Original Article

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Relationship Between Causes of Amputation with Anxiety and Depression

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[1] Data Collection, [2]idea & Design, [3]Drafting & Revision, [4]Proof Reading, [5]Interpretation of Data, [6,7]Conceptualization

Funding Source: None
Conflict of Interest: None

Received: July 06, 2023
Accepted: Jan 29, 2024

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ABSTRACT

Objective: To find out relationship between causes of amputation with anxiety and depression.

Methodology: Three Main Rehabilitation Centers from Quetta, were involved in 3 month's cross-sectional research. 54 subjects were included in this research. Inclusion Criteria was "newly amputees to 10years' time since an amputation, amputees with no psychiatric illness previously, "Upper & lower limb uni-lateral amputees. Exclusion Criteria was amputation because of congenital malformation, amputees from an Afghanistan, amputees with bi-lateral Amputation. Adopted structured questionnaire "Hospital Anxiety and Depression Scale" (HADS) was used. Chi-square test was applied.

Results: 47 were men while women were 7. 66.7% amputations were as a consequence of Traumatic injuries whereas 33.3% were as a result of non-traumatic causes. Regarding traumatic causes, major was RTA's with 46.3% (25), while among non-traumatic, diabetes was the most common cause (24.1%). Tumor along with fall was less common cause for amputation (4%) contribution each.

Conclusion: RTA and diabetes were the main reasons of amputation. Causes of amputation have an impact on life of these patients. Outcomes of this study can also be utilized for prevention and treatment due to various causes according to their prevalence.

Keywords: Amputation, Anxiety, Causes, Depression, Traumatic

Cite this article as:Khan AB, Zia Q, Osama M, Khan S, Kant SB, Mahmood R, Athar M. Relationship Between Causes of Amputation with Anxiety and Depression. Ann Pak Inst Med Sci. 2024; 21(1):98-102. doi. 10.48036/apims.v20i1.829.

Introduction

Trauma is among one of leading causes of amputation followed by vascular disease, while other causes were uncontrolled diabetes, malignancies and infections. RTA was the cause of 58.8% of all traumatic amputations. Traumatic limb amputations occur because of an occupational, agricultural, environmental, suicidal injuries, assaults, or the domestic accidents.

South-Asia has the 2nd highest prevalence for the traumatic amputation. Globally, 57.7 million peoples, in 2017, were with amputation of limb due to the traumatic causes.[1] Amputation is the surgical procedure for a removal of limb, that is indicated/done when recovery of limb is impossible. 82 per cent of all amputations are caused by peripheral vascular illness, any trauma, or diabetes. Other causes include congenital anomalies, infection, and malignancy. [2,3]

"The loss of digit (toe/finger) or limb due to the road traffic accidents", termed as traumatic amputation. They are mostly among difficult injuries, reports revealed that vehicle accidents are the primary source of traumatic amputations. RTA was the cause of 58.8% of all traumatic amputations. Traumatic limb amputations could occur

because of an occupational, agricultural, environmental, suicidal injuries, assaults, or the domestic accidents. [4-6]

About 300-million peoples worldwide suffer from various mental complaints.[7] Above 01-billion populaces world-widely are disable, and suffers physical limitations.[8] Incidence of psychiatric conditions has been reported to be 32-84%.[9] Some scientists voiced that, anxiety & depression are end-result for person who loses any part of body and turned-out to be disabled permanently. [10]

Amputation can be life-changing experience for affected persons. Besides mental health condition, it will also develop a social dis-comfort inside them.[11] A past research showed a relationship between psychiatric sicknesses and reasons for amputation. [12] Globally, about 15% peoples are disable, while Pakistan accounts for the 2.54% of total. [13]

Few studies depicted that trauma was among the 1st or 2nd leading cause of amputation followed by vascular disease, while other causes were uncontrolled diabetes, malignancies and infections. [14,15] Additionally, road traffic accidents are also among causes of rising number of trauma-associated injuries (including an injuries of neck head region), nearly, 1.25million people annually succumb to RTA's. About 20-50 million utterly become injured through accidents & then experience a stern sort of disability for remaining life. [16] Objective of study was to find out relationship between causes of amputation with anxiety and depression.

