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Assessment of Quality of Life in Patients with Lower Limb Amputation after Work Accidents

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Abstract: Amputation is the intentional removal, by surgery, of a limb segment or part of the body. By increasing the degree of urbanization and automation around the world, accidents are the most important cause of morbidity and mortality. Lower limb amputation is a life-changing event and has an impact on functional, work, social and recreational activities. Amputation can lead people to lose self-esteem, independence and work. Quality of life it is as a wide range of human experiences related to one's general well-being. For the specific psychosocial and functional testing of people who have undergone an amputation TAPES is more frequently used. The study included 7 patients with amputation of lower limbs, prostheses, who underwent unilateral or bilateral amputation of traumatic genesis at work. Patients filled in the Trinity Amputation and Prosthesis Experience questionnaire in order to estimate quality of life and Rosenberg scale to assess self-esteem. The adaptation to wearing the prosthesis is reported by 71.42% and more than 50% of the subjects are satisfied with their prosthesis. The factors with the greatest impact on functional abilities proved to be: the level of amputation, the duration of living with the amputation limb, the presence of other pathologies and psycho-emotional status. Medical rehabilitation programs improve the functional and psycho-emotional abilities of patients with lower limb amputations.

Keywords: *amputation, lower limb amputation, quality of life, work accident, TAPES.*

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1. Main text

Amputation is the intentional removal, by surgery, of a limb segment or part of the body. Traumatic amputation refers to the loss of a limb or segment of it by a trauma (section, tearing or crushing) resulting in disruption of continuity.

It is usually considered as a mutilating procedure but it should be understood by health professionals and patients as a reconstruction because it is able to relieve pain and be able to create functioning in relation to maintaining the compromised limb, when the procedure is correctly indicated.

By increasing the degree of urbanization and automation around the world, accidents are the most important cause of morbidity and mortality. From the literature in locomotor disorders, amputations rank is third after ankylosis and osteoarthritis. As a location by segments, in the first place is the amputation of the pelvic limb. In the case of severe trauma, the indication for amputation is evident when the injured limb is completely crushed. The specific level of the amputation after a trauma is determined by the viable tissue.

Lower limb amputation is a life-changing event and has an impact on functional, work, social and recreational activities.

Amputation can lead people to lose self-esteem, independence and / or even work. In fact, the psychosocial adjustment of limb loss has been compared to coping with the loss of a loved one and it is not uncommon for a person who has suffered an amputation to become depressed. Amputation itself is a change in body structure, but it has a great influence on many activities, participation in activities and quality of life. On the other hand, amputation causes a variety of physical and psychosocial challenges, including changes in body image and lifestyle, changes in self-concept, impaired physical functioning, use of the prosthesis, and pain (Matos et al., 2020).

The definition of quality of life is controversial and, despite its proliferation in this area, there is still no consensual definition. The dominant conceptualization characterizes the quality of life as a multidimensional construct that includes the dimensions of physical, psychological and social functioning being evaluated subjectively.

Quality of life is defined by the World Health Organization as an individual's perception of his or her position in life, in the context of the culture and value systems in which he or she lives, and in relation to his or

her goals, expectations, standards, and concerns. It is a concept widely affected in a complex way by a person's physical health, psychological state, level of independence, social relationships, relationship with the essential features of the environment and his spiritual, religious and personal beliefs. Quality of life allows us to understand the fundamental issues for each person and can bring results that contribute in approaching and restructuring of care programs.

Revicki D. et al. (2009) define quality of life as a wide range of human experiences related to one's general well-being. It implies a value based on subjective functioning compared to personal expectations and is defined by experiences, states and subjective perceptions. Quality of life is a very important area in amputated patients.

Quality of life is influenced in a complex way by physical health, psychological state, level of independence, social relationship and environmental relations. For patients with amputation, quality of life is more associated with pain, adaptation to the prosthesis and psychosocial well-being than with clinical or demographic variables such as age, gender, level and cause of amputation. The ability to walk is considered central to the perception of quality of life and it is impacts the ability to live independently and to have community participation. Persons with amputation may report a reduction in their quality of life immediately after limb loss, but over time the response may change depending on their adaptation to the new condition.

Quality of life is a major predictor of rehabilitation and has mainly been used to evaluate the effectiveness of the programmes and also to compare people with amputations with deseased or normal population (Sarroca, et al., 2021).

