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Association Between Perceived Social Support, Self-Esteem And Quality Of Life Among Individuals With Major Lower Limb Amputation Due To Diabetes Admitted At Tertiary Care Hospitals Peshawar

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Abstract

Background: *Diabetes is a significant threat to global health, and its consequences, such as lower limb amputation significantly impact individuals' quality of life (QoL). This study looks at the association between perceived social support, self-esteem, and QoL in people who have had major lower limb amputations because of diabetes in Peshawar, Pakistan.*

Method: *A correlational study design was used at three tertiary care hospitals in Peshawar i.e; Khyber Teaching facilities (KTH), Hayatabad Medical Complex (HMC), and Lady Reading Hospital (LRH). 174 participants were recruited using a convenient sampling strategy. Data was collected using an adopted questionnaire that consisted of four parts: Part A involved demographic information; Part B consisted of 12 items regarding perceived social [1]support and was measured via the Multidimensional Scale of Perceived Social Support; Part C comprised 10 questions related to self-esteem and was evaluated using the Rosenberg Self-Esteem Scale; and Part D involved QoL measured by the WHOQOL-BREF questionnaire.*

Results: *The participant mean age was 60.52 years (SD + 6.6), with most being male (76.4%) and married (86.8%). The majority were unemployed (78.2%). Pearson correlation analysis showed a positive correlation between perceived social support and total QoL ($r = 0.234$, $p < 0.001$), indicating that higher social support corresponds to better QoL. Additionally, an intermediate positive correlation was observed between self-esteem and total QoL ($r = 0.610$, $p < 0.001$), demonstrating that higher self-esteem significantly enhances QoL.*

Conclusion: *The finding highlights the pivotal roles of perceived social support and self-esteem in improving QoL among individuals with major lower limb amputation. Interventions aimed at strengthening social networks and boosting self-esteem could contribute to better QoL outcome in this vulnerable population.*

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Keywords: *Perceived Social Support, Self-esteem, QoL, Diabetes, Major lower limb amputation.*

Introduction

Diabetes mellitus is a fast-growing public health concern, with the incidence of diabetes patients increasing in recent decades in both developed and developing countries. According to the Global Burden of Disease (2017), which revealed the prevalence of diabetes was 476.0 million, and it is expected to reach 570.9 million in the year of 2025 (1). The World Health Organization (WHO) anticipated that diabetes killed over 1.5 million people in 2019 and was the main cause of mortality (2). According to an article by "The News" reports that Pakistan has the third-highest diabetes prevalence rate (3). In 2016, 11.77% of the population had diabetes; by 2018, this figure had increased to 16.98%, and further rose to 17.1% in 2019, reaching to 26.7% in 2022 (4, 5). If the current trend persists, Pakistan will project to attain the highest global prevalence of diabetes in the near future (6). This rising incidence and mortality rates place both psychological and financial burden on patients, as well as a socioeconomic impact on the economy of the country. Moreover, diabetes mellitus is a major contributor to cardiac-related mortality, visual impairment, renal insufficiency, suicide and depression (7).

One of the most distressing events linked with DM is the disease related amputation. The term "amputation" originates from the Latin word "amputee," which means to excise or cut out and it refers to the surgical excision of a part or the whole of a body part that is covered by skin (8). Amputation is most frequently caused by trauma, diabetes mellitus, infections, heart diseases and cancer (9). The literature indicates that globally, the complications related to diabetes are responsible for between 40 and 60 percent of nontraumatic lower-limb amputations, with 80% of these amputations resulting from diabetic foot ulcers (10). However, these projections indicate that the population of individuals with limb loss will rise from an estimated 1.6 million in 2005, to 3.6 million by 2050 (11). Diabetes patients possess a lifetime risk of amputation that is thirtyfold greater than that of individuals without the condition (12).

In Pakistan, the vascular diseases accounts for 63% of amputations, with trauma and tumors accounting for 23.28% and 13.69% of cases respectively (13). The World Health Organization describes health as a "state of complete physical, mental and social well-being and not only the absence of disease or infirmity" (14). Limb amputation is sometimes the most appropriate intervention in the advanced stages of different conditions, including diabetes mellitus, trauma, peripheral artery occlusive disease (PAOD), or infection, which greatly impact a patient's life in term of numerous limitations on the carrying out of social, professional, and recreational activities (15).

