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Neck Disability and its Association With Quality of Life in Postgraduate Residents of Tertiary Care Hospitals in Peshawar

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ABSTRACT

Neck pain is the second most common orthopedic problem worldwide. It impacts not only the general population but also young doctors. The considerable time spent studying at desks significantly affects their daily life's, often leading to disability and absenteeism from their professional duties. The disabilities acquired in daily life led them to poor quality of life. This research focused on finding neck disabilities and their link to quality of life among postgraduate residents in tertiary care hospitals in Peshawar over a period of six months. Additionally, it seeks to understand how these disabilities impact the daily lives of residents. A cross-sectional study was conducted on residents at different tertiary care facilities. Hospitals (HMC and LRH) in Peshawar. Data was collected from 306 residents (119 female and 187 male). Residents aged 25-35 years were included in the study. Neck Disability Index (NDI) Questionnaire and Sf12 Quality of life (QOL) questionnaire was use to the collect data. Data was analyzed using SPSS version 23. Descriptive statistics, frequency and percentages were calculated. Chi-square test was employed for association. Our study finds significant association between neck disability and quality of life. Among the participants young age residents 25-30 age are more affected by disabilities and poor quality of life. Females are more likely having pain and disability than males. The chi square was significant with a p value of .000. The study demonstrates significant association between neck disability and Quality of life, indicating that high level of neck disability leads to poor quality of life in physical and mental components. These finding suggests that awareness is necessary regarding such conditions to properly reduce the interference of neck related disabilities in daily life.

INTRODUCTION

Neck pain is a common musculoskeletal issue that can impact millions of people worldwide, with some 203 million cases in 2020 (Shakoor *et al.*, 2025). It significantly contributes to disability and reduced quality of life, interfering with daily activities, work performance, and overall wellbeing. This disease is caused by various factors such as poor posture, ergonomic conditions and psychosocial stress, and it is a significant health concern to the population (Ali *et al.*, 2023). The medical students and doctors are the most susceptible since they have to endure long hours of studying, sitting in one position, and occupational stresses (Hoy *et al.*, 2010). The chronic neck pain is more likely to develop with continuous exposure to these risk factors during training and clinical practice (Bucher *et al.*, 2023). It does not only have an impact on their physical health but also on their mental health, anxiety, and diminished professional effectiveness that, in the end, affects patient care and healthcare systems (Alshehre *et al.*, 2023). Moreover, neck pain is directly connected with the lowered quality of life, as it disturbs sleep, limits physical activity, and lowers productivity. Unattended, it can become a mild discomfort to chronic disability that impacts on personal and professional life. Thus, its long term effects particularly in healthcare professionals, should be limited through early awareness, ergonomic measures and preventive measures (Alshehre *et al.*, 2023; Weleslassie *et al.*, 2020).

The literature search highlighted a gap in research concerning the association of neck related disabilities with qualities of life among post-graduate residents of tertiary-care hospitals in Peshawar. Up to our knowledge, a literature search revealed only few studies regarding neck disabilities in surgeons and dentists. It is pertinent to mention that there is no study regarding postgraduate residents with neck related disabilities and its association with quality of life. Given the lack of specific studies in Pakistan, there is dire need to conduct research to ascertain the association of neck related disabilities and its association with quality of life in Peshawar, Pakistan. Understanding these dynamics will enable the development of awareness and interventions tailored to the unique needs of post-graduate resident's quality of life.

Objectives

The focus of our study is to find neck disability and its association with quality of life in post-graduate residents at tertiary-care hospitals in Peshawar.

LITERATURE REVIEW

Eight hospitals out of 148 in Shandong province were chosen for the 2019 research on the prevalence of musculoskeletal pain by area among doctors employed by

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China's tertiary-care institutions. About 1063 people did not participate in the survey, while 14,720 eligible workers filled it out. Of the 14,720 responders, 5351 (36.4%) were male and 9369 (63.6%) were female, with a mean age of 33.8 ± 8.6 years (range from 19 to 63 years). Neck pain was approximately 47.6, 28.9, and 4.8%. The 12-month prevalence rate of Musculoskeletal Disorders (MSDs) lasting for at least 24 hours in any part of the body was 91.2%. The high prevalence of MSDs among health-care professionals was linked to employment status, psychosocial factors (mental stress and psychological fatigue in the workplace), ergonomic factors (frequent trunk bending, heavy or awkward lifting, neck bending or twisting, prolonged walking, prolonged standing, and prolonged shoulder abduction), and workload (work hours per week, break times during the workday) (Dong *et al.*, 2019).

