

Research Paper

Quality of Life and Its Related Factors Among Amputees in Babylon Province, Iraq



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ABSTRACT

Objectives: Disability is a social problem with multiple interrelated aspects, including medical, psychological, social, and rehabilitative. The number of people with disabilities has increased recently, despite the great advances in the medical field. This study aims to assess the quality of life (QoL) among amputees and its relations with some independent variables.

Methods: A descriptive cross-sectional study was conducted on 250 amputees registered in the Babylon Rehabilitation Facility, Babylon Province, Iraq. In light of some independent variables, we examined the QoL of these amputees. An empirical study was conducted to measure the reliability of the study questionnaire before it was given to professionals for validation. Interview techniques were used to collect data, which were then evaluated using descriptive (frequency and percentage) and inferential statistics (analyses of variance and the independent t test).

Results: The Mean±SD age of the participants was 50±13.47 years (ranged 50-59 years). The characteristics of participants were as follows: male, 68.8%; married, 61.2%; secondary school graduate, 38%; employed, 34%; with insufficient monthly income, 41.2%; amputation due to diseases, 48.4% or accidents, 16.4%; amputation in lower extremities, 56.4%, and for more than 10 years on amputation, 48.8%. The results show differences in QoL concerning amputees' age, marital status, occupation, monthly income, reasons for amputation, duration of amputation, gender, and sites of amputation.

Discussion: Individual demographic characteristics should be considered in programs aimed at improving the QoL of amputees. Quality of life assessment and early inclusion should always be considered.

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Highlights

- Amputees in the present study showed a poor quality of life (QoL) related to age, gender, marital status, occupation, income, reason, and duration of amputation.
- QoL significantly improved with the factors of age (50-69 years), male gender, being married, retired occupation, sufficient income, having sons, and having upper extremities war amputated for less than 5 years.

Plain Language Summary

The amputees' group is an important population that needs all the care and attention of the community, including family, relatives, friends, school, media, and culture, as well as healthcare institutions, organizations, and individuals. To support this group, it is essential to start substantial changes in various aspects of life and other social institutions.

Introduction

Amputation is the removal of a body's extremity or extremities through trauma or surgery. Amputation is a surgical procedure used to treat diseases or treat pain in the damaged limb [1]. One of the most prevalent acquired impairments is amputation [2]. Amputation can happen at different levels, affecting the upper or lower limb. Lower limb amputations can be done unilaterally, removing just one lower leg or both lower limbs [3]. They can also be done on a minor or significant level. It results in a long-term handicap that impacts the patient's functional abilities, psychological state, and quality of life (QoL) [2-4]. Presently rehabilitation programs are initiated to take the QoL impairment caused by an amputation more seriously [5, 6]. The usage of prostheses is just one of the many measures related to QoL in these patients mentioned in the literature [7, 8]. Other related factors are the degree of amputation, suffering from phantom limbs [9], and employment status [10]. Therefore, in this group of surgically treated patients, restoring mobility through the use of the numerous customized devices that are currently available should always be the primary goal [11]. This study aims to assess the QoL among amputees and investigate the differences in QoL based on independent variables.

Materials and Methods

Research design

We conducted a cross-sectional study. The study data were collected from August to November 2022. The study population consisted of 2507 amputees referred to Babylon Rehabilitation Center, Babil Province, Iraq, every month. The study was conducted on a sample of

10% of them that met the study criteria. They were selected based on the following inclusion criteria: Being 20 years of age and older and amputated for 6 months or more.

Study instrument

First, a amputees' sociodemographic characteristics questionnaire collects the amputee's age, gender, marital status, education level, occupation, income and amputation reasons, site, and duration.

