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## Role of Neuropsychological Ability in Predicting Psychological Wellbeing Among Stroke Patients

Ms. Sundus Bibi<sup>1</sup>, Dr. Syeda Razia Bukhari<sup>2</sup>

<sup>1</sup> MS Scholar Faculty of Education and Social Sciences, Shaheed Zulfikar Ali Bhutto Institute of Science and Technology, H-8/4 Islamabad (Szabist, Islamabad Campus). [Ksundus52@gmail.com](mailto:Ksundus52@gmail.com)

<sup>2</sup> Assistant Professor & Student Counselor Faculty of Education and Social Sciences, Shaheed Zulfikar Ali Bhutto Institute of Science and Technology, H-8/4 Islamabad (SZABIST, Islamabad Campus) [dr.razia@szabist-isb.edu.pk](mailto:dr.razia@szabist-isb.edu.pk)

### Abstract

The aim of the study was to explore the Role of Psycho neurological ability in predicting psychological wellbeing among stroke patients. This study aims to understand how the stroke patient's neuropsychology and psychological wellbeing impaired and how they suffer. The goals of the present research were that 1) What is the effect of psycho neurological abilities on psychological well-being of stroke patients 2) What are the demographic differences on psycho neurological ability in psychological wellbeing among stroke patients. A sample of 100 participants, including males and females both was selected were recruited from a hospital Hayatabad Medical complex, Rehman Medical college Peshawar. Data was collected through purposive sampling technique and 100 participant's data were utilized for research based on psycho neurological ability and psychological well being among stroke patients. bender gestalt tests (Carver, 1997) and psychological wellbeing scale (PWBS) by (Bejerot et. al., 2014) were used to measure the research variables. Descriptive statistics, linear regression and independent sample t-test analysis was applied for research data analysis on SPSS (V 23.0). It was hypothesized that there would be a negative impact of psycho neurological impairment on psychological wellbeing among stroke patients. Results indicates same relationship between study variables There would be a demographic difference (gender, family system, age, socio economic system) on psycho neurological ability and psychological well-being among stroke patients. Likewise, significant gender differences were indicated between studies variables in which male have high significance difference as compared to females. Result also indicated that there is no significant difference of socio economic difference.

### Keywords

Psycho neurological ability, psychological wellbeing, bender gestalt test

### Introduction

A psycho neuropsychological skill is the ability to assess the efficiency with which a person & brain functions. Reading, language use, attention, learning, processing speed, reasoning, memory,

problem-solving, mood and personality are only few of the abilities (Sabayan B, Jansen S, 2012). If this patient has a neurological disability, they face the problem of Hemiplegia that is the term for paralysis on one side of the body; hemiparesis is characterized by weakness on one side. Suffocation issues (dysphagia) loss of control over one body motions, which may manifest as difficulties with posture, walking, and balancing (ataxia). If a patient cognitive and psycho-neuro-cognitive abilities are damaged, this will have a detrimental effect on their psychological well-being. Psychological wellbeing is a concept that is quite similar to other terms that refer to pleasant mental emotions, such as happiness or pleasure. Positive interpersonal relationships, self- mastery and autonomy, a feeling of purpose and meaning in life, as well as personal growth and development, all contribute to psychological well-being. A state of psychological well- being is achieved through achieving a balance between stressful and rewarding life events. Following a stroke, a patient psychological well-being may be compromised. There is a prevalence of depression symptom, anxiety, general psychological anguish, and social isolation (Donnellan et al., 2006). The adjustment process for psychological well-being following stroke is complicated and lengthy. Language is the primary tool for making sense of experiences and interacting with others, which makes stroke survivors particularly vulnerable to psychological disorders. According to prior studies, the psychosocial implications of stroke are complicated and pervasive, affecting mood, identity, social interactions, return to employment, and overall quality of life (Hackett et al., 2008a). Other studies have examined various interventions for preventing or treating psychological distress, but the results have been usually negative (kannp et al,2000). Psych Neuropsychology objective is to gain a better understanding of the links between the mind and the brain, as well as behavioral control. While humans have long been fascinated by this subject, neuropsychology is a relatively recent field of study. The typical method was to investigate the links between focal brain abnormalities and psychological issues. Nonetheless, neuropsychology has developed improved methodologies and theoretical frameworks for comprehending how the mind and brain work nowadays (G. Berlucchi, 2009).

