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FREQUENCY OF PSYCHOLOGICAL ISSUES AND ASSOCIATED FACTORS AMONG ORTHOTIC AND PROSTHETIC DEVICE USERS ATTENDING REHABILITATION CENTRES IN MULTAN

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ABSTRACT

Primary objective of the current study was intended to investigate the frequency of psychological issues and assess their association with clinical, socioeconomic, sociodemographic and device related factors in prosthetic and orthotic device users attending selective rehabilitation centers of Multan, Punjab. A cross-sectional analytical study was carried out involving 100 prosthetic and orthotic device users seeking treatment at selective rehabilitation centers of Multan. Study depicted that out of 100 participants, 84% were having anxiety, 74% depression and 64% stress. The outcomes depicted that psychological symptoms may be significantly associated with clinical, sociodemographic, socioeconomic and device related factors. Regular mental health screening, patient awareness programs, referrals for further psychological assessment and follow ups along with provision of assistive device should be done where possible.

I. INTRODUCTION

Disability is a major public-health and rehabilitation concern because it can influence physical functioning, independence, psychological well-being, social relationships, education, employment and participation in community life. Modern rehabilitation is therefore not restricted to treating a physical impairment. Its broader purpose is to help a person achieve the highest possible level of functioning and participation within the person's environment. The World Health Organization (WHO) currently estimates that more than 1.3 billion people, approximately 16% of the global population, experience significant disability (WHO, 2021). The consequences of disability lie far beyond the existence of functional limitation and can affect nearly every single aspect of life of an individual involving physical and mental well-being, social inclusion, literacy, job opportunities and financial status. Disabled persons undergo significant health disparities relative to non-disabled persons, involving pronounced levels of disease burden, death ratio and functional limitations (Gréaux et al., 2023). These changes are not always due to health status but can be due to continuously changing environmental conditions and obstruction in healthcare system for example unavailable healthcare resources, insufficient transport facilities, language barriers, unwelcoming behavior of health professional, insufficient financial funds and confined existence of disable friendly services (Umucu et al., 2026). Disability defined by WHO as “collective term including functional impairment, restriction in daily activities and barriers in social participation depicting the negative influence of environmental and personal elements in common on well-being of an individual (Gutterman, 2023).

The definition puts stress on the fact that disability lie far beyond the existence of bodily impairment, sensory disability, cognitive impairment or psychological impairment. Alternatively, it signifies the integrated interplay between individual state of well-being and contextual influences including ecological, societal and individual factors which may either obstruct or promote functional involvement in routine life (WHO,2021). Disability is not only minimized by medical interventions. But in diminishing disability holistic rehabilitation, assistive devices, changes in environment and social inclusion strategies, which make it easy for person with disabilities to access and take part in social activities, play a pivotal role (Griffo, 2026). Moreover, family oriented, leisure and social activities become limited by disability. Daily activities which are seen as normal by overall community become difficult for disabled. Constraints in active participation are proved be significant contributing factors in disability associated disparities in health by previous studies. Further in assessment of mediational effects, it was reported that challenges faced by people with disabilities in acquiring jobs, in transport facilities, social and recreational activities act as significant causative factors to disparities in health in individuals who developed disability (Aitken et al., 2022). Disability is not determined only by a health condition; it results from the interaction between health conditions and personal, social and environmental factors. Consequently, rehabilitation and assistive technology are important components of a comprehensive health system rather than optional additions to medical care (Mishra et al., 2023). For many individuals, disability may arise from stroke, amputation, spinal cord injury, trauma, congenital conditions or chronic disease. These health-related conditions can cause restrictions in the course of self-care, mobility, social participation and communication.