Second, the 26-item World Health Organization quality of life-BREF (WHOQoL-BREF) evaluates QoL and overall health in 4 domains: Physical health (7 items), psychological health (6 items), social relationships (3 items), and environmental health (8 items). Physical health includes the areas of mobility, daily activities, functional capacity, energy, discomfort, and sleep. The psychological field includes self-image, negative beliefs, positive attitudes, self-esteem, mentality, learning ability, memory focus, religion, and mental state. Social relationships cover interpersonal interactions, social support, and sexual life. Environmental health encompasses the living physical environment, safety, health, social services, learning opportunities, new knowledge and skills, recreation, the general environment (noise, air pollution, etc.), and transportation. The Cronbach α value was 0.83. WHOQoL group (1998) examined the validity and reliability of the scale's Iraqi version; the internal consistency ranged from 0.87 to 0.94, and the test-retest reliability was 0.71 [12].

Measurement and data collection

In the study, 10% of the amputees who attended the Rehabilitation Center for the Disabled in Babylon Prov-

ince were recruited. The list of amputees was determined through the archives of the institution. The telephone numbers of listed amputees who met the study criteria were obtained. Amputees were interviewed when they visited the rehabilitation center. The researchers filled out data collection forms during personal interviews with amputees. Each interview took about 20-25 minutes. A quarter of the academic community was chosen according to the formula by lottery method (simple random sample) based on the statistics of the monthly reviews.

$$1. \text{ Smiole random sample} = \frac{\text{Total population}}{\text{No. of selected sample}}$$

$$\text{Smiole random sample} = \frac{2507}{250} = 10\%$$

Data analysis

It was determined that the data was uniformly distributed. One-way analysis of variance and independent samples t-test were used to study the relationships between the QoL and influencing factors (sociodemographic characteristics) in SPSS software, version 20. The statistical significance was set at $P \leq 0.05$.

Results

Sociodemographic characteristics (independent variables)

Table 1 shows that the participants' Mean \pm SD age is 50 \pm 13.47 years, with the age group of 50-59 years accounting for the most frequent age group (34%). Male participants comprised 68.8% of the total sample, while female amputees comprised 31.2%. According to data on marital status, most of the samples (61.2%) were married, whereas 6.4% of the participants were widowed. Secondary school graduates performed best in educational level (38%) compared to middle school graduates (6.8%), who ranked the lowest. Employment comprised the majority of findings regarding occupation (34%), and retirees the minority (10.8%). Regarding income, most amputees (41.2%) reported having insufficient monthly income compared to those with adequate income (20.4%). The majority of amputations (48.4%) were caused by illnesses (diseases), and accidents (16.4%) were the least common cause. Most amputated limbs were in the lower extremities (56.4%) compared to the upper extremities (43.6%). Most participants acknowledged having had their limbs amputated for more than 10 years (48.8%), as opposed to less time (25.2%).

QoL among amputees

The findings revealed that just 6% of amputees expressed a good QoL, whereas the majority (61.5%) displayed a poor QoL (Table 2).

QoL and its associated factors

Analysis of variance

The analysis of variance showed significant differences in the QoL between amputees concerning age groups ($F=9.051$; $P=0.001$), marital status ($F=2.911$; $P=0.035$), occupation ($F=39.801$; $P=0.001$), monthly income ($F=6.579$; $P=0.001$), reasons for amputation ($F=9.895$; $P=0.001$), and duration of amputation ($F=16.652$; $P=0.001$) (Table 3).

The independent samples t-test

The independent samples t-test showed significant differences in the QoL between male and female amputees ($t=3.094$; $P=0.002$) and amputation sites ($t=4.460$; $P=0.001$) (Table 4).

Discussion

QoL, which has mostly been used to analyze the effectiveness of therapies or compare amputees with other sick groups, is increasingly recognized as a crucial outcome for rehabilitation programs. Studies that specifically examine a large number of factors affecting the QoL of amputees depend on the geographic location and services provided by the institutions for that group.

The results of the current study suggest that losing any significant portion of one's body inevitably lowers one's QoL. The physical and mental components are the ones that are most frequently impacted by amputation. Age, gender, marital status, occupation, gross monthly income, son status, reasons for amputation, place of amputation, and length of amputation are discovered to be significantly associated with the overall QoL. To determine how receiving a structured rehabilitation program would affect the participants' functional status and QoL, it must be tailored to the unique needs of those who have had limbs amputated.

