


Profile of resilience in individuals with lower limb amputation

Perfil da resiliência em indivíduos com amputação de membro inferior

 Maressa Gonçalves da Paz¹, Juliana Caldas de Souza², Fernanda Miranda de Oliveira³

ABSTRACT

Objective: To identify the sociodemographic profile of lower limb amputees as well as levels and resilience factors. **Method:** This is a descriptive, quantitative and cross-sectional study. Data were collected through a semi-structured questionnaire after approval by the Research Ethics Committee. The collection period was from September to November 2017 at the outpatient clinic of the State Center for Rehabilitation and Readaptation of Goiânia - Goiás. Data were presented in frequencies, mean and standard deviation. **Results:** Resilient individuals were found to have above-knee amputation (44%), traumatic etiology (30.1%), received no orientation after amputation (41.5%) and used crutches as the main auxiliary device in locomotion (49%). There was a predominance of moderate resilience 33 (62.2%) and “agree-type” responses to factors I and III of the resilience scale. For factor II there was similarity in the “neither agree- nor disagree-type”, and “agree-type” answers. **Discussion:** Above-knee amputation, traumatic etiology, and lack of stump care guidance were prevalent in resilient individuals. These features are associated with a higher degree of disability, inadequate stump care, stress, and depression. It is believed that adverse conditions can positively influence resilience thanks to the individual’s ability to adjust and adapt. **Conclusion:** Moderate resilience shows that amputees have positive coping strategies, but it is necessary to carry out training programs to promote better independence and determination.

Keywords: Amputation, Lower Extremity, Rehabilitation, Resilience, Psychological

RESUMO

Objetivo: Identificar o perfil sociodemográfico dos amputados de membro inferior bem como, os níveis e os fatores da resiliência. **Método:** Trata-se de um estudo descritivo, quantitativo e transversal. Os dados foram coletados através de um questionário semiestruturado após aprovação pelo Comitê de Ética e Pesquisa. O período de coleta foi entre Setembro a Novembro de 2017 no ambulatório do Centro Estadual de Reabilitação e Readaptação de Goiânia – Goiás. Os dados foram apresentados em frequências, média e desvio padrão. **Resultados:** Verificou-se que os indivíduos resilientes tinham amputação acima do joelho (44%), de etiologia traumática (30,1%), não receberam orientação após a amputação (41,5%) e utilizam as muletas como principal dispositivo auxiliar na locomoção (49%). Houve uma predominância da resiliência moderada 33 (62,2%) e de respostas do tipo concordo para os fatores I e III da escala de resiliência. Para o fator II houve semelhança nas respostas do tipo nem concordo e nem discordo e do tipo concordo. **Discussão:** Amputação acima do nível do joelho, etiologia traumática e ausência de orientação quanto aos cuidados com o coto foram predominantes nos indivíduos resilientes tais características estão associadas a um maior grau de incapacidade, cuidados inadequados com o coto, stress e depressão. Acredita-se que condições adversas pode influenciar positivamente a resiliência graças a capacidade de ajustamento e adaptação do indivíduo. **Conclusão:** A resiliência moderada evidencia que os amputados possuem estratégias de enfrentamento positivas, porém é necessário realizar programas de treinamento a fim de promover melhor independência e determinação.

Palavras-chave: Amputação, Extremidade Inferior, Reabilitação, Resiliência Psicológica

¹ Resident Nurse, Multiprofessional Residence in Functional Health and Rehabilitation - CRER.

² Tutoring Nurse, Multiprofessional Residency in Functional Health and Rehabilitation - CRER.

