Social Support and it Association to Self-Efficacy among Users of Prostheses after Lower Limb Amputation

Abstract

Background: The research purpose was to investigate the self-efficacy and social support relationships among users of prostheses post-lower limb amputation. Understanding these relationships is crucial in comprehending how individuals adapt to life post-amputation and how their perceived capabilities and social interactions influence their rehabilitation and overall well-being.

Method: A correlational study conducted in the Baghdad City at Rusafa Health Department for the period from October 1, 2023 to March 24, 2024. The study sample consisted of 200 patients who were selected according to the non-probability sampling method. The questionnaire was validated by experts and its reliability was verified by a pilot study. Data were collected through interviews and analyzed using descriptive and inferential statistics.

Results: The study showed that a significant proportion of lower limb amputees using prostheses had low self-efficacy (60%) and moderate social support (40.5%). Additionally, there was a positive correlation between social support and self-efficacy, particularly in managing fatigue ($r = 0.133$), coping with pain ($r = 0.198$), handling emotional distress ($r = 0.172$), addressing other symptoms ($r = 0.180$) and health problems, and overall self-efficacy ($r = 0.173$).

Conclusions: Interventions aimed at strengthening social support networks can significantly improve self-efficacy and general well-being in this population, ultimately promoting better adjustment and quality of life after amputation.

Key-wards: Social Support, Self-efficacy, Prosthetic Limb Users, Amputation.

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INTRODUCTION

Lower limb amputation is the most severe traumatic experience, which a person has to go through, because it imposes physical, psychological and social difficulties on individuals. As a critical factor for the adaptation to amputation, social support helps amputees to adjust their lives post-amputation [2]. Social support refers to emotional, material, information and appraisal assistance gained or perceived from people within our social network [3]. People living with lower limb amputations usually require a multi-modal support system to cope with the intricacies of prosthetic use and the challenge of getting back to their normal lives [4]. One of the key components of self-efficacy is important in rehabilitation as it affects the individuals' persistence, efforts and resistance to the prosthetic usage related problems. Creating a link between social support and self-efficacy will play a vital role in achieving the best rehabilitation results and improving amputee patients' quality of life [5]. Although it is known that social support and self-efficacy play an important role in maintaining health in different contexts, the relationship between the two in the case of prostheses for lower limb amputation is yet to be examined in depth [6, 7]. Exploring the interdependence between social support and self-efficacy for this group of people is vital to be able to employ more effective interventions aimed at enhancing rehabilitation outcomes and promoting long-term adjustment [9]. This can be done by further explaining the ways social support can affect self-efficacy, which in turn helps the healthcare professionals to create targeted interventions that enhance individuals' abilities to adjust to prosthetic use and continue with their lives post-amputation [9,10]. In the light of scant literature on the interconnection of social support and self-efficacy in prosthesis-users after lower limb amputation, this study intends to tackle the existing gap by conducting a comprehensive exploration. The research uses quantitative approaches to unravel the social support-self-efficacy interconnectedness in the particular population. The results from this research, therefore, have a major impact on clinical practice, they are used to develop unique interventions that improve the rehabilitation process and promote general well-being of the patients who have recently lost their lower limbs due to amputation.

METHODS

Study Design

The descriptive correlational study design was adopted by questioning individuals of the study population and correlate between study variables was conducted during the period from October 1st, 2023 to March 24th, 2024.

Study Sitting and Sample

The study was conducted in Baghdad Health Directorate at Al-Rusafa/Al-Salam, Al-Ghadeer, and Sadr Al-Qana Centers for the rehabilitation of the disabled, and the Baghdad Health Directorate in Al-Rusafa/Al-Mustafa and Al-Hamza Centers for the Rehabilitation of the Disabled. By a Convenience (non-probability) sample of (200) clients was chosen based on a set of criteria include: 1) Clients who were use prostheses, 2) Clients who were lower limb amputation, 3) volunteer to participate in the study after his consent