The criteria above should be considered to ensure complete reintegration and engagement and allow amputees to restore or maintain their QoL. Prospective longitudinal studies are advised to evaluate the factors influencing the QoL over time.

Table 1. Sociodemographic characteristics of studied sample

Variables	Classification	No. (%) / Mean \pm SD
Age	<30	31(12.4)
	30-39	25(10)
	40-49	33(13.2)
	50-59	85(34)
	60-69	66(26.4)
	\geq 70	10(4)
		50.38 \pm 13.47
Gender	Male	172(68.8)
	Female	78(31.2)
Marital status	Single	53(21.2)
	Married	153(61.2)
	Divorced	28(11.2)
	Widower	16(6.4)
Education level	Illiterate	20(8)
	Read and write	76(30.4)
	Primary school	19(7.6)
	Middle school	17(6.8)
	Secondary school	95(38)
	Collage	23(9.2)
Occupation	Employee	85(34)
	Self-employ	83(33.2)
	Retired	27(10.8)
	Unemployment	55(22)
Income/Month	Sufficient	51(20.4)
	Partly enough	96(38.4)
	Insufficient	103(41.2)
Amputation reason	Condition	121(48.4)
	War	88(35.2)
	Accident	41(16.4)
Amputation site	Lower extremities	141(56.4)
	Upper extremities	109(43.6)
Amputation duration (y)	<5	63(25.2)
	5-10	65(26)
	>10	122(48.8)

Table 2. Overall assessment quality of life for amputation cases

Variables	Rating	No. (%)
WHOQoL-BREF	Poor	154(61.6)
	Moderate	81(32.4)
	Good	15(6)
	Total	250(100)

WHOQoL-BREF: The world health organization quality of life-BREF.

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Table 3. Statistical differences in quality of life as regards amputees characteristics (n=250)

WHOQoL-BREF	Source of Variance	Sum of Squares	df	Mean Square	F	Sig.
Age (y)	Between groups	4.751	5	0.950	9.051	0.001
	Within groups	25.617	244	0.105		
	Total	30.368	249			
Marital status	Between groups	1.041	3	0.347	2.911	0.035
	Within groups	29.327	246	0.119		
	Total	30.368	249			
Education level	Between groups	1.234	5	0.247	2.068	0.070
	Within groups	29.134	244	0.119		
	Total	30.368	249			
Occupation	Between groups	9.923	3	3.308	39.801	0.001
	Within groups	20.445	246	0.083		
	Total	30.368	249			
Monthly income	Between groups	1.536	2	0.768	6.579	0.002
	Within groups	28.832	247	0.117		
	Total	30.368	249			
Reason for amputation	Between groups	2.253	2	1.126	9.895	0.001
	Within groups	28.116	247	0.114		
	Total	30.368	249			
Duration of amputation	Between groups	3.608	2	1.804	16.652	0.001
	Within groups	26.76	247	0.108		
	Total	30.368	249			

WHOQoL-BREF: The world health organization quality of life-BREF.

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Table 4. Statistical differences in the quality of life as regards amputees characteristics (n=250)

Variables	WHOQoL-BREF	Mean±SD	t	df	Sig.
Gender	Male	0.64±0.356	3.094	248	0.002
	Female	0.50±0.312			
Site of amputation	Lower extremity	0.51±0.305	4.460	248	0.001
	Upper extremity	0.71±0.373			

WHOQoL-BREF: The world health organization quality of life-BREF.

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Assessment of QoL outcome is crucial for determining the success of amputation. Several elements must be considered to ensure the amputees' full reintegration into society. The following factors influence whether an individual has a low or high QoL.

