- *Basic Research*

Assessment of Prosthetic Outcomes, Coping Strategies and Social Support Among Patients with Lower Limb Amputation

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Abstract

Background: Lower limb amputation profoundly impacts physical and psychosocial well-being. This study aimed to assess prosthetic outcomes, coping strategies and social support among patients with lower limb amputation. **Subjects and methods:** The study involved a convenience sample of 60 adult male and female patients admitted to the above-mentioned settings lower limb amputation were included in the study. **Setting:** This study was conducted at the Orthopedic Departments at El- Hadara University Hospital and the affiliated Outpatients Clinics & one day outpatients' clinic Main University Hospital at Alexandria. **Tools:** Assessment tools included three tools; (I) Demographic and Clinical data, (II) Prosthetic outcomes questionnaire (III) Social support questionnaire, and Coping strategies questionnaire. **Results:** Results reveal significant correlations between robust social networks, proactive coping, and improved prosthetic integration, underscoring the need for holistic rehabilitation programs prioritizing psychosocial care alongside physical recovery. **Conclusion:** Lower limb amputation recovery hinges on psychosocial resilience as much as prosthetic functionality. Strong social support and proactive coping strategies significantly enhance prosthetic adaptation and overall quality of life, emphasizing the need for integrated care models addressing emotional and social challenges. **Recommendations:** To optimize post-amputation recovery, rehabilitation programs should prioritize integrating psychosocial support (e.g., counseling, peer networks) alongside prosthetic training, ensuring holistic care. Healthcare providers must be trained to identify maladaptive coping behaviors (e.g., avoidance) and encourage problem-focused strategies through structured interventions. Community-based support systems should be strengthened to mitigate social isolation, complemented by regular follow-ups to address evolving physical and emotional needs. Finally, personalized rehabilitation plans, tailored to individual coping styles and social resource availability, should be developed to enhance long-term adaptation and quality of life.

Keywords: Lower limb amputation; prosthetic outcomes; coping strategies; social support; rehabilitation; psychosocial adjustment; patient-centered care.

Introduction

Amputation is defined as the removal of a limb involving a part of the bone. Lower limb amputation constitutes around 85% of all amputations, making it the most prevalent type. Lower limb loss (amputation) can be classified into two categories: congenital (present at birth) and acquired. Acquired limb loss refers to the surgical excision of a portion or the entirety of a limb, typically resulting from trauma, illness, or surgical intervention. Limb amputation results in both functional and sensory deficits, as well as alterations in body image (Ramki et al., 2021). These alterations substantially impact an individual's Quality of Life (QoL). The incidence of lower limb amputations is 11 times greater than that of upper limb amputations.

The predominant global cause of lower limb amputation is diabetes mellitus. Additional causes encompass traumatic injury, neoplasia, vascular insufficiency, and congenital limb deficit. In underdeveloped nations, the predominant cause of amputation is traumatic incidents where prosthesis is predominantly prescribed for lower limb amputations (Baars et al., 2018). Lower limb prosthesis is utilized to enable individuals with amputated limbs to execute functional tasks, especially ambulation, which may be unattainable without the limb. The classification of prostheses is based on the degree of amputation. Lower limb amputation is conducted at various degrees, influencing the development of prosthesis (Guerra et al., 2018).

Prostheses are categorized by amputation level, including hemipelvectomy for entire lower limb and pelvis removal, hip disarticulation for femur removal at the hip, transfemoral for above above-knee amputations, transtibial for below-knee amputations, and Symes for ankle disarticulation with retained heel pad. In addition to prosthetic sockets, such as the patellar tendon bearing (PTB) and total surface bearing (TSB), which optimize comfort by distributing weight either on pressure-tolerant areas (PTB) or evenly across the limb (TSB). Each design addresses functional needs and reduces localized stress (Christopher et al., 2019).

Although, amputation is a preferred treatment for certain medical disorders, patient's psychological response to amputation is influenced by various factors, including age, kind and level of amputation, duration after amputation, social support, and active coping strategies. Most people undergoing limb amputations have a range of complex psychosocial reactions. Depression is a prevalent psychological response in amputees that can persist for 10 to 20 years post-amputation, adversely impacting their social and psychological adaptation to their physical condition (AlSofyani et al., 2016).

Amputees undergo devastation, sorrow, and occasional denial early following amputation. Inadequate social support and negative self-image are primary factors that hinder effective coping mechanisms. Culture significantly influences an individual's lifestyle, beliefs, attitudes, and their family and social networks. Facilitating the reintegration of individuals with lower limb amputations into their communities, together with providing the necessary support systems, is essential for ensuring a healthy adjustment process for amputees (Abouammoh et al., 2021).

Numerous individuals with amputations lack knowledge on managing their condition and caring for the severed leg; therefore, psychological training is essential to enhance adaptation techniques in amputee patients. Coping techniques serve as the intermediary mechanism between stressors and health outcomes. Coping is crucial in ascertaining whether a stressful situation leads to adaptive or maladaptive effects (Reichmann & Bartman, 2018).

Coping techniques vary among individuals due to life changes and the pressures associated with these differences in various contexts. Choosing suitable coping mechanisms helps

mitigate the impact of stress on mental well-being. Consequently, it may result in enhanced flexibility. A significant incidence of injuries, including amputations, results in hospitalization, the provision of medical and pre-hospital services, and the deployment of equipment and personnel for the treatment and rehabilitation of the injured (Valizadeh et al., 2014).

Therefore, professional, social, and psychological rehabilitation is essential to reintegrate the amputee's social and psychological compatibility within the family, workplace, and society. The family plays a crucial role in psychological and social recovery. Social support is characterized by the assistance and encouragement received from others, especially significant individuals. Research indicates that social support may serve as a mediating factor in adaptability style. If social support mitigates the effects of significant stress and mood disorders, it constitutes a mutually beneficial scenario (Hawkins et al., 2016).

Consequently, it is essential to offer social assistance to amputees. The rate of their adaptation is contingent upon the acceptance and support afforded by their family, friends, and community members. Their condition clearly needs assistance from others. Extensive social networks can provide individuals with regular positive experiences and a range of socially rewarding roles. This outcome can be associated with pleasure, as it engenders a favorable state of awareness and a sense of stability and acknowledgment in personally significant life situations (Reichmann & Bartman, 2018).

Nurses significantly contribute to rehabilitation by facilitating adaptation to new circumstances and alleviating patient stress. Nurses must evaluate the patient using a precise and methodical approach involving interviews, observation, and measurement. Subsequently, the maladaptive behaviors in physiological, self-concept, role function, and independent modes, along with behavioral stimuli, are identified, leading to the formulation of a precise educational plan to address these maladaptive behaviors. (Farsi & Azarm, 2016).

1. **The Aim of the Study:** The purpose of this research was to:
   Assess prosthetic outcomes, coping strategies and social support among patients with lower limb amputation.

1.1. Research Question: The following research questions were developed in order to fulfill the study's aim:

- Q1: What are the prosthetic outcomes, coping strategies, and social support of patients with lower limb amputations attending clinics at Orthopedic Hospital?

Method and Design:

1.2. Research Design.

- A descriptive research design was utilized for this study.

