Quality of Life among Adults with Prosthesis Limbs

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Abstract

The loss of a limb is a devastating event, persons with a new prosthesis limbs face a complex set of tasks to return to an adaptive mobility status and to faced social station, so the type and quality of the prosthesis affect the individual's physical and mental ability. **Aim**: is to assess the quality of life among adults with prosthesis limbs. **Research design:** it is adescriptive study. **Sample:** A purposive sample of 193 adults with prosthesis limbs. **Setting**: This study was conducted at the Physical Medicine and Rehabilitation and Rheumatology Center affiliated to Armed force **Tool:** one tool was used for data collection for assessing demographic characteristics of adults with prosthesis limbs, their medical history,knowledge and practices toward prosthesis, also the quality of life for adults with prosthesis limb. **Results:** the study findings showed that about half of studied sample had poor physical quality of life; nearly three quarter of them had also poor psychological and economical quality of life. Also more than half of them had poor spiritual quality of life. Totally more than half of the studied sample had poor quality of life. **Conclusion** There was highly statistically significant relation between knowledge of adults with prosthetic related to prosthetic limb and their age, educational level and. and Job. Also there was highly statistically significant relation between educational level, marital status and job of adult with prosthetic limb and their practice. This study reflected that there was a highly significant relation between knowledge of adults with prosthetic related to prosthetic limb and their practice. Finally, this study clarifies that more than half of adults with prosthetic had poor quality of life. **Recommendations:**Regular awareness program should be conducted regarding prosthetic limb its newer types, parts, complication and prevention of problem and appropriate intervention to decrease stress levels and anxiety to enhance quality of life among adults prosthetic limb.

Key words: Quality of Life, limb loss, adults with prosthesis limbs

Introduction:

Prosthesis is simply a tool. It is an artificial replacement for a missing limb or part of a limb that can help person to be independence after missing body parts. Choosing to use one, or not, depends on personal goals. Prosthesis is used to provide an individual who has an amputated limb with the opportunity to perform functional tasks, particularly ambulation (walking) which may not be possible without the limb **(Marshall, 2015).**

An artificial limb is a type of prosthesis that replaces a missing extremity, such as arms or legs, the type of artificial limb used is determined largely by the extent of an amputation or loss and location of the missing

extremity, there are four main types of artificial limbs, these include the transtibial, transfemoral, transradial, and transhumeral prostheses, the type of prosthesis depends on what part of the limb is missing **(Woodford et al, 2015).**

Losing a limb can cause disbelief or shock. The patient might feel angry about the change in his life, sad aboutloss, uncertain about whether he will be able to return to work or perform favorites activities, worried about his appearance. Thus for an amputee, it is a new birth and should learn everything as new and the limitation caused by amputation makes more problems in adjustments. They have to face many physical, psychological, economic and social problems in their life due to amputation. Hence it's a life changing experience **(Robert &Rodocy, 2017).**

Quality of Life(QOL) defined as an individualized concept, but it generally refers to an individual's psychological, social, physical and spiritual. QOL is important in maintaining self esteem and sense of wellbeing and in experiencing the pleasure of life, health related quality of life (HRQOL) address the need for physical, mental, psychological and social wellbeing and the impact of person's health status has on quality of life **(Kelly, 2015).**

Quality of life (QOL) is a very important domain in amputated patients. QOL is highly related to both physical and social aspects of an amputee's life. Therefore, QOL is an important issue for the large number of patients who may need to adapt to severe and chronic disability due to trauma **(Tseng et al., 2010).**

The aim of community health nurse in caring of person with limb loss is to aid them to gain independence at the highest level they can, with the most efficient gait possible. The assessment must take into account the physical capabilities, level of amputation, psychological status, pre-amputation function, existing medical conditions and the patient's expectations **(Wegener et al. 2011).**

Significance of the study:

At the last years the rate of causes which lead to lost of limps (lower and upper) it is increase in all ages .according to statistic of Armed force Rheumatoid Rehabilitation Center (ARRC) that the total number of attendance at last 3 years approximately 3000 person 90 % from them adult an 10% from children and this rate increase each year **(IT of the ARRC, 2015).**

Globally, amputation has become one of the common problems in the present society, a number of people have one or both limbs amputated and the situation noticed to on increase worldwide. Currently, United States accounts for greater than 110,000 persons who lose their limbs through amputation annually, with approximately 101,000 (91.7%) of them involving the lower extremity**(Tintle et al., 2016).**

Aim of the study The aim of this study is to assess the quality of life among adults with prosthesis limbs through:

- Assessing knowledge of adults with prosthetic limb about prosthesis limb.
- Assessing practice of adults with prosthesis limb about care and use of their prosthesis limb.
- Assessing the aspects of QOL (physical, social, psychological, and spiritual) for adults with prosthesis limb.