Methodology

Three Main Rehabilitation Centers from Quetta, were involved in 3 months' (May-July 2018) cross-sectional research. One was a public center, while other 2 were NGOs-based. 54 subjects were included in this research. Data was assembled from amputees visited rehabilitation centers, due to traumatic & non-traumatic causes via non probability convenient sampling, after approval from the ethical review committee of Health services academy, Islamabad. Informed consent was also taken from all the participants before collecting the data.

Inclusion Criteria was "newly amputees to 10years' time since an amputation, amputees with nonpsychiatric history & background, "Upper & lower limb uni-lateral amputees. Exclusion Criteria was amputation because of congenital malformation, amputees from an Afghanistan, amputees with bi-lateral Amputation.

Trained data collectors together with principal investigator collected the data via adopted structured questionnaire "Hospital Anxiety and Depression Scale" (HADS), along with self-structured questionnaire comprising of questions relating to socio demographic characteristics of the participants. Tool was respondent-centered, assisted for questions and queries.

Frequency, percentages were calculated for the descriptive variables. While quantitative variables were analyzed and then tabularized by calculating their mean and standard deviation. P value < 0.05 was considered statistically significant, when chi-square test was done.

Results

This research included 54 subjects, of whom, 47 were men while women were 7. Unmarried were 10 (18.5%) while 44 (81.5%) were married. 36(66.7%) amputations were as a consequence of Traumatic injuries whereas 33.3% were as a result of non-traumatic causes.

Regarding traumatic causes, major was RTA's with 46.3% (25), while among non-traumatic diabetes stood first (1st) with 24.1%. Six percent were each for electric shock, vascular ailments respectively. Mine & Gunshot were responsible for merely 3(5%) & 3 (5%) of the amputation. Tumor along with fall were least responsible for amputation (4%) contribution each.

Chi-square test reveals statistically insignificant relationship between anxiety and different causes of amputation (p value= 0.13). Table I

Table I: Level of anxiety in relation to causes of amputation.

	Level of Anxiety [N (%)]				
Category	**Normal**	**Moderate**	**Severe**	**Total**	**P value**
Causes of amputation					
RTA	12(40.0%)	04(44.4%)	9(60%)	25(46.3%)	
Mine	1(3.3%)	0(4.5%)	2(13.3%)	3(5.6%)	
Gunshot	3(17.6%)	0(0.0%)	0(0.0%)	3(5.6%)	0.13
Fall	2(5.9%)	0(0.0%)	0(0.0%)	2(3.7%)	
Diabetes	9(30.0%)	1(11.1%)	3(20%)	13(24.1%)	
vascular disease	1(3.3%)	1(11.1%)	1(6.7%)	3(5.6%)	
Tumour	1(3.3%)	1(11.1%)	0(0.0%)	2(3.7%)	
Electric Shock	1(3.3%)	2(22.2%)	0(0.0%)	3(5.6%)	
Total	**30(55.5%)**	**09(16.6%)**	**15(27.77)**	**54(100%)**	

Table II Level of Depression in relation to causes of amputation.