179 Saudi orthopedic surgeons (173 men and 6 women) participated in the study, which examined the prevalence of musculoskeletal issues among orthopedic surgeons in Riyadh, Saudi Arab. Data was gathered online and a questionnaire was sent by email. The standard Nordic pain questionnaire was used, and the response rate was 80%. 67.0% of the respondents in the whole group reported experiencing MSK discomfort. Lower back pain was the most often reported MSK discomfort (74.0%), with neck pain coming in second. According to different body sites, study participants reported varying degrees of MSK pain and severity. Additionally, 75% of them reported mild neck pain, and 58.2% said the pain had been present for several years. Excessive bending and twisting during daily practice have been linked to increased neck pain and related disturbances in quality of life. Additionally, 72.6% of participants reported greater MSK discomfort from the start of their employment, and 94.4% of participants felt that their work is the cause of their suffering (Al-Mohrej *et al.*, 2020).

In 2022, cross-sectional research about cervical muscle weakness and its correlation with headache and functional restrictions was conducted among physicians employed at Akhtar Saeed Medical and Dental College, Lahore (AMDC). The Headache Impact test (HIT-6) was the questionnaire used in this research, which measured the strength of the cervical muscles manually. The study's sample size was 150, and it discovered a high link between headache occurrence and a deficiency in cervical muscular strength. Similar patterns were seen in all cervical muscles. The study found a significant correlation between the strength of cervical muscles and the impact of headaches, indicating the need for targeted muscle strengthening and posture correction interventions among doctors to reduce the risks of headaches and neck discomfort. The headache impact score ranged from 30 in the 36-50 range to 28 in the 60-78 range for strong cervical flexors (Masood *et al.*, 2024)..

A self-administered questionnaire was filled out by 7688 emergency personnel from 147 hospitals in Shandong, China, for this in 2022 research on musculoskeletal discomfort, occupational stress, and sleep disruption with shift work in Chinese public hospitals. The participants' average Pittsburgh Sleep Quality Index (PSQI) score was 9.6 ± 4.8, and 5341 of them reported having sleep disturbances on a daily basis (69.5%, 68.2–70.7%). Doctors (10.2 ± 5.1, 71.0%, 69.0–73.0%) had lower overall sleep quality than nurses (9.2 ± 4.5, 68.6%, 67.0–70.1%), and those employed in secondary (9.9 ± 4.5, 70.2%, 68.0–72.3%) and tertiary (12.2 ± 4.9, 77.5%, 75.3–79.7%) hospitals had lower overall sleep quality than those employed in primary hospitals (8.0 ± 4.1, 64.6%, 62.6–66.6%). After controlling for confounding factors, a high incidence of sleep disruption was substantially linked to shift work, occupational stress, job pressure, musculoskeletal discomfort, fewer breaks during a work shift, and no time for exercise within their 24-hour routine. Emergency personnel had sleep disturbances in the following order: permanent night shift > permanent day shift > three-shift rotation > two-shift rotation. Emergency personnel at China's public hospitals often suffered from musculoskeletal pain and had poor sleep quality. However, their regular stressors may make them more susceptible to pain syndromes due to the strain on their musculoskeletal system (Dong *et al.*, 2022).

This study examines how the work of Gujarati surgeons might lead to issues with their physical and psychological health. Forty-three surgeons participated in the study. The standard Nordic questionnaire used to assess the musculoskeletal conditions of these individuals served as the assessment criterion. Additionally, the short form quality of life (SF-QOL) questionnaire was used to determine their work style and pattern and to determine how these variables affected their day-to-day lives. Thirteen female and thirty male surgeons, total forty-three, successfully completed the survey. Their average age was 42.07 years, and their average number of years of employment was 15.14 years. They work an average of 8 hours a day, with their primary responsibilities being running and attending outpatient clinics and ward rounds. There seems to be no difference between the sexes in terms of their own anticipated working hours and kinds of jobs done. Among all participants, 83.70% of surgeons had musculoskeletal symptoms, while 16.30% had none at all, according to the current study. The impacted surgeons were screened for their daily activities to determine the causes of these conditions, so workload, daily decisions based on posture, and time spent at work are all related factors (Vaghela *et al.*, 2019).

Using a self-designed questionnaire, the prevalence of musculoskeletal discomfort linked to work was determined among primary health-care providers, including obstetricians and gynecologists. 196 Sample size total members were chosen from various hospitals for the cross-sectional research conducted in South Africa. Out of 196 respondents, 171 (87.2%) had musculoskeletal discomfort connected to their jobs in one area, whereas 25 (12.8%) said they had no musculoskeletal pain. The results of this study indicated that obstetricians and

gynecologists experience a high prevalence of work-related musculoskeletal pain, which significantly affects their daily lives. These professionals are the primary emergency room staff, and their extended work hours make them more susceptible to musculoskeletal conditions. The study guided further clarification on these study population for better quality of life and a decrease in the occurrence of such conditions. The symptoms were primarily seen in the lower back (59.2%), leg (37.8%), and neck (27.8%) (Afzal *et al.*, 2024).