³ Preceptor Nurse, Multiprofessional Residency in Functional Health and Rehabilitation - CRER

Mailing Address

Maressa Gonçalves da Paz
E-mail: mary-184@hotmail.com

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INTRODUCTION

Considered a public health problem,^{1,2} amputation affects the physical, emotional, personal and social conditions of individuals, thus reducing their autonomy and making them dependent on others.³ In addition, amputation brings changes in functional capacity, impairing the activities of daily living and therefore the quality of life.^{4,5}

In 2011 the Unified Health System (SUS) reported that of all amputations performed, 94% were lower limb ones.⁶ In England lower limb amputation was recorded in 5,500 people between 2009 and 2010. There is still a forecast that by 2050 the rate of amputees in the United States will reach 3.6 million people.

Related to quality of life,^{4,7} resilience is a complex construct and subject to cultural, genetic and environmental influences.⁸ Considered a dynamic process, resilience investigates the ability of an individual, family or even a community to respond with positive/healthy behavior in one or more conflicting situations.^{9,10} Higher levels of resilience are related to higher levels of acceptance, independence and adaptation.¹¹

Research on health resilience began in 1970 with individuals in acute or prolonged traumatic situations.¹² Several studies are currently aimed at understanding resilience in oncology,¹³ in cardiovascular, metabolic, renal changes,¹⁴⁻¹⁶ in understanding aging¹⁷ and in the introduction of the idea of a "resilient gene".^{18,19} However, there is little research on resilience in amputees.

Disabilities, deformities, and psychosocial changes are some of the consequences brought about by amputation.²⁰ Successfully overcoming them can help in the rehabilitation process. Thus understanding the resilience in individuals with amputation as well as the identification of characteristics related to resilience may help in understanding the coping mechanisms used by amputees.

OBJECTIVE

To identify the profile of individuals with lower limb amputation, resilience levels (low, moderate and high) and their factors.

METHODS

This is a descriptive, quantitative and cross-sectional study. The sample was for convenience and was obtained from the amputees outpatient clinic of the State Center for Rehabilitation and Readaptation Doutor

Henrique Santillo of Goiânia, Goiás. The study was approved by the Research Ethics Committee (CEP) with the following protocol number No. 2.203.642.

The collection was performed in the first attendance of the amputees to the specialized center. The period was from September to November 2017. After signing the Informed Consent Form (ICF), the sociodemographic, clinical data and resilience scale were obtained through a semi-structured instrument.

The resilience scale was developed by Wagnild & Young.²¹ In Brazil, this scale was validated and adapted in 2005 by Pesce et al.²² The resilience scale consists of 25 items (questions) with a Likert answer. The minimum score on the scale is 25 and the maximum 175 points. The questions on the scale can be divided into three distinct groups by resilience factor. Factor I - Resolution of Shares and Values; II - Independence and Determination; III - Self Confidence and Ability to Adapt to the Situation. Resilience ratings will include low resilience (scores below 125), moderate resilience (scores between 125 and 145) and high resilience (score above 145).²²

Data were tabulated in the Excel® for Windows spreadsheet and absolute and relative frequency distribution, central tendency measures (mean) and standard deviation were analyzed by the Statistical Package for the Social Sciences (SPSS) version 24.

For the analysis of each factor of the resilience scale was used the average answers of each individual to the questions corresponding to the factor. After this average, individuals were classified according to the Likert scale score. Individuals who disagreed with those with a mean between 1 and 3.9 were considered; those who neither agree nor disagree with those whose average is between 4 and 4.9; and those who agree those with an average between 5 and 7.

RESULTS

The sociodemographic data are presented in Table 1. The sample of this study was 53 individuals with an average age of 51.4 years. There was a predominance of 66% males, 35.8% single, 37.7% Caucasian, 41.6% with incomplete elementary school, 41.6% with Diabetes Mellitus, followed by 36.6% with Systemic Arterial Hypertension and 73.6% belong to social class E. The Brazilian Institute of Geography and Statistics (IBGE) defines social class as one that receives up to two minimum wages.²³

The characteristics about amputation of resilient and low resilient individuals were presented in Table 2. Individuals with moderate and high resilience were considered resilient. Resilient individuals with above-knee amputation (44%) and traumatic etiology (30.1%) were prevalent. The time interval after amputation and the first visit to a rehabilitation unit was longer than one year (mean 20 months). Of the resilient individuals, 41.5% did not receive orientation regarding stump care after amputation and 69.8% used crutches and walker as the main method of locomotion assistance.

