were affected by variables as gander, age, income, educational level, residence, type of stroke. There is a statistically significant and inverse relationship between the level of psychological stress and several aspects of quality of life such as energy, family role, language, movement, mood, personality, self-care, social role, upper limb function, and work/production (p<0.01) There was also an inverse and significant relationship between stroke-specific quality of life and the level of psychological stress (p<0.01). The evaluation of stroke survivors' quality of life and perceived stress is a complex process that requires a comprehensive understanding of the physical, mental, and social dimensions of their experiences. Psychosocial support programs and support systems should be tailored to address the unique challenges faced by stroke survivors, promoting not only physical recovery but also emotional well-being and social integration |
| Keywords: Stress, Quality of life, Stroke survivors |

1. **Introduction**

Stroke still kills many people every year, it is the second most common cause of death worldwide [1]. According the report Iraq, there were 11,205 deaths (6.53%) due to stroke. and to the latest WHO data published in 2020 Stroke Deaths in Iraq reached 20,793 or 14.19% of total deaths [2, 3]. Stroke survivors may experience changes in mood, personality, and cognitive abilities, affecting their overall mental health. Also Stroke significantly reduces one's quality of life. Studies have also shown that people with negative cognitive ratings have worse mental health outcomes after a stroke. They also have higher symptoms of psychological stress after a stroke. Another study found a significant association between negative perceptions about oneself and the world and the severity of post-traumatic stress disorder symptoms after a stroke [3-4]. The study's goal was to address a gap in the literature about the quality of life of stroke survivors living in Iraq, which would be reflected in Arab societies.

1. **Materials and Methods**

The current study employed the descriptive research methodology. The study included 205 people who had undergone cerebrovascular accidents. The study included 205 stroke survivors who met the overall study requirements. The necessary official administrative approvals were obtained to conduct this study. Ethics committee approvals were also obtained to conduct the study from the public university (No:25; date:17/03/2022). Personal Information Form and the Perceived Stress Scale, and Stroke Survivor Quality of Life were used to collect the data. These measurement tools' Croncbach Alpha values were acceptable in this study (0.862-0965). All statistical analyses were conducted using SPSS Version 25 (IBM SPSS Statistics). The study samples included survivors of stroke in Al-Najaf Governorate. An independent sample t-test was performed to test whether our quantitative variables differed significantly from the scores obtained from Two independent samples. ANOVA (F) test was applied to test whether the mean of more than two unrelated samples differed significantly from each other. “Reliability Analysis” was conducted to test the reliability of the scales. Pearson correlation analysis was performed to test the relationship between the scales. Values with p values below 0.05 were considered significant in the study. The inclusion criteria were (1) Survivors of stroke, both haemorrhagic and ischemic,(2) ages 18 years and over. The exclusion critera were (1)People with dementia and mental illness, (2) People who have lost hearing and speech at the same time, (3) People with persistent memory loss.

1. **Results and Discussion**

Participants’ characteristics are shown in Table 1. It was determined that 76.1% of the participants had ischemic stroke and 23.9% had hemorrhagic stroke. It was determined that 48.8% of the participants had a disease duration of 5-6 months, and 31.7% had 7 months or more.

**Table 1.** Participants’ characteristics

|  |  |  |
| --- | --- | --- |
| **Variables** | **Number**  |  **%** |
| **Age** (:55,70; SS:14,37) | 40 altı | 24 | 11,7 |
|  | 40-59 | 82 | 40,0 |
|  | 60 ve üzeri | 99 | 48,3 |
| **Gander**  | Male | 111 | 54,1 |
|  | Female | 94 | 45,9 |
| **marital status** | Single | 35 | 17,1 |
|  | Married | 118 | 57,6 |
|  | Widow | 52 | 25,4 |
| **Residence** | Separate | 83 | 40,5 |
|  | Urban | 122 | 59,5 |
| **Job** | Officer | 45 | 22,0 |
|  | Employee | 24 | 11,7 |
|  | Retired | 44 | 21,5 |
|  | Unemployed | 61 | 29,8 |
|  | Housewife | 31 | 15,1 |
| **Education status** | Illiterate | 56 | 27,3 |
|  | Primary school | 75 | 36,6 |
|  | High school | 74 | 36,1 |
| **Diagnosis** | hemorrhagic stroke | 49 | 23,9 |
|  | ischemic stroke | 156 | 76,1 |
| **Disease duration (months)** | 6 ay | 140 | 68.3 |
|  | 7+ | 65 | 31,7 |

Participants’ score distributions of Perceived Stress and Stroke-spesific Quality of Life according to their gender are shown in Table 2.