This 2020 research, examines musculoskeletal diseases of the neck and upper extremities among dentists in Lahore. Despite the fact that dentists are a special profession that requires precise work and lengthy hours in medically linked subjects. The research included 162 dentists from Punjab Dental Hospital, Fatima Memorial Hospital, and Children Hospital Lahore, 52 males and 110 women. They discovered that 115 of them (71%) had musculoskeletal diseases using the Mangalore Questionnaire. The most often afflicted location was the shoulder (30.9%), which was followed by the neck (25.9%), arm (6.2%), wrist (4.3%), elbow (3.1%), forearm (0.6%), and wrist (4.3%). In addition to muscular weakness (20.4%), paranesthesia (3.7%), and oedema (1.2%), pain was the most common symptom, affecting 45.7% of the dentists (Sarwar *et al.*, 2020).

The epidemiology of neck pain in Singapore was studied using a population-based cross-sectional design. The study used a multistage random sampling using people's households, with the study population being those aged 21 and up. The data was collected through interviews. The first thing studied was the prevalence of neck pain and its characteristics at linking this with socio-demographic factors. The data was directly associated with disability and quality of life. The EuroQol 5 Dimension (EQ-5D) questionnaire was used in conjunction with the Neck Disability Index (NDI). This research comprised 626 participants, with a median age of 52.0 years (interquartile range 37.0–67.0) and an even sex distribution of females (46.0%) and men (54.0%). A 6-month period prevalence of 23.0% was obtained from 144 people who reported having neck discomfort over the previous six months. Twelve (8.3%) of them had severe neck discomfort, while nine (6.3%) had chronic neck pain. Multivariate analysis revealed that the only significant risk factor for neck discomfort was female sex, with a risk ratio of 1.34 (95% CI 1.00–1.80, P = 0.049). The mean raw NDI scores for those with neck pain were 4.91 ± 6.25, and the longer and more intense the pain, the greater the impairment (P < 0.001 and P = 0.002, respectively). EQ5D-Index scores were lower (0.84 ± 0.25 vs. 0.93 ± 0.15; 95% CI 0.046–0.132, P < 0.001) and EQ5D-VAS (EuroQol 5 Dimension-Visual Analogue Scale) ratings were lower (68.76 ± 14.59 vs. 73.86 ± 13.64; 95% CI 2.510–7.697, P < 0.001) for those with neck discomfort than for those without (Ephraim-Emmanuel *et al.*, 2019).

This cohort research, conducted in Australia in 2019, examined junior physicians' knowledge of musculoskeletal medicine. During scheduled intern teaching sessions, interns were requested to take the Freedman and Bernstein test. The results were evaluated using the original Freedman and Bernstein grading criteria and a verified pass mark. The 92 interns' scores ranged from 8 to 20.8 (29–83%), with a mean score of 13.9 out of 25 (55%). Of the 92 interns, only 8 (8.7%) received a score higher than 73%, which is the predetermined passing threshold. This study's findings raise concerns about orthopedic education for medical students in Australia. The fact that just eight out of 92 (8.7%) interns received a score higher than the predefined pass criterion is quite concerning. The research finds that Australian interns' expertise of musculoskeletal medicine is inadequate (Hey *et al.*, 2021).

Another research on the prevalence of neck discomfort was conducted in 2022 in New York, America with orthopedic doctors' low back discomfort. An email including a survey-like form was sent. Only 53 of the 99 orthopedic doctors who worked in tertiary-care institutions responded for the survey. After obtaining their agreement, information about demographics, neck, low back, and hip pain as well as how these conditions affected their daily routines and lifestyle was gathered. As compared to normal data, 14 out of 53 respondents claimed having no neck pain at all, while 20 others said they had no history of the condition. Of the 53 participants, 14 reported having neck pain on average days but less than a week, and 6 reported having pain more than twice a week. Six respondents said they had neck discomfort four to five days a week, and six said they experienced it more than five days a week. 74% of those surveyed responded that they had neck discomfort to some extent with an average score of 2.63 (SD 2.33). When asked how bad their neck pain was at its worst, 21 people said it was light, 16 said it was moderate, and 2 said it was severe. Of those who reported experiencing neck discomfort, 12 responded it started before to residency, 11 throughout medical training, and 16 after becoming practitioner. Just three people who reported having neck discomfort said they had previously had a neck injury unrelated to their job. The most frequent answers to the question of what respondents' thought was the main cause of their neck discomfort were job (15), bad posture (13), uncertainty (9), and prior injury (2). On average, 7.1% of attending surgeons reported neck pain that impacted them on 2.08 (SD 2.49) days per week, whereas 80% of residents reported neck pain that affected them on 1.73 (SD 1.91) days per week. 74% of respondents said they had neck discomfort, while almost 77% said they had back pain. Poor posture was the most prevalent cause of back pain, neck discomfort, or both among responders, with work-related injuries coming in secondary. Sixty percent of all back pain cases and seventy-two percent of all neck pain cases were caused by a combination of bad posture and work-related injuries (Wijenayake *et al.*, 2022).

