ORIGINAL ARTICLE

PREVALENCE AND DETERMINANTS OF DEPRESSION AMONG AMPUTEES IN QUETTA REGION

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Background: Depression is increasingly diagnosed in the general population today. The loss of a limb through amputation, which can result in disfigurement, may also contribute to the development of depression despite pre-operative counselling. Understanding the factors associated with depression in individuals with limb amputation is important to effectively identify and manage this psychological condition. The objective of this study was to identify the factors associated with depression in individuals who have undergone limb amputation. **Methods:** A descriptive cross-sectional study was conducted in Quetta City from May to July 2018. Data were collected using a structured, respondent-cantered questionnaire based on the Hospital Anxiety and Depression Scale (HADS). **Results:** Females were more affected as 5 out of 7 (71.42%) were depressed compared to 32 out of 47 (68%) males. The study found a statistically significant association between depression and marital status (*p*-value of 0.047) as well as amputation (*p*-value of 0.039). These results suggest that both sociodemographic factors, such as marital status, and the experience of amputation are associated with the development of depression in individuals with limb amputation. **Conclusion:** Amputation is significantly associated with the level of depression among amputees, and sociodemographic factors, such as marital status, also play a role in the development of depression. Therefore, it is recommended to conduct yearly screenings for depression following an amputation to effectively identify and manage this psychological condition. Further research and interventions are needed to address the mental health needs of individuals with limb amputation and implement strategies for depression prevention and management in this population.

Keywords: Amputation; Depression; Injuries; Road traffic accidents; Trauma

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INTRODUCTION

Amputation refers to the surgical removal of a limb or a part of a limb due to medical reasons. This procedure is necessary when the limb's condition cannot be effectively treated or cured, or when there is a life-threatening condition associated with the limb.[1] In the majority of cases, approximately 82%, amputations are attributed to peripheral vascular disease, trauma, and diabetes. Other less common causes include infection, congenital anomalies, and malignancy.[2] Limb amputations can occur due to various causes, including accidents in agricultural, occupational, environmental, or domestic settings, as well as assaults and suicidal injuries.[3,4] Depression is a psychiatric condition characterized by persistent feelings of hopelessness, sadness, and a loss of interest. Depression is a mood disorder that can substantially impact an individual's emotional well-being and daily functioning.[5] In recent times, there has been a notable increase in the prevalence of depression and anxiety, particularly among individuals who are dealing with chronic illnesses, victims of wars, and survivors of road traffic accidents (RTAs). The deteriorating law and order situation and the impact of wars have not only caused widespread devastation but have also contributed to a rise in the overall number of casualties in the general population.[6]

As per data from the World Health Organization, an estimated 300 million people worldwide are affected by depression and other psychiatric disorders. The impact of depression on individuals often results in disruptions to their daily lives. Depression is recognized as one of the most prevalent health conditions globally, with adults aged 15–49 years being particularly susceptible. Alarmingly, suicide, often associated with depression, claims the lives of nearly 800,000 individuals each year.[7]

Physically disabled persons can be affected by anxiety & depression easily, they are also extra-vulnerable to contracting other ailments, show risky

behaviours and premature death. Approximately more than one billion people are considered disabled around the earth, and face a lot of physical functional limitations in their everyday lives. About fifteen percent of persons are disabled in the world, out of which 2.54 per cent are from Pakistan, according to the census of 1998.[8]

Previous research has indicated that a substantial proportion of individuals with disabilities who seek medical care for their conditions experience symptoms of depression and anxiety. The prevalence of depression and anxiety among individuals with disabilities has been estimated to range from 20–60%.[1] The prevalence of psychiatric disorders among the Indian population is notably high, ranging from 32–84%.[9] Multiple studies have suggested that depression and anxiety often manifest in individuals who have experienced limb loss and permanent disability. Additionally, inadequate access to healthcare facilities may result in approximately 4% of these individuals receiving substandard treatment from healthcare professionals.[4,6]

A recent study reported that many of the participants suffered from moderate depression (Patient Health Questionnaire-9 (PHQ-9) score of 10–14) and that their quality of life was negatively affected by the amputation. The study also found a strong negative correlation between quality-of-life scores and depression scores among the participants.[10]

Another study found that there was a high incidence of depression in combat amputees of the Pakistan Armed Forces. The depression scores were negatively correlated to the social support available and age and were higher in patients who were young, unmarried or had no children, who had a traumatic aetiology of their amputation and below-knee amputation. The scores were also high in the first three months post-amputation.[11]

Yet another study reports that 78.57% of the participants had depression, with varying severities. There was a significant correlation between depression, sleep disturbance and suicidal thoughts among the participants.[12]

The study aimed to determine the frequency of depression and factors contributing to its development in amputees in Quetta city given the paucity of literature from this region.

MATERIAL AND METHODS

This study was cross-sectional research conducted in Quetta City, from May to July 2018. It involved three major rehabilitation centres, comprising two non-governmental organizations (NGOs) and one publicly operated centre under the social welfare department. The study targeted all amputees attending these centres during the specified period. A total of 54 single limb amputees participated, providing data through a structured questionnaire, administered by trained data collectors and overseen by a principal investigator.

The participant inclusion criteria were specific to individuals with either lower or upper limb unilateral amputations, who had no psychiatric background or history—the time since amputation ranged from recent cases to those up to ten years post-amputation. Exclusion criteria were defined to omit bilateral amputees, those originating from Afghanistan, other provinces, or foreign countries, and individuals with congenital limb malformations. The rationale for excluding bilateral amputees was due to the associated extensive physical and psychological trauma, which could potentially skew the study's outcomes. Similarly, amputees from Afghanistan and other regions, being affected by displacement and conflict-related trauma, were excluded to avoid confounding effects on the results.