The outcomes may extend far beyond the physical impairment. Alterations in body function, dependent behaviour, loss of job opportunities, financial burden, pain and altered body state can affect psychological well-being. WHO identifies disability, inequality and worse social conditions among factors that can elevate vulnerability to mental-health challenges (Thompson et al., 2026). Assistive technology refers to products, systems and services designed to maintain or improve functionality and independence. In rehabilitation, it is seen as multidimensional: a device can improve mobility while at the same time increasing a person's ability to take part in family, educational, occupational and community activities. Orthotic and prosthetic technologies are key components of assistive technology because they can compensate for impaired or lost functions and facilitate activities that might otherwise be difficult or impossible. The WHO recognizes orthoses and prostheses as necessary assistive devices that can help promote independence, dignity and attain education, employment opportunities and better social life (Wald, 2025). Psychological well-being is significant component of health. WHO defines psychological health as a condition of well-being that help dealing with the stresses of life, realization of abilities, learning, working and contribution to the community. Mental wellbeing is formed by individual, family, community and structural factors. People facing disability, poverty, inequality and other worse situations may go through greater vulnerability to mental-health conditions (Drake et al., 2012). Patients using prosthetic and orthotic devices may face a number of psychological responses as they adjust to disability, changes in physical performance and the requirements of device use. These experiences may be affected by discomfort or pain, dependence on other, reduced opportunities for employment and social participation, financial difficulties, negative social attitudes and concerns about future activities. In prosthetic rehabilitation, psychosocial adjustment may also involve difficulties related to body image, self-confidence, social interactions and adaptation to changes in mobility and daily activities (Atherton & Robertson, 2006).

Evidence from amputation-based research depicts a substantial psychological burden. A 2024 systematic review and meta-analysis involving 61 studies and 9,852 patients with limb amputation estimated a pooled frequency of depression 33.9%, although the researches were heterogeneous. The review also evaluated activity limitation, body-image concerns, social discomfort and avoidant coping strategies among factors connected with greater depressive symptoms, while perceived social support and active coping appeared protective (Singh et al., 2024). Access to proper assistive technology is a global issue. WHO documents that billions of people need one or more assistive devices and that access is considerably lower in many under developed and developing regions. Restrictions involve lack of trained staff, cost, procurement staff, availability, limited-service infrastructure and insufficient incorporation into health networks (Harniss et al., 2015). For orthotics and prosthetic devices, accessibility is more than obtaining a device. Users need proper examination, prescription, fabrication, fitting, training, maintenance and follow-up services. A supportive device may become useless if the user show noncompliance and cannot return for maintenance or repair. World health organization criteria highlight

affordable, quality assured and integrated orthotics and prosthetics services and the importance of trained and qualified staff (Bright et al., 2018). Successful rehabilitation is aimed at enabling people to beneficial and meaningful life roles; therefore, social participation is an important outcome of rehabilitation. Psychological challenges should therefore be understood within the social environment in which the patient reside (Visagie et al., 2017). Quality of life index is a multidimensional aspect and involves psychological, social, physical and environmental experiences. Orthotic and prosthetic rehabilitation can enhance quality of life when the device increases freedom of movement, participation and independence. However, tight or loose fit, pain, discomfort, limited activity and lack of access to follow-up services may reduce these benefits. Consequently, psychological well-being should be considered along with physical outcomes when assessing rehabilitation services (Abdulmohsen Ali Abdullah Alshahrani & Hussam Saeed Ali Aljohani, 2025). Psychosocial aspects are often ignored in rehabilitation programs. In Pakistan, especially Multan, South Punjab, insufficient data and lack of regular psychological screening is present due to shortage of staff and resources. Therefore, the aim of this study is to find out psychological distress among orthotic and prosthetic device users in Multan to formulate local evidence for improving the integrated rehabilitation care and patient outcomes.

An early review in Orthotics and Prosthetics International, covering its first 25 years, emphasized that effective rehabilitation requires focus not only to physical recovery but also to body image, coping strategies, social integration and psychological improvement (Desmond & MacLACHLAN, 2002). Recent literature has also focused on orthotic devices. Studies indicate that lower limb orthoses often do not meet users' functional and aesthetic requirements which result in dissatisfaction and psychological issues (Orlando et al., 2023). Furthermore, research assessing satisfaction with prosthetic devices has found out that pain, discomfort, and poor device fit are linked with low confidence and low quality of life, eventually affecting mental health conditions and rehabilitation outputs (DadeMatthews et al., 2024). Latest research moreover points out the part of socio-demographic and economic factors in formulating psychological health. Socioeconomic differences have been recognized as major stressors of mental health inequalities, with individuals from lower socioeconomic categories more likely to undergo psychological distress. The joint effect of socioeconomic condition and gender is specifically relevent, with women from economically disadvantaged backgrounds undergoing higher levels of psychological problems (Mirzaei-Alavijeh et al., 2025). Assuring this fact, global evidence depicts that individuals with disabilities undergo notably higher levels of mental distress, with symptoms such as depression, anxiety, and low self-esteem being considerably more prevalent in contrast to non-disabled populations (Koenig et al., 2024).