1.3. Settings

This study was conducted at the Orthopedic Departments at El- Hadara University Hospital and the affiliated Outpatients Clinics & one day outpatients' clinic Main University Hospital at Alexandria.

1.4. Subjects:

The study included a convenience sample of 60 adult male and female patients who had lower limb amputations and were admitted to the previously mentioned settings. The sample size was estimated using the following criteria in Epi info 7:

- An estimated 60 patients make up the whole population.

- 50% is the anticipated frequency.
- Error acceptable: 5%
- 95% is the confidence coefficient.
- 60 patients were the minimum sample size.

1.5. Research Sampling

The Epi Info 7 software was utilized to calculate the sample size, which was determined to be 60 adult patients.

Patients were considered eligible to participate in the study if they met the following criteria:

- Adults of both genders, (18≤60) years old.
- Agree to participate in the study.
- Capable of communicating freely and efficiently.
- Adequate cognitive state i.e. able to understand and collaborate.

1.6. Tools of the Study:

Three tools were used to collect the necessary data for this study.

Tool I: A demographic and clinical data interview schedule: this tool was developed by the researchers and included two parts:

Part I: Patients' demographic data: this part included items related to demographic characteristics, such as age, gender, level of education, occupation, marital status, residence, type of amputation, reason for amputation, type of prosthesis and duration of amputation.

Part II: Clinical data: this part included medical history, patient daily habits such as smoking and medications.

Tool II: Assessment of prosthetic outcome of patients with amputation: The **Questionnaire for Persons with a Transfemoral Amputation (Q-TFA)** was developed by (Legro et al.,1998) and (Roorda et al.,1996). The aim of the Q-TFA is to determine status regarding prosthetic use, prosthetic mobility, problems and satisfaction. The tool demonstrated strong internal consistency (Cronbach's $\alpha = 0.805$).

The questionnaire consists of **53 items** divided into **4 domains**:

1. **Prosthetic Use** (4 items)
2. **Prosthetic Mobility** (14 items)
3. **Prosthetic Problems** (27 items)
4. **Global Satisfaction** (8 items)

Scoring system:

The Q-TFA scoring system assess the four domains: Prosthetic Use (4 items) categorizes frequency/type of use (e.g., full-time, part-time, non-user); Prosthetic Mobility (14 items) uses a Guttman scale (0 = "unable" to 3 = "no difficulty"), summed to a total score (0–42); Prosthetic Problems (27 items) rates on a 5-point Likert scale (0 = "no problem" to 4 = "severe problem"), averaged to a 0–4 score; and Global Satisfaction (8 items) employs an 11-point scale (0 = "extremely dissatisfied" to 10 = "extremely satisfied"), averaged to a 0–10 score. Higher Mobility and Satisfaction scores, and lower Problems scores, indicate better prosthetic outcomes.

Tool III: Social support questionnaire for Amputees: This tool was developed by (Sarason et al.,1983) to evaluate perceived social support in individuals with amputation, focusing on availability, adequacy, and satisfaction with support networks. In included two parts.

Part I: Perceived social support: This part included 27 items for determining the level of social support perceived by patients with amputation. The options provided was based on the

4-point Likert scale of ('SA' – 'Strongly Agreed' (4), 'A' – 'Agreed' (4), 'D' – 'Disagreed' (2), 'and SD' – 'Strongly Disagreed' (1).

Scoring system:

- The total score **ranged from** 27–108 where (higher scores suggests better perceived social support).

Part II: Coping Strategies: this tool included 7 items to assess coping strategies against psychological distress among patients with amputation. The options provided were based on the 4-point Likert scale of; Not at all (NA) (0), To an extent (TE) (1), To a large extent (TLE) (2), and to a very large extent (TVLE) (3).

Scoring system:

- The total score **ranged from** 0–21 (higher scores indicate **greater use of adaptive coping strategies**).
- The tool demonstrated strong internal consistency (Cronbach's α = 0.778, 0.856) for part I and II.

Ethical Consideration

The Ethical Committee of Alexandria University Faculty of Nursing in Egypt provided written approval for the study's conduct (No: IRB99913620 (9/19/2025)). Official permission was also obtained from the Dean of the Faculty of Nursing. As well authorization from the relevant authorities at the study setting for data collection, following a detailed explanation of the study's purpose was obtained. Written patient's informed consent to participate in the research was acquired after an explanation of the study's objectives. Throughout the study, confidentiality of the data obtained, anonymity, and privacy of the study participants were guaranteed.

1.7. Pilot Study

Ten percent of patients (6 patients) who met the inclusion criteria participated in pilot study to evaluate the tools' usability, clarity, and suitability. As a result, the required changes were made. The pilot sample participants were not included in the study sample. The purpose of this pilot was to evaluate the research tools' applicability, feasibility, and clarity.

1.8. Validity and Reliability of Tools

The tools demonstrated strong internal consistency Cronbach's α as follows.

Social Support Questionnaire (Tool I, Part I)	0.778
Coping strategies questionnaire (Tool I, Part II)	0.856
Prosthetic outcomes questionnaire (Tool I)	0.805

Tools I was developed by researchers while tools (II, III) were adopted. All study tools were evaluated for content validity by 5 Medical-Surgical Nursing experts to ensure that items are clear, comprehensive, appropriate and the necessary modifications were done.

1.9. Data Collection

Data collection was gathered over a period of eight months, from December 16th, 2022, to August 28th, 2023. Data was collected during the morning shift every day after explaining the purpose of the study by the researchers. Tools filling took about 30-45 minutes. Each patient was interviewed individually once by the researcher to collect the needed data related to Assessment of prosthetic outcomes, coping strategies and social support among patients with lower limb amputation.

1.10. Data Analysis and Processing:

Data were fed to the computer and analyzed using IBM SPSS software package version 23.0 and (AMOS 23.0). Pearson coefficient was used to correlate between normally distributed quantitative variables. Regression to detect the most independent/ affecting Prosthetic outcomes. Structure Equation Modeling was assessed using AMOS 23. 0 software to detect the Direct and Indirect Effect of Coping strategies on Prosthetic outcomes with Social Support as a mediator. The significance of the obtained results was judged at the 5% level.

Results

Table (1) displays sociodemographic characteristics of the studied patients. Regarding patients' age, the results revealed that the highest percentage of patients (51.7%), were between 31 – 35 years of age with mean age of 38.48 ± 5.69. Most of the studied patients were males, married and were secondary educated. Concerning work status, it was noticed that the highest percentage of patients (50.0%) were office workers. As regards residence area the majority (91.7%) of patients reside in urban areas. Furthermore, all patients reported insufficient income.

Table (2): Distribution of the studied patients according to clinical data and daily habits of the patient (n = 60)

Table (2): illustrates clinical data of the studied patients. As regards the type of amputation, the results revealed that (91.7%) of patients have undergone unilateral amputation where the **duration of amputation** is largely less than less than 6 months among (81.7%) of patients. The predominant reason for amputation is trauma among (75.0%) patients. Regarding **the type of prosthesis,** the results revealed that (78.3%) of patients use above knee prosthetics.

As regards patients' daily habits (65.0%) of patients smoke and the same percentage admitted continuing to smoke after their illness. Additionally, there is a significant use of medication among the patients studied where (71.7%) of patients reported the use of antidepressants while (28.3% of them use analgesic and muscle relaxant.

