RESEARCH ARTICLE

Impingement of emotion reactivity to post-traumatic stress disorder among amputees

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Abstract

Objective: To find out the moderating effect of emotion reactivity and several demographic variables following symptoms of post-traumatic stress disorder among individuals having undergone an amputation.

Method: The cross-sectional study was conducted from March to July 2015 at the Government College University, Lahore, Pakistan, and comprised individuals, enrolled from difference orthopaedic and rehabilitation centres, aged 18-60 years having undergone amputation of upper or lower limb either because of diseases, like diabetes, gangrene, cancer ulcer, or because of traumatic injuries, like road accident, electrical shock. Assessment of the study variables was done using the Emotion Reactivity Scale and the Post-traumatic Stress Disorder Checklist-5. Data was analysed using SPSS 21.

Results: Of the 160 subjects, 117(72%) were males and 43(28%) were females. The overall mean age was 38.45±13.17 years. Upper limb amputation cases were 17(10.6%), lower limb 138(86.2%) and both upper and lower limb amputation 5(3.2%). Amputation due to any disease was the case with 76(47.5%) subjects, while traumatic injury was the cause in 84(52.5%). There was a significant positive association of emotional reactivity with symptoms severity of post-traumatic stress disorder ($p<0.05$).

Conclusion: Post-amputation effects were found to have a significant impact on individual emotions, and traumatic flashbacks had a leading role in the development of post-traumatic stress disorder symptoms severity.

Keywords: Amputation, PTSD symptoms severity, Emotion reactivity. (JPMA 71: 1341; 2021)

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Introduction

There are events resulting in a loss of a limb which can lead to emotional trauma along with physical disability.

Amputation can occur at different body levels. Most procedures are carried out either below the knee, called transtibial, or above the knee, called trans-femoral.[1] Moreover, upper limb amputations include the removal of fingers, dislocation of the wrist, elbow and shoulders, amputation of the arm, clavicle and scapula.[2] Amputation can cause significant emotional and psychological changes that require long-term consultation for both emotional and physiological trauma.

Multiple factors contribute to post-traumatic stress disorder (PTSD) symptoms severity, like an individual history of trauma or pathology and demographics.[3] PTSD is a psychiatric disorder which develops after an individual has been exposed to a traumatic situation that usually involves susceptible or tangible severe harm to life (Figure). A study reported trauma prevalence 10-40% among civilian survivors who experienced PTSD in the 12 months post-injury.[4]

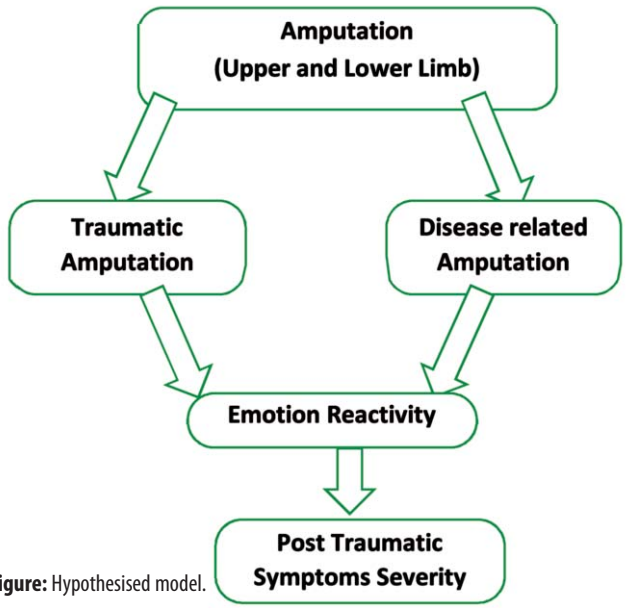

Figure: Hypothesised model.

Theories like diathesis-stress theory and vulnerability theory for psychopathology deal with PTSD symptoms severity and focus on the influence of various processes that assist people in modifying their emotional reactions.[5]

Generally, emotional reactivity refers to the intense emotional responses caused by some previous events. Indeed, many elementary theories argue that emotional reactions are not generated in isolation, and are based on behavioural and emotional consequences.[6] Interaction

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between emotional reactivity and severity of trauma could lead to different psychopathologies. Emotion reactivity develops feelings that can be intense and can take a person into his/her comfort zone.[7]

A study examined the presence of PTSD symptoms and found that 22.9% participants had symptoms consistent with a diagnosis of PTSD 6 months post-amputation, with the proportion rising to 26% at 12 months post-amputation.[8]

A study manifested the possibility of developing symptoms of acute stress disorder and PTSD after traumatic amputations.[9] There have also seen longitudinal evidence for the association between amputation and PTSD.[6]

A longitudinal study[10] investigated temperamental traits, such as emotional reactivity and severity of PTSD symptoms, in road accident survivors, and indicated that emotional reactivity was associated with higher levels of PTSD symptoms severity.

The current study was planned to find out the moderating effect of emotion reactivity and several demographic variables following PTSD symptoms among individuals having undergone an amputation.

Subjects and Methods

The cross-sectional study was conducted from March to July 2015 at the Government College University, Lahore, Pakistan. After approval from the institutional ethics review committee, the sample was raised using purposive sampling technique from among individuals of either gender aged 18-60 years having undergone amputation of upper and lower limb. The subjects were enrolled from the Pakistan Society of Rehabilitation of Disabled (PSRD), and the Hope Rehabilitation Centre, Lahore. Individuals with any psychological problems post-amputation were excluded.