Furthermore, individuals with disabilities are at high risk of worse social conditions, including social isolation, violation and nutritional deficits. For instance, data from Iran indicates that children with disabilities have a 50% higher risk, and adults have 300% higher risk of experiencing violence (Piroozi et al., 2025), further deteriorating psychological distress. In the context of Pakistani population, studies highlight a particularly high burden of psychological issues in orthotic and prosthetic users. Cross-sectional research provided high frequency of anxiety (96.9%), depression (93%), and stress (84.4%) among prosthetic device users, along with compromised self-esteem (Muhammad Kamran et al., 2021). Additional studies have revealed presence of considerably higher levels of mental distress among women, often linked to cultural pressures, socioeconomic limitations, and limited availability of resources (Malik et al., 2025). Recent local research among prosthetic and orthotic device users explored that approximately 1/3 of participants suffered mild social anxiety, with higher levels observed among females and single individuals, supporting the significance of demographic factors in psychological outcomes (Amjad & Rafique, 2025). Recent research held among prosthetic device users provided strong evidence that mental health adjustment is linked with many personal and prosthesis-related issues. A review showed psychosocial adaptations in lower-limb amputees and figured out key predictors involving support from social groups, coping strategies, body image issues, and adaptations in limb loss as major factors of mental health adaptations (Horgan & MacLachlan, 2004).

Contemporary observational findings have continued to depict mental health difficulties in people with amputation who use prosthetic devices. A systematic review was conducted to find out the psychosocial and physical adaptations and satisfaction among amputees using prosthetic devices. This review reported body-image concerns, anxiety and depression in the psychological issues in this population. Importantly, this review also stated many factors linked to psychosocial adjustment, involving phantom and residual limb pain, employment status,

gender, and the duration a prosthetic device was used. Therefore, it was recommended that psychological adaptation should not be dealt separately from physical sign and symptoms and trial of using the prosthetic device (Luza et al., 2020). There is notable research gap in previous research work is presence of more evidence about prosthetic device users whereas relatively less work is available on orthotic device users. While studies where both prostheses and orthoses users are discussed, mental health outcomes like anxiety, depression and stress are not investigated together. The literature is also very limited in context of Pakistan while available evidences coming from rehabilitation centres of other provinces but not from south Punjab specifically Multan. The objectives of the current study are given below:

1. To determine the frequency of psychological issues in orthotic and prosthetic device users.
2. To find out the association between psychological issues and demographic, clinical and socioeconomic factors.

II. METHOD

Participants

A cross-sectional analytical approach was used. The study was conducted at Strides Healthcare, RTEH Muzaffargarh and Paraplegic Centre Multan, Pakistan. The target population for this study included all individual using orthotic and prosthetic devices in Multan, Pakistan, irrespective of age, gender, socioeconomic status or device type. Time span for the study was 4 months including ethical approval, recruitment, data collection and data entry, ensuring adequate time to collect responses from selected rehabilitation centres in Multan. The calculated sample size was approximately 100 participants. The participants were recruited on the basis of non-probability convenience sampling technique.

Measures

Data collection was done using standardized questionnaires. DASS-21 (depression anxiety stress scale) was used to evaluate anxiety, depression and stress. Other variables such as device use, comfort, pain, duration and user satisfaction were evaluated using QUEST 2.0 (Quebec User Evaluation of satisfaction with assistive technology) questionnaire.

Procedure

Data was collected from eligible participants using orthotic and prosthetic devices, attending strides healthcare, Recep Tayyip Erdogan Hospital and paraplegic centre Multan, Pakistan. Non probability convenience sampling technique was used till the achievement of needed sample size. Before data collection informed consent was secured from participants in written form. Questionnaires were administered in both English and Urdu according to preference of the participants language. Data entry and analysis was done using SPSS version 25. Purpose of the study was thoroughly informed to each participant. Participants were given the right to withdraw at any stage without any consequences. Confidentiality of the participant was maintained and collected data was used entirely for study purposes. A p-value <0.05 was considered statistically significant.