Table 2: Participants’ score distributions of Perceived Stress and Stroke-spesific Quality of Life according to their gender

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Men** | **Women** | **t** | **p** |
| $$\overbar{X}$$ | **SS** | $$\overbar{X}$$ | **SS** |
| **Energy** | 1,63 | 0,53 | 1,62 | 0,54 | 0,128 | 0,898 |
| **Family rol** | 1,77 | 0,57 | 1,93 | 0,56 | -2,038 |  0,043\* |
| **Language** | 2,48 | 0,68 | 2,52 | 0,58 | -0,386 | 0,700 |
| **Mobility** | 1,75 | 0,63 | 1,71 | 0,59 | 0,404 | 0,687 |
| **Mode** | 1,87 | 0,56 | 2,16 | 0,54 | -3,718 |  0,000\* |
| **Personality** | 1,56 | 0,51 | 2,17 | 0,60 | -7,702 |  0,000\* |
| **self-care** | 1,95 | 0,72 | 2,10 | 0,61 | -1,608 |  0,109 |
| **social role** | 1,47 | 0,41 | 1,53 | 0,42 | -1,034 |  0,302 |
| **Thinking**  | 1,96 | 0,75 | 2,04 | 0,66 | -0,845 |  0,399 |
| **Vision** | 2,64 | 0,67 | 2,74 | 0,57 | -1,096 |  0,274 |
| **business/production** | 1,65 | 0,52 | 1,76 | 0,46 | -1,548 |  0,123 |
| **Stroke-specific quality of life** | 1,90 | 0,32 | 2,01 | 0,29 | -2,584 |  0,010\* |
| **perceived stress** | 13,23 | 3,55 | 8,43 | 4,64 | 8,223 |  0,000\* |

Independent Samples t Ttest was applied to determine whether the stroke-specific quality of life and perceived stress mean scores of the study participants differed according to gender. It was determined that the mean scores of the participants on the stroke-specific quality of life scale and its sub-dimensions, family role, mood, and personality dimensions showed a statistically significant difference according to gender (p <0.05). Accordingly, it was observed that the average family role, mood, personality, and stroke-specific quality of life scores of women were higher than men. It was determined that the perceived stress scale average scores of the participants showed a statistically significant difference according to gender (p <0.05). A previous study conducted in Nigeria found that women prefer to stay at home due to religious, cultural and social customs, as these women tend to take care of the family and take care of internal family affairs [5]. But in another study conducted in the Republic of China, researchers found that women are more likely than men to develop psychological problems after surviving a stroke [6]. This study was also supported by researchers Breslow, which was conducted in the United States of America, and its results confirmed that women are more likely than men to suffer from psychological problems [7]. Other research has found sharp reductions in sad mood, anhedonia, fatigue, concentration difficulties, appetite changes, negative thoughts, and hopelessness, with higher levels as a function of increased stress. While men did not experience increases in sad moods associated with stress levels. Women experienced greater emotional reactivity, i.e., greater sadness, than men at both higher levels of stress [8].

Participants’ mean score distributions of patients' stroke-specific quality of life and perceived stress scales according to marital status are shown in Table 3.

Our study also showed that marital history and marital status may have an important impact on survival after stroke. The researchers found that people who were single at the time of stroke may be more likely to die. These findings indicate the importance of considering social support and psychological factors associated with marital history or marital status in the influence of survival time after stroke [9]. The study showed that changes in marital status can have an impact on the risk of stroke. The results of this study showed that changing marital status may be associated with different stroke risks depending on current housing and employment status [10]. The results of our research differed from all previous research that addressed the issue of differences between married or single women after a stroke related to quality of life. The reason for this difference is the difference in social and environmental customs in Iraq from other European, Western, or Asian countries. Since single women live with their families throughout their lives, they cannot live in a house isolated from their families for customary and social reasons. Therefore, single women remain under the care and care of the family for life and are connected with their dependents by very strong social ties, unlike widowed or divorced women who live in homes separate from the rest of the family.