MATERIAL AND METHODS

This was a cross-sectional study that was carried out in a span of six months. A non-probability convenient sampling method was employed in recruiting a total of 306 respondents in tertiary-care hospitals in Peshawar, such as Hayatabad Medical Complex, and Lady Reading Hospital. The sample size included postgraduate residents (both training medical officers and house officers) aged 25-35 years of both genders. The participants were chosen according to the set inclusion and exclusion criteria. Only those residents, who work in tertiary-care hospitals within the mentioned age bracket were considered, whereas the rest of the population, who were outside of the age range, operated in non-tertiary hospitals, or had conditions that included disability, systemic illness, and a history of spinal surgery were excluded. The data were collected with the permission of the Advanced Studies and Research Board and Ethical Review Board of Institute of Health Sciences Peshawar and written informed consent was obtained before the data were collected. Standardized questionnaires were used to collect data. The Neck Disability Index was used to measure neck disability, with the ranges of scores being used to measure the levels of disability between none and complete disability. The quality of life was determined by the use of SF-12 questionnaire that was used to assess the physical and mental health factors with higher scores reflecting the health status. Data analysis was done in SPSS, frequencies, percentages, mean and standard deviation were computed. Associations were established using Chi-square test and relationship between neck disability and quality of life was done using Spearman rho correlation.

RESULTS AND DISCUSSIONS

Demographics

Age-wise Data Distribution

Table 4.1 shows that 306 residents were studied. Participants in this study were between the ages of 25 and 35. So, the total mean of age was 27.86, and the standard deviation (SD) was 2.188.

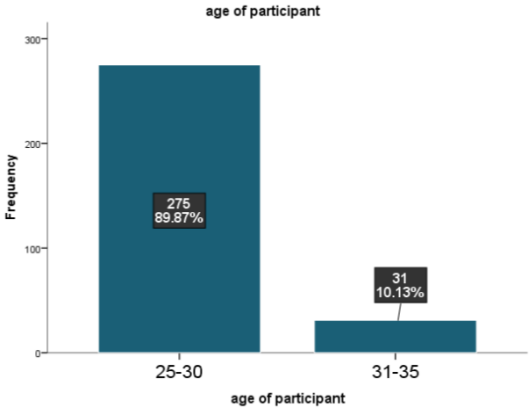

Figure 1: Percentage and Calculations of participant's age

Gender-wise Data Distribution

Table 4.3 shows the gender-wise frequencies and percentages, in which out of 306 residents, 119 were females indicating a percentile of 38.9%, while 187 were males representing a percentile of 61.1%.

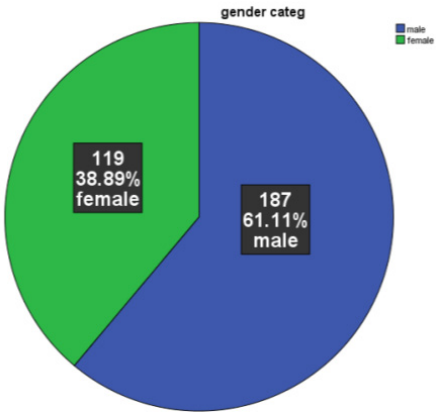

Figure 2: Graphical Representation of gender-wise distribution of data

In figure 2, pie graph illustrates that, out of the entire sample size, the blue portion of the pie chart represent females, while the green portion represent males.

Hospital-wise Data Distribution

Table 4.4 illustrates the distribution of data by hospitals. We obtained data from two tertiary-care hospitals: Lady Reading Hospital (LRH) and Hayatabad Medical Complex (HMC). Out of 306 residents, 154 were from HMC, indicating a percentile of 50.3%, and 152 were from LRH, representing a 49.7% percentile.

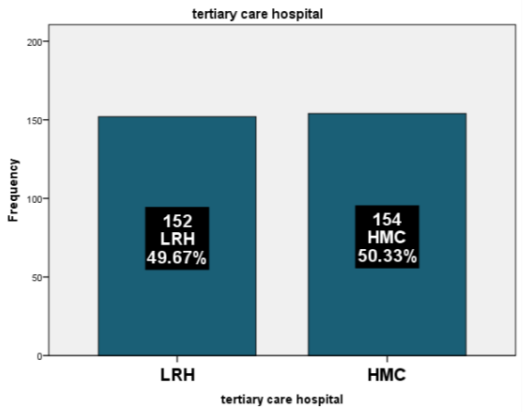

Figure 3: Graphical Representation of Hospital-wise distribution of data

In figure 3, the Hospital-based data frequency is displayed. Data were gathered from 154 residents at HMC and 152 residents at LRH.