III. RESULTS

Table I: Sociodemographic and clinical characteristics (N=100)

Variable	Category	f	%
Gender	Male	58	58.0
	Female	42	42.0
Marital status	Single	22	22.0
	Married	66	66.0
	Divorced/Widowed	12	12.0
Education	Illiterate	40	40.0
	Primary	12	12.0
	Secondary	30	30.0
	Higher	18	18.0
Occupation	Employed	14	14.0
	Unemployed	66	66.0
	Student	14	14.0
	Retired	6	6.0
SES	Low	38	38.0
	Middle	60	60.0
	High	2	2.0
Area	Urban	62	62.0
	Rural	38	38.0

Table 1 shows the sociodemographic characteristics of the participants. Out of 100 participants, majority of participants were males 58 (58%) and females were only 42 (42%). Concerning marital status, 66 (66%) were married, 22 (22%) were single and 12 (12%) were divorced/widowed. Regarding education, 40 (40%) were illiterate, 12 (12%) had primary education, 30 (30%) had secondary and 18 (18%) had higher education. For occupation, majority 66 (66%) were unemployed, 14 (14%) were employed, 14 (14%) were students and 6 (6%) were retired. Regarding socioeconomic status of participants, 60 (60%) classified as middle class, 38 (38%) to low and only 2 (2%) to high SES. Majority of participants 62 (62%) belonged to urban area, on the other hand 38 (38%) were from rural area.

Table II: Clinical Characteristics (N=100)

Variable	Category	f	%
Disability cause	Trauma/Accident	36	36.0
	Diabetes	12	12.0
	Congenital	20	20.0
	Infection	8	8.0
	Other	24	24.0
Disability type	Upper limb	30	30.0
	Lower limb	58	58.0
	Congenital	4	4.0
	Spinal	8	8.0
Device type	Orthotic	56	56.0
	Prosthetic	44	44.0
Duration	Less than 6 months	20	20.0
	6 months	24	24.0
	1 year	40	40.0
	1-3 year	12	12.0
	More than 3 years	4	4.0

Table 2 depicts the clinical characteristics of the participants. Related to cause of disability, the major cause was trauma/accident in 36 (36%) of the participants, followed by diabetes 12(12%), congenital 20 (20%), infection 8 (8%) and other cause 24(24%). regarding type of disability, majority of participants had lower limb disability 58 (58%), followed by upper limb 30 (30%), spinal 8 (8%) and congenital 4 (4%). For device type, 56 (56%) were using orthotic devices and 44 (44%) were using prosthetic devices. Regarding duration of device use, 40 (40%) were using it for 1 year, 24 (24%) for 6 months, 20 (20%) for less than 6 months, 12 (12%) for 1-3 years and only 4 (4%) for more than 3 years.

Table III: DASS categories

Scales	*SD*	*M*	Range
Depression	Normal	26	26.0
	Mild	22	22.0
	Moderate	30	30.0
	Severe	8	8.0
	Extremely Severe	14	14.0
Anxiety	Normal	16	16.0
	Mild	4	4.0
	Moderate	28	28.0
	Severe	22	22.0
	Extremely Severe	30	30.0
Stress	Normal	36	36.0
	Mild	30	30.0
	Moderate	6	6.0
	Severe	24	24.0
	Extremely Severe	4	4.0

Out of 100 participants, 26% had normal depression scores, while 22% had mild depression, 30% had moderate depression, 8% had severe depression, and 14% had extremely severe depression. Overall, 74% of participants experienced some level of depressive symptoms. Concerning anxiety, 16% participants had normal anxiety scores, while 4% had mild anxiety, 28% had moderate anxiety, 22% had severe anxiety, and 30% had extremely severe anxiety. Overall, 84% participants experienced anxiety symptoms. Regarding stress, 36% participants had normal stress, while 30% had mild stress scores, 6% had moderate stress, 24% had severe stress, and 4% had extremely severe stress scores. On the whole, 64% of participants experienced some degree of stress.

Table IV: Descriptive Statistics of Study Variables

Variable	*Min*	*Max*	*M*	*SD*
Age	20	65	40.44	12.31
Depression	4.00	38.00	15.32	8.39
Anxiety	0.00	30.00	15.08	7.18
Stress	2.00	36.00	18.52	7.44
DASS total	14	92	48.92	17.00
QUEST total	32	60	50.96	7.78

Table 4 manifests the descriptive statistics for study participants. Mean age of the participants was 40.44±12.31 years and was ranging from 20-65 years of age. For psychological distress the mean score of depression was 15.32±8.39, for anxiety 15.08±7.18 and for stress was 18.52±7.44. DASS total mean score was 48.92±17.00, ranging from 14-92 and QUEST total mean score was 50.96±7.78, ranging from 32-60.