Study Instrument

This questionnaire consists socio-demographic characteristics include amputees age, gender, marital status, education level, occupation, monthly income, have children, reason for amputation, level of amputation and its duration. Demographic characteristics and factors associated with amputation may be influencing factors the self-efficacy, as they differ from one person to another. The Self-Efficacy to Manage Chronic Disease Scale is made up of 6-items on a visual analog scale, ranging from 1 (not at all confident) to 10 (totally confident). The higher average define a higher self-confidence. The Cronbach-alpha value in current was 0.89 which indicate the higher reliability. A Multidimensional Scale of Perceived Social Support (MSPSS-12) were used, as the development of a self-report measure of subjectively assessed social support. A total of 12-items measured on 5-levels Likert scale (1= strongly disagree to 5 = strongly agree). The Cronbach-alpha value in current was 0.82 which indicate the higher reliability.

Data Collection

The researcher interviewee the clients through the mentioned rehabilitation center, explained the instructions, answered their questions regarding the form, urged them to participate and thanked them for the cooperation. The interview techniques was used on individual bases, and

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each interview (15-20) minutes after taking the important steps that must be included in the study design.

Statistical Analysis

All statistical analyses were performed using the IBM SPSS 20.0 software. Numbers and percentages were employed to rank the variables, while mean and standard deviation were utilized to statistically describe the continuous variables. A Kolmogorov-Smirnov (K-S test) and Shapiro-Wilk tests were used to test normality. Additionally, Pearson's Correlation Coefficients (r) were run to evaluate any statistical relationship between the groups. A 0.05 threshold for statistical significance was used.

RESULTS

Table (1):Socio-Demographic Characteristics

Socio-demographic data	Classification	No.	%
Age/years	<30	17	8.5
	30 to less than 40	28	14.0
	40 to less than 50	29	14.5
	50 to less than 60	58	29.0
	≥60	68	34.0
	Max—Min	*23—68*	
	M ± SD	*51.11±12.77*	
Gender	Male	154	77.0
	Female	46	23.0
Marital Status	Single	35	17.5
	Married	123	61.5
	Divorced	31	15.5
	Widower	11	5.5
Education level	Read and write	16	8.0
	Primary school	84	42.0
	Intermediate school	48	24.0
	Secondary school	32	16.0
	Collage	20	10.0
Occupation	Employee	12	6.0
	Self-employ	54	27.0
	Retired	99	49.5
	Unemployment	35	17.5
Monthly income	<300 IQD	60	30.0
	300 to less than 600 IQD	91	45.5
	600 to less than 900 IQD	18	9.0
	>900 IQD	31	15.5
Level of amputation	Upper knee	60	30.0
	Lower knee	140	70.0
Duration of amputation	<5	47	23.5
	5 to less than 10	24	12.0
	10 to less than 15	32	16.0
	>15	97	48.5
	Max—Min	*2—19*	
	M ± SD	*12.42±9.40*	

No.= Number; %= Percentage

Upon scrutinizing the characteristics of the 200 individuals participating in this prosthetics study, their ages spanned from 23 to 68, with an average age of 51.11±12.77 years. The gender distribution revealed a predominance of males (77%) compared to females (23%) among prosthetic users. Marital status indicated that a majority of participants were married (61.5%). Regarding educational background, 42% had completed primary school. Occupationally, 49.5% were identified as retired. The monthly income distribution showed that the majority (45.5%) fell within the 300-600 IQD range. With a predominant amputation level below the knee (70%) compared to above the

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knee (30%). The duration since amputation ranged from 2 to 19 years, with an average duration of (12.42±9.40) years after the lower limbs were amputated and prosthetic limbs were utilized.

Table (2): Distribution of Self-Efficacy and Social Support among Users of Prostheses

Scale	M ± SD	Score	No.	%
SE	22.33±12.48	Low	120	60.0
		Moderate	68	34.0
		High	12	6.0
SS	35.9±11.294	Low	66	33.0
		Moderate	81	40.5
		High	53	26.5

The study findings indicate that the significant proportion (60% and 40.5%) of prostheses users expressed low self-efficacy and moderate social support after lower limb amputations as indicated by average scores (22.33±12.48 and 35.9±11.294) respectively.