Designation-wise Data Distribution

Table 4.5 shows the frequencies and percentages according to the residents' designations. Data was

collected from the House officers (HO's) and Trainee Medical Officers (TMO's) of the tertiary-care hospitals. Out of 306 residents, 34 were HO's (11.1 percentile) and 272 were TMO's (88.9 percentile).

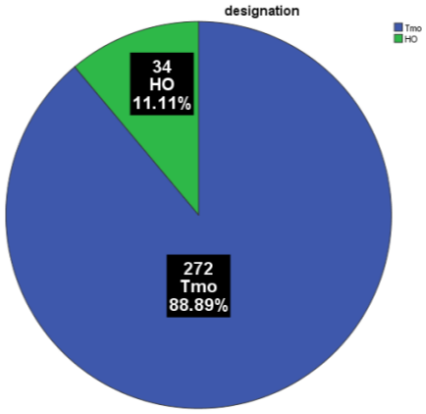

Figure 4: Graphical Representation of Designation-wise distribution of data

Figure 4, illustrates a pie graph indicating that more data was collected from Trainee Medical Officers (TMOs) than House Officers (HO's).

Pain Intensity Frequency Calculations and Crosstab

Pain intensity crosstab with Gender, Age, Designation, Hospital

Our study reveals that out of 306 participants, within gender distribution 104(55.6%) had no pain, 64(34.2%) had mild pain,14(7.5%) had moderate pain and 5(2.4%) had severe pain. While in females 52(43.7%) had no pain, 47(39.5%) had mild pain, 19(16.0%) had moderate pain and 1(0.8%) had severe pain. Overall females, 56.3% had more pain response than males 44.4%. Age wise distribution shows that overall age 25-30 years (49.1%) has slightly more pain responses than age 31-35years (48.4%).

Designation wise distribution of participants house officers (HO's) 52.9% have more pain responses than training medical officers 48.5%.

Hospital wise distribution shows that Hayatabad medical complex residents (52.6%) have more pain responses than lady reading hospital residents (45.3%).

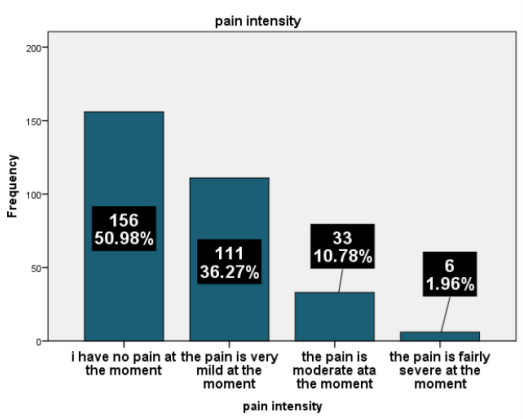

Figure 5: Graphical representation of Pain Intensity Calculations

Table 1: Pain Intensity Cross-Tab Gender, Age, Designation and Hospital

Pain Intensity Crosstabulation							
Variable	**Sub category**	**Pain Intensity**				**Total**	**Combine total**
		I have no pain at the moment	**The pain is very mild at the moment**	**The pain is moderate at the moment**	**The pain is fairly severe at the moment**		
Gender	Male	104 (55.6%)	64(34.2%)	14(7.5%)	5(2.7%)	187	306
	Female	52(43.7%)	47(39.5%)	19(16.0%)	1(0.8%)	119	
Age	25-30 y	140(50.9%)	101(36.7%)	28 (10.2%)	6(2.2%)	275	306
	31-35 y	16(51.6%)	10(32.3%)	5(16.1%)	0(0.0%)	31	
Designation	TMO	140(51.5%)	96(35.3%)	31(11.4%)	5(1.8%)	272	306
	HO	16(47.1%)	15(44.1%)	2 (5.9%)	1 (2.9%)	34	
Hospital	LRH	83(54.6%)	47(30.9%)	16(10.5%)	6(3.9%)	152	306
	HMC	73(47.4%)	64(41.6%)	17(11.0%)	0(0.0%)	154	

Chi square between Neck Disability Index score and Sf12 Quality of Life

Neck disability score and sf 12 physical component score cross tabulation

The table of cross-tabulation shows that 108 participants have no disability out of which 22 were below average with percentage of 20.4% in neck disability index and 14.2% have sf12 score of below average.

In about 149 participants with mild disability 90(60.4%) were below average and counted 58.1% within sf12 physical score.

Out of 42 participants with moderate disability 37(88.1%) were in below average which contributes 3.9 in sf 12 physical score.

Out of 7 participants with severe disability 6 (85.7%) were in below average which contributes 3.9% in overall

sf 12 physical score.

Our study showed that 155 (50.7%) participants out of 306 were with disability in some form have score below average on physical scale of quality of life. It indicates that due to neck disabilities their quality of life affects significantly. The association is significant between neck disability index and quality of life (p value=.000). There is association between neck disability index and SF-12 PCS.