	Level of Depression [N (%)]				
Category	**Normal**	**Moderate**	**Severe**	**Total**	**P value**
Causes of amputation					
RTA	8(47.1%)	12(54.5	5(33.3%)	25(46.3%)	
Mine	0(0.0%)	1(4.5%)	2(13.3%)	3(5.6%)	
Gunshot	3(17.6%)	0(0.0%)	0(0.0%)	3(5.6%)	0.10
Fall	1(5.9%)	1(4.5%)	0(0.0%)	2(3.7%)	
Diabetes	2(11.8%)	4(18.2%)	7(46.7%)	13(24.1%)	
vascular disease	0(0.0%)	2(9.1%)	1(6.7%)	3(5.6%)	
Tumour	1(5.9%)	1(4.5%)	0(0.0%)	2(3.7%)	
Electric Shock	2(11.8%)	1(4.5%)	0(0.0%)	3(5.6%)	
Total	**17(31.48)**	**22(40.74)**	**15(27.77)**	**54(100%)**	

Chi-square test reveals statistically in-significant relationship between depression and different causes of amputation (p value= 0.10). Table II

Discussion

Injuries related to the road traffic accidents are main cause of disability among individuals, especially reproductive age groups. Therefore, policy makers should be aware of different patterns of the injuries related with victim of RTA's, to have appropriate & sustainable capacity for managing these injuries.[6] Trauma is responsible for 16% of all ailments in world. Amputation escalates burden on health system & society and psychological changes among these amputees may be observed as a key medical problem/concern.[13]

Majority participants of this study were males, which is analogous to other studies.[17,18] Trauma- associated amputation occurs commonly amongst young adult males but can take place at any age of either sex individuals. At any age, traumatic amputations are difficult and frequently require significant assistance from the rehabilitation and medical teams in order to provide best possible functional results to the patients. A skilled healthcare team is necessary to reduce stress.[19,20]

Prominent anatomical structures, such as nose, lips, & ear are usually involved when patient had RTA, and psychological impact/effect on patients had been left by these accidents. Searched literature and our study revealed that one of the major causes of amputation was trauma and RTA was at the top of list of traumatic causes. RTA usually results in maxillofacial (Maxillary and mandibular soft tissues and teeth involvement) injuries. Facial trauma is mainly caused by RTA. Subsequently, they have to take appointment from dentists, as teeth & an oral cavity are essential too for psychological wellness in addition to the speaking & chewing. Patients are afraid too and conscious because there is always a danger of cross-infection in a dental setting.[13, 21-24]

In this study, 66.7% amputations owing to traumatic injuries, which is comparable with other result where 42.9% amputations were due to motor vehicle accidents.[25] In present study, higher rate for traumatic amputation could be elucidated by presence of more severe traumatic lesions. [5]

Among non-traumatic causes in this study, Diabetes stood 1st with 24.1%. 6% amputations were for vascular ailments. Mine & Gunshot were responsible for merely 3(5%) & 3 (5%) of the amputation. This is comparable to the findings of another study where gunshot injuries (9.5%), land mine (7%), Diabetes mellitus (18.1%), and peripheral vascular disease (6.31%) were reported.[26]

Peoples having more serious trauma required to be hospitalized for a longer period [27]. Patients of traumatic amputation might suffer from "PTSD (posttraumatic stress disorder)" or similar psychological situation as well. Emotional & psychological impact is more severe in patients injured in traumatic amputation than those who undertook the planned surgical amputations [13].

In this study, chi-square test reveals statistically insignificant relationship of anxiety (p value= 0.13), and depression (p value= 0.10), with different causes of amputation, which is similar to that of several other studies where there was an insignificant relationship between reasons for amputation & development of psychiatric morbidities (anxiety, depression).[28-30]

Small sample size was the main limitation of this study. Further studies exploring the common causes of amputation among amputees with bigger sample size need to be done. The outcomes of this study could drive research towards this direction. It is a need of hour to lay-down hospital policies that screen for the mental ailment in patients of amputations.

Conclusion

RTA and diabetes were the main reasons of amputation. Causes of amputation have an impact on life of these patients. Outcomes of this study can also be utilized for prevention and treatment due to various causes according to their prevalence.