Table (3): Relationship between Self-efficacy among Prostheses Users and their Social Support

Correlation Statistics	1	2	3	4	5	6	7	8
1.Social Support	1							
2.Managing Fatigue	.113*	1						
3.Coping with Pain	.198**	.261**	1					
4.Handling Emotional Distress	.172*	.300**	.573**	1				
5.Addressing Other Symptoms	.180*	.082	.337**	.584**	1			
6.Health Management Tasks	.085	.015	.478**	.580**	.268**	1		
7.Beyond Medication	.070	.207**	.499**	.595**	.319**	.499**	1	
8.Overall SE	.173*	.448**	.759**	.879**	.622**	.686**	.754**	1

***. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2-tailed).*

The findings reveal a noteworthy positive correlation between the social support experienced by prostheses users and their self-efficacy. Specifically, in terms of managing fatigue ($r = 0.133$; $p < .005$), coping with pain ($r = 0.198$; $p < .001$), handling emotional distress ($r = 0.172$; $p < .005$), addressing others symptoms and health problems ($r = 0.180$; $p < .005$), and overall self-efficacy ($r = 0.173$; $p < .005$).

DISCUSSION

The study on prosthetics was conducted for 200 individuals with a wide age range of 23 to 68 years, with the mean of 51.11±12.77 years. These findings correlate with a study performed in outpatients clinics in Baghdad among patients with chronic diseases [11], pointing to the need for the provision of customizable prosthetic solutions tailored for different life stages to cater to the varying needs and preferences of individuals [11]. The gender composition showed a major majority of males (77%) in contrast to that of females (23%), which may be indicative of gender-based disparities in the area of healthcare and rehabilitation services. The first step in providing prosthetic care is to consider gender disparity and take necessary steps to make it equal. As it was demonstrated in the research which were conducted in Hilla city, the results which were achieved are in line with the data which were collected The results turned out to be as predicted that men with high-risk behavior have more chronic diseases than the comparison group [12]. Most of prosthetic users had a wife (61.5%) which proves that social supports are very important for people who have lost limbs or are under rehabilitation. Psychological adaptation and rehabilitation are tremendously aided by the support of family. It was similar to the results of a study that was carried out on heart centers in Baghdad- the city where these people, despite their diseases, were mostly married [13]. A 42% of participants had attended primary school showing possibly a disparity between education and knowledge about prosthetics among respondents. Tailor-made outreach programs can be a boon in enlightening and decision-making autonomy. This is the same as the

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report of the Al-Muthanna Teaching Hospital among the patients who were on dialysis. The analysis outputted that the patients in this class were more likely to be on the low end of the educational level scale [14]. As many as half of the respondents (49.5%) were retired, which is proof that getting to the vocational rehabilitation and employment services after amputation is not a simple matter, especially for the elderly. This study showed that the results are similar to the finding of another study which targeted diabetic foot patients with the majority of them having already retired [15]. The bulk of the respondents were within the 300-600 IQD monthly income class, thus it demonstrates the money issues related to the use of prosthetic devices. And subsidies and insurance coverage are a must for overcoming the financial barriers. 70% of amputations were below the knee which highlighted the imperative of having different specialized prosthetic designs targeted at the different levels of amputation for the purpose of optimizing mobility and comfort. Prosthetic users had the average duration of amputation of 12.42±9.40 years, highlighting the necessity of the constant prosthetic care and rehabilitation support during the lifespan of prosthetic users. Yet, availability, affordability, and ease of operation of the services of rehabilitation equipment are the key points to be taken into consideration in order to achieve the maximum utilization of the devices and effectiveness [16].

