Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 12s (2025)
https://www.jneonatalsurg.com

Effects of Nurse Led Educational Intervention on Quality of Life among Multiple Sclerosis Patients in Lahore General Hospital, Lahore

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.Cite this paper as: Saima Zafar, Sarfraz Masih, Madiha Mukhtar, (2025) Effects of Nurse Led Educational Intervention on Quality of Life among Multiple Sclerosis Patients in Lahore General Hospital, Lahore.. *Journal of Neonatal Surgery*, 14 (12s), 741-746

ABSTRACT

Objective: The purpose of study is to determine the effect of nurse led educational intervention on quality of life among multiple sclerosis patients in Lahore General Hospital, Lahore

Study Design: One-group pre-post quasi-experimental study.

Place and Duration of Study: This study was conducted at Lahore General Hospital, Lahore from March 2024 to October 2024.

Methodology: This study employed a one-group pre-post quasi-experimental design on a sample of 100 MS patients, using purposive sampling. The research included three phases: a pre-intervention phase for baseline data collection, an intervention phase consisting of 16 educational sessions aimed at improving health literacy, fatigue management, and a post-intervention phase to reassess the same variables. Data were analyzed using SPSS version 25

Results: The result of study showed that participants were primarily young adults (45% aged 18-30) and evenly split by gender (50% male, 50% female). The majority were unmarried (78%) and illiterate (49%). Post-intervention results showed significant improvements in quality of life (from median 77.5 to 111, $p < 0.001$). Quality of life scores significantly improved across all groups, particularly among urban participants.

Conclusion: The nurse-led educational intervention effectively enhanced quality of life among multiple sclerosis patients. These results show that educational programs for patients are necessary to improve the outcomes of patients.

Keywords: *Nurse; Educational intervention; Quality Of Life; Multiple Sclerosis; Patients*

1. INTRODUCTION

Multiple sclerosis (MS) is a chronic autoimmune disease that significantly diminishes an individual's quality of life by disrupting the central nervous system. The illness's unpredictable nature and the extensive array of potentially incapacitating symptoms present numerous obstacles for individuals with the condition (1). Physical limitations, including muscle weakness, stiffness, and fatigue, can complicate daily activities and require the use of mobility aids like wheelchairs or walkers. These modifications frequently undermine an individual's sense of autonomy, leading to feelings of frustration, isolation, and diminished self-esteem (2,3).

In addition, certain individuals with MS experience chronic pain due to muscle spasms, nerve pain, or other symptoms, which hinders their ability to engage in activities that they previously found enjoyable. Cognitive disorders, including amnesia, difficulty concentrating, and difficulty managing problems, can significantly impede one's ability to engage in work, fulfil daily obligations, and maintain relationships with friends and family (4). The emotional pain is exacerbated by physical and mental issues, as the enigma of the disease's progression and the potential for harm frequently induce elevated levels of stress, anxiety, and depression (5,6).

Isolation is a significant challenge for individuals with multiple sclerosis. The condition's mental and physical effects may cause individuals to avoid social situations due to their belief that others do not comprehend them or their reluctance to disturb their family and friends. Tiredness, difficulty moving, and low self-esteem all contribute to their sense of disconnection and inadequacy in social situations, which impedes their participation in social activities (7, 8). Additionally, the expenses associated with medications, medical apparatus, and housing modifications frequently exacerbate the financial anxiety associated with multiple sclerosis. Patients and their families may experience additional financial difficulties if they are unable to work due to a physical or mental disability (9).

The disease significantly impacts the relationships of individuals, as caretakers assume additional responsibilities and patients contend with feelings of remorse or dependence. Mental distress may result from the gradual loss of independence, which can lead to a decrease in self-esteem and an increased dependence on others for personal care and daily tasks (10).