Self-esteem is a positive or negative attitude about self: an overall assessment of ones self-worth or value.

Adaptation after amputation requires a functional and psychosocial reorganization of the patient, but also of his living environment. The analysis of this multidimensional process can be done by applying quality of life assessment scales. Testing the quality of life in people who have undergone such surgeries must be multidimensional and focused on physical, functional and mental health, with a level of involvement in social life. To assess the quality of life of people who have suffered a limb amputation, it is recommended to use both generic and specific assessment scales.

Most frequently generic scales used in patients with amputation are: Nottingham Health Profile, SF-36 Health Survey, Rosenberg self-esteem questionnaire.

For the specific psychosocial and functional testing of people who have undergone an amputation, the Trinity Amputation Prosthetic Experience Scales (TAPES) is more frequently used.

The aim of the study is to determine whether physiotherapy programs applied to patients with lower limb amputation contribute to improving functional abilities and quality of life.

2. Method

The study included 7 patients with amputation of lower limbs, prostheses, who were hospitalized in the recovery department of the I.N.E.M.R.C.M., in Bucharest, between October 2020 and August 2021.

Inclusion criteria: male subjects, aged between 18 and 65 years, who underwent unilateral or bilateral amputation of traumatic genesis at work, use of prosthesis. Exclusion criteria served: age of patients (under 18 years), amputation for other reasons (eg. diabet, tumors), patients with severe mental problems, motor disorders of neurological genesis.

The group of subjects was applied active kinetic techniques for 14 days, daily, for 45-60 minutes.

We applied the Rosenberg scale to assess self-esteem and the TAPES scale to analyze psychosocial impact, functional capacity, self-assessment of health and satisfaction with the prosthesis.

Rosenberg Self-Esteem Scale (RSE) is a 10-item self-report questionnaire that assesses overall personal self-esteem on a summary scale. Each item was rated on a four-point Likert scale from 1 (strongly agree) to 4 (strongly disagree), producing a cumulative score of 0 to 30, where high mean scores (computed) indicate high self-esteem. Scores between 15 and 25 are within normal range and below 15 suggest low self-esteem.

TAPES consists of 9 subscales. There are 3 psychosocial subscales: general adjustment, social adjustment and adaptation to limitation. Each of these subscales contains 5 items, which are measured on a 5-point rating scale (total disagreement, disagreement, neither agree nor disagree, agree, strongly agree). The score ranges from 5 to 25, with higher scores indicating the higher levels of adjustment. TAPES also contain 3 activity restriction subscales: functional activity restriction, social activity restriction and athletic activity restriction. Each of these activities restriction subscales contains 4 items, which are measured on a 3-point scale (limited, limited, much limited). The score ranges from 3 to 12, with the higher scores indicating a much higher activity restriction. There are 3 additional subscales that evaluate satisfaction with the prosthesis, measured on a 5-point scale (very

dissatisfied, dissatisfied, neither dissatisfied, nor satisfied, satisfied, very satisfied). The functional satisfaction subscale contains 5 items, with a potential score that range from 5 to 25. There are 5 items in the aesthetic satisfaction subscale (e.g., color), with a potential score range from 4 to 20. Because the satisfaction of the weight contains only 1 item, the scores in this subscale range from 1 to 5. The Higher scores on each of the subscales indicate satisfaction or a much higher satisfaction with protection. TAPES also looks at the experience of phantom limb pain, residual limb pain, and other non-amputation-related medical problems. The items mentioned above is subdivided into questions regarding (1) the type of pain experienced, (2) how many of those mentioned, (3) how long each episode lasts, (4) how the pain level can be described, and (5) the extent in which it interferes with everyday life. This section of TAPES also incorporates 2 items that require answering to assess of their overall health and measured physical abilities, on a 5-point scale (very poor, 1; very good, 5)

3. Results

Table 1. Adaptation to prosthesis wearing
Source: Authors own conception

	Totally disagree	Disagree	Agree	Totally agree
Question		*I adapted to the prosthesis*		
	-	2	2	3
		28,57%	28,57%	42,85%
Question		*With time, I accept the prosthesis more and more*		
	-	-	3	4
			42,85%	57,14%