Table (3): Social support levels among the studied patients (n = 60)

Table (3): Presents levels of social support among the studied patients. It was found that the overall social support of the studied patients indicates a moderate level of received social support among 73.3% of the studied patients with lower limb amputation.

Table (4): Coping strategies levels among the studied patients (n = 60)

Table (4): Presents coping strategies to manage psychological distress among the studied patients with 100% of participants indicating low coping levels.

Table (5): Prosthetic use outcomes among the studied patients (n = 60)

In relation to prosthetic outcomes, table 5 demonstrates a generally positive high outcome with high overall prosthetic use scores among 75% of the studied patients. Specifically, in relation to basic activities such as standing and carrying concerning the effectiveness of the prostheses, the table shows near-universal success. However, in relation to more complex activities like stair navigation and uneven terrain walking, the results highlight areas for potential prosthetic or rehabilitation improvements. Furthermore, in relation to activities like floor sitting, cycling,

and bathing, concerning the challenges faced by participants, the table indicates a need for advancements in prosthetic design or training to enhance performance.

Table (6): Prosthetic outcomes problems score among the studied patients (n = 60)

Concerning prosthetic problems reported by the studied patients, table (6) reveals a consistent tendency of high problem scores across most measured areas, indicated by a mean overall problem score of (3.47 ± 0.68) with 95% of participants reporting high problem scores for most reported problems. In relation to pain, discomfort, and functional limitations, including problems such as phantom pains, stump pain, back pain, and difficulties with walking and balance, the table shows high problem scores among all studied patients. However, in relation to donning/doffing and secure fastening, concerning practical aspects of prosthesis use, a prominent shift towards moderate problem scores was reported by the studied patients. Furthermore, regarding environmental factors such as heat and cold, and complete refrainment from using the prosthesis, the table shows 100% of the participants reported a moderate problem score.

Table (7): Prosthetic outcomes satisfaction levels regarding prosthetic features (n = 60)

Table (7): Presents the satisfaction levels regarding prosthetic features among the studied patients, revealing a prominent consistency of low satisfaction across all measured categories, including color, shape, appearance, weight, usefulness, reliability, fit, and comfort, with 100% of participants reporting low satisfaction (mean score of 1.00 ± 0.00). This indicates significant dissatisfaction with the aesthetic and functional aspects of the prostheses. In contrast, the overall prosthetic outcomes questionnaire, encompassing a broader range of factors, showed a more varied distribution, with 100% of patients reporting low satisfaction level (mean score of 1.00 ± 0.00).

Table (8): Correlation table between the study variables

Table (8) shows the correlation between study variables which display several significant relationships related to prosthetic outcomes. The table shows that social support positively correlates with coping strategies ($p = 0.002$). On the other hand, both social support and coping strategies show a negative correlation with prosthetic use score ($p < 0.001$, $p = 0.002$) and prosthetic problems score ($p = 0.004$; $p < 0.001$). The table also shows that there is no significant correlation between satisfaction levels and other study variables, while the overall prosthetic outcomes show strong negative correlation with social support ($p < 0.001$) and coping strategies ($p < 0.001$), and a positive correlation with prosthetic use score ($p < 0.001$).

Table (9): Effect of Coping strategies and Social Support on Prosthetic outcomes questionnaire (n = 60) (Multiple Linear Regression Analysis)

The table shows strong negative relationship between social support, coping strategies and prosthetic outcomes. Figure(1)

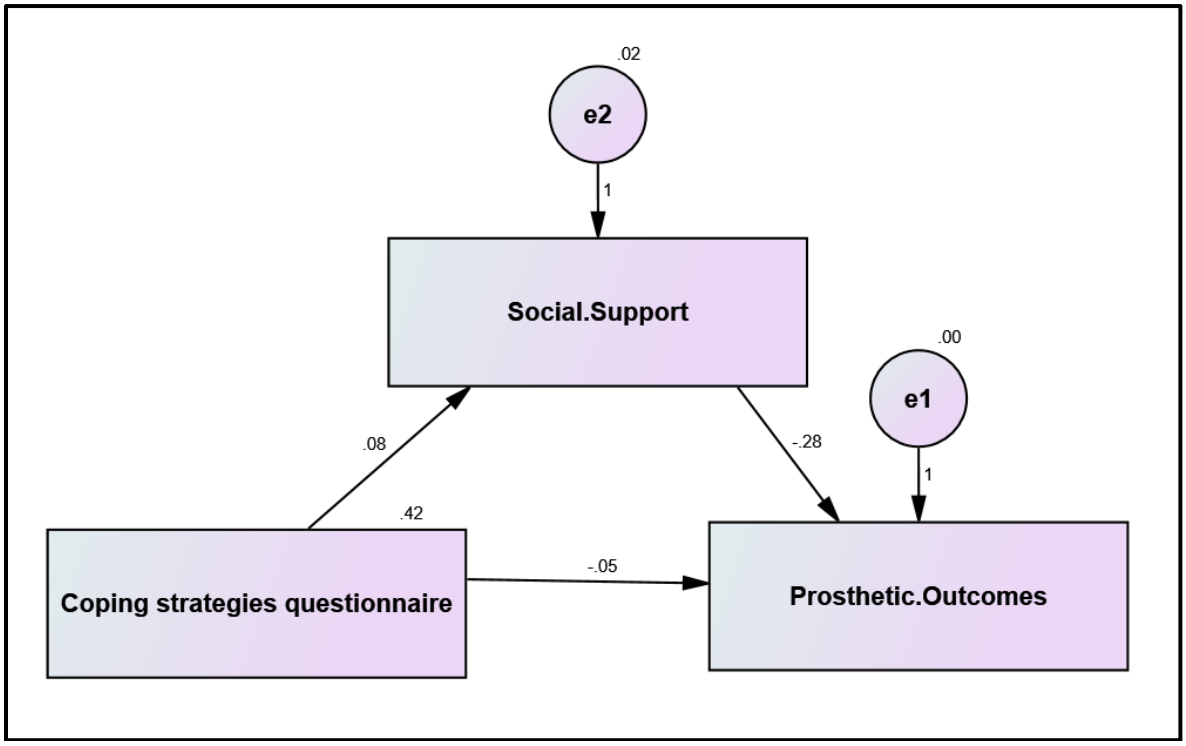

Figure (1): Structure Equation Modeling (n = 60)
Model fit parameters CFI; IFI; RMSEA (1.000; 1.000; 0.596).
CFI = Comparative fit index; IFI = incremental fit index; and RMSEA = Root Mean Square Error of Approximation. Model χ^2; significance 21.970*(<0.001*)

Table (10): Direct and Indirect Effect: Path analysis of coping, social support and prosthetic outcomes.

Table (10) shows the direct and indirect effect of social support and coping strategies where coping strategies positively affect social support but negatively impact prosthetic outcomes. Additionally, social support shows a significant negative relationship with prosthetic outcomes.

Table (11): Direct and Indirect Effect: Path analysis of coping, social support and prosthetic outcomes.

The analysis shows coping strategies positively influence social support but negatively impact prosthetic outcomes both directly and indirectly.

