

ASSESSMENT OF SYMPTOM AND QUALITY OF LIFE IN PEDIATRIC BRAIN TUMOR SURVIVORS

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ABSTRACT:

OBJECTIVES:

The purpose of this study was to assess the relationship between quality of life and demographic variables in pediatric brain tumor survivors.

METHODOLOGY:

A descriptive cross-sectional study was conducted in two tertiary care hospitals of Peshawar, Khyber Pakhtunkhwa. Census method (consecutive) sampling technique was used to collect data from 100 participants using quality of life checklist and symptoms memorial assessment scale.

RESULTS:

The mean age of the participants was 8.71 years. Almost all participants reported symptoms such as: headache, nausea and vomiting, social life restrain, poor schooling, difficulty urination and concentration, poor attention, lack of energy, cough, feeling sadness and nervousness, dry mouth, numbness, difficulty in sleeping, diarrhea, shortness of breath, sweating and itching. Overall, majority (53%) participants had average quality of life, 35% participants had good quality of life, and only 12% participants of the study had poor quality of life.

CONCLUSION:

Pediatric brain tumor survivor patients experienced variety of symptoms. The quality of life among pediatric brain tumor survivor patients was not very bad, as they have reported average quality of life in this study.

KEYWORDS: Pediatric, Brain Tumor, Survivors, Quality of Life, Symptoms Experiences.

How to cite this article:

Noreen N, Manzoor R, Buriro NA, Amanullah R, Akbar NS. Assessment of Symptom and Quality of Life in Pediatric Brain Tumor Survivors. J Farkhanda Inst Nurs Pub Health. 2021; 1(1): 3-7

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INTRODUCTION:

Cancer is the major health problem

worldwide and the second leading cause of death in United States (US)¹. It was reported in 2018 that 1,735,350 new cases and 609,640 deaths were believed to have resulted by cancer in United States². It is not only the major health problem in developed countries but also approximately 70% of deaths are reported due to cancer in low-income and middle-income countries^{1,3}. Pediatric cancers are life threatening and the condition is distressing to the children and their families at diagnosis, both during treatment and beyond⁴. Cancer is the leading cause of death in children more than one month of age. In the last 10 years cancer

incidents are almost static in females but the incident rate is declined by 02% in males^{5,6}. Brain cancers add more to cancer statistics. The incidents of brain cancers increase in the early age (children) and decrease with the age⁷. In developing countries i.e. Pakistan and India, the mortality rate of pediatric brain cancer is substantially high. In Pakistan, 6.1 to 9.3 cases per 1000,000 children age between 0-14 years are diagnosed with brain tumor and out of them 90% brain tumor victims die^{8, 9}. It is evident from the literature that behavior and dietary habits are risk factors, which lead to around one third of cancer deaths¹⁰. The severity of brain cancer depends on the type, grade and location of brain cancer. Grade 1 is the least serious and grade 4 is the most serious and danger stage of cancer. Over 70% of children with a primary central nervous system tumor used to live for 5 to 10 years following diagnosis, many cured from their disease^{2, 11}. The survival of pediatric brain tumors patients depends on the grade and location of tumor¹². Brain tumor in children appears with certain symptoms in which headache, enlarge head, nausea and vomiting, personality changes, irritability, drowsiness, seizures and coma are common. According to literature, the most common symptom that appears first is headache (41%), vomiting is estimated in 12% patients, visual difficulties, educational and behavioral problems reported in 10% brain cancer patients¹³. Among treatment options, the most common management is chemotherapy, the second one is the surgical removal of tumor and the third one is radiation therapy¹⁴. Surgical removal of tumor has also some severe complications in which infections, sepsis and regrowth of tumor are common¹⁵. Brain cancer badly impacts the children social, emotional, physical, psychosocial status, and quality of life. According to one study, children with brain tumors have lower health related quality of life (HRQL) than other children with cancer. Hearing loss, learning problems and balance difficulties are the main issues among these children¹⁶. There is a need of exploring the hidden issue and identify prevalence, severity and problems associated with brain tumor and their effect on quality of life.

METHODOLOGY:

A descriptive cross-sectional study was conducted in two tertiary care hospitals of Peshawar, Khyber Pakhtunkhwa, namely, Lady Reading Hospital (LRH) and Hayatabad Medical Complex (HMC). Total of 100 pediatric brain tumor survivors were included in the study using consecutive sampling technique. Data were collected in Neurosurgical oncology unit and OPDs of the hospitals. The study was carried out from June 2019 to November 2019.