Table V: Association of Socio-Demographic and Clinical Variables with Depression Category (N=100)

Variables	Pearson Chi-Square (χ^2)	df	p-value	Significance
Age group	9.522	8	.300	Non-significant
Gender	8.332	4	.080	Non-significant
Marital status	23.62	8	.003	Significant
Education level	13.147	12	.358	Non-significant
Occupation	21.633	12	.042	Significant
SES	27.606	8	.001	Significant
Area of residence	4.021	4	.403	Non-significant
Disability cause	27.910	16	.032	Significant
Disability type	9.176	12	.688	Non-significant
Device type	9.373	4	.052	Non-significant
Duration of device use	30.228	16	.017	Significant

Note: $p < 0.05$ is considered statistically significant.

Table 4.5 shows that the chi-square test was performed to assess the association of sociodemographic and clinical variables with depression categories. The results depicted that among sociodemographic variables, marital status (χ^2=23.622, p=.003), occupation (χ^2=21.633, p=.042), and socioeconomic status (χ^2=27.606, p=.001) had a statistically significant association with depression. Age group, gender, education level, and area of residence were found to be non-significant (p>0.05). Among clinical variables, causes of disability (χ^2=27.910, p=.032) and duration of device use (χ^2=30.228, p=.017) were statistically significantly associated with depression, while type of disability and device type showed no significant association.

Table VI: Association of Socio-Demographic and Clinical Variables with Anxiety Category (N=100)

Variables	Pearson Chi Square (χ^2)	df	p-value	Significance
Age group	28.455	8	.000	Significant
Gender	1.535	4	.820	Non-significant
Marital status	23.876	8	.002	Significant
Education level	40.096	12	.000	Significant
Occupation	21.882	12	.039	Significant
SES	15.129	8	.057	Non-significant
Area of residence	9.712	4	.046	Significant
Disability cause	21.983	16	.144	Non-significant
Disability type	25.616	12	.012	Significant
Device type	10.232	4	.037	Significant
Duration of device use	46.662	16	.000	Significant

Table 6 depicts that the chi-square test revealed, among sociodemographic variables, age group (χ^2=28.455, p=.000), marital status (χ^2=23.876, p=.002), education level (χ^2=40.096, p=.000), occupation (χ^2=21.882, p=.039) and area of residence (χ^2=9.712, p=.046) were significantly associated with anxiety categories. Gender and socioeconomic status showed no significant association (p>0.05). Among clinical variables, type of disability (χ^2=25.616, p=.012), device type (χ^2=10.232, p=.037) and duration of device use (χ^2=46.662, p=.000) were significantly associated with anxiety, whereas causes of disability was found to be non-significant (p=.144).

Table VII: Association of Socio-Demographic and Clinical Variables with Stress Category (N=100)

Variables	Pearson Chi-Square(χ^2)	df	p-value	Significance
Age group	11.493	8	.175	Non-significant
Gender	5.446	4	.245	Non-significant
Marital status	13.981	8	.082	Non-significant
Education level	20.460	12	.059	Non-significant
Occupation	16.013	12	.191	Non-significant
SES	13.165	8	.106	Non-significant
Area of residence	5.112	4	.276	Non-significant
Disability cause	68.485	16	.000	Significant
Disability type	41.787	12	.000	Significant
Device type	24.784	4	.000	Significant
Duration of device use	18.139	16	.316	Non-significant

Table 7 shows that the chi-square test was performed for stress category, all sociodemographic variables including age group (χ^2=11.493, p=.175), gender (χ^2=5.446, p=.245), marital status (χ^2=13.981, p=.082), education level (χ^2=20.460, p=.059), occupation (χ^2=16.013, p=.191), socioeconomic status (χ^2=13.165, p=.106) and area of residence (χ^2=5.112, p=.276) were found to be non-significant (p>0.05). Among clinical variables, type of disability (χ^2=41.787, p=.000), causes of disability (χ^2=68.485, p=.000) and device type (χ^2=24.784, p=.000) showed a statistically significant association with stress categories, while duration of device use (χ^2=18.139, p=.316) was non-significant.