Table (1): Distribution of the studied sample according to demographic data (n = 60)

Demographic data	No	%
Age		
<20	6	10.0
21 – 25	15	25.0
26 – 30	8	13.3
31 – 35	31	51.7
36 – 40	6	10.0
≥41	15	25.0
Mean ± SD	**38.48 ± 5.69**	
Gender		
Male	43	71.7
Female	17	28.3
Marital status		
Not married	0	0.0
Married	56	93.3
Widowed or divorced	1	1.7
Living alone	3	5.0
Level of education		
Illiterate	3	5.0
Read and write	10	16.7
Primary	12	20.0
Preparatory	8	13.3
Secondary	22	36.7
University	5	8.3
Residence		
Urban	55	91.7
Rural	5	8.3
Work status	12	20.0
Manual work	1	1.7
Office works	30	50.0
No work	17	28.3
Housewife	12	20.0
Income		
- Enough		
- Not enough	60	100.0
- Enough and save	0	0.0
Other	0	0.0

Table (2): Distribution of the studied sample according to clinical data and daily habits of the patient (n = 60)

Clinical data	No	%
Type of amputation		
- Unilateral	55	91.7
- Bilateral	5	8.3
Duration of amputation		
- <6 months	49	81.7
- ≥6 months	11	18.3
Reason for amputation		
- Trauma (including war injuries)	45	75.0
- Vascular disease	8	13.3
- Congenital problem	0	0.0
- Tumor	0	0.0
- Infection	7	11.7
What type of prosthesis do you have		
- Below knee	13	21.7
- Through knee	0	0.0
- Above knee	47	78.3
Medical history		
- Diabetes	22	36.7
- Heart disease	0	0.0
- Hypertension	2	3.3
- Cancer	0	0.0
- Vascular disease	26	43.3
- Neurological diseases	10	16.7
- Respiratory diseases	0	0.0
Daily habits of the patient		
Smoking		
- No	21	35.0
- Yes	39	65.0
Did you still smoke after illness		
- No	21	35.0
- Yes	39	65.0
Drugs use		
- Antidepressants	43	71.7
- Analgesics Muscle relaxants	17	28.3
- Nonsteroidal anti-inflammatory drugs	0	0.0

Table (3): Social support levels among the studied patients (n = 60)

	Social Support	Mean ±SD	Low		Moderate		High	
			No.	%	No.	%	No.	%
1	My family members try their best every day to give me the best support.	0.78 ± 0.42	13	21.7	47	78.3	0	0.0
2	My friends always visit me and show that they care through their financial support.	0.78 ± 0.42	13	21.7	47	78.3	0	0.0
3	There is a special person who is around whenever I need assistance for anything.	0.78 ± 0.42	13	21.7	47	78.3	0	0.0
4	My family members ensure that I get emotional help and support whenever they see the need.	0.78 ± 0.42	13	21.7	47	78.3	0	0.0
5	I always get support whenever I need it to share moments of joy and sorrow.	0.78 ± 0.42	13	21.7	47	78.3	0	0.0
6	I talk about my problems with my family freely and I get support where needed.	0.78 ± 0.42	13	21.7	47	78.3	0	0.0
7	My friends, especially the closest ones, always try to be of assistance to me whenever I need them.	0.78 ± 0.42	13	21.7	47	78.3	0	0.0
8	I also have friends with whom I can share my moments of joy and sorrow	2.00 ± 0.00	30	50.0	30	50.0	0	0.0
9	I can always count on my family and friends for support whenever I need them.	0.50 ± 0.50	30	50.0	30	50.0	0	0.0
10	I talk about my challenges with some friends, and I get support where needed.	0.50 ± 0.50	30	50.0	30	50.0	0	0.0
11	I sometimes get the needed social support even from my neighbors in my immediate environment and in my general neighborhood.	0.00 ± 0.00	60	100.0	0	0.0	0	0.0
12	My family is always willing to assist me in taking relevant decisions whenever I need to make them, based on my present situation.	0.00 ± 0.00	60	100.0	0	0.0	0	0.0
13	I have adjusted to prosthesis.	1.00 ± 0.00	0	0.0	60	100.0	0	0.0
14	As time goes by, I accept my prosthesis more.	1.00 ± 0.00	0	0.0	60	100.0	0	0.0
15	I feel that I have dealt successfully with this trauma in my life.	0.65 ± 0.48	21	35.0	39	65.0	0	0.0
16	Although I have prosthesis, my life is full.	0.65 ± 0.48	21	35.0	39	65.0	0	0.0
17	I have gotten used to wearing a prosthesis	0.65 ± 0.48	21	35.0	39	65.0	0	0.0
18	I don’t care if somebody looks at my prosthesis.	0.65 ± 0.48	21	35.0	39	65.0	0	0.0
19	I find it easy to talk about my prosthesis.	0.65 ± 0.48	21	35.0	39	65.0	0	0.0
20	I don’t care if somebody notices that I am limping.	0.65 ± 0.48	21	35.0	39	65.0	0	0.0
21	Having prosthesis makes me more dependent on others than I would like to be.	0.00 ± 0.00	60	100.0	0	0.0	0	0.0
22	Having the prosthesis limits the kind of work that I want to do.	0.00 ± 0.00	60	100.0	0	0.0	0	0.0
23	Having the prosthesis limits the amount of work that I want to do.	0.00 ± 0.00	60	100.0	0	0.0	0	0.0
24	Prosthesis interferes with my ability to do my work.	0.00 ± 0.00	60	100.0	0	0.0	0	0.0
25	Being amputee means that I cannot do what I want to do	0.65 ± 0.48	21	35.0	39	65.0	0	0.0
26	I found it easy to talk about my limb loss.	0.65 ± 0.48	21	35.0	39	65.0	0	0.0
27	I don’t mind people asking about my prosthesis.	0.65 ± 0.48	21	35.0	39	65.0	0	0.0
	Overall Social Support	**0.67 ± 0.49**	**13**	**21.7**	**47**	**78.3**	**0**	0.0

Table (4): Coping strategies levels among the studied patients (n = 60)

	Coping strategies	Mean ±SD	Low		Moderate		High	
			No.	%	No.	%	No.	%
1	In order to avoid and also cope with psychological distress, I distance myself from people.	1.87 ± 1.46	60	100.0	0	0.0	0	0.0
2	In order to avoid and also cope with psychological distress, I use the social support of those around me.	0.73 ± 0.45	60	100.0	0	0.0	0	0.0
3	I believe in prayers, moving closer to God and engaging in other religious activities as the only means of coping with my situation.	1.45 ± 1.51	60	100.0	0	0.0	0	0.0
4	I consume lots of alcoholic drinks in order to cope with my situation and psychological distress.	0.33 ± 0.48	60	100.0	0	0.0	0	0.0
5	I use excessive drugs to cope with psychological distress.	0.45 ± 0.50	60	100.0	0	0.0	0	0.0
6	I browse the internet excessively to engage my mind so as to forget my distress.	0.45 ± 0.50	60	100.0	0	0.0	0	0.0
7	I watch TV alone a lot to cope with psychological distress.	0.45 ± 0.50	60	100.0	0	0.0	0	0.0
	Overall Coping strategies	**0.82 ± 0.65**	**60**	**100.0**	**0**	**0.0**	**0**	**0.0**

Table (5): Prosthetic use outcomes among the studied patients (n = 60)