However, The structural integrity of the human body is clearly compromised, which results in a reduction in mobility, discomfort, and physical integrity as well as a drop in QoL (16). The World Health Organization defines QoL as an individual's perspective of their place in daily life, contextualized within a framework of values and culture, as well as in connection to societal norms and personal objectives (17). The quality of life is seen as a significant predictor of rehabilitation programs and is used primarily to evaluate the efficiency of such programs or to look at people with amputations in relation to those with an illness or the general population (18).

The psychological well-being of mobile amputees is generally considered to be higher to that of patients with diabetic foot ulcers. However, extremity amputation continues to be an important medical concern and the process of psychosocial adjustment for individuals following such an amputation presents considerable challenges (19). Lower limb complications due to diabetic foot ulcers are known to profoundly disturb the QoL of an individual, Furthermore, the occurrence of psychological disorders such as sadness and anxiety following amputation has been found to have a negative impact on QoL. Furthermore, after amputation, patients may have a skewed body image, loss of self-esteem, social isolation, and greater dependent on others (20).

Although lower limb amputations (LLA) can save lives, it often comes with long-standing detrimental effects on people's physical, social and, mental health, which lowers their QoL. Furthermore, when weigh up to the general population, amputees reported lower levels of QoL in the areas of physical, emotional, and social well-being, as well as pain (21). Social support defines as assistance and encouragement one receives from others, especially from significant individuals in their lives. Moreover, some research suggest that social support could serve as a intermediating factor in adaptation style, as it helps reduce life's high stress and mental health issues, thereby presenting a win-win situation (22).

Amputation results in an impairment of movement that impacts the amputee's social functioning. Consequently, to reestablish the social and psychological harmony of amputees within the family, workplace, community, professional, social and psychological rehabilitations are required. Additionally, in social and psychological recovery, the family plays a vital role (23). Providing social support to individuals who have undergone amputations is essential, as the rate at which they adapt is influenced by the acceptance level and support they received from their families, friends and community members (24).

According to Rosenberg, self-esteem is an individual's overall evaluation of their thoughts, feelings, and attitudes toward themselves. It can be either positive or negative and it has a significant impact on one's self-perception. Self-esteem is an essential component of one's psychological makeup that involves evaluating oneself in terms of personal values and humanistic ideas (25). Self-esteem impacts the ability to adapt to social adaptation; an individual's self-esteem can be adversely affected by means of an unsightly appearance, which would lead to poor performance, feeling inadequate, lonely, self-destructive behavior and social maladjustment (26).

This study pursues to fulfill this bridge by examining the association between perceived social support, self-esteem and QoL among individuals with MLLA due to diabetes admitted at tertiary care hospitals Peshawar. By addressing this multifaceted issue, the research aims to generate evidence that can inform patient-centered care, enhancing nursing practices and guide the development of psychological intervention. Such efforts will contribute to improve the overall well-being, rehabilitation outcome and societal integration for this population. Furthermore, the findings of this research will enhance nursing knowledge, design interventions for social support and self-esteem and inform community programs, policy development and healthcare practices to advance the QoL for this group.

Material and Methods

The study used an analytical cross-sectional technique. Furthermore, the study participants were above the age of 18, had diabetes mellitus, underwent a significant lower limb amputation, and were treated at the center. Hence, the participants were selected via a convenience sample technique. In addition, the overall goal of this study was to determine the relationship of perceived social support, self-esteem, and quality of life among diabetic patients who had an amputation of a major lower limb.

The study was conducted at three public tertiary care hospitals (HMC, KTH and LRH) in Peshawar, among diabetic patients who had undergone major lower limb amputation.

Patients requiring amputation and reconstructive procedures can receive specialized surgical care at these tertiary care hospitals. The sample size was 174, calculated by the Daniel Equation.

$$n = \frac{Z^2 * p\,(1-p)}{d^2}$$

n= Required sample size
Z= Z statistic = 1.96 for confidence level (CL) of 95%
P= Estimated prevalence of lower limb amputation which is 13% (27).
d= Margin of error =5%
In this study, three tools are used: the MSPSS (multidimensional Scale of Perceived Social Support), which is used to investigate the level of perceived social support, the Rosenberg Self-Esteem Scale, which is used to assess the level of self-esteem and the World Health Organization-BREF questionnaire for measuring quality of life among amputee. These tools are also translated into the local languages (Pashto and Urdu) to ensure that the participants understand and can comprehend them. MSPSS was developed by Zimet et al. (1988) to measure perceived social support (28). The MSPSS is a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), and the score ranged from 12 to 84 with a Cronbach's α of 0.87 (29). Each dimension is linked to a set of questions provided in table 1.0.