Table VIII: Pearson correlation between DASS and QUEST scores (N=100)

Variables	1	2	3	4	*5*
1. Depression	--	.420**	.360**	.828**	-.281**
2. Anxiety		--	.151	.696**	-.124
3. Stress			--	.679**	.058
4. DASS total				--	-.166
5. QUEST total					--

***p*< .01

Table 8 shows that Pearson correlation coefficient was applied to assess the relationship between DASS (Depression, Anxiety, Stress) and QUEST scores. The results showed a significant positive moderate correlation between depression and anxiety (r = .420, p < .01), and depression and stress (r = .360, p < .01). Anxiety and stress showed a weak positive non-significant correlation (r = .151, p = .133). DASS total score was significantly strongly correlated with depression (r = .828, p < .01), anxiety (r = .696, p < .01) and stress (r = .679, p < .01). Regarding QUEST total score showed a significant negative weak correlation with depression (r = -.281, p = .005), indicating that higher depression is associated with lower satisfaction with assistive devices. QUEST total showed non-significant negative correlation with anxiety (r = -.124, p = .218) and DASS total (r = -.166, p = .099), and non-significant positive correlation with stress (r = .058, p = .569).

IV.DISCUSSION

100 participants were included in the study among which female were 42% and male were 58%. The current study not merely focuses on the limb loss but gives a broader picture of both prosthetic and orthotic device users. Earlier study has assessed mental health adaptation after limb loss and use of prosthetic device (Atherton & Robertson, 2006; Horgan & MacLachlan, 2004; Luza et al., 2020), while Orlando et al. (2023) reported perception of lower limb orthotic device user. Therefore, the current research is more focused on the data available locally on mental health symptoms on both orthotic and prosthetic device users. The most commonly occurring psychological outcome was found to be anxiety with 84% participants affected by it, while 74% participants got affected by depression 64% by stress. Most frequently happening category of depression was moderate depression 30%. On

the other hand, most frequently occurring category of anxiety was extremely severe category 30%. Mild category (30%) symptoms for stress were most commonly present. These findings suggested that mental health symptoms were most common in participants going to selective rehabilitation centers. A study conducted on 400 prosthetic device users revealed that these users suffered from stress in 84.4% of participants, depression in 93.4% of participants and anxiety in 96.9% of participants (Kamran et al. 2021).

In the current study, significant association of depression with socioeconomic status (p=.001), duration of device use (p=.017), cause of disability (p=.032), marital status (p=.003) and occupation (p=.042) was also found. The association of depression with unemployment is particularly relevant because unemployment invites many financial challenges resulting in restricted social inclusion and limited independence. The finding of socioeconomic status also highlights the significant relevance of economic challenges with mental health. Significant association of anxiety with duration of device use (p<.001), type of device (p=.037), type of disability (p=.012), area of residence (p=.046), occupation (p=.039), education (p < .001), marital status and age group (p < .001) was also established. These findings indicate that anxiety categories differed across many demographic and clinical characteristics. Association of anxiety with lower educational level and less job opportunities in individuals with limb loss was also found by (Saleh et al. 2024). A moderate positive relation was established between anxiety and depression (r = .420, p < .001) in correlation analysis and also a positive correlation between stress and depression (r = .360, p < .001). The association between stress and anxiety was non-significant (r = .151, p = .133). These findings suggest that elevated levels of depression occurred with elevated levels of stress and anxiety. The average of QUEST score was 50.96 with standard deviation value 7.78. there was a weak negative correlation between device satisfaction and depression, indicating that individuals who were more satisfied with their device had lower levels of depression as long as higher QUEST score mean greater satisfaction with assistive device as guided by the scoring method. Correlation between QUEST score, anxiety (r = −.124, p = .218), stress (r = .058, p = .569) and total DASS score (r = −.166, p = .099) was found to be non-significant.

It was reported by (Saleh et al., 2024) that poor adaptation and less satisfaction with prosthetic device led to higher levels of anxiety and depression (Matthews et al. 2024) also documented connection between satisfaction with prosthetic device, mobility status and health regarding quality-of-life index. These researches identify the relevancy of individuals experience with supportive devices, even though, their scales and study population varied from current study. The findings of the current study propose a particular association between depression and satisfaction with assistive device. The current study provides locally available evidence regarding psychological outcomes in orthotic and prosthetic device users. On the whole, the findings suggest that depression, anxiety and stress should be given more attention in prosthetic and orthotic device users attending rehabilitation centres in Multan. The factor related to every outcome varied, and the satisfaction with device has a statistically significant relation only with depression among the assessed mental health outcomes. Therefore, null hypothesis, for associations that were statistically significant, was rejected but not rejected for non-significant associations. These findings are suggestive of a holistic rehabilitation strategy which include psychological health together with social and device related requirements.