	Prosthetic use score	Mean ±SD	Low		Moderate		High	
			No.	%	No.	%	No.	%
1	Walking up and down stairs without a handrail:	1.73 ± 0.45	0	0.0	16	26.7	44	73.3
2	Walking up a hill:	1.78 ± 0.42	0	0.0	13	21.7	47	78.3
3	Walking down a hill	1.78 ± 0.42	0	0.0	13	21.7	47	78.3
4	Walking over uneven terrain, e.g. on forest trails or fields:	1.75 ± 0.44	0	0.0	15	25.0	45	75.0
5	Walking quickly over a distance of 50 meters:	1.78 ± 0.42	0	0.0	13	21.7	47	78.3
6	Walking while carrying a bag of food shopping or light suitcase:	1.78 ± 0.42	0	0.0	13	21.7	47	78.3
7	Standing up for 10-15 minutes without support and without discomfort:	2.00 ± 0.00	0	0.0	0	0.0	60	100.0
8	Walking across the room carrying a tray with both hands:	2.00 ± 0.00	0	0.0	0	0.0	60	100.0
9	Sitting comfortably in a low armchair or in the back seat of a car:	1.90 ± 0.30	0	0.0	6	10.0	54	90.0
10	From a seated position, bending down and tying your shoelaces:	1.90 ± 0.30	0	0.0	6	10.0	54	90.0
11	Easily sitting down on the floor and standing up again:	1.32 ± 0.47	0	0.0	41	68.3	19	31.7
12	Cycling	1.32 ± 0.47	0	0.0	41	68.3	19	31.7
13	Shower or bath	1.32 ± 0.47	0	0.0	41	68.3	19	31.7
14	Sit down and get up from a chair with high seat	1.32 ± 0.47	0	0.0	41	68.3	19	31.7
15	Sit down and get up from toilet	1.72 ± 0.45	0	0.0	17	28.3	43	71.7
	Overall Prosthetic use score	**1.70 ± 0.42**	**0**	**0.0**	**15**	**25.0**	**45**	**75.0**

Table (6): Prosthetic outcomes problems score among the studied patients (n = 60)

	Problem score	Mean ±SD	Low		Moderate		High	
			No.	%	No.	%	No.	%
1	Have you experienced phantom pains?	3.77 ± 0.43	0	0.0	0	0.0	60	100.0
2	Have you had pain in your residual limb (stump) when not wearing the prosthesis?	3.77 ± 0.43	0	0.0	0	0.0	60	100.0
3	Have you experienced back pain?	3.77 ± 0.43	0	0.0	0	0.0	60	100.0
4	Have you had pain in your shoulders?	3.77 ± 0.43	0	0.0	0	0.0	60	100.0
5	Have you experienced pain in your other leg?	3.77 ± 0.43	0	0.0	0	0.0	60	100.0
6	Have you been troubled by the appearance of your residual limb (stump)	3.77 ± 0.43	0	0.0	0	0.0	60	100.0
7	Have you been troubled by being with other people without your prosthesis?	3.77 ± 0.43	0	0.0	0	0.0	60	100.0
8	Have you had difficulty using public transport?	3.77 ± 0.43	0	0.0	0	0.0	60	100.0
9	Have you had difficulty visiting public places such as the cinema, theatre, museum or sports ground?	3.77 ± 0.43	0	0.0	0	0.0	60	100.0
10	Have you been troubled by not being able to have your hands free when using a walking aid?	3.77 ± 0.43	0	0.0	0	0.0	60	100.0
11	Have you had pain in your residual limb (stump) when standing and walking?	3.77 ± 0.43	0	0.0	0	0.0	60	100.0
12	Have you had difficulty putting on (donning) or removing (doffing) the prosthesis?	2.02 ± 0.13	0	0.0	59	98.3	1	1.7
13	Have you been unable to rely on the prosthesis being securely fastened?	2.02 ± 0.13	0	0.0	59	98.3	1	1.7
14	Have you been troubled by noises from the prosthesis' socket?	3.67 ± 0.51	0	0.0	1	1.7	59	98.3
15	Has the prosthesis made it uncomfortable to sit down?	3.67 ± 0.51	0	0.0	1	1.7	59	98.3
16	Has the prosthesis made it troublesome to sit on the toilet?	3.67 ± 0.51	0	0.0	1	1.7	59	98.3
17	Has the prosthesis given rise to sores, chafing or skin irritation?	3.67 ± 0.51	0	0.0	1	1.7	59	98.3
18	Have you had trouble maintaining good hygiene on your residual limb (stump)	3.67 ± 0.51	0	0.0	1	1.7	59	98.3
19	Has the prosthesis caused an increased wear on your clothes?	3.67 ± 0.51	0	0.0	1	1.7	59	98.3
20	Have you had difficulty directing and keeping control of the prosthesis?	3.67 ± 0.51	0	0.0	1	1.7	59	98.3
21	Have you been unable to walk quickly?	3.67 ± 0.51	0	0.0	1	1.7	59	98.3
22	Have you been unable to walk in woods or fields?	3.90 ± 0.30	0	0.0	0	0.0	60	100.0
23	Have you been troubled by the way you walk (e.g. limping / waddling)	3.90 ± 0.30	0	0.0	0	0.0	60	100.0
24	Have you had difficulty feeling what type of surface you are standing/walking on?	3.90 ± 0.30	0	0.0	0	0.0	60	100.0
25	Does your residual limb (stump) become tired when walking with the prosthesis?	3.90 ± 0.30	0	0.0	0	0.0	60	100.0
26	Have you been troubled by the prosthesis feeling heavy?	3.90 ± 0.30	0	0.0	0	0.0	60	100.0
27	Have you been troubled by the appearance of the prosthesis (color, shape, surface)	3.90 ± 0.30	0	0.0	0	0.0	60	100.0
28	Have you been forced to refrain entirely from using the prosthesis?	2.00 ± 0.00	0	0.0	60	100.0	0	0.0
29	During last summer, have you been troubled by heat/sweating of your residual limb (stump)	2.00 ± 0.00	0	0.0	60	100.0	0	0.0
30	During last winter, have you been troubled by the cold in or on your residual limb (stump) when wearing the prosthesis?	2.00 ± 0.00	0	0.0	60	100.0	0	0.0
	Overall Problem score	**3.47 ± 0.68**	**0**	**0.0**	**3**	**5.0**	**57**	**95.0**

Table (7): Prosthetic outcomes satisfaction levels regarding prosthetic features (n = 60)

	Satisfaction about prosthesis	Mean ±SD	Low		Moderate		High	
			No.	%	No.	%	No.	%
1	- Color	1.00 ± 0.00	60	100.0	0	0.0	0	0.0
2	- Shape	1.00 ± 0.00	60	100.0	0	0.0	0	0.0
3	- Appearance	1.00 ± 0.00	60	100.0	0	0.0	0	0.0
4	- Weight	1.00 ± 0.00	60	100.0	0	0.0	0	0.0
5	- Usefulness	1.00 ± 0.00	60	100.0	0	0.0	0	0.0
6	- Reliability	1.00 ± 0.00	60	100.0	0	0.0	0	0.0
7	- Fit	1.00 ± 0.00	60	100.0	0	0.0	0	0.0
8	- Comfort	1.00 ± 0.00	60	100.0	0	0.0	0	0.0
	Overall Satisfaction about prosthesis	1.00 ± 0.00	60	100.0	0	0.0	0	0.0
	Overall Prosthetic outcomes questionnaire	1.00 ± 0.00	**100**	**0.0**	0	0.0	0	0