2. METHODS

The research utilised a one-group pre-post quasi-experimental framework to evaluate the effects of a nurse-led educational intervention on the quality of life for individuals diagnosed with multiple sclerosis. The educational intervention served as the independent variable, while the quality of life functioned as the dependent variable. A cohort of 100 individuals diagnosed with multiple sclerosis was employed to collect data at Lahore General Hospital. The evaluation of quality of life was carried out using the Multiple Sclerosis Quality of Life (MSQOL) questionnaire, as cited in (11). This extensive 31-component evaluation examines multiple dimensions of quality of life, including emotional well-being, physical functioning, and social engagement. The intervention spanned four educational sessions covering topics related to MS related quality of life management. Pre- and post-intervention data were analyzed using SPSS, with Wilcoxon Signed Rank and Chi-Square tests applied to compare the results, considering a p-value of less than 0.05 as statistically significant.

3. RESULTS

Table 4.1: Demographic information of participants

Study Variable	Category	Frequency (F)	Percentage (%)
Age	<18-30 Years	45	45.0
	31- 40 Years	40	40.0
	41- 45 Years	9	9.0
	> 45 Year	6	6
Gender	Male	50	50
	Female	50	50
Marital Status	Married	20	20
	Unmarried	78	78
	Widow/Divorced	2	2
Education Level	Illiterate	49	49
	Primary school	51	51
Residence	Rural	27	27
	Urban	56	56
	Town	17	17

Table 4.1 provides the demographic information of the study participants, categorized by age, gender, marital status, education level, and residence. Among 100 enrolled multiple sclerosis patients, 45 (45.0%) were aged between 18 and 30 years, 40 (40.0%) were aged between 31 and 40 years, 9 (9.0%) were aged between 41 and 45 years, and 6 (6.0%) were over 45 years of age. In terms of gender distribution, the cohort was evenly split, with 50% male and 50% female participants. Marital status revealed that 20 (20.0%) of the patients were married, 78 (78.0%) were unmarried, and 2 (2.0%) were widowed or divorced. Regarding educational attainment, 49 (49.0%) of the subjects were illiterate, while 41 (41.0%) had completed primary school, and 10 (10.0%) had completed high school. The living arrangements of the patients

indicated that 27 (27.0%) resided in rural areas, 56 (56.0%) lived in urban areas, and 17 (17.0%) were situated in towns.

Quality of Life of Multiple Sclerosis Patients

Table 4.2: Quality of Life among pre and post intervention group

Quality of Life	Pre Median (IQR)	Post Median (IQR)	Wilcoxon Signed Ranks Test	p-value
Multiple Sclerosis Quality of Life (MSQOL-31)	77.5(70.25-85)	111(105-114)	-8.592^c	<0.001*

Table 4.2 highlights the significant improvement in the quality of life for participants with multiple sclerosis following the intervention. The median score on the Multiple Sclerosis Quality of Life (MSQOL-31) scale increased from 77.5 (IQR: 70.25-85) before the intervention to 111 (IQR: 105-114) after the intervention. The Wilcoxon Signed Ranks Test result of -8.592c and a p-value of <0.001 indicate a statistically significant improvement in quality of life post-intervention, showing the positive impact of the intervention on the participants' well-being.