WHOQoL-BREF between age groups

The analysis of variance showed significant differences in the QoL between amputees with respect to age groups ($F=9.051$; $P<0.001$). As reported in the results, QoL is significantly related to age, with young ages recording their lowest QoL and increasing gradually until they reach 70 years, then beginning to deteriorate due to age and body catabolism. These findings are supported by Dunn's conclusion that younger amputees are at greater risk of developing psychiatric conditions than older adults who have had their limbs amputated due to activity restriction [13]. Pran et al. confirmed that advanced age (70 and over) is negatively related to the QoL after pregnancy due to the deterioration of the health status [14]. On the other hand, those under 40 also face a poor QoL due to their requirements. Another study on the early- and long-term amputees, either young or old, discovered that the older group shows fewer psychological symptoms and less depression the longer the time since amputation has been [15]. Younger amputees experienced more psychological side effects, depression more frequently, and social isolation. Younger amputees seem to be worried, sensitive, and watchful individuals who struggle to fit into their current lives [16].

WHOQoL-BREF between groups of gender

In subjects with limb amputations, there was a gender difference in the context of QoL. The study's main conclusions indicate a lower QoL for females with limb amputations than for males with limb amputations ($t=3.094$; $P=0.002$). Men's scores were higher than women's in amputation cases, indicating a stronger male ability to deal with the constraint. In situations of amputation, women (mean=0.50) have a lower QoL than men

(mean=0.64), indicating that women are more mentally and socially damaged than men. This finding is consistent with a study by Adegoke et al., who stated that in amputation instances, male participants scored better on an overall QoL scale than female participants; the highest and lowest domain scores were reported in the psychological and social QoL domains [17]. Additionally, it is congruent with the Williams et al. study, which shows that gender is a major predictor of increased depressive symptoms 6 months following amputation [18]. Additionally, some longitudinal investigations on people with amputations have not been able to detect any appreciable changes in psychosocial outcomes over time. This distribution is consistent with another study by Dunn, who found that male amputees have better QoL than females in several areas, including emotional reactivity and social isolation [13]. The physical domain of QoL is affected the most in female amputees, according to a study by Deans et al. that looked at QoL in 75 people with above- or below-knee amputations. The better ability of the female population to adapt to the limitation does not reflect a better perception of QoL, as the scores are lower than those in males, which has been confirmed in previous studies [19, 20].

WHOQoL-BREF between groups of marital status

The current study showed a significant difference in participants' QoL based on marital status ($F=2.911$; $P=0.035$). The married had the highest QoL, which may be ascribed to social support from families. In contrast to the singles, who have a very low QoL since no one accepts them for marriage, the disparities favored the married. This research supports Mohammed and Shebl's findings, which show that people with amputations experience significant differences in their QoL depending on their marital status, with married people generally managing better than single people and those in other social status classes [21]. Marriage support is the main source of psychological support for amputees and individuals with chronic diseases after amputation [22, 23].

WHOQoL-BREF between groups of occupation

According to the analysis of variance, there were significant changes in the QoL for amputees depending on their line of work ($F=39.801$; $P=0.001$). Employment position is important in determining QoL, particularly for men. In our nation, men are typically the family's principal wage earners, and their unemployment level directly affects their standard of living and sense of self-worth. In contrast to working or retired individuals, we discovered that people who are self-employed and unemployed have a greater impact on their QoL. The direct result of an amputation is the loss of employment. This shows that amputation affects employability significantly and should be addressed through vocational rehabilitation and other methods. Lack of academic training and qualifications may further limit employment [24]. About 38.0% of amputees in the current survey had completed their secondary education. Due to a lack of relevant educational credentials necessary for such positions, finding a less physically demanding career may be difficult for amputees.

WHOQoL-BREF between groups of monthly income

Overall QoL score was higher for the participants from the upper socioeconomic class, while the middle and lower classes' scores were the lowest. A significant association was found between the different socioeconomic classes within the QoL ($F=6.579$; $P=0.002$). The participants in this study without financial support scored lower QoL scores. Financial support is considered one of the factors that help the patient with satisfaction and comfort after amputation. This finding may be explained by the fact that greater financial security guarantees access to high-quality curative and rehabilitative services, worry-free access to necessities for daily living for oneself and one's family, and a sense of overall well-being—factors that directly affect a person's perception of QoL. Few studies examine the relationship between lower limb amputations, socioeconomic position, and QoL, particularly at the level of tertiary healthcare [25-27].