The study findings show that people who have undergone amputation of the lower limb encounter several difficulties, most notably self-efficacy and social support. An important share, constituting 60% of prostheses users, stated a low level of an efficacy index. This demonstrates that the amputees population is struggling to believe in their own self-efficacy in performing their daily routines and surmounting the challenges due to their amputations. The average self-efficacy score of 22.33±12.48 affirms the extensive nature of the problem. The studies have also shown that emotional wellbeing is an integral part of the rehabilitation of amputees and, therefore, it is very crucial to help the patients cope with the emotional distress and develop better coping skills [4, 17]. Emotional efficacy interventions can be considered as an important way to increase resilience and psychological adjustment among those who use prostheses.

Besides that, the research informs us that the 40.5% of prostheses users experience moderate levels of social support. This signals that although support is available, it might not be enough to cope with the emotional and practical challenges of an individual after the amputation is carried out. The mean social support score of 35.9±11.294 gives us qualitative data on the complex support structure which is being offered to these people. Both qualitative and quantitative measurements might be helpful to amputees during the rehabilitation process as they can tell details about social support which is more effective for the amputee recovery [2].

The social support is shown to enhance self-efficacy in prosthesis users. This shows that the role of interpersonal relations in shaping people's perception of their ability to deal with the challenges they face cannot be overlooked. As Bandura's Social Cognitive Theory is concerned, self-efficacy is a person's belief that they will be able to perform the actions necessary to attain the desired outcomes. This cognition is not made by itself, rather it is affected by social factors which include friendships and socialization [18]. The research indicates that people with more social support are more likely to have higher levels of self-efficacy, especially for the management of fatigue, coping with pain, dealing with emotional distress, addressing other symptoms and health problems, and for overall self-efficacy.

The particularly striking correlations found in this study give a statistical proof to the general concept that the social support is connected to the self-efficacy. The high positive relationship between the social support and the self-efficacy in different areas is represented by the correlation coefficients. To take another example, the r value of 0.133 for social support indicates that if social support increases by one unit, self-efficacy related to managing fatigue will improve by about 0.133 units. On the other hand, the coefficients for pain management ($r = 0.198$), emotional distress ($r = 0.172$), addressing other symptoms and health problems ($r = 0.180$), and overall self-efficacy ($r = 0.173$) moreover highlight the impact of social support and self-efficacy which was confirmed by previous studies for further associations [19, 2].

The significance levels ($p<.005$ or $p<.001$) associated with these correlations indicate that the given relationships are not likely to be by chance. What they do is that they suggest that the findings are replicable and reliable thereby strengthening the evidence that social support is important for self-efficacy of the prosthesis users. The result of this is similar to the previous studies showing that a social support acts as a stress-buffering function and helps to implement adaptive coping strategies [20, 21]. Those who are surrounded by a supportive social network are known to have

the self-efficacy that allows them to view problems as manageable and therefore believe in their ability to overcome them.

Furthermore, the particular domains in which the correlation between social support and self-efficacy was found offer practitioners a useful context to develop interventions that are geared towards improving the well-being of prosthesis users. Thus, the interventions such as the development of the social support networks, the coping skills or the enhancement of the mood may contribute to the improvement of the symptoms like the fatigue, coping with pain and addressing emotional distress. Through the establishment of community networks and a safe environment for people with prostheses, they may experience greater confidence in overcoming the physical and emotional problems associated with their condition [22].

The results of the study have shown that there is a positive correlation between social support and self-efficacy among prosthesis users especially in the areas of managing fatigue, coping with pain, experiencing a range of emotions, as well as addressing other symptoms and health problems, and self-efficacy overall. The data obtained from this research stress on the role of social support interventions for promoting resilience and well-being among individuals having prosthetic limbs, and this information is quite helpful for both clinical practice and future research projects.

CONCLUSIONS

The study highlights the prevalence of low self-efficacy and moderate social support among post-amputation lower limb prosthetic users. Moreover, the positive relationship between social support and self-efficacy underscores the importance of promoting supportive environments for these individuals. Therefore, interventions aimed at strengthening social support networks could significantly improve self-efficacy and general well-being in this population, ultimately promoting better adjustment and quality of life after amputation.

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