Table 2: Cross-Tab of NDI with PCS-12

Cross tab NDI and SF-12 PCS				
Ndi categories	**Sub category**	**Below average**	**Above average**	**Total**
No disability	count	22	86	108
	% NDI	20.40%	79.60%	100.00%
	% sf12 mental cat	14.20%	57.00%	35.30%
Mild disability	Count	90	59	149
	% NDI	60.40%	39.60%	100.00%
	% sf12 mental cat	58.10%	39.10%	48.70%
Moderate disability	Count	37	5	42
	% NDI	88.10%	11.90%	100.00%
	% sf12 mental cat	23.90%	3.30%	13.70%
Severe disability	Count	6	1	7
	% NDI	85.70%	14.30%	100.00%
	% sf12 mental cat	3.90%	0.70%	2.30%
Total	Count	155	151	306
	% NDI	50.70%	49.30%	100.00%
	% sf12 mental cat	100.00%	100.00%	100.00%

Table 3: Chi Square Cross-Tab of NDI with PCS-12

Chi-Square Tests			
	Value	**Df**	**Asymptotic Significance (2sided)**
Pearson Chi-Square	72.288a	3	.000
Likelihood Ratio	78.503	3	.000
Linear-by-Linear Association	67.067	1	.000
N of Valid Cases	306		

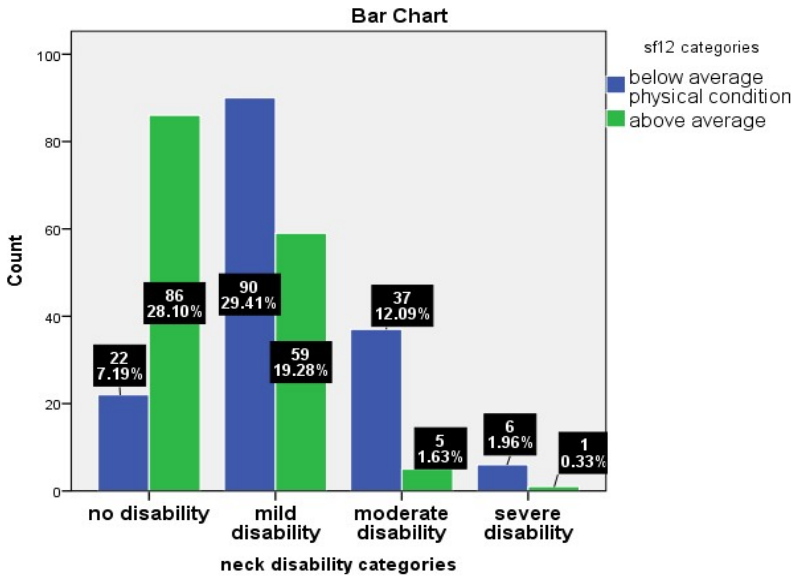

Figure 6: Graphical representation of Cross tab NDI and SF-12 PCS

Neck disability index crosstab with sf12 mental component scale

The table of cross-tabulation shows that out of 108 participants with no disability 26(24.1%) were below average on mental component scale contributing 20.3% on overall MCS score.

In about 149 participants with mild disability 73(49.0%) were below average indicating poor Quality of life in mental component.

Out of 42 participants with moderate disability 25(59.5%) were below average indicating poor mental score with overall score of 19.5% on MCS scale.

Out of 7 participants in severe disability only 4 (57.1%) were below average indicating poor quality of life while contributing 3.1% in MCS score.

Our study finds that at average 128 (41.8%) were below average on MCS scale. As the test is showing significant association between neck disability index with quality of life (p value=.000).

It concludes that there is association between neck disability with SF-12 MCS.

Correlations Between Ndi, Pcs, Mcs and Pain Intensity

The correlation between NDI and SF-12 shows that there

Table 4: Cross-Tab of NDI with MCS-12

Cross tab between NDI and SF-12 MCS				
		Below average	Above average	Total
No disability	Count	26	82	108
	% NDI	24.10%	75.90%	100.00%
	% sf12 mental cat	20.30%	46.10%	35.30%
Mild disability	Count	73	76	149
	% NDI	49.00%	51.00%	100.00%
	% sf12 mental cat	57.00%	42.70%	48.70%
Moderate disability	Count	25	17	42
	% NDI	59.50%	40.50%	100.00%
	% sf12 mental cat	19.50%	9.60%	13.70%
Severe disability	Count	4	3	7
	% NDI	57.10%	42.90%	100.00%
	% sf12 mental cat	3.10%	1.70%	2.30%
Total	Count	128	178	306
	% NDI	41.80%	58.20%	100.00%
	% sf12 mental cat	100.00%	100.00%	100.00%

Table 5: Chi-Square Cross-Tab of NDI with MCS-12

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2sided)
Pearson Chi-Square	23.214a	3	.000
Likelihood Ratio	24.033	3	.000
Linear-by-Linear Association	20.018	1	.000
N of Valid Cases	306		