Regarding resilience levels, there was a higher predominance of individuals with moderate resilience (62.2%). Regarding resilience factors, there was a predominance of individuals who had agree-type responses (Table 3).

DISCUSSION

Males, Caucasian, with a mean age of 49.4 to 53.1 years, with an income below 4 minimum wages, incomplete primary education, and single are similar in amputees studies.^{24,25}

Above-knee amputation, traumatic etiology, and lack of guidance on stump care are three characteristics that were prevalent in resilient individuals. Similar results have been found in other studies.^{26,28} However, such characteristics are associated with a higher degree of disability, inadequate stump care, stress and depression.^{29,30}

Studies have shown that the presence of adverse conditions can positively influence resilience. Individuals with greater vulnerability and high exposure to stress are more resilient, thanks to their ability to adjust and adapt to a vulnerable situation.^{31,34}

Diabetes Mellitus and Systemic Arterial Hypertension were significant in amputees and about 11.6% had more than one comorbidity. These data were similar to those found in the studies by Silva,³⁵ Borges³⁶ and may indicate a risk for further amputations. According to the Global Burden of Diseases (GBD), these comorbidities are associated with increased disability and consequently lost healthy years.³⁷

Of the resilient individuals, 69.8% used as the main assistive device in locomotion the axillary crutch or Canadian crutch or walker. Studies show that crutches bring greater autonomy and independence to individuals.³⁸ The benefits brought by technologies can be considered as a protective factor for resilience.

Table 1. Sociodemographic data and main comorbidities

Characteristics	N=53
Gender	
Male	35 (66%)
Female	18 (34%)
Marital Status	
Single	19 (35.9%)
Married	18 (34 %)
Divorced	10 (18.9 %)
Widow	6 (11.3 %)
Age	
Adolescent (15 - 21)	1 (1.9 %)
Adult (22- 64)	37 (69.8 %)
Elderly ≥ 65 years	15 (28.3 %)
Average (DP); min-max	51.4(16.7); 20-80
Ethnicity	
White	20 (37.7 %)
Brown	16 (30.2 %)
Black	13 (24.5%)
Yellow	4 (7.5 %)
Education	
Incomplete Elementary School	27 (50.9 %)
Complete Elementary School	6 (11.3 %)
Incomplete High School	6 (11.3 %)
Complete High School	9 (17 %)
Incomplete Higher Education	2 (3.8 %)
Complete Higher Education	3 (5.7 %)
Social Class	
No income	8 (15.1 %)
Class E	39 (73.6 %)
Class D	6 (11.3 %)
Comorbidities	
	N=60
Diabetes Mellitus	25 (41.6%)
Systemic Arterial Hypertension	22 (36.6%)
Other *	13 (21.6%)

*Other comorbidities: renal failure, hypo or hyperthyroidism, arrhythmias, osteoporosis and other

Table 2. Clinical characteristics of amputation in resilient and non-resilient individuals

Characteristics	Low Resilience	Resilience
	N = 53	
Amputation level		
Above-knee level	8 (13.5%)	26 (44%)
Below-knee level	9 (15.2%)	16 (27.2%)
Reasons for amputation		
Vascular alteration	4 (7.5%)	7 (13.2%)
Diabetis	3 (5.7%)	10 (18.9%)
Trauma	5 (9.4%)	16 (30.1%)
Cancer	-	2 (3.8%)
Infection	-	1 (1.9%)
Other*	2 (3.8%)	3 (5.7%)
Guidance after amputation **		
Yes	4 (7.5%)	17 (32.1%)
No	10 (18.9%)	22 (41.5%)
Locomotion aiding device		
Axillary and Canadian crutch, and walker	11 (20.7%)	37 (69.8%)
Wheelchair	3 (5.6%)	2 (3.8%)
Time in months of care		
Average (DP); median; min-max	20(28.4);8; 2-144	

