

PREDICAMENTS OF PROSTHETISTS & ORTHOTISTS IN PAKISTAN

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ABSTRACT

Objective: To find out the level of anxiety, depression and stress and its association with quality of life of Prosthetists and Orthotists.

Study Design: Cross sectional study.

Place and Duration of Study: Rehabilitation departments and institutes including Pakistan Institute of Prosthetic and Orthotic Sciences, Peshawar; King Edward Medical University, Lahore; Dow Medical University, Karachi; Rawalpindi Medical College, Rawalpindi; and Prosthetists and Orthotists working in public and private sectors, over a period of 6 months from Jun 2018 to Nov 2018.

Methodology: A sample of 250 Prosthetists and Orthotists of both genders, aged 20 to 60 years, were recruited using non probability purposive sampling. Those working in administrative posts and those who graduated after 2017 were excluded. Demographic sheet; Depression, Anxiety and Stress Scale-21; and 36-Item Short Form Health Survey-36 were administered through e-mail for data collection. Statistical analysis was done using SPSS Version-21. Pearson correlation test was used to analyze any association.

Results: Results revealed prevalence of 139 (55.6%) for depression with predominance of moderate depression 63 (45.32%), followed by mild 37 (26.62%), severe 24 (17.37%) and very severe depression 15 (10.79%); 154 (61.6%) for anxiety with predominance of severe level of anxiety 59 (38.31%), followed by moderate 48 (31.17%), mild 26 (16.88%), & severe anxiety 21 (13.64%); and 115 (46%) for stress with predominance of moderate stress 55 (47.82%), followed by mild 30 (26.10%), severe 20 (17.39%) and very severe stress 10 (8.69%). For quality of life SF-36 revealed a total mean score of 62.54 ± 16.72 and statistically significant relationship between anxiety, depression and stress and between Anxiety, Depression & Stress and Quality of life was observed.

Conclusion: The study concludes that Anxiety was more prevalent followed by depression and stress. Anxiety, depression and stress have statistically significant relationship with each other and the quality of life of Prosthetists and Orthotists.

Keywords: Anxiety, Depression, Prosthetists and orthotists, Quality of life, Stress.

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INTRODUCTION

Orthotics and prosthetics is a rapidly emerging field in developing countries like Pakistan. This being essential for rehabilitation of physically impaired especially persons with amputation (PWA) due to a high regional prevalence of amputees associated with trauma especially landmines¹, road traffic accidents, war on terror², polio and cerebral palsy. Since Prosthetists and Orthotists (PO) are involved in assessment, prescription, designing, manufacturing and fitting of orthosis and prosthesis, hence they also face a variety of problems³, including physical and environmental hazards⁴, and may also be facing

Anxiety, Depression and Stress (ADS) in the same way as other health care professionals⁵.

Depression is a mental disorder characterized by loss of interest and pleasure, decreased energy, feelings of guilt or low self-worth, disturbed sleep and/or appetite, and poor concentration⁶. Its hallmark indicator includes one or more depressive episodes comprised of minimum of 2 weeks of either depressed mood or detachment from activities, and can lead to chronicity with suicidal tendencies and is the 4th leading contributor to the global burden of disease⁷. Depression can be caused by anxiety and stress. In an anxiety disorders, a stimulus produces a disproportionate anxious reaction causing intense distress or impairment of functioning⁸. Stress is considered as an interaction between a person and any demand

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placed on him in the environment or a mismatch between the individual and work etc⁹. This usually occurs in stressful situation, where the demand of situation exceeds the ability of individual to deal with it. While Quality of life (QOL) is the perception of the individual regarding their position in life in context of value system and culture, including their concerns, goals, standards and perspectives¹⁰. It is assumed that QOL can be affected by several factors, including stress.