WHOQoL-BREF between groups of reasons for amputation

The analysis of variance showed significant differences in the QoL Between amputees with respect to the reason for amputation ($F=9.895$; $P=0.001$). It was observed that those who were amputated due to disease had a poorer QoL than those who were amputated due to wars or accidents. This confirms that those who were amputated due to a medical condition have another medical condi-

tion added to their disease that caused their amputation, which worsens their health condition and QoL. In line with current findings, Aljarrah et al. and Castillo-Avila et al., amputees who were amputated with a pathological condition had lower QoL than those who were amputated for reasons other than pathological conditions [28, 29]. In addition, those who were amputated with a disease had a significantly worse QoL than the unrelated others [30]. These findings demonstrate explicitly that disorders linked to amputation decrease QoL. It indicates that amputation is a significant life event that may impact QoL years after the event. The comorbidities were discovered to be the most important determinants affecting the QoL in this study, whereas the comorbidities mostly affected the component of QoL in amputees.

WHOQoL-BREF between groups of sites of amputation

A significant difference in the QoL was found between amputees who had their upper (mean=0.71) and lower (mean=0.51) extremities amputated ($t=4.460$; $P=0.01$). The differences favored those with upper amputations over those with lower ones. Regarding physical activity and social factors, the amputee patient with lower extremities faces more issues, difficulties, and barriers than the amputee with upper extremities. Compared to the general population, those with lower limb amputations reported lower QoL. The latest study's findings confirmed that, in several dimensions, both for men and women, amputation remained linked to lower QoL. Physical functioning activities, physical roles, and physical discomfort served as examples of these. This result aligns with earlier studies; the Demet et al. study found that upper-limb amputees rated higher QoL than lower-limb amputees, mostly due to their responses to "physical impairment, pain, and energy level [20]. Compared to the general population, patients with lower limb amputations reported the lowest level of QoL, particularly regarding vitality and functional capacity [25]. Other studies indicate mostly physical and pain-related impairments [2], and physical function was judged to be worse both at the first assessment (before rehabilitation) and at the 3-month follow-up following the training [31]. Another contradictory study conducted in Malaysia found that patients with upper amputations had higher QoL than those with lower-knee amputations [32].

WHOQoL-BREF between groups of duration of amputation

According to the analysis of variance, there are significant changes in the QoL of amputees with regard to the duration of amputation ($F=16.652$; $P=0.001$). A strong correlation exists between low QoL and longer amputation length. Patients with fewer than 5 years of amputation had higher scores than patients up to 10 years. These findings are consistent with those of Matos et al., who noted a significant difference in the amputation time with limitation adjustment ($P=0.028$). Therefore, the scores of patients with amputations lasting longer than 10 years were higher than those with less than 10 years [33].

Study limitation

Due to their time pressure or disrespect for the researchers, many amputees declined to participate, making it difficult to gather study samples.

Conclusion

Although amputation is a surgical treatment required to protect a person's life, it has a detrimental effect on the QoL of these people in terms of their health. Individual demographic characteristics should be considered in programs aimed at improving the QoL of amputees. QoL assessment and early inclusion should always be considered.

Ethical Considerations

Compliance with ethical guidelines

The ethical approval was obtained from the Research Ethics Committee of the College of Nursing, University of Babylon (88 on 18/8/2022).

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Authors' contributions

Conceptualization, supervision, investigation, writing- original draft, review, and editing: All authors. Data collection: Rusull Hamza Kh. AL-Jubori; Data analysis: Amean A Yasir and Nada Khazal K Hind;

Conflict of interest

The authors declared no conflict of interest.

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