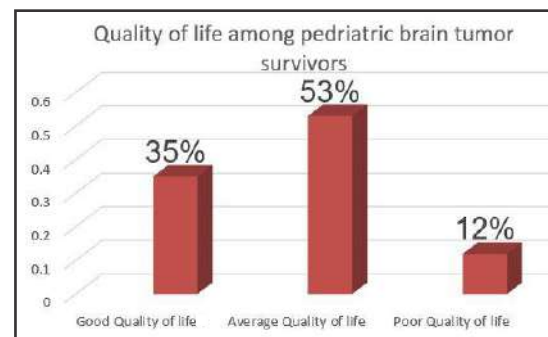
Children from birth to 18 years of age who had completed their active treatment like surgery, systemic or radiation therapy for the brain tumor participated in the study. While children undergoing palliative treatment, patients undergoing active treatment or investigation for a secondary malignancy or disease relapse were excluded from the study. Data were collected using paediatric quality scale (PedQL) scale to measure the quality of life of participants and Memorial Symptom Assessment Scale (MSAS) to identify the symptoms among brain tumour survivors. The participants who secure more than 75% marks according to the quality of life scale were considered having poor quality of life; the marks between 50%-75% were considered as average quality of life; and marks less than 50% were good quality of life. The data were collected after approval from ASRB and ethical review board. Written consent was taken from the patients before collecting the data. Permission was also sought from the Directors of both hospitals. Data were analyzed statistically through SPSS version 24.

RESULTS:**Table 1: SocioDemographic Profile of the Participants (n=100)**

	Frequency	Percent
Age		
Less than 5 Years	24.0	24.0
5-10 Years	42.0	42.0
More than 10 Years	34.0	34.0
Total	100	100.0
Type of Cancer		
Benign Cancer	55.0	55.0
Malignant Cancer	45.0	45.0
Total	100	100.0
Gender		
Male	35.0	35.0
Female	65.0	65.0
Total	100	100.0
Treatment Option		
Surgery	51.0	51.0
Chemotherapy	39.0	39.0
Radiotherapy	10.0	10.0
Total	100	100.0
Tumor Location		
Supratentorium	66	66.0
Intratentorium	34	34.0
Total	100	100.0
Tumor Grade		
Grade 1	30	30.0
Grade 2	48	48.0
Grade 3	22	22.0
Total	100	100.0
Ventriculoperitoneal Shunt		
Yes	40	40.0
No	60	60.0
Total	100	100.0

Table 2: Symptoms Assessment among Brain Tumor Survivors

Symptoms		%
Headache, Cough, vomiting, nausea, Dry Mouth, Diarrhea, Shortness of breath	Yes	73%
	No	27%
Nervousness, difficulty in sleeping,	Yes	86%
	No	14%
Poor schooling, social life restraints	Yes	84%
	No	16%
Difficulty in concentration, poor attention,	Yes	96%
	No	4%
Pain, difficulty urination,	Yes	92%
	No	8%
Lack of energy, feeling sadness	Yes	90%
	No	10%

**Figure 1: Quality Of Life Of Brain Tumor Patients****DISCUSSION:**

A study revealed lack of energy (49.7%) and (6.3%) problem in urination¹⁹. Feeling of nervousness, worry, irritability, and sadness were reported in 35% participants. Pain, drowsiness, nausea and vomiting, cough, and lack of appetite were reported in half (50%) participants^{14,17,18}. Similarly, another study revealed that around 60% children with brain tumor experiences similar symptoms depend on the severity and condition of the patients²⁰. More than half of the survivors (64%) reported lack of concentration, lack of sleep, headache, lack of energy and pain¹³. These studies findings are coherent to our study result. In addition, another study reported most common symptoms with occurrence >40% were lack of energy, lack of

appetite, feeling drowsy, sweating, worrying, nausea, dry mouth, pain, and lack of concentration. All these symptoms were frequent, severe and were distressing for the patients²¹. There is need to improve health related quality of life among children with brain tumor. Feeling of nervousness was reported among the participants of this study which is common in other parts of the world as well. The study present similar findings regarding worrying about disease process with other various studies globally²². In the present study, majority (53%) participants had average quality of life, 35% participants had good while only 12% participants of the study had poor quality of life. No association was found between quality of life and socio-demographic variables in the present study. Most of the symptoms causing poor quality of life, which is depicted from all the studies quality of life, were reported strongly associated ($p=0.001$) with grading of tumor among the survivors²¹. Similarly, another study reported lower quality of life among pediatric brain tumor survivors. Likewise, the study conducted by Huda Abu-Saad Huijer, Knar Sagherian and Hani Tamim in Lebanon revealed good quality of life among pediatric brain tumor survival. Physiological support was reported as an important factor associated with good quality of life²². A study by Gadiraju Padmaja also supports these results²³. Though variation exists in the findings of the studies but all indicate that pediatric brain tumor patients need proper social support, symptomatic treatment, psychological support and education to improve their quality of life¹³.

CONCLUSION:

Pediatric brain tumor survivor patients experienced variety of symptoms but poor sleeping, lack of appetite, lack of concentration, lack of energy, sadness, and urination problem affect their daily life activities, schooling and their overall health. Ultimately, these factors affect the quality of life of patients. Pediatric brain tumor survivor patients have average quality of life across the globe. Symptomatic treatment, coping strategies, educational trainings and psychological support are recommended to improve their quality of life.

LIMITATIONS:

The study design is cross sectional so the generalization may not be applicable for all pediatric brain survivors. Future study can be conducted to evaluate the health education approach to improve symptoms among brain tumor survivors.

CONFLICT OF INTEREST: None

FUNDING SOURCES: None

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