Table 3 Mean score distributions of participants' stroke-specific quality of life and perceived stress scales according to marital status

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Single (1)**  | **Married (2)**  | **Widow (3)** | **F** | **p** | **Multiple comparison** |
| $$\overbar{X}$$ | **SS** | $$\overbar{X}$$ | **SS** | $$\overbar{X}$$ | **SS** |
| **Energy** | 1,81 | 0,51 | 1,68 | 0,54 | 1,38 | 0,42 | 8,799 | 0,000\* | 3<1; 3<2 |
| **Family rol** | 1,82 | 0,65 | 1,91 | 0,57 | 1,72 | 0,49 | 1,929 | 0,148 | - |
| **Language** | 2,71 | 0,56 | 2,49 | 0,65 | 2,37 | 0,62 | 2,986 | 0,053 | - |
| **Mobility** | 2,03 | 0,58 | 1,75 | 0,62 | 1,49 | 0,52 | 9,001 | 0,000\* | 2<1; 3<1; 3<2 |
| **Mode** | 1,87 | 0,62 | 2,03 | 0,56 | 2,02 | 0,54 | 1,104 | 0,334 | - |
| **Personality** | 1,53 | 0,44 | 1,87 | 0,65 | 1,97 | 0,64 | 5,728 | 0,004\* | 1<3; 2<3 |
| **self-care** | 2,31 | 0,64 | 2,03 | 0,68 | 1,81 | 0,61 | 6,283 | 0,002\* | 3<1 |
| **social role** | 1,58 | 0,46 | 1,54 | 0,41 | 1,35 | 0,36 | 4,650 | 0,011\* | 3<1; 3<2 |
| **Thinking**  | 2,26 | 0,74 | 2,07 | 0,70 | 1,65 | 0,58 | 10,195 | 0,000\* | 3<1; 3<2 |
| **Vision** | 2,88 | 0,43 | 2,79 | 0,53 | 2,32 | 0,78 | 13,602 | 0,000\* | 3<1; 3<2 |
| **business/production** | 1,90 | 0,48 | 1,73 | 0,47 | 1,50 | 0,51 | 7,491 | 0,001\* | 3<1; 3<2 |
| **Stroke-specific quality of life** | 2,01 | 0,29 | 1,99 | 0,31 | 1,82 | 0,29 | 6,463 | 0,002\* | 3<1; 3<2 |
| **perceived stress** | 12,57 | 4,17 | 10,92 | 4,92 | 10,23 | 4,47 | 2,676 | 0,071 | - |

Participants’ mean score distributions of patients' stroke-specific quality of life and perceived stress scales according to educational level are shown in Table 4.

In our study we found that people who are better educated have a better quality of life after a stroke. Studies conducted in multiple countries, including the Republic of China, found that education for more than eight years has a good relationship with a reduced risk of developing mental illness after stroke [6]. In another research conducted in Switzerland, results showed that less education shows a higher incidence of psychological conditions after stroke [11]. There are many reasons why people with better education are given preference. Perhaps education is useful in understanding the health condition and dealing with it better, as education can increase people’s understanding of the nature of stroke as well as its impact on their health. It can also help them deal with challenges and make appropriate decisions regarding treatment and health care better than their less educated peers.

Participants’ relationship between stroke-specific quality of life and perceived stress’ scores are shown Table 5. The results showed that there is a relationship between the level of perceived stress and depression in stroke patients. This study suggests that perceived stress may play a role in worsening depression after stroke [12]. Perhaps the possible reasons for the increase in perceived stress in people after a stroke is due to a completely or partial change in stroke survivors. They are exposed to several physical, psychological and emotional changes, in addition to the loss of control over the surrounding environment, which is represented by the loss of the family role, as well as the loss of the social role. In addition to high costs and financial deterioration. All of these reasons lead to the development of perceived stress, which greatly effects on the quality of life after a stroke.