References

1. McDonald CL, Westcott-McCoy S, Weaver MR, Haagsma J, Kartin D. Global prevalence of traumatic non-fatal limb amputation. Prosthetics and orthotics international. 2020 Dec4: https://doi.org/10.1177/0309364620972258
2. Gebreslassie B, Gebreselassie K, Esayas R. Patterns and Causes of Amputation in Ayder Referral Hospital, Mekelle, Ethiopia: A Three-Year Experience. Ethiop J Health Sci. 2018 Jan;28(1):31-36. https://doi.org/10.4314/ejhs.v28i1.5
3. Şimsek N, Küçük Öztürk G, Nahya ZN. The Mental Health of Individuals with Post-Traumatic Lower Limb Amputation: A Qualitative Study. Journal of Patient Experience. 2020, Vol. 7(6)l1665-1670 https://doi.org/10.1177/2374373520932451
4. Amputations Caused by Car Accidents | Hogan Injury [Internet]; [cited May 20, 2022]. Available from: https://www.hoganinjury.com/amputations-caused-by-car-accidents/. Accessed July 13, 2022. [Google Scholar]
5. Asirdizer M, Hekimoğlu Y, Keskin S. Investigation of effective factors on traumatic amputations due to road traffic accidents. Injury. 2022 Mar 1;53(3):966-71. https://doi.org/10.1016/j.injury.2021.11.021
6. Bezabih Y, Tesfaye B, Melaku B, Asmare H. Pattern of orthopedic injuries related to road traffic accidents among patients managed at the emergency department in Black Lion Hospital, Addis Ababa, Ethiopia, 2021. Open access emergency medicine. 2022 Jan 1:347-54. https://doi.org/10.2147/OAEM.S368324
7. WHO | Depression. WHO [Internet]. 2017; Available from: http://www.who.int/mediacentre/factsheets/fs369/en/ (accessed on May 2021)
8. WHO | Disability and health. WHO [Internet]. 2018; Available from: http://www.who.int/mediacentre/factsheets/fs352/en/ (accessed on May 2021)
9. Sahu A, Sagar R, Sarkar S, Sagar S. Psychological effects of amputation: A review of studies from India. Industrial psychiatry journal. 2016 Jan; 25(1):4-10. https://doi.org/10.4103/0972-6748.196041
10. Ghous M, Gul S, Siddiqi FA, Pervaiz S, Bano S. Depression ; Prevalence Among Depression ; Prof Med J. 2015;22(2):263-6. https://doi.org/10.29309/TPMJ/2015.22.02.1399
11. Coffey L, Gallagher P, Horgan O, Desmond D, MacLachlan M. Psychosocial adjustment to diabetes-related lower limb amputation. Diabet Med. 2009;26(10):1063-7. https://doi.org/10.1111/j.1464-5491.2009.02802.x
12. Williamson GM, Walters AS. Perceived impact of limb amputation on sexual activity. A study of adult amputees. J Sex Res. 1996;33: 221-30. https://doi.org/10.1080/00224499609551838
13. Baqi A, Zia Q, Shaikh SP, Shoaib M, Javaid MM, Malik MS. Determinants of anxiety in amputees owed to traumatic & non-traumatic causes. Ann Pak Inst Med Sci. 2022;18 (3):175-80 https://doi.org/10.48036/apims.v18i3.671
14. Chalya, P.L., Mabula, J.B., Dass, R.M. et al. Major limb amputations: A tertiary hospital experience in northwestern Tanzania. J Orthop Surg Res 7, 18 (2012). https://doi.org/10.1186/1749-799X-7-18
15. Pooja GD, Sangeeta L. Prevalence and aetiology of amputation in Kolkata, India: A retrospective analysis. Hong Kong Physiotherapy Journal. 2013 Jun 1;31(1):36-40. https://doi.org/10.1016/j.hkpj.2012.12.002
16. WHO | Road traffic injuries. WHO, 2017; Available from: http://www.who.int/mediacentre/factsheets/fs358/en/ (accessed on May 2021)
17. Gallagher, Pamela, O'Donovan Mary-Ann, Doyle Anne, Desmond Deirdre. Environmental barriers, activity limitations and participation restrictions experienced by people with major limb amputation. Prosthetics and Orthotics International 2011; 35(3): 278-84. https://doi.org/10.1177/0309364611407108
18. Heszlein-Lossius, H.E., Al-Borno, Y., Shaqqoura, S. et al. Life after conflict-related amputation trauma: a clinical study from the Gaza Strip. BMC Int Health Hum Rights 2018; 18:34 https://doi.org/10.1186/s12914-018-0173-3
19. Chui KC, Jorge M, Yen SC, Lusardi MM. 17 - Etiology of Amputation. Orthotics and Prosthetics in Rehabilitation E-Book (4th Edition). Elsevier Health Sciences; 2020: 432-45. https://doi.org/10.1016/B978-0-323-60913-5.00017-9
20. Abzug JM, Kozin SH, Neiduski R. Chapter 22 - Amputations and Replants. Pediatric Hand Therapy. Elsevier Health Sciences; 2020: 303-19. https://doi.org/10.1016/B978-0-323-53091-0.00022-1
21. Khan N, Sartaj R, Naz S, Sajid M, Jamil M, Javaid M. Patient perception regarding cross infection control; a cross sectional study. Pakistan Oral & Dental Journal. 2021 Mar 13;41(1):15-7.
22. Sajid M, Noreen R, Jamil M, Javed M, Haider E, Ahmad M. Prevalance of Dental Traumatic Injuries in Young Children in Public School of Layyah. Pakistan Oral & Dental Journal. 2019;39(4):337-40.
23. Javaid, M., Sahu, E. H., Malik, A., Khan, N., Noor, A., & Shaukat, M. S. Practice of Personal Protective Equipment among Dental Surgery Assistants: Survey from a Public Sector Hospital. J Dow Univ Health 2020; 14(2): 66-71. https://doi.org/10.36570/jduhs.2020.2.936
24. Chaudhary FA, Fazal A, Javaid MM, Hussain MW, Siddiqui AA, Hyder M et al. Provision of endodontic treatment in dentistry amid COVID-19: A systematic review and clinical recommendations. BioMed research international. 2021 Dec 3;2021. https://doi.org/10.1155/2021/8963168