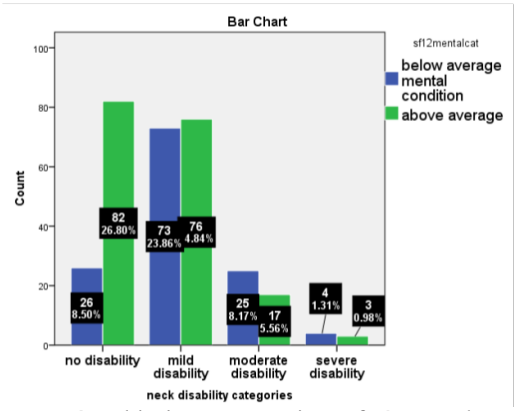

Figure 7: Graphical representation of Cross tab NDI and SF-12 MCS

is strong negative correlation (-0.578) between NDI and SF-12 PCS with significant of .000, indicating that as the neck disability increases will lead to decreasing physical health and quality of life. There is moderate negative correlation between NDI and SF-12 MCS (-0.324) with significance of .000, this concludes that with increasing disability will inversely decrease quality of life on MCS. There is positive correlation between neck disability with pain intensity (0.694) at significance of .000, shows that higher pain level can lead to higher disability. There is also moderate and moderate to weak negative correlation of pain intensity with quality-of-life SF-12 PCS and MCS. This show that pain intensity is effect on quality of life and higher pain intensity will tend to decrease quality of life.

Table 6: Correlations Between NDI, PCS, MCS & Pain Intensity

Correlations Between NDI, PCS, MCS & Pain Intensity						
			Neck Disability Index Scale	**Sf12 Physical Component Scale**	**Sf12 Mental Component Scale**	**Pain Intensity**
Spearman's rho	Neck Disability Index Scale NDI	Correlation Coefficient	1.000	-.578**	-.324**	.694**
		Sig. (2tailed)	.	.000	.000	.000
		N	306	306	306	306
	Sf12 Physical Component scale PCS	Correlation Coefficient	-.578**	1.000	.122*	-.405**
		Sig. (2tailed)	.000	.	.033	.000
		N	306	306	306	306
	Sf12 Mental Component Scale MCS	Correlation Coefficient	-.324**	.122*	1.000	-.224**
		Sig. (2tailed)	.000	.033	.	.000
		N	306	306	306	306
	Pain Intensity	Correlation Coefficient	.694**	-.405**	-.224**	1.000
		Sig. (2tailed)	.000	.000	.000	.
		N	306	306	306	306

Correlation is significant at the 0.01 level (2-tailed).
Correlation is significant at the 0.05 level (2-tailed).

Discussion

Our study aims to find the association between neck disability and quality of life (QOL) within post-graduate residents of tertiary-care hospitals in Peshawar. We collected data from two tertiary-care hospitals in Peshawar, one from lady reading hospital (LRH) and other from Hayatabad medical complex (HMC). Our study participants were working residents about 306 in which (n=87. 61.1%) were male and (n=119 .38.9%) were females. The response was from house officers (HO's) and training medical officers (TMO's).The mean disability of residents was 16.57 with (SD 13.15). Our study finds significant association (P-value =0.000) between neck disability and its effect on quality of life of doctors in Peshawar. As most of the population were in mild and moderate category with increasing disability due to neck discomfort leading to disturbed physical and mental quality of life.

A study on work related neck pain in spine surgeons with sample size of 411. The states that neck pain is the main reason of increased disability and impact on daily life activities. Using modified Nordic questionnaire and neck disability index. Logistic regression analysis was done to identify significant predictors of neck pain. Significance was at $P < 0.05$. About neck disability index more than one half (52.8%) experienced neck pain of mild, moderate and severe category leading to disturb quality of life. 17.5% surgeons stops their work due to neck pain (Abolfotouh *et al.*, 2024).

Our study finds that out of 306 participants, female residents (56.3%) were more pain positive than males (44.3%). The age wise distribution age 25-30 years (49.1%) were more pain positive than latter group (48.4%). At last house-officers were more pain positive than training medical officers. Also, HMC residents had more pain responses than LRH. It indicates that young doctors were more prone to neck pain and leading to neck disability and poor quality of life.

A study on musculoskeletal disorder in young doctors in Tunisia 147 interns and residents. Most participants were interns and 1st-year residents (53.7% and 19.7%). Neck pain was reported by most of the population. The study showed that neck pain (39.5%) recorded from previous year and 16% reported during the past 03 weeks followed by upper back pain 24.3%.The higher physical strain was associated with frequent musculoskeletal pain during the previous week ($p<0.01$) and prior musculoskeletal pain was associated with previous year complain ($p<0.01$) (El-Shormilisy *et al.*, 2015).