Orthotics and prosthetics is a rapidly emerging field with little awareness about the profession among public regarding the dire need for PO's in active rehabilitation and management process in spite of high prevalence of amputees in developing countries like Pakistan. The PO's as professionals are also ignored and their speciality not given due status leading to scarcity of job opportunities which can result in stress, anxiety and depression among them. ADS level has been studied in several health and allied health care professionals but no study in the field of PO has been carried out especially in Pakistan. Hence this study was conducted to find out the level of anxiety, depression and stress and its association with QOLof PO's.

Therefore the current study is important since it will provide reliable statistical data regarding depression, anxiety and stress and QOL of PO's and help plan effective coping strategies and for research purposes.

METHODOLOGY

This cross sectional study using non probability purposive sampling recruited a sample of 250 Prosthetists and Orthotists from all over Pakistan including rehabilitation departments and institutes including Pakistan Institute of Prosthetic and Orthotic Sciences Peshawar, King Edward Medical University, Lahore, Dow Medical University Karachi, Rawalpindi Medical College, Rawalpindi; and also the PO's working in different physical rehabilitation set ups in both public and private sectors. Study was conducted over a period of 6 months from June 2018 to November 2018. Study population was calculated

as 267, using Raosoft software with confidence level of 90%, margin of error 5, and population of 20000 with 50% response distribution. These included of both genders aged 20 to 60 years. POs who did not fill the questionnaire properly and those who graduated after 2017 were excluded from the study. Study was started after obtaining ethics approval of Institutional Research Committee vide IERB No 1609-P&O-020 and consent of participants.

After collecting demographic detail, valid tools including DASS-21¹¹ (Depression, Anxiety & Stress Scale-21) was used to assess the level of ADS and for assessment of QOL, 36-Item Short Form Survey (SF-36)¹² was used to collect data from PO's. DASS-21 includes three self-report scales to measure depression, anxiety and stress with each containing 7 items. The depression component assesses dysphoria, hopelessness, life devaluation, self-deprecation, lack of interest, while the anxiety component assesses arousal of autonomic system, effects on skeletal muscle, situational anxiety, and subjective experience of anxious affect. The stress component assesses difficulty relaxing, nervous arousal, and being easily upset/agitated, irritable/over-reactive and impatient. Scores were calculated by summing the scores for the relevant items. SF-36 is a medical outcome study short form and assesses health-related QOL using 8 domains including physical or mental functioning, which can be summarized into a composite score with minimum score of 0 and maximum score 100. The mean score of general population is taken as 50 ± 10 , with higher score indicating better health status and QOL.

The questionnaires were administered on the sample population through email after delivering guidelines through telephonic conversation and explanation of queries where necessary. This included basic demographic sheet, DASS 21 and SF 36 scales.

After data collection and tabulation using Microsoft Excel Worksheet it was analyzed statistically using Statistical Package for Social Studies (SPSS) version-21. The descriptive variables were

presented as frequency and percentage, while the Scale score were presented as mean and standard deviation. To find association between ADS and quality of life of Orthotists and Prosthetists, Pearson correlation was utilized. Comparison of the data of the current study was done with national and international literature and deductions were made.

RESULTS

Our study population comprised of N=250 prosthetists and orthotists including 128 (51.2%) males and 122 (48.8%) females with male: female ratio of 1.04: 1. Majority of participants i.e. 207 (82.8%) were in 21-30 years age group, with 133 (3.2%) being unmarried (table-I).

Table-I: Demographic data of study population (n=250).

Demographic Profile	n (%)	
Age (Years)	21-30	207 (82.8)
	31-40	31 (12.4)
	41-50	11 (4.4)
	51-60	1 (0.4)
Gender	Male	128 (51.2)
	Female	122 (48.8)

Current study (table-II) revealed a high prevalence of 139 (55.6%) for depression, 154 (61.6%) for anxiety and 115 (46%) for stress. Majority i.e. 63 (45.32%) of PO's with depression had moderate depression followed by mild depression in 37 (26.62%). Of those with anxiety majority i.e., 59 (38.31%) had very severe and 48 (31.17%) had

Table-II: Prevalence of depression, anxiety and stress among po's (n=250).