Table 4 Mean score distributions of participants' stroke-specific quality of life and perceived stress scales according to educational level

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Primary school and under (1)** | **secondary school (2)** | **Bachelor (3)** | **F** | **p** | **Multiple comparison** |
| $$\overbar{X}$$ | **SS** | $$\overbar{X}$$ | **SS** | $$\overbar{X}$$ | **SS** |
| **Energy** | 1,45 | 0,53 | 1,62 | 0,49 | 1,77 | 0,54 | 6,220 | 0,002\* | 1<3 |
| **Family rol** | 1,65 | 0,56 | 1,89 | 0,48 | 1,95 | 0,63 | 5,043 | 0,007\* | 1<2; 1<3 |
| **Language** | 2,41 | 0,64 | 2,57 | 0,56 | 2,50 | 0,71 | 0,950 | 0,388 | - |
| **Mobility** | 1,60 | 0,55 | 1,73 | 0,64 | 1,84 | 0,62 | 2,368 | 0,096 | - |
| **Mode** | 1,98 | 0,59 | 2,01 | 0,55 | 2,01 | 0,58 | 0,056 | 0,945 | - |
| **Personality** | 1,90 | 0,68 | 1,81 | 0,64 | 1,82 | 0,58 | 0,424 | 0,655 | - |
| **self-care** | 1,91 | 0,68 | 1,99 | 0,67 | 2,13 | 0,66 | 1,913 | 0,150 | - |
| **social role** | 1,40 | 0,38 | 1,50 | 0,40 | 1,58 | 0,45 | 3,221 | 0,042\* | 1<3 |
| **Thinking**  | 1,85 | 0,72 | 1,97 | 0,70 | 2,13 | 0,68 | 2,681 | 0,071 | - |
| **Vision** | 2,42 | 0,81 | 2,70 | 0,58 | 2,87 | 0,42 | 8,925 | 0,000\* | 1<2; 1<3 |
| **business/production** | 1,62 | 0,53 | 1,69 | 0,50 | 1,76 | 0,47 | 1,308 | 0,273 | - |
| **Stroke-specific quality of life** | 1,85 | 0,30 | 1,96 | 0,29 | 2,01 | 0,33 | 4,223 | 0,016\* | 1<3 |
| **perceived stress** | 11,13 | 4,84 | 11,13 | 4,41 | 10,85 | 5,00 | 0,081 | 0,922 | - |

Table 5 Relationship between stroke-specific quality of life and perceived stress’ scores

|  |  |
| --- | --- |
|  |  **perceived stress** |
| **r** | **p** |
| **Stroke-specific quality of life****Energy** | -0,574-0,219 | 0,000\*\*0,002\*\* |
| **family role** | -0,519 | 0,000\*\* |
| **Language** | -0,254 | 0,000\*\* |
| **Mobility** | -0,242 | 0,000\*\* |
| **Mode** | -0,673 | 0,000\*\* |
| **Personality** | -0,706 | 0,000\*\* |
| **self-care** | -0,375 | 0,000\*\* |
| **social role** | -0,455 | 0,000\*\* |
| **Thinking**  | -0,331 | 0,000\*\* |
| **Vision** | -0,082 | 0,240 |
| **business/production** | -0,407 | 0,000\*\* |
|  |  |  |

1. **Conclusion**

The perceived stress, and quality of life were affected by variables as gander, age, income, educational level, residence, type of stroke. It appears that people suffering from stroke could need extra attention to self-care. It is a good idea to provide additional support and services to improve personal care management for these patients. There is a statistically significant and inverse relationship between the level of psychological stress and several aspects of quality of life such as energy, family role, language, movement, mood, personality, self-care, social role, upper limb function, and work/production (p<0.01) There was also an inverse and significant relationship between stroke-specific quality of life and the level of psychological stress (p<0.01). The evaluation of stroke survivors' quality of life and perceived stress is a complex process that requires a comprehensive understanding of the physical, mental, and social dimensions of their experiences. Psychosocial support programs and support systems should be tailored to address the unique challenges faced by stroke survivors, promoting not only physical recovery but also emotional well-being and social integration.

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