Our study concluded that female gender is higher on disability score and from that disability leading to disturbed and poor quality of life in physical and mental both components. It is clear from various studies that females are more prone to affect from acute and chronic neck conditions and female are more to report pain in multiple sites (Mills *et al.*, 2019). Literature shows that females have maladaptive to pain and thus have high level of functional disabilities (Palacios-Ceña *et al.*, 2021). A study conducted in Spain shows that female gender is associated with high levels of neck pain, low back pain and migraine (Palacios-Ceña *et al.*, 2021).

Our study had found that age 21-30 years have more disability than age 31-35 years which show that young doctors are at high risk of developing neck conditions. As with increasing disability due to neck pain their quality of life is affected at physical and mental level. While age 25-30 were affected in mental conditions due to neck disability. On the other side there is a slight difference in that on physical component of quality of life there are more positive in age group of 31-35 years. It describes that with age people are more affected in physical domain.
Our study finds that job level and high demand job can also lead to disability in daily life. Our study participants were residents which included house officers and training medical officers. Our study finds that disabilities due to neck have high effect on house officers. As well as physical component of sf12 quality of life was poor in-house officers.
Otherwise to these mental components was poor in training medical officers.
A study in Australia with survey of 12,252 participants showed that prolonged working hours and workload of 50.1 hours per week can lead to certain mental disorders and leading to inability of doctors to progress their profession. One in four junior doctors with such working hours can double their risk of mental disorders. They acknowledged that management of working hours can somehow decrease the incidence of such problems (Petrie *et al.*, 2020).
We concluded from this study that in Peshawar the high disability score was recorded from Hayatabad medical complex. In comparison lady reading hospital was slightly good. As neck disability score was high it affects the doctor's quality of life in both physical and mental component.
A study done in western Rajasthan about MSK disorders in doctors and nursing staff due to overstrained healthcare system. This study concluded about the risk factors which are working in the same positions for extended period of time, lifting and examination of bedbound patients, working, sitting in awkward position, not having enough rest time and treating more and more patents everyday (Mahajan *et al.*, 2023).
A study done at Singapore with sample size of 626 on neck pain and its impact on quality of life using EQ5D questionnaire and Neck Disability Index (NDI). Female sex was the only significant risk factor for neck pain on multivariate analysis, with a risk ratio of 1.34 (95% confidence interval [CI] 1.00–1.80, P = 0.049). Individual with neck pain having high NDI score seen with increasing pain duration and intensity ($p<0.001$ and $p=0.002$).those with neck pain had poor QOL with lower EQ5D (Hey *et al.*, 2021).
A study conducted in Japan in 2021 with the emphasis on impact of neck and shoulder pain on health-related quality of life using SF-36 they concluded that positive on neck and shoulder pain were young adults. Those participants having neck issues having lower score on SF-36 physical and mental score (Machino *et al.*, 2021).
There is both negative correlation (-.578), (-.324) which presents between neck disability index and sf 12 physical and mental component scales. This shows that with increasing neck disability leading to poor quality of life in physical and mental components. This correlation is significant at the value at 0.01.
There is strong positive correlation (.694) between pain intensity with NDI indicating high level of pain is related to higher disability score.
There is negative correlation (-.405), (-.224) of pain intensity with SF-12 which explain that with increased pain intensity leading to poor quality of life in participants.
There is correlation between SF-12 physical component (PCS) in neck disability score with reading, lifting, work, driving, concentration and recreation. There is also correlation between SF-12 mental component (MCS) with of sleep and work.
A study in Korea has concluded that PCS from SF-36 was negatively correlated with VAS pain and NDI. It concluded that neck and shoulder pain related disability can negatively affect quality of life (Jeon *et al.*, 2016).

CONCLUSION

Our study revealed that neck related conditions can cause disability in young residents working in tertiary-care hospitals in Peshawar. The findings are that young residents of age 25-30 were more affected by mild and moderate disabilities. According to our research, female residents are more likely to experience disabilities than males and leading to poor physical and mental health. According to our data house officers who are in the first year of experience in a demanding environment and high-study during their house job were more prone to disabilities and poor quality of life than senior doctors. At last, our study shows that different tertiary-care hospitals have different workload and responsibilities. So, Hayatabad medical complex residents are more prone to disabilities and poor quality of life. So, the study came up with the conclusion that there is significant association between neck disability index and quality of life in residents. As the neck disability increases the quality of life decreasing to poor level. Therefore, in order to lessen the risk of disabilities and improve quality of life, measures should be taken to lessen disabilities and improve their quality of life.

Limitations

A limitation of our study is that we did not collect data from all tertiary and teaching hospitals in Peshawar. Other than that, our sample size was small in comparison to literature. The distribution of designation and age was unequal leading to affect the results. The study was only descriptive measurement. Longitudinal studies needed to be conducted for deep insight into risk factors over time and for assessment of disabilities and improving quality of life.

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