Table 2. Emotional involvement
Source: Authors own conception

	Totally disagree	Disagree	Agree	Totally agree
Question		*I feel that I have coped with the trauma*		
	-	1	2	4
		14,28%	28,57%	57,14%
Question		*Even if I wear a prosthesis, I live a full life*		
	-	1	2	4
		14,28%	28,57%	57,14%
Question		*I got used to prosthesis wearing*		
	-	1	3	3
		14,28%	42,85%	42,85%

Question	*It does not bother me if somebody looks at the prosthesis*			
	-	-	2	5
			28,57%	71,42%
Question	*I can easily speak about the prosthesis*			
	-	-	2	5
			28,57%	71,42%
Question	*I can easily speak about the amputated segment (limb)*			
	-	-	2	5
			28,57%	71,42%

Table 3. Limitation of daily activities and work abilities.
Source: Authors own conception

	Totally disagree	Disagree	Agree	Totally agree
Question	*The prosthetics makes me depend on other people more than I would want*			
	2	2	1	2
	28,57%	28,57%	14,28%	28,57%
Question	*The prosthesis limits my daily activities*			
	-	-	3	4
			42,85%	57,14%
Question	*The prosthesis has an impact on my ability to work*			
	1	1	2	3
	14,28%	14,28%	28,57%	42,85%
Question	*Being a person that suffered an amputation, I can not do activities that I want*			
	1	-	4	2
	14,28%		57,14%	28,57%
Question	*The prosthesis limits the type of work I can do*			
	1	1	4	1
	14,28%	14,28%	57,14%	14,28%
Question	*Having a prosthesis I can perform limited amount of work*			
	1	1	5	-
	14,28%	14,28%	71,42%	

Table 4. Limitation of activities of daily living
Source: Authors own conception

	Significantly limited	Litlle limited	Not limited
Question	*More difficult for: activities, running, sports, lifting of weights*		
	3	3	1
	42,85%	42,85%	14,28%
Question	*Climb a few floors up the stairs*		

	2	4	1
	28,57%	57,14%	14,28%
Question		*Running to get to the transport*	
	4	3	-
	57,14%	42,85%	
Question		*To practice light sports (recreational)*	
	2	5	-
	28,57%	71,42%	
Question		*To walk more than 2 kilometers*	
	3	4	-
	42,85%	57,14%	
Question		*To walk 100 meters*	
	-	2	5
		28,57%	71,42%
Question		*To carry out the activities of interest (hobbies)*	
	1	3	3
	14,28%	42,85%	42,85%
Question		*To go to work*	
	4	-	3
	57,14%		42,85%

Table 5. Satisfaction of prosthesis
Source: Authors own conception

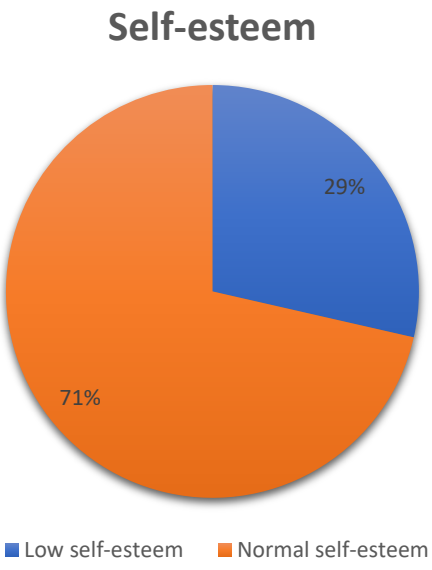
	Unsatisfied	Satisfied	Very satisfied
Question		*Colour*	
	-	4	3
		57,14%	42,85%
Question		*Form*	
	-	4	3
		57,14%	42,85%
Question		*Aspect*	
	-	4	3
		57,14%	42,85%
Question		*Weight*	
	1	3	3
	14,28%	42,85%	42,85%
Question		*Utility*	
	3	4	-
	42,85%	57,14%	
Question		*Utility / Safety*	
	-	4	3

		57,14%	42,85%
Question		*Fit*	
	-	4	3
		57,14%	42,85%
Question		*Comfort*	
	1	5	1
	14,28%	71,42%	14,28%

Table 6. Self-esteem
Source: Authors own conception

Subject	Score
M.S.	21
S.A.	27
B.D.	23
S.A.	14
I.C.	28
S.C	14
B.A	18

Chart 1. Self-esteem
Source: Authors own conception



Following the application of the Rosenberg scale, self-esteem is with normal values 71% of participants, 29% with low self-esteem. (Chart 1)

The adaptation to wearing the prosthesis is reported by 71.42%, the answer to which to the statement "I have adapted to wear prosthesis" is "agreement" and "total agreement"; only 28.58% of patients chose the "total disagreement" option. Also, accepting more and more of the prosthesis, 57.14% of patients stated "total agreement". (Table 1)

Psycho-emotional status, marked with "total disagreement" and "disagreement" with the statement "I feel I have dealt with this trauma", gathered a percentage of 42.85% (Table 2).