V. CONCLUSION

There was statistically significant association of depression with duration of device use, cause of disability, socioeconomic status, occupation and marital status. Anxiety was significantly related to duration of device use, type of device, type of disability, area of residence, occupation, level of education, marital status and age. Depression was analysed to have positive correlation with anxiety positively correlated with stress and anxiety, on the other hand, depression depicted weak negative correlation with device satisfaction but non-significant correlation with stress and anxiety. These key outcomes demonstrate the significance of incorporation psychological health into prosthetic and orthotic rehabilitation together with mobility measures and provision of device. Early psychological assessment, referral pathways and personalized follow up services can further help ensure appropriate care.

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VI.REFERENCES

Aitken, Z., Bishop, G. M., Disney, G., Emerson, E., & Kavanagh, A. M. (2022). Disability-related inequalities in health and well-being are mediated by barriers to participation faced by people with disability. A causal mediation analysis. *Social Science & Medicine*, *315*, 115500. https://doi.org/10.1016/j.socscimed.2022.115500

Abdulmohsen Ali Abdullah Alshahrani, A. A. H. A., & Hussam Saeed Ali Aljohani, A. S. M. A. (2025). The Role Of Prosthetics And Orthotics In Enhancing Mobility And Quality Of Life: A Comprehensive Review. *The Review of Diabetic Studies*, 21–32. https://doi.org/10.70082/810c3612

Atherton, R., & Robertson, N. (2006). Psychological adjustment to lower limb amputation amongst prosthesis users. *Disability and Rehabilitation*, *28*(19), 1201–1209. https://doi.org/10.1080/09638280600551674

Bright, T., Wallace, S., & Kuper, H. (2018). A Systematic Review of Access to Rehabilitation for People with Disabilities in Low- and Middle-Income Countries. *International Journal of Environmental Research and Public Health*, *15*(10), 2165. https://doi.org/10.3390/ijerph15102165

Drake, R. E., Bond, G. R., Thornicroft, G., Knapp, M., & Goldman, H. H. (2012). Mental Health Disability: An International Perspective. *Journal of Disability Policy Studies*, *23*(2), 110–120. https://doi.org/10.1177/1044207311427403

Desmond, D., & MacLachlan, M. (2002). Psychological issues in prosthetic and orthotic practice: A 25 year review of psychology in Prosthetics and Orthotics International. *Prosthetics and Orthotics International*, *26*(3), 182–188. https://doi.org/10.1080/03093640208726646

DadeMatthews, O. O., Roper, J. A., Vazquez, A., Shannon, D. M., & Sefton, J. M. (2024). Prosthetic device and service satisfaction, quality of life, and functional performance in lower limb prosthesis clients. *Prosthetics and Orthotics International*, *48*(4), 422–430. https://doi.org/10.1097/PXR.0000000000000285

Gréaux, M., Moro, M. F., Kamenov, K., Russell, A. M., Barrett, D., & Cieza, A. (2023). Health equity for persons with disabilities: A global scoping review on barriers and interventions in healthcare services. *International Journal for Equity in Health*, *22*(1), 236. https://doi.org/10.1186/s12939-023-02035-w

Griffo, G. (2026). Habilitation and assistive devices for persons with disabilities: A new approach to respect for human rights and inclusion. *Frontiers in Rehabilitation Sciences*, *7*. https://doi.org/10.3389/fresc.2026.1783746

Gutterman, A. S. (2023). *Definitions and Models of Disability* (SSRN Scholarly Paper No. 4500074). Social Science Research Network. https://doi.org/10.2139/ssrn.4500074

Harniss, M., Samant Raja, D., & Matter, R. (2015). Assistive technology access and service delivery in resource-limited environments: Introduction to a special issue of Disability and Rehabilitation: Assistive Technology. *Disability and Rehabilitation: Assistive Technology*, *10*(4), 267–270. https://doi.org/10.3109/17483107.2015.1039607

Horgan, O., & MacLachlan, M. (2004). Psychosocial adjustment to lower-limb amputation: A review. *Disability and Rehabilitation*, *26*(14–15), 837–850. https://doi.org/10.1080/09638280410001708869

Koenig, J., McLean, K. J., & Bishop, L. (2024). Psychological distress and mental health diagnoses in adults by disability and functional difficulty status: Findings from the 2021 national health interview survey. *Disability and Health Journal*, *17*(4), 101641. https://doi.org/10.1016/j.dhjo.2024.101641