25. Clasper J, Ramasamy A. Traumatic amputations. Br J Pain. 2013 May;7(2):67-73. https://doi.org/10.1177/2049463713487324
26. Doğan A, Sungur I, Bilgiç S, Uslu M, Atik B, Tan O Et al. Amputations in eastern Turkey (Van): a multicenter epidemiological study. Acta Orthop Traumatol Turc. 2008; 42(1):53-8. https://doi.org/10.3944/AOTT.2008.053
27. Bhutani S, Bhutani J, Chhabra A, Uppal R. Living with amputation: anxiety and depression correlates. J Clin Diagn Res. 2016 Sep;10(9):9-12. https://doi.org/10.7860/JCDR/2016/20316.8417
28. Faraj IM, Mutavi TN, Gitau CW. Prevalence of Anxiety, Depression, and Post-Traumatic Stress Disorder Among Amputees Attending Jaipur Foot Trust Artificial Limb Centre in Kenya. East Afr. J. Public Health. 2022;5(1):49- 64. https://doi.org/10.37284/eajhs.5.1.572
29. Singh R, Ripley D, Pentland B, Todd I, Hunter J, Hutton L et al. Depression and anxiety symptoms after lower limb amputation: the rise and fall. Clinical rehabilitation. 2009 Mar;23(3):281-6. https://doi.org/10.1177/0269215508094710
30. Rybarczyk B, Nyenhuis DL, Nicholas JJ, et al. Body image perceived social stigma and the prediction of psychosocial adjustment to leg amputation. Rehabil Psychol. 1995;49: 95-110. https://doi.org/10.1037/0090-5550.40.2.95