Table 1: MSPSS Subscales and Scoring

S. N	Subscale	Question Numbers	Scoring
1	Family	3, 4, 8, 11	4 – 28
2	Friends	6, 7, 9, 12	4 – 28
3	Significant others	1, 2, 5, 10	4 – 28

Table 2: The level of perceived social support based on MSPSS scores range.

S. N	Scores	Level of Social Support
1	12-36	Poor Social Support
2	37-60	Fair Social Support
3	61-84	Good Social Support

RSES stands as a prominent self-esteem assessment tool extensively used in social science research. Its origin can be traced back to 1965 when Morris Rosenberg created it (30). Similarly, the Rosenberg's self-esteem scale has 10 questions with Cronbach-α of 0.92 (31).

Table 3: Self-esteem level and score ranges

S. N	Score	Level of Self-esteem
1	10-25	Low Self-esteem
2	26-29	Moderate Self-esteem
3	30-49	High Self-esteem

The WHOQOL-BREEF is one of those tools developed by the World Health Organization and widely used to measure the various categories of quality of life of persons (32). It measures quality of life by the use of a 26-item questionnaire covering four domains: physical health, psychological health, social relationships and the environment, with a Cronbach-α of 0.89 (33).

First, the researcher got approval from the Internal Review Research Boards of all the three tertiary hospitals. After securing approval from the Ethics Review Committee (ERC) and relevant authorities, the study was conducted at the designated hospitals. Statistical analysis has been done by using SPSS version 22. Inferential statistics used include the Pearson Correlation coefficient to study the relationship of perceived social support, self-esteem, and QoL.

Results

Table 4.0 Demographic Characteristics

	Frequency	Percent
1. Gender		
Male	133	76.4
Female	41	23.6
2. Occupation		
Unemployed	136	78.2
Employed	38	21.8
3. Amputation Site		
Below Knee	129	74.1
Above Knee	45	25.9
4. Monthly Income		
<50000 PKR	101	58
>50000 PKR	73	42
5. Duration of Amputation		
<1 year	79	45.4
1-2 years	49	28.2
2-3 years	28	16.1
>4 years	18	10.3

Table 4, presents the demographic distribution of participants. The majority were male (76.4%), unemployed (78.2%), and had below-knee amputations (74.1%). Most participants had a monthly income below 50,000 PKR (58%) and had been amputated for less than a year (45.4%).

Table 5. Descriptive Statistics of PSS, Self-Esteem, QoL and its Sub-Domains

	Minimum	Maximum	Mean	Std. Deviation
Perceived Social Support	30.00	70.00	52.03	9.01

Self-esteem	14.00	30.00	22.57	3.77
Quality of Life	50.00	101.00	80.31	10.73
QoL Sub Domains				
QoL Physical Health	17.86	75.00	56.44	15.04
QoL Psychological Health	.00	87.50	49.59	17.34
QoL Social Relationship	8.33	75.00	41.90	13.77
QoL Environmental Health	21.88	84.38	60.16	14.04

Table 5 provides summary statistics for Perceived Social Support (PSS), Self-Esteem, and Quality of Life (QoL) scores. The mean PSS score was 52.03, self-esteem was 22.57, and overall QOL was 80.32. Among QoL subdomains, physical health had the highest mean (56.45), while social relationships had the lowest (41.91).