Table (8): Correlation table between the study variables

		Social Support	Coping strategies	Prosthetic use score	Problem score	Satisfaction about prosthesis	Overall Prosthetic outcomes questionnaire
Social Support	r						
	p						
Coping strategies	r	0.386*					
	p	0.002*					
Prosthetic use score	r	-0.620*	-0.398*				
	p	<0.001*	0.002*				
Problem score	r	-0.368*	-0.448*	-0.065		-	
	p	0.004*	<0.001*	0.620		-	
Satisfaction about prosthesis	r	-	-	-	-	-	-
	p	-	-	-	-	-	-
Overall Prosthetic outcomes questionnaire	r	-0.686*	-0.616*	0.568*	0.784*	-	
	p	<0.001*	<0.001*	<0.001*	<0.001*	-	

*: Statistically significant at $p \leq 0.05$ r: Pearson coefficient

Table (9): Effect of Coping strategies and Social Support on Prosthetic outcomes questionnaire (n = 60) (Multiple Linear Regression Analysis)

	B	Beta	t	p	95% CI	
					LL	UL
Social Support	-0.276	-0.527	5.922*	<0.001*	-0.370	-0.183
Coping strategies	-0.047	-0.412	4.628*	<0.001*	-0.068	-0.027
R^2=0.616, F=45.622*,p<0.001*						

F,p: f and p values for the model, R^2: Coefficient of determination, B: Unstandardized Coefficients, Beta: Standardized Coefficients

t: t-test of significance, LL: Lower limit UL: Upper Limit, *: Statistically significant at $p \leq 0.05$

Table (10): Direct and Indirect Effect: Path analysis of coping, social support and prosthetic outcomes.

Variable 1		Variable 2	Standardized regression weights	S.E	C.R	p-value
Social Support	←	**Coping Strategies**	0.085	0.026	3.213*	0.001*
Prosthetic Outcomes	←	**Coping Strategies**	-0.047	0.010	-4.709*	<0.001*
Prosthetic Outcomes	←	**Social Support**	-0.276	0.045	-6.025*	<0.001*

Table (11): Direct and Indirect Effect: Path analysis of coping, social support and prosthetic outcomes.

Variables		Direct effect	Indirect effect	CI			p-value
Coping Strategies - >	**Social Support**	0.085	0.0	0.0	-	0.471	0.001*
Coping Strategies - >	**Prosthetic Outcomes**	-0.047	-0.023	-0.616	-	-0.09	<0.001*
Social Support - >	**Prosthetic Outcomes**	-0.276	0.0	-0.803	-	-0.201	<0.001*

Discussion

The findings of this study provide critical insight into the multifaceted experience of lower limb amputee emphasizing the interplay between physical, psychological, and social facets in rehabilitation process. By evaluating prosthetic outcomes alongside coping strategies and social support this study emphasizes the necessity of holistic approach, patient-centered care plans that aim not only at functional restoration, but at emotional well-being and community integration. This aligns with previous findings, indicating that individuals with stronger social support report better mobility, and psychological adjustment post-amputation (Gallagher & MacLachlan, 2001).

Demographic Characteristics

The sociodemographic profile of the study participants provides key background information for the interpretation of the generalizability of prosthetic success, coping, and perceived social support for people with lower limb amputation. The findings reveal that the majority of participants were men of early to mid-adulthood, consistent with dominant epidemiological patterns where men are overrepresented among traumatic injuries leading to amputation. This also occurs internationally and is largely attributed to increased male participation in risky professions such as construction, the military, or transportation (Ziegler-Graham et al., 2008). In relation to age, participants were most commonly within the working-age group, which implies that limb loss imposes a large economic and occupational burden.

Individuals at this age of their life are predominantly engaged in supporting the family and financial sustainability, and physical disability development can lead to long-term psychosocial disability like unemployment, poverty, and altered self-image (Coffey et al., 2009). They need early and comprehensive rehabilitation, not only in physical mobility but also vocational re-establishment. Marital status in the study had a strong tendency towards marriage, and this can be utilized as one of the possibly beneficial factors during rehabilitation. Marital relationships have been associated with increased perceived emotional and instrumental support in amputees and could influence the psychological effect of limb loss. Yet it is also important to note the mutual direction of this relationship; while healthy relationships with spouses can augment coping, dysfunctional relationships can amplify psychological distress as well as dependency.

Educational level was not uniform among participants, with the majority having secondary education, and very few having university education. This variable is strongly associated with various rehabilitation outcomes such as knowledge of prosthesis care, availability of resources, and ability to communicate effectively with healthcare providers. Decreased levels of education have also been associated with poorer health outcomes, reduced coping capacity, and reduced access to work following amputation (Cutler & Lleras-Muney, 2010). The findings support the need for affordable and educated education strategies for lower-literacy prosthetic users. The data further indicates that a majority of the participants performed office-related jobs prior to losing their limb.

Entry to sedentary or semi-sedentary work can facilitate the prospects for successful return to work following rehabilitation, provided the prosthesis meets functional criteria. Conversely, high rates of exclusion from current work suggest the high disruption amputation causes to occupation, a field well-documented in the literature. Vocational rehabilitation of amputees is not only influenced by the degree and etiology of amputation, but also by psychosocial factors, prosthesis satisfaction, and work accommodation (Burger & Marincek, 2007). A large majority of the sample resided in urban areas, which may be attributed to greater access to tertiary medical facilities and rehabilitation centers typically located in cities. Urban residence does not always equate to better outcomes.

Architectural difficulties limiting green spaces for safe mobility, and social isolation in densely populated areas may persist. Third, all the study participants reported low income, which is a prominent social determinant of health. Economic insecurity has very serious impacts on physical as well as mental adjustment to disability. Economic insecurity limits access to quality prosthetic devices, reduces chances for enrollment in rehabilitation programs, and increases stress levels, thereby slowing recovery (Sinha et al., 2011)

Clinical Characteristics and Daily Habits

Clinical history and health habits of lower limb amputees offer valuable data on the etiology of amputation, associated comorbidities, and lifestyle factors affecting rehabilitation and outcome. The findings here highlight the fact that overwhelmingly, participants presented with unilateral, most frequently above-knee amputations, and trauma as the leading etiology. Such trends are larger epidemiological tendencies and present various implications for prosthetic outcomes as well as psychological adjustment.

Type and Etiology of Amputation

The prevalence of unilateral above-knee amputations among the study population is in line with recent trauma and rehabilitation centers globally, which indicate that unilateral traumatic amputations remain the most common presentation among both civilian and military populations (Matsumoto et al., 2022). Physical limitations can, in turn, influence prosthetic use, satisfaction, and long-term mobility outcomes. In the current study, trauma was the most prevalent cause of loss of limb. This is consistent with global trends in developing and conflict-affected nations, where occupational trauma, road traffic accidents, and blast injuries contribute significantly to the amputation burden (Perera et al., 2023).