## **Objectives**

The current study aims to investigate Impact of psycho neurological ability on psychological well-being among stroke patients.

## **Methods**

### **Statistical Analysis**

Questionnaires were graded based on accuracy levels after data had been obtained. Means, Standard Deviations, Frequencies, and percentages of demographic information were determined using descriptive and inferential statistics Study

### **Venue**

The current study is based on a correlation research design, in which the participants were stroke patients. Participant's bio data, their reason for related life history was conducted along with and the participants was assessed with the, Psychological wellbeing Scale and bender gestalt test examination to investigate the relationship between psycho neurological ability in psychological wellbeing among stroke patients.

### **Eligibility Criteria**

The study sample was selected using the following inclusion criteria: The data only comprised of stroke patients, with the age of 35 + years. Those patients were selected whose conscious mind is in a mild level for give the answer of the questions and the study sample was not including severe mental or physical health issue.

### **Procedures**

After taking the consent of the participants, they had informed about the study goal. It was also being explained to them that they will not be provided by any sort of incentive. Participants were informed about their secrecy, informed consent, and the attained information will be confidential. Further the participants will also be helped in explaining if they have difficulty in understanding any word or statement. The participants of the study were only being stroke patients. Moreover, if during the data collection process any of the participant needs get depressed or felt stressed, as they have been asked to recall the traumatic event of their life, so they will be facilitated with counseling or first aid psychological to help them to be at ease.

### **Instruments**

The Bender Visual Motor Gestalt test (also known as the Bender-Gestalt test) is a psychological assessment designed to measure adult visual-motor functioning, visual- perceptual abilities, neurological disability, and emotional problems. The client Visual- Motor Index was found to be 95 on the Bender-Gestalt Visual-Motor Coordination Test, which falls in the category, which is age appropriate. The emotional signs in her profile indicate that she needs to work on her plans. The drawings reveal an inability to organize information, as well as impulsivity and anxiety (Lauretta Bender,1938).

The Psychological Wellbeing (PWB) Scale assesses six dimensions of well-being and happiness: autonomy, environmental mastery, personal growth, positive interpersonal relationships, life purpose, and self-acceptance (Ryff et al., 2007; adapted from Ryff, 1989). The scale was developed by (Ryff in 1989) and was subsequently revised by them by Sirigatti et al., 2009. In total, there are 18 questions on a 7-point Likert scale, ranging from strongly agree to strongly disagree (strongly disagree).

### **Sample Size**

The study was conducted on 100 stroke patients (male and female) with age range 35+ Years has been taken as a simple. Participants in that study have volunteers and selected from Rehman Medical Institute Peshawar and Hayatabad Medical Complex Peshawar by purposive sampling.

### **Statistical Analysis**

Questionnaires were graded based on accuracy levels after data had been obtained. Means, Standard Deviations, Frequencies, and percentages of demographic information were determined using descriptive and inferential statistics.

## Results

**Table 1**

Sample Distribution Table (N=100)

|                           | N  | %   |
|---------------------------|----|-----|
| District                  |    |     |
| Hayatabad medical complex | 50 | 50% |
| Rehman medical institute  | 50 | 50% |
| Peshawar                  |    |     |
| Gender                    |    |     |
| Male                      | 50 | 50% |
| Female                    | 50 | 50% |
| Education                 |    |     |
| Educated                  | 59 | 59% |
| Uneducated                | 41 | 41% |
| Family system             |    |     |
| Nuclear family            | 39 | 39% |
| Joint family              | 61 | 61% |

Note. demographic characteristics of gender, education, family system.

**Table 2**

Descriptive Statistics and Alpha Reliability of Study Variables (N=100)

| Scales                | Items | ALPHA | M     | SD   |
|-----------------------|-------|-------|-------|------|
| BGT                   | 39    | .38   | 28.74 | 4.59 |
| PWBS                  | 18    | .31   | 28.16 | 4.33 |
| self-acceptance       | 8     | .27   | 24.59 | 3.99 |
| Autonomy              | 10    | .45   | 33.20 | 4.83 |
| environmental mastery | 7     | .52   | 18.96 | 3.43 |
| purpose in life       | 10    | .49   | 24.11 | 4.43 |
| Personal growth.      | 4     | .36   | 10.67 | 2.37 |

Table 2 shows the descriptive properties and the reliability of the scales used in this study. The alpha coefficient for bender gestalt scale alpha coefficient is .38, psychological wellbeing scale .31, self-acceptance .27 and autonomy consists of .45 alpha coefficients. The alpha coefficient for environmental mastery, purpose in life and personal growth is .52, .49, .36. Which indicates that these scales are reliable and have high level of internal consistency.