Moreover, Table 6, Correlation Between PSS and Self-Esteem shows, that a significant positive correlation ($r = 0.504$, $p < 0.01$) was found between Perceived Social Support and Self-Esteem, suggesting that higher social support is associated with greater self-esteem. While, Table 7: Correlations Between PSS, Self-Esteem, and Total QOL, this table shows that PSS was positively correlated with total QOL ($r = 0.234$, $p < 0.01$), while self-esteem had a stronger correlation with total QOL ($r = 0.610$, $p < 0.01$), indicating self-esteem as a stronger predictor of quality of life. Furthermore, Table 8: Association Between PSS and QOL Sub-Domains; PSS showed significant positive correlations with social relationships ($r = 0.488$, $p < 0.01$) and physical health ($r = 0.183$, $p < 0.05$), indicating that social support plays a key role in these aspects of QOL. Similarly, Table 9: Correlations Between Self-Esteem and QOL Sub-Domains; Self-esteem was significantly correlated with all QOL subdomains, particularly psychological health ($r = 0.524$, $p < 0.01$) and physical health ($r = 0.504$, $p < 0.01$), suggesting that individuals with higher self-esteem tend to experience better overall well-being.

Table 6. Correlation Between Perceived Social Support (PSS) and Self-Esteem (SE)

		Self-esteem
Perceived Social Support	Pearson Correlation	.504**
	Sig. (2-tailed)	<.001

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

Table 7. Correlations Between PSS, SE, and Total QOL

	PSS	SE	Total QoL
Perceived Social Support (PSS)	1		
Self-esteem (SE)	.504**	1	

Total QoL	.234**	.610**	1

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

Table 8. Association Between Perceived Social Support and Quality of Life Sub-Domains

	PSS	QoL PH	QoL PSY	QoL SR	QoL ENV
Perceived Social Support (PSS)	1				
QOL Physical Health (QOL PH)	.183*	1			
QOL Psychological Health (QOL PSY)	.105	.630**	1		
QOL Social Relationship (QOL SR)	.488**	.142	.038	1	
QOL Environmental Health (QOL ENV)	.121	.392**	.402**	.042	1

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

Table 9. Correlations Between Self-Esteem and Quality of Life Sub-Domains

	SE	Q-PH	Q-PSY	Q-SR	Q-ENV
SE	1				
QOL Physical Health (Q-PH)	.504**	1			
QOL Psychological Health (Q-PSY)	.524**	.630**	1		
QOL Social Relationship (Q-SR)	.326**	.142	.038	1	
QOL Environmental Health (Q-ENV)	.389**	.392**	.402**	.042	1

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

Discussion

The present study analyzed the participants' demographic data and found major results in two categories: age and site of amputation. The mean age of the present participants was similarly found to the study by Elaatmani et al., when the average Moroccan amputees were reported 50.3 years old in Morocco (34). However, an important deviation was noticed in the study conducted by Al-Jubori et al., where the mean age of the participants was found to be 45.8 years, reflecting differences in population characteristics, accessibility of healthcare and the underlying causes of amputation (29). The age distribution differences further highlight the requirement for age-specific interventions and rehabilitation strategies that address the unique needs of younger versus older amputees.

Regarding the site of amputation, the current research indicated a predominance of lower-limb amputations, aligning with findings from Noori and Al-Obaidi, who reported that 84% of their participants had lower-limb amputations (35). This trend highlights the impact of conditions such as diabetes and vascular diseases as primary causes of amputations.

However, Kolivand et al. reported a higher percentage of upper-limb amputations and this would show that amputation etiologies vary differently depends on contexts, especially with regard to traumatic causes (36). Such studies, therefore, point out that amputation prevention measures and rehabilitation efforts should start from the cause.

In general, the reported levels of social support were modest, with the majority reporting that the social support was fair. These findings aligned with those from Al-Jubori et al., who indicated that the level of social support among the examined amputees was moderate. However, Elaatmani et al. reported stronger perceived social support in their Moroccan sample, explaining this by the strength of interfamily bonds and the importance of communal collective support systems in the culture (34).

Though, significant disparities existed between the two groups in the relationship between perceived social support and quality of life. This study had a more direct relationship between social support and quality of life than what Al-Jubori et al. found when reporting a much greater positive correlation of $r = 0.68$; it probably also indicates that there is a potential role for enhanced social interaction to improve the outcomes of quality of life (29). The relatively weaker association in the present study suggested that although social support appears to be an important factor, its impacts could be mediated through factors related to self-esteem and psychological resilience.