	Unaffected Pos n (%)	Affected Pos, n (%)			
		Mild	Moderate	Severe	Very Severe
Depression	111 (44.40)	37 (26.62)	63 (45.32)	24 (17.37)	15 (10.79)
Anxiety	96 (38.40)	26 (16.88)	48 (31.17)	21 (13.64)	59 (38.31)
Stress	135 (54.00)	30 (26.10)	55 (47.82)	20 (17.39)	10 (8.69)

moderate anxiety. Those PO's suffering from stress, majority i.e., 55 (47.82%) had moderate and 30 (26.10%) had mild stress.

Table-III, showed the results in case of DASS-21 (table-III), where a high mean score of 14.06 ± 9.67 was noted for stress, 11.88 ± 9.21 for depression and 11.66 ± 9.67 for Anxiety and the SF-36 depicting the quality of life (QOL), showed

a total mean score of 62.54 ± 16.72 . The highest score (71.70 ± 22.94) was noted for physical functioning and lowest score (57.80 ± 35.91) for role limitation due to physical problems. Pearson correlation was significant among DASS-21 as well as with all the variables of SF-36 and also among the variables of both scales correlation was significant (table-IV).

DISCUSSION

The findings of the current study showed that depression, anxiety and stress was significant among PO's. The highest prevalence was noted for anxiety (61.6%) followed by depression (55.6%), and stress (46%) in decreasing order of frequency. Similarly, Syed *et al.* In their study conducted in the province of Sindh also reported nearly similar result in undergraduate Physiotherapy students with level of anxiety and depression being 68.54% and 48.0% respectively¹³. However in contrast in a Malaysian study by Yahaya *et al.* The prevalence of anxiety, depression and stress were low with values of 28.6%, 10.7% and 7.9% respectively, though the value of anxiety was much higher than depression¹⁴, like in our study. Also in a Karachi based on campus study involving medical and dental students by Rehmani *et al.*, reported that the whole sample was highly stressed with depression and anxiety. The probable reason of this might be examination pressure, family expectations and being away from family¹⁵. Also in a study by Halder *et al.*

Involving medical and allied medical professionals at Kolkata in which General Health Questionnaire and Professional Life Stress Scale were used revealed predominance of psychological stress with technicians and nurses having severe stress compared to other professionals¹⁶, however the sample of population studied was small (50) compared to our study which catered to a large

sample of PO's. Harris *et al*, in their study involving allied health professionals, doctors, nurses

they found low monthly income and having no hobby as statistically significant risk factors¹⁸.

Table-III: Descriptive statistics of depression, anxiety and stress scale-21 and short form health survey-36 scores (n=250).

Questionnaire		Mean ± SD
DASS-21	Depression	11.88 ± 9.21
	Anxiety	11.66 ± 9.67
	Stress	14.06 ± 9.67
SF-36 Domain & Total Score	Physical functioning	71.70 ± 22.94
	Role limitation due to physical health	57.80 ± 35.91
	Role limitation due to emotional problems	58.00 ± 14.07
	Energy/fatigue	59.70 ± 14.58
	Emotional well being	66.51 ± 18.24
	Social functioning	64.41 ± 23.81
	Pain	59.05 ± 23.58
	General health	63.18 ± 19.75
	SF-36 total	62.54 ± 16.72

With a high prevalence of depression in our study with a Mean score 11.88 ± 9.21, majority had moderate depression (45.32%), followed by mild depression (26.62%) and severe depression (17.37%). Varying results have been reported by a number of authors. In contrast in another local study on doctors by Atif *et al*. Using Hospital Anxiety Depression Score inventory a depression score of 4.94 ± 3.60 was reported with mild to moderate depression in 24.8% and severe depression in 1%¹⁹. The low prevalence of severe depression in their study on doctors could be due to job satisfaction compared to our study involving PO's. Also in another study Nqasa *et al*, in their Camaroon based study on medical students reported a prevalence of 30.6% (PHQ Score ≥10)

Table-IV: Correlation matrix showing pearson's coefficient for depression anxiety and stress scale-21 and quality of life (n=250).