*Other etiologies: congenital and iatrogenic malformation; ** Guidance for stump care after amputation: desensitization and stump positioning, strengthening of body segments, edema control

Protective factors are features that minimize adverse effects arising from traumatic or conflicting situations.^{39,40}

The time between amputation and first attendance at a rehabilitation unit was one year and nine months. The literature has shown a prolonged average time.⁴¹ This waiting for care in a specialized unit shows a weakness in the care network for people with amputation, and points to a possible bureaucratization in the referral to centers and / or rehabilitation units.⁴²

As for the level of resilience, 62.2% had moderate resilience. Similar results were found by Mendoza & Espinoza⁴³ and Cardoso & Sacomori.⁴⁴ Studies using the same scale and the same population are few, which makes other comparisons difficult. It is believed that the level of above-knee amputation, lack of guidance on stump care and traumatic etiology provided greater exposure to vulnerability conditions and consequently influenced the resilience of these individuals. This means that despite the unsatisfactory characteristics associated with amputation, resilient individuals are positively and healthfully overcoming adversity linked to limb loss.⁴⁵

Regarding resilience factors, in factor II (Independence and Determination) there was similarity in the percentage of answers of neither agree nor disagree type and agree type. In factor I (Resolution of Actions and Values) and III (Self-Confidence and Ability to Adapt to the Situation) there was a predominance of the answers of the type agreed. This shows that amputees have potential for resolution of actions and values and self-confidence and ability to adapt to the situation, giving meaning to adversity and dealing positively with conflicts and adversities. The significant percentage of answers neither agree nor disagree on the factor independence and determination indicates the need to stimulate this competence from training programs with specialized multidisciplinary team.

CONCLUSION

Sociodemographic data are similar to those found in the literature. The amputees have moderate resilience and predominance of responses of the type I agree to factors I (Resolution of Actions and Values) and III (Self-Confidence and Ability to Adapt to Situation). For factor II there was similarity of answers of neither agree nor disagree with answers of agree type.

Table 3. Absolute and relative values of resilience levels and domain responses

Resilience Levels	N= 53 (100%)		
Low Resilience	14 (26.4%)		
Moderate Resilience	33 (62.2%)		
High Resilience	6 (11.3%)		

Resilience Factor	Individuals by Response Category on the Likert Scale		
	(a) Disagree 1*, 2*, 3*	b) Neither agree nor disagree 4*	(c) Agree 5*, 6*, 7*
Factor I: Action and Values Resolution	1 (1.8%)	8 (15%)	44 (83%)
Factor II Independence and Determination	14 (26.4%)	19 (35.8%)	20 (37.7%)
Factor III: Self Confidence and Situational Adaptability	3 (5.6%)	12 (22.6%)	38

(a) individuals with average between 1 and 3,9 in their answers. (b) individuals with average between 3 and 4.9 in their answers. (c) individuals with average between 5 and 7 in their answers. 1*- Totally Disagree; 2*- Disagree a lot; 3*- Disagree a little; 4*- Neither agree nor disagree; 5*- Agree a little; 6*- Agree a lot; 7*- Totally agree.

Resilience is a complex construct that can be developed and is subject to environmental, personal and cultural variations. It is a tool that can assist in coping with the disabilities and consequences brought on by the loss of a limb. The profile of moderate resilience in lower limb amputees shows that these individuals have developed resources to overcome limb loss, but these individuals need to be monitored to ensure psychological well-being and balance, and to conduct training programs with the purpose of improving the level of resilience.

Studies on resilience in amputees are scarce in the national literature. We hope with this work to contribute significantly to the rehabilitation process of amputees and we suggest further studies on this theme.

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