For data analysis, categorical and continuous variables were represented as frequencies, percentages, and mean ± standard deviation (SD) respectively. The data was further stratified by gender, the reason for amputation, marital status, and educational level, about the primary outcome variable of depression. A post-stratification chi-square test was employed, with a p-value of ≤ 0.05 considered statistically significant

bi-lateral amputees, amputees from Afghanistan, Categorical variables

RESULTS

In our study sample, the frequency of depression was 68.52% (37 out of 54 participants), which is consistent with findings from previous studies. The majority of participants were males (87%) and married (81.5%). Education levels varied, with 48.1% of participants being uneducated, 20.4% having primary education, 18.5% having secondary education, and only 1.9% completing graduation or a master's degree. In terms of working status/occupation, 12 (22.22 %) were unemployed, 7 (13%) each were housewives & daily wagers, 9.3% were drivers, 18.5% of subjects were shopkeepers while a small proportion (3.7%) of participants belonged to the teaching profession. The socio-demographic characteristics of participants are summarized in Table 1.

Among amputees, traumatic causes accounted for a larger proportion (59.5 %) compared to non-traumatic causes (40.5%). Road traffic accidents were the primary cause of traumatic amputations (54.54%), while diabetes was the leading cause of non-traumatic amputations (60%). Other reasons for amputation included falls (9.09%), tumours (13.13%), vascular ailments (20%), electric shock (6.67%), explosions (22.73%), and gunshot

injuries (22.73%). Based on the Hospital Anxiety and Depression Scale (HADS), a significant proportion of amputees (n=37; 68.52%) were found to have moderate to severe depression. The frequency of depression was lower (n=15) in non-traumatic amputations compared to traumatic amputations (n=22), as indicated by statistical analysis (*p*-value=0.039).

Females were more affected as 5 out of 7 (71.42%) were depressed compared to 32 out of 47 (68%) males (*p*>0.05). A statistically significant relationship between marital status and depression (*p*-value 0.047) was found. No other significant associations between depression and other sociodemographic factors have been reported as shown in Table 3

Table-1: Socio-demographic characteristics of participants

Socio-demographic Category	Frequency
GENDER	
Male	47
Female	07
Education	
Un-educated	26
Educated	28
Working Status/Occupation	
Unemployed	12
Housewives	07
Driver	05
Shopkeeper	10
Daily Wager	07
Farmer	09
Teacher	02
Security Guards	02

Table -2: Level of Depression in traumatic and non-traumatic

Cause of amputation	Normal	Depressive	*p*-value
Traumatic	14	22	**0.039**
Non-Traumatic	3	15	
Total	**17**	**37**	

Table-3: Levels of Depression about the sociodemographic characteristics

Category	Normal	Depressive	*p*-value
Marital status			
Married	11	33	**0.047**
Single	06	04	
Working status			
Working	12	23	
Not-working	05	14	0.87

DISCUSSION

Amputation is a significant public health concern that places a burden on both society and medical services.[5] Research has shown that a significant proportion of amputees experience mental health challenges. In Western countries, it is estimated that approximately 1 in 300 individuals undergo amputation, making mental health alteration problems among amputees a noteworthy medical concern.[13]

This study found that 71.42% of females were depressed as compared to 68% of men. These results are consistent with the findings reported by Chun *et al*., who reported that females were associated with a significantly greater risk of depression development than males[14], and with outcomes stated by another researcher, where women were more susceptible to depression than men.[15]

In this study, diabetes (60%) was the leading cause of amputations, which is contrary of other research where a lesser prevalence (20%) of diabetes has been reported in the literature.[16] Intractable stressors are encountered at work quite often.[17] 9.3% of participants of our study were drivers, which is far less than that reported by Luca, where 43% of subjects were transport operators.[18]

In this research, the level of depression is insignificantly associated with working status/occupation (*p*-value 0.87), which is not in line with other research where occupations were significantly associated with depression.[19] This is in line with the results of Bhutani *et al* where the *p*-value was 0.475.[20]

Post-traumatic amputees are at increased risk for depression, PTSD, and other psychological conditions due to the memories of the traumatic event. Symptoms may include nightmares, insomnia, irritability, depression, avoidance, and anger outbursts, among other challenging behaviours. Patients who undergo unplanned traumatic amputations may experience more severe psychological and emotional impacts compared to those who undergo planned surgical amputations, as they do not have time to prepare for limb loss. Additionally, various psycho-social, socio-economic, and physical challenges may arise in individuals who undergo amputations due to accidents or trauma.[7,21-24] Amputations can result in psycho-social complaints, increased anxiety, and depression among patients, which can disrupt the overall rehabilitation process and health-seeking behaviour. Therefore, early diagnosis and detection of depressive conditions in amputees are crucial before the commencement of rehabilitation.[24] We observed that depression was more prevalent in married amputees compared to single amputees (*p*-value 0.047). On the other hand, Iqbal has observed depression in single amputees.[25]

Limitations

The small sample size in this time-bound study limited the findings. The duration since amputation was not taken into account. Bilateral amputees were not included. Data collection was also challenging due to social issues, particularly with female participants who

were reluctant to express their feelings due to cultural values in the region.

CONCLUSION

Amputation and depression are significantly associated, with a high prevalence of depression among amputees. Timely detection of depression symptoms and psychiatric counselling and treatment for amputated patients should be a priority for clinicians. This research provides insight for multidisciplinary teams, including physiotherapist professionals, that depression can occur following amputation.

AUTHORS' CONTRIBUTION

ABK: Basic Concept, data collection. QZ: Literature search. IK: Write-up, paper review. H: Discussion, review. SBK: Conceptualization of the study design. AAQ: Proofreading. MMJA: Data analysis, interpretation.

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