Research questions:

1- Is there a relation between socio demographic characteristics of adults with prosthesis limb and their knowledge?

2- Is there a relation between socio demographic characteristics of adults with prosthesis limb and their practice?

3- Is there a relation between knowledge of adults with prosthetic limb and their practice about use and care of prosthesis limb?

4- Does the prosthetic limb affect on the aspect of QOL of adults with prosthesis limb (physical, social and psychological)?

Subjects and Methods

Research design:A descriptive design.

Research Setting:

This study was conducted at the Physical Medicine and Rehabilitation and Rheumatology Center affiliated to Armed force, located in Al-Geza governorate of Egypt: The center includes a factory for artificial limbs and rehabilitation accessories.

Sampling:

A Purposive sample consisted of 193 which represent 20% of adults with prosthesis limbs were selected from total average number 975 case.

Inclusion criteria: Adults with upper and lower prosthesis limbs, their age up to 20 years old and wearing prosthesis limbs at least one year ago. .

Tools of data collection:

The study data were collected through the following tool:

I-An interviewing questionnaire composed of questions, in five parts:

Part I: The socio-demographic characteristics of adults with prosthesis limb such as age, gender, residence, educational level, marital status, monthly income.etc…

Part II: Adults with prosthesis limb' medical history as regards chronic disease, causes, time, site and number of limb loss, types, duration of wearing prosthetic limb, health problem and follow up.

Part III: Adults with prosthesis limb' knowledge about prosthesis which included meaning, types, parts, complication, causes of limb loss ,factors effect choice of prosthesis treatment and prevention of health problems.

Scoring System for knowledge For knowledge items, the correct answers were predetermined according to literature review, a correct answer was scored two and the incorrect answer was scored one.The total score of knowledge about prosthesis was 54 points, classified into: satisfactory ≥ 50% = (27-54) points and unsatisfactory < 50 = (0-26) points.

Part IV: Designed to assess adults with prosthesis limb' practices related to residual limb and prosthesis care, it was adopted from **Horgan and Maclachlan, (2010) and Davidson et al., (2011):** It covered the following practices included daily cleaning, examination of prosthesis and residual limb, wearing and take off prosthesis and dealing with problems (Q 59-71).

Scoring System for practice: Each item has been scored as 2= completely reported, 1= incompletely reported, and zero= not reported.Total practice was evaluated and compared with the ideal action in the list; accordingly they were categorized as follows: Adequate reported practice ≥50% and not adequate reported practice< 50.

Part V: Quality of life for adults with prosthesis limb. This tool was adapted from **Ali et al. (2010)** and modified by the investigator.

Scoring system:adults with prosthesis limb reported quality of life regarding 5 domains, physical domain, psychological domain, social domain, spiritual domain and economical domain. Each question has 3 levels of answers: "always", sometimes", and never. These were respectively scored 3, 2, and 1. The scores of the items were summed–up and the total divided by the number of the items. These scores were converted in to a percent score

They were evaluated as follows:

Poor QOL referred to score < 50%.

Average QOL referred to score from 50 < 75%.

Good QOL referred to score from 75 – 100 %.

Operational design:

The operational design includes preparatory phase, pilot study and field work.

Preparatory phase:

A review of the recent, current, national and international related literature covering all aspects helpful in designing and processing data collection tools using available books, journals, articles, and nursing magazines; to get a clear picture of the research problem.

Pilot study:

A pilot study was done on 10 adults with prosthesis limb and was carried out to assure content validity of the tool, test the applicability of the developed tool, the clarity of the included question, as well as estimated the average time needed to complete all questions. Some changes were done accordingly. Those who shared in the pilot study were excluded from the study sample.

Field work:

- The investigator took approval for conducting the study from the President of factory of prostheses limbs.
- The investigator met the colonel of the factoryof prostheses limbs to explain the aim of the study to facilitate investigator's work.
- The investigator started with introducing herself and explaining the aim of the study for the selected studied sample, assured that the data collected will be confidential and

would be only used to achieve the purpose of the study.

- The field work was carried out 24 weeks starting from January 2017 till June 2017.
- The investigator visited pre-mentioned setting two day every week "Saturday and Wednesday" for collecting data from the adults with lower and upper prosthetic limb, from 10.30 Am to 2.00 Pm
- The investigator read the questions and waited until studied sample complete the questionnaire.
- Questionnaire took about 30 to 45 minute for each studied sample to be fulfilled.

Ethical consideration:

Prior to the pilot study, ethical approval was obtained from the colonel of the factoryof prostheses limbs, in addition, verbal informed consent was obtained from each participant, and it was assured that anonymity and confidentiality will be guarantee and they have the right to be withdraw from the study at any time.

Administrative Design:

A written letters was obtained from the dean of faculty of nursing, Ain Shams University to the colonel of the factoryof prostheses limbs for research Include the aim of study and Clarification of nature and purpose of the study.