The psychosocial impact of traumatic amputations is harsh, as they are likely to be sudden, unforeseen, and psychologically disturbing, most frequently accompanied by post-traumatic stress, anxiety, and depression. Conversely, fewer of the participants experienced amputation due to vascular disease or infection, which are more prevalent in developed countries and in

older populations with chronic illnesses like diabetes or peripheral arterial disease (PAD) (Zhao et al., 2022).

Timing of Amputation and Recovery Period

The majority of amputations had occurred in the last six months of data collection, so most patients were thus in the acute or subacute phase of recovery. This is a critical timeline because it is generally a period marked by acute physical and psychological adjustment, prosthetic fitting, and initiation of mobility training (Crandell et al., 2020). These patients could still be adapting to the use of prostheses, experiencing pain, and adjusting to body image. It is important to intervene early during this phase to enhance coping, reduce complications, and optimize outcomes.

Daily Habits: Smoking and Medication Use

The research found a large number of participants were smokers, and many of them continued smoking after amputation. This is concerning as smoking is a known risk factor for compromised wound healing, infection (Ali et al., 2023). Continued smoking after limb loss may be a reflection of coping difficulties, low health literacy, or poor availability of smoking cessation services. The inclusion of smoking cessation interventions within rehabilitation care could improve outcomes after amputation and reduce secondary complications considerably. Medication use, particularly antidepressants, was very high in participants, indicating significant psychological morbidity. This is in line with existing literature outlining high levels of depression, anxiety, and post-traumatic stress symptoms in amputee cohorts (Guo et al., 2022).

This prescription of muscle relaxants and analgesics also shows the physical pain that prevails due to phantom limb pain, residual limb pain, and musculoskeletal strain. These results support the necessity of broad pain management therapies and mental health services as the fundamental elements of amputation care.

Medical Comorbidities

The presence of chronic conditions such as diabetes and vascular disease among many patients adds another layer of complexity to their care. These comorbidities not only increase the likelihood of amputation but also influence prosthetic outcomes by impairing tissue integrity, reducing endurance, and complicating rehabilitation protocols (Park et al., 2023). Multidisciplinary approaches that involve endocrinologists, vascular specialists, physiatrists, and rehabilitation teams are essential to address the multifactorial needs of this population.

Social Support and Coping Mechanisms
Social Support in Patients with A Lower Limb Amputation

The social support seen in the present study suggest that most of the patients viewed their social support as overall moderate support from close family and relationships individual social support is recognized as a major role for psychosocial adjustment and functional recovery in people with limb loss. In total, the overall moderate scores on all of the items suggest that the participants perceived their family and close social support networks were overall as moderate/low, particularly in making decisions or emotional support.

Overall, in support of the family role in providing emotional support, listening, and communication, the participants endorsed the support items positively. The findings support the growing literature acknowledging the role of family networks enable psychological resilience following amputation. Family participation in care planning based on patient reported outcomes scores and satisfaction with of use of prosthesis, motivation to be compliant with physical therapy decreased the depressive symptoms (Ferrari et al., 2022).

Interestingly, while participants reported having someone to help them emotionally or practically, only a small fraction described **high levels of support**, pointing to a potential underutilization or unavailability of consistent, high-quality assistance. Moreover, items related to the impact of limb loss on independence and work were unanimously rated as problematic. This reflects a perceived mismatch between the emotional support provided and the actual structural or instrumental support needed to achieve autonomy and productivity.

Coping Strategies: Active and Passive Responses

The findings of the coping strategies questionnaire are highly concerning. All participants scored in the low range of effective coping with a strong focus on passive and avoidant behaviors. Responses indicated frequent tendencies to isolate, utilize passive distractions (e.g., watching large amounts of TV or excessive internet use), or utilize religious faith solely. While spiritual coping can be reassuring, exclusive dependence on it when no psychological or social intervention is being undertaken may potentially leave the issues at hand unsolved (Ahmed et al., 2022).

Of specific concern, a significant proportion of participants admitted to continued maladaptive behaviors, such as substance use or emotional suppression. Although drug and alcohol misuse were less prevalent in this population, the fact that a number of participants endorsed emotional numbing behaviors is still troubling. Research demonstrates that inadequate coping can exacerbate pain perception, prolong emotional trauma, and reduce motivation for rehabilitation (Gallagher & MacLachlan, 2022).

3. Social Support and Coping Interaction

The combination of Tables 3 and 5 presents a noteworthy finding: while there is a degree of emotional and social involvement, this has not been converted into effective psychological coping or empowerment. This may suggest that the support received is not sufficiently structured, targeted, or durable to facilitate resilience. Existing evidence suggests that social support without the acquisition of coping skills is insufficient for psychological adjustment in the long-term following limb loss (Hoffman et al., 2023).

Furthermore, this view is supported by the regression and structural equation modeling results of this study, insofar as they revealed both coping strategies and social support to be associated with poorer prosthetic outcomes perhaps because they assess underlying need rather than true resourcefulness (Bashir et al., 2023). Patients with the highest levels of support need or coping may already be experiencing higher levels of distress and functional limitation, as documented by contemporary models of disability and rehabilitation (WHO, ICF framework).

Prosthetic Outcomes, Problems, and Satisfaction

The outcome assessment of prosthetics in patients with lower limb amputation reveals a multifaceted balance of functional capability, discomfort, and subjective satisfaction. Although

participants achieved a favorable functional performance, a major concern was the dissatisfaction and problems identified with the prostheses, which suggests multiple discrepancies in prosthetic design, rehabilitation, and patient-centered care.

Overall Use of the Prosthesis Functional Level Achieved by Participants

In general, participants exhibited absolute functional prosthetic skills in activities like standing for long periods of time, short walks, and lifting laden objects which are considered basic as well as advanced limbs mobility skills. This suggests that the functional prostheses given to participants met their mobility requirements, which aligns with recent studies utilizing advanced prosthetic technology reporting similar outcomes (Highsmith et al, 2023).

Prosthetic Problems and Physical Discomfort

Despite relatively good usage scores, participants reported a strikingly high burden of prosthetic-related problems. All respondents indicated significant levels of pain and discomfort, including phantom limb pain, back pain, stump irritation, and musculoskeletal strain. This is consistent with previous findings showing that pain remains a leading complication in prosthesis users and often leads to reduced wear time and functional capacity (Kumar et al., 2023).

Satisfaction with Prosthesis

The most concerning outcome was the uniformly low satisfaction scores across all prosthetic features. All participants expressed dissatisfaction with the color, shape, weight, and overall comfort of their prostheses. These perceptions are crucial, as prosthetic satisfaction is strongly linked to adherence, confidence in mobility, and overall quality of life (Eshraghi et al., 2021). While many prosthetic designs prioritize mechanical performance, these findings underscore the importance of user-centered design that also accounts for appearance, comfort, and psychosocial acceptability. The dissonance between acceptable functionality and poor satisfaction may contribute to reduced prosthesis use over time and lower emotional adjustment.

Interrelationships Between Variables

Correlational analysis revealed several significant associations. Notably, prosthetic use scores positively correlated with overall prosthetic outcomes, while problem scores negatively impacted them. More importantly, both social support and coping strategies demonstrated negative correlations with prosthetic use and overall outcomes, indicating that higher dependence on external support may reflect or contribute to greater disability (Kannenberg et al., 2022).