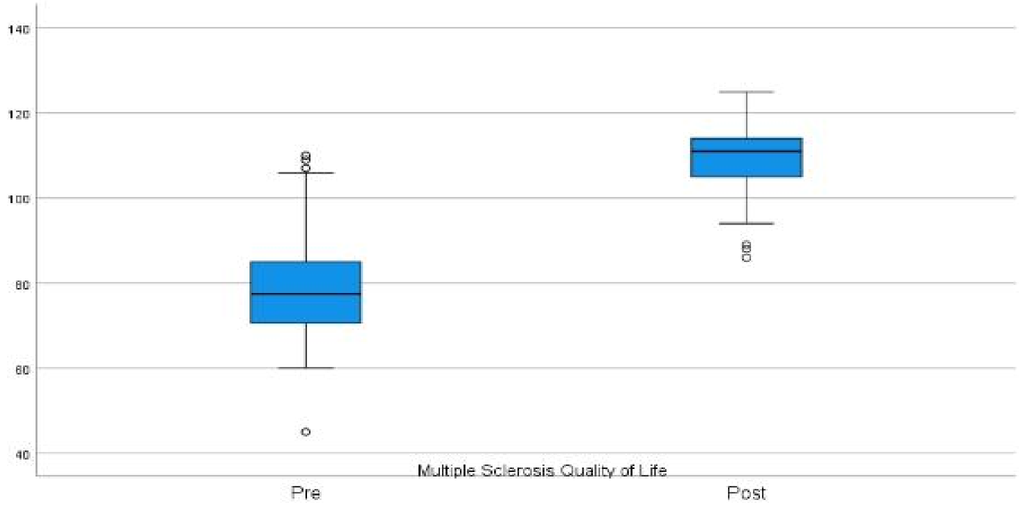

Figure 1: Multiple Sclerosis Quality of Life Assessment

Table 4.3: Quality of Life of pre and post intervention group according to demographic variables

Variable	**Pre Intervention Quality of Life**		**Post Intervention Quality of Life**	
Age	**Low**	**Average**	**Average**	**Good**
18-30 Year	21(46.7%)	24(53.3%)	37(82.2%)	8(17.8%)
31-40 Year	18(45%)	22(55%)	30(75%)	10(25%)
41-45 Year	6(66.7%)	3(33.3%)	7(77.8%)	2(22.2%)
> 45 Year	5(83.3%)	1(16.7%)	3(50.0%)	3(50.0%)
P-Value	**0.210**		**0.408**	
Gender				
Male	28(56.0%)	22(44.0%)	37(74.0%)	13(26.0%)
Female	22(44.0%)	28(56.0%)	40(80.0%)	10(20.0%)
P-Value	**0.230**		**0.476**	
Marital Status				

Married	8(40.0%)	12(60.0%)	15(75.0%)	5(25.0%)
Unmarried	41(52.6%)	37(47.4%)	62(79.5%)	16(20.5%)
Widow/ Divorced	1(50.0%)	1(50.0%)	0(0%)	2(100.0%)
P-Value	**0.603**		**0.045***	
Education Level				
Illiterate	18(36.7%)	31(63.3%)	41(83.7%)	8(16.3%)
Primary School	32(62.7%)	19(37.3%)	36(70.6%)	15(29.4%)
P-Value	**0.009***		**0.120**	
Residence				
Rural	20(74.1%)	7(25.9%)	15(55.6%)	12(44.4%)
Urban	20(35.7%)	36(64.3%)	49(87.5%)	7(12.5%)
Town	10(58.8%)	7(41.2%)	13(76.5%)	4(23.5%)
P-Value	**0.003***		**0.007***	

Table 4.3 presents the quality of life outcomes in the pre- and post-intervention groups, categorized by various demographic variables. It examines differences in quality of life based on age, gender, marital status, education level, and residence. In the age category, individuals aged 18-30 and 31-40 showed a higher shift towards improved quality of life post-intervention, while those over 45 had mixed outcomes. Gender-wise, both males and females saw a substantial improvement post-intervention, with females slightly outperforming males. The data also shows that marital status had a significant impact post-intervention, particularly among widowed/divorced individuals ($p = 0.045$). Education level played a key role in determining the quality of life, with illiterate individuals demonstrating more improvement compared to those with primary education ($p = 0.009$ pre-intervention). Finally, residence was a notable factor, with urban participants showing the most significant improvement in quality of life post-intervention ($p = 0.003$ pre-intervention and $p = 0.007$ post-intervention), while rural participants had lesser improvement.

4. DISCUSSION

An autoimmune disease known as multiple sclerosis (MS) causes inflammatory demyelination and axonal damage in the central nervous system. It is associated with a number of contributing factors (14,15).