**Table 3**

Linear regression analysis of psychological wellbeing with bender gestalt test (N=100)

| Variables | B     | SE   | t     | P |        |
|-----------|-------|------|-------|---|--------|
| BGT(SA)   | .046  | .032 | -.379 |   | -4.05  |
| BGT(AU)   | ..076 | .037 | -.311 |   | -3.02  |
| BGT(EM)   | -.029 | .035 | -.058 |   | .812   |
| BGT(PL)   | -2.64 | .901 | -.284 |   | -2.931 |
| BGT(PRT)  | 2.66  | .781 | -.326 |   | -3.409 |
| BGT(PG)   | -.206 | .071 | -.280 |   | -2.887 |
| BGT(PWBS) | -.206 | .071 | -.280 |   | -2.887 |

Note: bender gestalt test = BGT pwbs= psychological wellbeing scale

The table shows the effect of independent variable on dependent variables. i.e the variable psycho neurological ability affects the variable of psychological wellbeing. The value of p value shows significant effects of psycho neurological ability on psychological wellbeing as the values are  $p < 0.05$ .

**Table 4**

Mean, standard deviation and t- values for MMSE, BGT and psychological wellbeing on the basis of gender (N=100)

| Scale | male  |      | female |      | T    | p    |
|-------|-------|------|--------|------|------|------|
|       | M     | SD   | M      | SD   |      |      |
| BGT   | 8.67  | 5.31 | 13.0   | .871 | .867 | .008 |
| SA,   | 9.00  | 4.67 | 13.1   | 9.12 | 1.92 | .001 |
| AU    | 7.27  | 3.14 | 12.5   | 7.05 | 2.02 | .004 |
| EM    | 10.48 | 1.05 | 14.0   | 9.05 | 2.23 | .132 |
| PL    | 6.84  | .782 | 10.62  | 8.54 | 2.26 | .002 |
| PRT   | 9.11  | 1.04 | 13.0   | 9.04 | 2.18 | .008 |
| PG    | 8.04  | 1.04 | 13.0   | 8.05 | 2.48 | .002 |
| PWBT  | 11.22 | .12  | 12.2   | 4.93 | 2.18 | .003 |

Table 4 demonstrates the score difference of bender gestalt test and psychological wellbeing on the basis of gender. The table also shows the significant difference in psycho neurological ability the table also indicates that there is significant in psychological wellbeing. So there is significant difference in female and man among stroke patients. Female have higher significant difference in psycho neurological ability and psychological wellbeing in stroke patients