Furthermore, this study found that most participants had lower self-esteem levels, consistent with Alkadem et al.'s report of 77.6% of their participants having low self-esteem (31). This recommend that the difficulties of adapting to physical disability and changed body image have a considerable influence on self-esteem among amputees. In contrast, Zaheer et al. discovered higher self-esteem among their research subjects due to the use of advanced prosthetic devices and holistic rehabilitation services (37). This comparison points out the important role of accessible rehabilitation and assistive technologies in promoting positive self-concept among amputees.

In this study, the relationship between perceived social support and self-esteem was found to be moderate and positive. The correlation coefficient was very close to what Alkadem et al. found: $r = 0.504$ (31). Such association suggests amputees should establish social networks to boost self-esteem, as socially integrated individuals feel emotionally supported and validated. Noori and Al-Obaidi also called significant attention to the significance of social interactions in enhancing self-esteem, thus supporting the findings of this study (35). The findings suggests that the establishment of strong interpersonal connections can mitigate the psychological distress resulting from amputations.

In the present study the subject's QoL is rated across various areas: it achieved only moderately to poorly in psychological well-being and social contact. Consistent with these results is a similar pattern found in a study by Elaatmani et al. done on Moroccan amputees in which scores of lower performances were recorded on the interpersonal problem domain (34).

However, this reflects that there is continuous struggle in performing social relationships. Instead, Mohammed et al. concluded higher overall scores of quality life which they found due to being diabetic patients suffering from lower limb prostheses and who took advantages of ease in mobility, social integration also (38). This discrepancy highlights the potential role of prosthetic use and comprehensive rehabilitation in increasing quality of life outcomes.

Detailed analysis was conducted for the association among perceived social support, self-esteem and QoL. This study established that self-esteem had a greater correlation with quality of life, $r = 0.610$, than did perceived social support, $r = 0.234$. This is similar to what was reported by Alkadem et al. regarding self-esteem as an essential predictor of quality of life while emphasizing the significant role psychological resilience plays (31).

Moreover, Mel et al. pointed out indirect effects that social support would have on the quality of life through the former's influence on self-esteem and supports the association between the two factors as well (39). These findings suggest that the interventions that would improve self-esteem have more of an impact on quality of life than those merely targeting social support.

While the results from this study are in favor with most of the critical researches in the field, there are some differences to be noted. For example, though Alkadem et al. and Elaatmani et al. used the same QoL assessment tool, the mean score revealed in the two studies was incomparable, which could be related to various contextual factors like health care systems, cultural norms and socioeconomic conditions (31, 34).

In addition, the current study examined the link between perceived social support, self-esteem and quality of life, whereas studies such as those by Al-Jubori et al. and Noori and Al-Obaidi mainly investigated the mediating role of social interaction (29, 35). These methodological differences reveal the varied approaches in quality-of-life studies of amputees and underscore the necessity of standardized tools and measures to make possible direct comparisons between populations.

Results from this study has strong implications for the clinical practice and rehabilitation. There is a reflection of moderate perceived social support as well as a low level of self-esteem as observed among these patients, which makes them important intervention areas. Rehabilitating programs consisting of psychological counseling and peer support groups as well as community reintegration activities may find an important position in enhancing quality of life, along with an improvement in levels of self-esteem, among these amputees. The availability of advanced prosthetic devices and training in their use can further contribute to improved mobility and social participation.

Conclusion

This study highlights the critical interplay between perceived social support, self-esteem, and quality of life (QoL) in diabetic amputee patients. Findings reveal that most participants reported fair social support (82.2%), low self-esteem (77.6%), and a negative perception of their QoL (58%), particularly in social relationships. Key correlations indicate that higher social support moderately enhances self-esteem ($r = 0.504$), while self-esteem strongly predicts overall QoL ($r = 0.610$), especially in psychological and physical health domains. Social support also significantly improves interpersonal relationships ($r = 0.488$), though its direct impact on QoL is weaker ($r = 0.234$).

These results underscore the importance of psychosocial interventions in nursing care. Strengthening self-esteem through positive reinforcement and fostering social support via family engagement, peer networks, and counseling can significantly enhance well-being. Nurses, as frontline caregivers, should integrate these strategies into holistic, patient-centered approaches to address both emotional and physical needs. By prioritizing psychosocial support alongside medical treatment, healthcare providers can improve the overall quality of life for diabetic amputees, ensuring more comprehensive and effective recovery.

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