This study's demographic profile sheds light on the Lahore General Hospital population impacted by multiple sclerosis (MS). Half of the people who took part were between the ages of 18 and 30, and another half were between the ages of 31 and 40. The age distribution is in line with global evidence showing that multiple sclerosis often manifests in early adulthood, namely between the ages of 20 and 40 (16). Research conducted in Turkey supports these findings, showing that persons aged 20–40 also have the highest prevalence of MS (17,18).

Fifty percent of the responders were male and fifty percent were female, indicating an even gender distribution. This sharply contrasts with existing statistics, which typically indicate that females have a higher prevalence of MS, sometimes at a ratio of 2:1 or more (19,20). Research conducted in several regions, including the Middle East and Europe, indicates that women are more susceptible to multiple sclerosis (21). Fifty-one percent of respondents had a high school diploma or its equivalent, whilst forty-nine percent were entirely illiterate. Research indicates that elevated educational attainment correlates with enhanced health literacy and improved ability to manage chronic illnesses (22). Patients with lower literacy skills had more challenges in comprehending health-related materials, perhaps rendering the educational intervention implemented by nurses in this trial less effective than it may have been.

The educational intervention considerably enhanced the quality of life, shown by a median score of 111, an increase from 77.5 before to the intervention ($p < 0.001$). These findings align with those of (23), which indicated that educational programs for multiple sclerosis (MS) patients may significantly improve their quality of life by addressing both physical and emotional dimensions of treatment. Recent evidence from a three-year longitudinal study indicates that patient education enhances quality of life by alleviating psychological distress and improving functional outcomes (24).

The current study revealed that the quality of life of MS patients was improved after nursing intervention. These improvements were statistically significant in relation to marital status ($P=0.045$), education level ($P=0.009$), and residence

(P=0.007), suggesting that these factors may influence how well patients respond to health literacy and fatigue management interventions.

This finding is consistent with research by (25), which highlighted that patient education improved not only health outcomes but also quality of life in chronic illness management. However, the degree of improvement varied by socioeconomic and educational status, which mirrors the present study's findings regarding the impact of education on MS patients' quality of life. These findings are consistent with (26) which reported that education of patients improved the quality of life of patients. Similarly, these findings are consistent with other study who reported that coping strategies have positive impact on the quality of life (27).

5. CONCLUSION

The study concluded that the majority (45%) of participants were young and aged between18-30 years, with an equal gender distribution (50% male, 50% female). The majority were unmarried (78%) and had a primary school education (51%). In terms of residence, 56% were from urban areas, while 27% lived in rural areas. The study's findings indicate significant improvements in quality of life among multiple sclerosis patients following the intervention. Health literacy scores increased substantially, with younger age groups and unmarried participants showing the most progress. Quality of life improved post-intervention, particularly among urban residents, illiterate individuals, and widowed/divorced participants. The intervention was notably effective, positively impacting patients' overall well-being.

Limitations of Study

1. The sample size was limited, which limit the generalizability of the results to a broader population of multiple sclerosis (MS) patients.

2. The research was conducted at a single hospital (Lahore General Hospital), which limit the applicability of findings to other settings or regions with different healthcare infrastructures or patient populations.

3. A large portion of the participants had low educational backgrounds, which might have influenced the outcomes. The study does not explore how the intervention would perform with patients having higher levels of education.

Recommendations of study

1. Enhance communication skills to effectively deliver educational interventions tailored to the specific needs of patients with multiple sclerosis.
2. Stay updated on evidence-based practices to improve patient outcomes in managing multiple sclerosis.
3. Collaborate with interdisciplinary teams to provide holistic care that addresses both the physical and psychosocial needs of multiple sclerosis patients.
4. Recommendations for Patients
5. Engage actively in educational sessions to gain a better understanding of multiple sclerosis and its management.
6. Utilize provided resources and support systems to improve self-management and adherence to treatment plans.

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