Luza, L. P., Ferreira, E. G., Minsky, R. C., Pires, G. K. W., & da Silva, R. (2020). Psychosocial and physical adjustments and prosthesis satisfaction in amputees: A systematic review of observational studies. *Disability and Rehabilitation: Assistive Technology*, *15*(5), 582–589. https://doi.org/10.1080/17483107.2019.1602853

Mishra, S., Rotarou, E. S., Peterson, C. B., Sakellariou, D., & Muscat, N. A. (2023). The WHO European framework for action to achieve the highest attainable standard of health for persons with disabilities 2022–2030. *The Lancet Regional Health – Europe*, *25*. https://doi.org/10.1016/j.lanepe.2022.100555

Malik, M., Rehman, H., Hussain, A., Hashmi, A., Al-Sunaidar, K. A., Balogh, G., Gajdács, M., & Jamshed, S. (2025). Psychological Burden and Coping Strategies Among Pakistani Adults: A Cross-Sectional Survey Study. *Epidemiologia*, *6*(3), 30. https://doi.org/10.3390/epidemiologia6030030

Mirzaei-Alavijeh, M., Najafi, F., Veis, R. G., Moradinazar, M., Farasati, F., & Jalilian, F. (2025). Psychological distress and its association with gender, socioeconomic status, education and health conditions. *Scientific Reports*, *15*(1), 29142. https://doi.org/10.1038/s41598-025-14848-6

Muhammad Kamran, M., Nazia Mumtaz, D., & Ghulam Saqulain, D. (2021). Amalgamation of self-esteem, depression, anxiety and stress among prosthesis users. *Journal of the Pakistan Medical Association*, 1–13. https://doi.org/10.47391/JPMA.872

Orlando, J. M., Li, B., Bodt, B., & Lobo, M. A. (2023). Users' Perceptions About Lower Extremity Orthotic Devices: A Systematic Review. *Archives of Physical Medicine and Rehabilitation*, *104*(4), 645–655. https://doi.org/10.1016/j.apmr.2022.10.010

Piroozi, B., Adnan Saeed, B., Shokri, A., Safari, H., Moradpour, F., Zokaei, M., Qaderi Bagajan, K., Mohamadi-Bolbanabad, A., & Zarezadeh, Y. (2025). Prevalence of Mental Disorders Suspicion among Adults with Disabilities and Socioeconomic Inequalities in West of Iran. *Medical Journal of the Islamic Republic of Iran*, *39*, 25. https://doi.org/10.47176/mjiri.39.25

Singh, S., Saini, R., Mathur, R., Sarkar, S., & Sagar, R. (2024). The prevalence of depression in people following limb amputation: A systematic review and meta-analysis. *Journal of Psychosomatic Research*, *181*, 111677. https://doi.org/10.1016/j.jpsychores.2024.111677

Saleh, N. E. H., Hamiye, F., Summaka, M., Zein, H., El Mazbouh, R., & Naim, I. (2024). Depression and Anxiety Symptoms Among Lebanese Lower Limb Traumatic Amputees: Association with Education, Employment, Adjustment to Amputation and Prosthesis Satisfaction. *Psychiatry*, *87*(1), 51–64. https://doi.org/10.1080/00332747.2023.2286880

Thompson, S., Rohwerder, B., Walsh, C., & Sekar, G. (2026). Building Disability-Inclusive Futures. *IDS Bulletin*, *57*(1). https://doi.org/10.19088/1968-2026.150

Umucu, E., Lee, B., Vernon, A., Rfat, M., Kamenov, K., & Gréaux, M. (2026). Inclusive Digital Health Strategies for Persons with Disabilities: A Scoping Review. *JAMA Network Open*, *9*(9), e2633867. https://doi.org/10.1001/jamanetworkopen.2026.33867

Visagie, S., Eide, A. H., Mannan, H., Schneider, M., Swartz, L., Mji, G., Munthali, A., Khogali, M., van Rooy, G., Hem, K.-G., & MacLachlan, M. (2017). A description of assistive technology sources, services and outcomes of use in a number of African settings. *Disability and Rehabilitation: Assistive Technology*, *12*(7), 705–712. https://doi.org/10.1080/17483107.2016.1244293

Wald, M. (2025, June 23). *Disability technology: How data and digital assistive technologies can support independent, fulfilled lives* [Monograph]. The Royal Society. https://eprints.soton.ac.uk/id/eprint/503589/

WHO 2021 disability population estimates—Google Scholar. (n.d.). Retrieved October 11, 2026, from https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=WHO+2021+disability+population+estimates&oq=