Scale	Domain	DASS			SF-36								
		D	A	S	RP	PF	RE	VT	MH	SF	BP	GH	
DASS	D	-											
	A	0.74**	-										
	S	0.81**	0.79**	-									
SF-36	RP	-0.24**	-0.23**	-0.26**	-								
	PF	-0.39**	-0.42**	-0.37**	0.41**	-							
	RE	-0.29**	-0.25**	-0.36**	0.64**	0.23**	-						
	VT	-0.48**	-0.47**	-0.47**	0.21**	0.43**	0.29**	-					
	MH	-0.59**	-0.68**	-0.59**	0.23**	0.34**	0.16**	0.54**	-				
	SF	-0.47**	-0.37**	-0.50**	0.26**	0.31**	0.35**	0.25**	0.42**	-			
	BP	-0.33**	-0.33**	-0.34**	0.29**	0.43**	0.34**	0.47**	0.32**	0.32**	-		
	GH	-0.50**	-0.50**	-0.53**	0.23**	0.45**	0.24**	0.57**	0.58**	0.37**	0.43**	-	
	SF Total	-0.57**	-0.55**	-0.60**	0.72**	0.64**	0.73**	0.61**	0.58**	0.61**	0.65**	0.64**	

Note: D, depression; A, anxiety; S, stress, RP, role limitation due to physical problems; PF, physical function; RE, role limitations due to emotional problems; SF, social function; GH, general health; VT, vitality/energy; BP, body pain; MH, mental health.

and managers reported depression, anxiety and stress levels which were quite similar for the different professions¹⁷, indicating that different factors may be involved. Also in a Turkish study by Erdur *et al*, involving emergency unit doctors the percentage of depression was 15.1% with score of 10.6 ± 6.5 and 14.6% were found to be suffering from anxiety with scores of 8.7 ± 8.2 and

with majority having mild (34.6%) followed by moderate (26.4%), moderate to severe (3.4%) and severe (0.80%) depression among medical students⁶. In this study also very low level of severe depression indicated some difference specialty wise compared to our study involving PO's, since prosthetics and orthotics is a new emerging specialty in this region and PO's as professionals

are also ignored and their specialty not given due status leading to scarcity of job opportunities which results in stress, anxiety and depression among them. Also low monthly income and having no hobby may be the other factors involved as in the case of study by Erdur *et al*¹⁸.

Current study revealed a high prevalence of anxiety with an Anxiety score of 11.66 ± 9.67 with majority (38.31%) having very severe anxiety, followed by moderate anxiety (31.17%). In contrast another local study on doctors using Hospital Anxiety Depression Score (HADS) inventory reported a score of 7.04 ± 4.47 with maximum score being 19, with mild to moderate anxiety in 34% and only 7.2% had severe anxiety¹⁹. This prevalence of very severe anxiety in our study again supports the fact that PO's in the region are facing more problems and anxiety.

In present study prevalence of stress was 46% with stress score of 14.06 ± 9.67 , with majority (47.82%) suffering moderate stress followed by mild stress (26.10%). Similarly in a Karachi based study high level of stress was reported with more stressors in dental hygiene students compared to medical students¹⁵.

Current study also revealed a significant correlation among DASS-21 with all the variables of SF-36 and also among the variables of both scales. In another survey by Li *et al*. Involving doctors and nurses working in emergency department revealed that they faced more negatively life events in normal life routine. And these negatively life events increase level of depression and anxiety and hence decreasing their quality of life²⁰.

CONCLUSIONS

Anxiety, Depression and Stress was found prevalent among prosthetists and orthotists, with Anxiety being more prevalent followed by depression and stress. Anxiety, depression and stress have statistically significant relationship with each other and the quality of life. Generally the QOL of POs was good.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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