## Discussion

The current study aims to explore the relationship between cognitive and neuropsychological ability in predicting psychological wellbeing among stroke patients. The fact that, after a stroke, the life situation changes rapidly and often involves major consequences for the affected person implies that the ability to find any future life meaningful is important in mobilizing energy for rehabilitation. This ability probably depends on individual morale, one important aspect of an individual's psychological well-being if a patient has a history of stroke, it can have an impact on how the brain processes, organizes, and retains information. If a patient's psycho-neurological abilities are damaged, this will have a detrimental effect on their psychological well-being. Psychological wellbeing is a concept that is quite similar to other terms that refer to pleasant mental emotions, such as happiness or pleasure. Positive interpersonal relationships, self-mastery and autonomy, a feeling of purpose and meaning in life, as well as personal growth and development, all contribute to psychological well-being. A state of psychological well-being is achieved through achieving a balance between stressful and rewarding life events. Following a stroke, a patient's psychological well-being may be compromised. There is a prevalence of depression symptom, anxiety, general psychological anguish, and social isolation (Donnellan et al., 2006). The adjustment process for psychological well-being following stroke is complicated and lengthy. Language is the primary tool for making sense of experiences and interacting with others, which makes stroke survivors particularly vulnerable to psychological disorders. According to prior studies, the psychosocial implications of stroke are complicated and pervasive, affecting mood, identity, social interactions, return to employment, and overall quality of life (Hackett et al., 2008a). Other studies have examined various interventions for preventing or treating psychological distress, but the results have been usually negative (Kannp et al., 2000). As a sample of 100 participants, including males and females both was selected belonging to Peshawar and Islamabad, data was collected through questionnaire. Data was collected through purposive sampling technique and participants were 100 for research based. Participants' age ranges from 35 to onward because our sample is on stroke patients so age is specified. There would be a negative impact of psycho-neurological ability on psychological wellbeing among stroke patients". Present research indicated that there is a significant negative impact of psycho-neurological ability on psychological wellbeing among stroke patients in previous researches are in line of present research finding. Stroke patients also experience deficits in their psycho-neurological abilities. The stroke patients suffered psycho-neurological impairment in weakness or paralysis on one side of the body, as well as coordination and balance issues. Many people often have acute exhaustion (fatigue) in the initial weeks following a stroke, and they may also be experiencing sleep problems and other symptoms such as numbness and weakness in one side of their body, as well as confusion and difficulty communicating verbally. Occasionally, they experience vision issues in one or both eyes. Additionally, they may experience dizziness, loss of balance, or coordination issues. In previous study Patients with chronic conditions like stroke usually have lower psychological wellbeing, as compared to the general population. The direct effects of the disease, as well as the side effects of the treatment, may influence psychological wellbeing in patients with neurological illnesses like stroke or spinal cord injury (Modrego PJ, 2005). The major medical consequences of stroke concern different physical and psychological aspects such as loss of sense, palsy, and disturbance of body image, depression and change in patient role, all of which affect health-related psychological wellbeing. Low scores in all psychological wellbeing domains, namely physical, psychological, social and environmental, have been observed up to three years

after a stroke, with significant correlation with the functional abilities of the stroke patients (Pozueta A, Rodriguez-Rodriguez E, et al, 2009). It has also been observed that psycho neurological ability has a worse effect on psychological wellbeing and the functional abilities of stroke patients. Result also show there is positive correlation between psycho neurological ability and psychological wellbeing among stroke while in previous study revealed If a patient psycho-neuro-cognitive abilities are damaged; this will have a detrimental effect on their psychological well-being. It's been observed in previous researches that stroke patients face problem in their memory, and other cognitive impairments. They also suffer from psycho neurological impairments too and because of this they suffer from motor functioning issue, brain damage issue etc. Because of these mentioned issue, stroke patients often have issues like dementia or amnesia, which eventually affects their psychological well-being and cause stress, anxiety or depression like issues. There would be a demographic difference (gender, family system, socio economic system) on psycho neurological ability and psychological well-being among stroke patients". In previous study age-specific stroke rates are higher in men, but, because of their longer life expectancy and much higher incidence at older ages, women have more stroke events than men. With the exception of subarachnoid hemorrhage, there is little evidence of sex differences in stroke subtype or severity. Although several reports found that women are less likely to receive some in-hospital interventions, most differences disappear after age and co morbidities are accounted for. Functional outcomes and psycho neurological ability and psychological wellbeing after stroke are consistently poorer in women, despite adjustment for baseline differences in age, pre stroke function, and co morbidities (kannp et al,2020). The result also indicates that male have high significance difference in psychological wellbeing, psycho neurological ability and psychological wellbeing than males in stroke patients. In the previous finding men have been found to experience more ischemic strokes whereas women tend to have more infarctions involving the anterior circulation and experience more subarachnoid hemorrhages. In terms of stroke onset, women tend to be, on average, approximately 4 years older than men at the age of ischemic stroke onset. Some studies report that aged males experience greater ischemic damage, some report smaller ischemic lesions in aged males, and others report that aged males exhibit similar ischemic damage compared with young males.

## **Conclusion**

The present study investigated role of neuropsychological ability in predicting psychological wellbeing among stroke patients. There is a negative impact of Psycho-neurological ability on psychological wellbeing among stroke patients. There would be a demographic difference (gender, family system, socio economic system) on psycho neurological ability and psychological well-being among stroke patients. It was found that there is significance difference in joint and nuclear family in psychological wellbeing, and psycho neurological ability among stroke.

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