After taking informed consent from the subjects, data was collected using a demographic questionnaire, an amputation-related information sheet, the Emotion Reactivity Scale (ERS)[11] and the Post-traumatic Stress Disorder Checklist-5 (PCL).[12]

Data was analysed using SPSS 21. For demographic variables, descriptive analysis was used along with mean and standard deviation. To assess emotion reactivity and PTSD symptoms severity, multiple hierarchal regression (MHR) analysis was used.

Results

Of the 160 subjects, 117(72%) were males and 43(28%)

Table-1: Hierarchal multiple regression analysis of socio-demographic variables, and emotion reactivity as a predictor of post-traumatic stress disorder (PTSD) among the amputees.

Variable	Model 1B		Model 2 B	β	95% CI	
	B	SE			LL	UL
Model 1						
Constant	11.128	7.48			-3.663	25.92
Gender	5.020*	2.60		0.16	-0.119	10.15
Age						
Young versus (vs) old	5.428	3.06		0.183	-0.613	11.47
Young vs Middle	3.709	2.96		0.119	-2.13	9.558
Education						
Graduate vs illiterate	7.912*	3.61		0.261	0.781	15.04
Graduate vs Under-Matric	6.026**	3.81		0.164	-1.512	13.56
Graduate vs Matric	9.138**	3.80		0.22	1.813	16.82
Graduate vs Inter	4.934	3.80		0.121	-2.58	12.45
Socioeconomic Status						
Lower vs Upper	-0.053	6.69		-0.001	-13.31	5.188
Lower vs Middle	-1.319	2.56		-0.044	-6.374	3.373
Type of Amputation						
Lower vs Both Limb	6.944	6.50		0.086	0.287	-5.9
Lower vs Upper Limb	2	3.62		0.044	0.582	-5.15
Reason of Amputation	5.208*	2.48		0.186	0.313	10.1
Model 2				.		
Emotion Reactivity		6.22	.404***	0.391	0.274	0.533
R2	0.288		0.693			
F	3.876		38.093			

Model 1: B: Sociodemographic variables, Model 2 B: Emotion reactivity, SE: Standard error, CI: Confidence interval, UL: Upper limit, LL: Lower limit, R2: Total variation, F: Ratio of the mean regression, Significance level: *p<0.05, **p<0.01, ***p<0.001. The hierarchical multiple regression was divided into two models the first model consisted of the sociodemographic variable. It was explored in the first model $F(159) = 3.876$, $p < .000$ that the gender, education, and reason of amputation was statistically highly significant predictor that was positively predicting Post-Traumatic Stress Disorder symptoms. Moreover, in the 2nd model $F(159) = 9.719$, $p < .000$ that contains the Emotion Reactivity was it was identified that it was statistically highly significant that was positively predicting the PTSD symptoms.

Table-2: Correlation coefficients of socio-demographic variables, emotion reactivity, and post-traumatic stress disorder (PTSD).

Variable	M	SD	1	2	3	4	5	6
Gender	1.28	0.45		-0.09	-0.01	-.255**	.238**	0.12
Age	38.45	13.18			-0.11	-.347**	0.01	0.11
Type of Amputation	1.17	0.45				.273**	0.12	0.11
Reason of Amputation	2.03	0.99					0.03	.171*
ERS	55.74	13.62						.642**
PTSD	41.72	14.04						

M: Mean, SD: Standard deviation, Level of significance **p<0.01, *p<0.05.ERS-Emotion Reactivity Scale, PTSD-Post-Traumatic Stress Disorder

The result demonstrated that there was a highly negatively significant association between gender and age among the reason for amputation. However, there were identified highly positively significant relationships between Emotion reactivity and PTSD followed by gender, type and reason of amputation.

were females. The overall mean age was 38.45±13.17 years. Upper limb amputation cases were 17(10.6%), lower limb 138(86.2%) and both upper and lower limb amputation 5(3.2%). Amputation due to any disease was the case with 76(47.5%) subjects, while traumatic injury was the cause in 84(52.5%).

There were 49(30%) participants below 10 years of formal education, while 41(26%) were graduates. The residential area was urban in 106(66%) cases. The monthly income ranged from a Rs20,000 to Rs150,000.

In the first model of MHR, gender, education, and the reason for amputation were significant predictors of PTSD symptom severity ($p<0.05$). In the second model, emotion reactivity was a highly significant predictor of PTSD symptoms (Table-1).

Cronbach alpha correlation demonstrated significantly negative association between gender and age among the reasons for amputation ($p<0.05$). Conversely, significant positive relationship was identified between emotion reactivity and PTSD, followed by gender, type and reason of amputation (Table-2).

Discussion

The current study found support of literature[13] in favour of its findings.

A study[14] revealed several contributors to psychological conditions that are forbidden for appropriate care management planning for individuals with amputation. The study supports the current findings as it also identified gender, low literacy rate, and reason of amputation to have a significant impact on PTSD.

By definition, people with PTSD are more reactive and experience greater psychological distress when exposed to trauma reminders.[15] The current findings are supported by a study[16] in terms of emotional reactivity being a significant positive predictor of PTSD symptoms.

Another study[17] demonstrated that emotion reactivity might be predicted as a moderator for individuals with PTSD, especially those more emotionally reactive who develop intensive symptoms.

In the current study, accessibility of amputees resulted in a small sample size that had only a few female participants. Besides, the sample had more amputees who had had their surgeries long ago and had developed chronic problems which may have affected PTSD symptoms severity. Moreover, other factors, like personality and home environment, were not explored in relation to PTSD symptoms in the amputees. Future studies may take care of all these limitations.

Conclusion

Emotion reactivity was found to be the most important positive predictor of PTSD symptoms severity.

Disclaimer: The text is based on an MS Clinical Psychology thesis done at the Government College University, Lahore.

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