"I live a full life, although I wear a prosthesis" - a total admitted situation was 57.14% of patients.

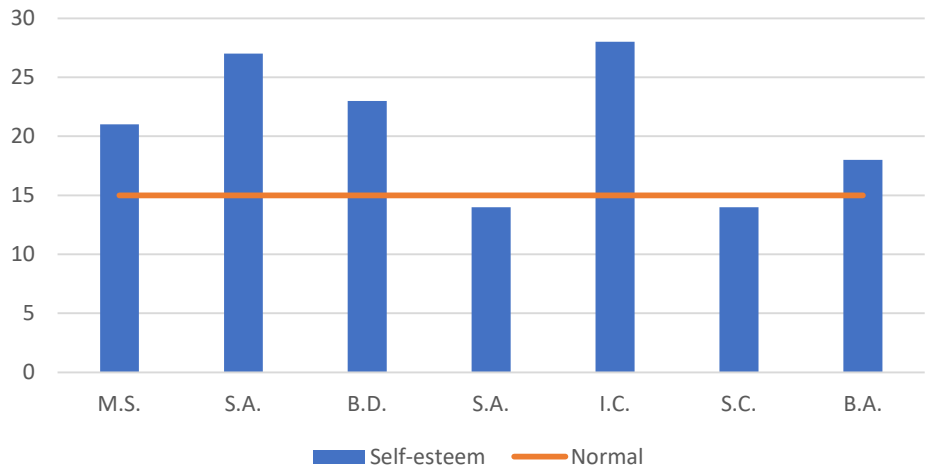
85.7% of the patients surveyed used to wear a prosthesis, and in about 42.85% of cases, wearing a prosthesis makes patients more dependent on other people to a much greater extent than they would like. Most of the patients declared the limitation of daily activities, especially, the vigorous activities were limited - running, sports, climbing stairs on several floors, going to work.

57% of patients had phantom pain in the amputated limb, and 14 % also had other diseases.

More than 50% of the subjects are satisfied with their prosthesis, in terms of appearance, weight etc.

4. Discussion

Graph 1. Difference of self-esteem
Source: Authors own conception



The interpretation of the results was performed, starting from the four main directions approached: psychosocial impact, functional capacity, self-assessment of health and self-esteem, but also the degree of satisfaction with the prosthesis. The factors with the greatest impact on functional abilities proved to be: the level of amputation, the duration of living with the amputation limb, the presence of other pathologies and psycho-emotional status.

The patients enrolled in the present study wore the prosthesis 1-9 hours a day. The degree of satisfaction with the prosthesis is closely correlated with the presence of pain syndrome and psycho-emotional status.

Patients receiving rehabilitation treatment have been shown to contribute to improving functional abilities and quality of life.

5. Conclusions

Medical rehabilitation programs improve the functional and psycho-emotional abilities of patients with lower limb amputations.

The quality of life assessed using the TAPES scale applied to patients with amputations allows the assessment of the effectiveness of medical rehabilitation programs.

Rosenberg Self-Esteem Scale used to patients with lower limb amputations allows to apreciate the self esteem after rehabilitation programs.

References

Matos, D., Naves, J., & Araujo, T. (2020). Quality of life of patients with lower limb amputation with prostheses. *Estudios psicologicos, 37*. https://doi.org/10.1590/1982-0275202037e190047

Revicki, D., Osoba, D., Fairclough, D., Barofsky, I., Berzon, R., Leidy, N. K., & Rothman, M. (2000). Recommendations on health-related quality of life research to support labeling and promotional claims in the United States. *Quality of Life Research, 9*, 887–900 https://doi.org/10.1023/A:1008996223999

Sarroca, N., Valero, J., Casanova, J., Luesma, M., & Lahoz, M. (2021). Quality of life, body image and serl-esteem in patients with unilateral transtibial amputations. *Scientific reports, 11*, 12559. https://doi.org/10.1038/s41598-021-91954-1