Interestingly, satisfaction with the prosthesis did not significantly correlate with other variables, suggesting that user satisfaction may be independently influenced by aesthetic and sensory factors rather than functional performance or social context. These findings highlight the need for a multidimensional rehabilitation approach that addresses not only mechanical functionality but also user perception, pain management, and psychological adaptation.

Coping Strategies and Prosthetic Outcomes

The results of this research reveal a high relationship between coping mechanisms, social support, and prosthetic results among individuals with lower limb amputation. Specifically, the

multiple linear regression analysis (Table 10) and structural equation modeling (Figure 1) reveal a strong inverse relationship between both coping mechanisms and social support and prosthetic results. Coping strategies, by regression analysis, have a significantly negative effect on prosthetic outcomes. Specifically, the unstandardized coefficient on coping strategies is -0.047 ($p < 0.001$), showing that wherever coping strategies are superior, prosthetic outcomes are inferior. This negative correlation might be due to the inherent coping style of adaptive coping mechanism such as avoidance and denial to further contribute to proper adaptation to use of a prosthesis alongside impaired quality of life. This result is in line with previous research indicating that individuals who employ less effective coping strategies are more prone to poor psychosocial outcomes and prosthetic complications (Hughes et al., 2022).

The findings also show a significant negative correlation between social support and prosthetic outcomes, with an unstandardized coefficient of -0.276 ($p < 0.001$). This suggests that unlike the expected positive influence of social support on adjustment to a prosthetic limb, it may not be so for every patient. One explanation is that more social support could lead to over-reliance on other people, interfering with the autonomy and self-competence of the individual to use the prosthesis on their own (Parker et al., 2021). It should be considered to adjust for the source and level of social support in interpreting these findings because overly permissive or coddling social support could be detrimental to prosthetic outcomes.

The indirect and direct effects in Table 11 also further clarify the complex interactions among coping strategies, social support, and prosthetic outcomes. Interestingly, coping strategies are shown to enhance social support but indirectly worsen prosthetic outcomes. Particularly, the regression weight of social support on coping mechanisms is standardized at 0.085 ($p = 0.001$), illustrating that enhanced coping mechanisms can produce more social support. Nevertheless, that higher support cannot be converted into improved prosthetic outcomes, supporting that social support simply is not successful in maximizing adaptation to prosthetic function (Williams et al., 2020). This aligns with the finding in Table 12 that shows that even though coping strategies positively influence social support, they have a negative impact on prosthetic outcomes indirectly ($B = -0.023$, $p < 0.001$).

Conclusion

The results of this study highlight the complex interplay between coping strategies, social support, and prosthetic outcomes in patients with lower limb amputations. While both coping strategies and social support are crucial, their effects on prosthetic adaptation are not straightforward. Maladaptive coping strategies, such as avoidance, can hinder successful prosthetic use, while excessive social support may limit the development of patient independence. These findings underscore the importance for healthcare professionals to focus on fostering adaptive coping mechanisms and balanced social support systems that encourage autonomy and self-efficacy in rehabilitation. Therefore, this study emphasizes the need for a more individualized, holistic approach to rehabilitation. By addressing both the physical and psychosocial aspects of recovery, patients—especially those in the early stages require comprehensive care that integrates psychological and functional rehabilitation strategies.

Recommendations

Based on the findings, the following recommendations are proposed:

1. **Adaptive Coping Strategies**: Focus on fostering adaptive coping mechanisms like mindfulness and behavioral activation to help patients manage psychological challenges.

2. **Balanced Social Support**: Ensure that social support systems encourage independence and confidence, avoiding over-reliance on others.

3. **Psychosocial Rehabilitation**: Integrate emotional support and practical skills training to improve both psychosocial well-being and prosthetic use.

4. **Multidisciplinary Approach**: Include pain management, ergonomic prosthetic design, and psychological counseling in rehabilitation programs.

5. **Peer Support**: Promote community-based peer support and mentorship programs to enhance resilience and provide emotional support.

By adopting these strategies, rehabilitation can be more effective, improving functional adaptation and overall quality of life for individuals with lower limb amputations.

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الملخص العربي

تقييم تبعات الأطراف الصناعية واستراتيجيات التكيُّف والدعم الاجتماعي لدى مرضى بتر الأطراف السفلية

مقدمه: تؤثر بتر الأطراف السفلية بشكل عميق على الرفاهية الجسدية والنفسية الاجتماعية.

الهدف: هدفت هذه الدراسة إلى تقييم نتائج الأطراف الصناعية، واستراتيجيات التكيف، والدعم الاجتماعي بين المرضى الذين خضعوا لبتر الأطراف السفلية.

المرضى وطرق البحث :شملت الدراسة عينة ملائمة من 60 مريضًا بالغًا (ذكورًا وإناثًا) ممن خضعوا لبتر الأطراف السفلية في أقسام العظام بالمستشفى الجامعي والعيادات الخارجية التابعة له، بالإضافة إلى عيادة اليوم الواحد بالمستشفى الجامعي الرئيسي في الإسكندرية.

الأدوات :شملت أدوات التقييم ثلاث ادوات: (1) استبانة البيانات الديموغرافية والسريرية، (2) استبانة نتائج الأطراف الصناعية، (3) استبانة الدعم الاجتماعي واستراتيجيات التكيف،

النتائج :كشفت النتائج وجود ارتباطات كبيرة بين الشبكات الاجتماعية القوية، واستراتيجيات التكيف الفعّالة، وتحسن تكيف الأطراف الصناعية، مما يؤكد الحاجة إلى برامج تأهيل شاملة تراعي الرعاية النفسية الاجتماعية إلى جانب التعافي الجسدي.

الخلاصة والتوصيات :يعتمد التعافي بعد بتر الأطراف السفلية على المرونة النفسية الاجتماعية بقدر ما يعتمد على فعالية الطرف الصناعي. يُعزز الدعم الاجتماعي القوي واستراتيجيات التكيف الاستباقية بشكل ملحوظ من تكيف المرضى مع الأطراف الصناعية وتحسين جودة حياتهم، مما يبرز الحاجة إلى نماذج رعاية متكاملة تُعالج التحديات العاطفية والاجتماعية.
التوصيات :لتحسين التعافي بعد البتر، يجب أن تُركز برامج التأهيل على دمج الدعم النفسي الاجتماعي (مثل الاستشارات، وشبكات الأقران) مع التدريب على استخدام الأطراف الصناعية لضمان رعاية شاملة. كما يجب تدريب مقدمي الرعاية الصحية على تحديد سلوكيات التكيف غير الفعّالة (مثل التجنب) وتشجيع الاستراتيجيات المرتكزة على حل المشكلات عبر تدخلات منظمة. يُنصح أيضًا بتعزيز أنظمة الدعم المجتمعية للحد من العزلة الاجتماعية، مع المتابعة الدورية لمعالجة الاحتياجات الجسدية والعاطفية المتغيرة. أخيرًا، يجب تصميم خطط تأهيل مخصصة تتناسب مع أنماط التكيف الفردية ومدى توفر الموارد الاجتماعية لتحسين التكيف طويل المدى وجودة الحياة.