Results:

Table (1) shows that the mean age of adults with prosthesis limbs was 40.27± 10.59 years and 65.3%, 60.6% were male and married respectively. Regarding educational level, 39.4% of them had secondary level of education meanwhile, only 11.4 were Illiterate. As regard to job, 31.6% of them don't work, 29.0% were retired and 16.6 % had government employee. 63.2% of them had insufficient income.

Table (2) reflects that 48.4%, 44.6% and 22.3% of adults with prosthesis limbs had hypertension, diabetes mellitus and cardiac diseases respectively. Regarding causes of limb loss 47.7% loss their limb related to accident and 24.9% related to diseases as diabetes mellitus and cancer, while 22.3% related to acts terror and demonstrations and 3.6%, 1.0%, 0.5% loss their limb related to congenital defect, electricity, and medical error respectively. 43.5% of them wearing prosthetic limb from less than five years.

Figure (1) illustrates that 61.7% of studied sample hadinflammation related to wearing the prosthetic limb, 52.3 % had swelling and 12.4%, 8.8% and 4.1% had sensitivity in the skin, abscess and infection respectively.

Figure (2) illustrates that 12 % of studied sample had satisfactory knowledge score level regarding total score of knowledge about prosthesis limbs. While 88.1% of them had unsatisfactory knowledge score level about prosthesis limbs.

Figure (3) illustrates that 100 % of studied sample had adequate practice regarding take off prosthetic limb, 74.6% regarding wearing of prosthetic limb, 32.6% regarding cleaning of prosthesis limbs and 18.1% regarding examination of prosthesis limbs

Table (3) clarifies that 48.7% of studied sample had poor physical quality of life, 72.5% of them had also poor psychological and economical quality of life. Also 51.8% had poor spiritual quality of life. Totally 55.4 % of the studied sample had poor quality of life

Table (4): demonstrates that there was highly statistical significant difference ($p< .01$) between age, marital status, educational level and job of adult with

prosthesis limbs and their total knowledge about prosthetic limb.

Table (5): demonstrates that there was highly statistical significant difference ($p< .01$) between marital status, educational level and job of adult with prosthetic limb and their total practice.

Table (6): demonstrates that there was highly statistical significant difference ($p< .01$) between total knowledge of adults with prosthesis limbs and their total practice.

Table (1): Distribution of studied sample according to their Socio-demographic characteristics (n =193).

Characteristics	No	%
Age:		
▪ 20 - <30 years old	**32**	**16.6**
▪ 30 - < 40 years old	**56**	**29**
▪ 40 - 50 years old	**53**	**27.5**
▪ >50 years old	**52**	**26.9**
Mean 40.27± SD 10.59 years		
Gender: ▪ Male	**126**	**65.3**
▪ Female	**67**	**34.7**
Residence : ▪ Rural	**96**	**49.7**
▪ Urban	**97**	**50.3**
Marital status: ▪ Single	**59**	**30.6**
▪ Married	**117**	**60.6**
▪ Widow	**17**	**8.8**
Educational level: ▪ Illiterate	**22**	**11.4**
▪ Basic education	**62**	**32.1**
▪ Secondary education	**76**	**39.4**
▪ University education	**33**	**17.1**
Job : ▪ Government employee	**32**	**16.6**
▪ Private Employee	**44**	**22.8**
▪ Retirement	**56**	**29.0**
▪ Don't work	**61**	**31.6**
Income: ▪ Sufficient	**71**	**36.8**
▪ Insufficient	**122**	**63.2**

Table (2): Distribution of studied sample according to their medical history (n =193).

Item	No	%
*** Chronic disease: n = (93)** ▪ Hypertension	**52**	**26.9**
▪ Diabetes mellitus	**48**	**24.8**
▪ Cardiac diseases	**24**	**12.4**
▪ Hepatic diseases	**17**	**8.8**
▪ Cancer	**2**	**1.0**
Causes of lost limb: ▪ Congenital defect	**7**	**3.6**
▪ Accident	**92**	**47.7**
▪ Electricity	**2**	**1.0**
▪ Acts terror and Demonstrations	**43**	**22.3**
▪ Medical error	**1**	**0.5**
▪ Diseases - Diabetes mellitus n= 46 - Cancer n= 2	**48**	**24.9**
Time of limb loss : ▪ At birth	**7**	**3.6**
▪ Less than 5 years	**70**	**36.3**
▪ 5-10 years	**56**	**29.0**
▪ More than 10 years	**60**	**31.1**
Duration of wearing prosthetic limb:		
▪ 1-<5 years	**84**	**43.5**
▪ 5-<10years	**57**	**29.5**
▪ More than 10 years	**52**	**26.9**

***Responses are not mutually exclusive**

Figure (1): Distribution of studied sample according to problems of wearing the prosthetic limb (n =193).

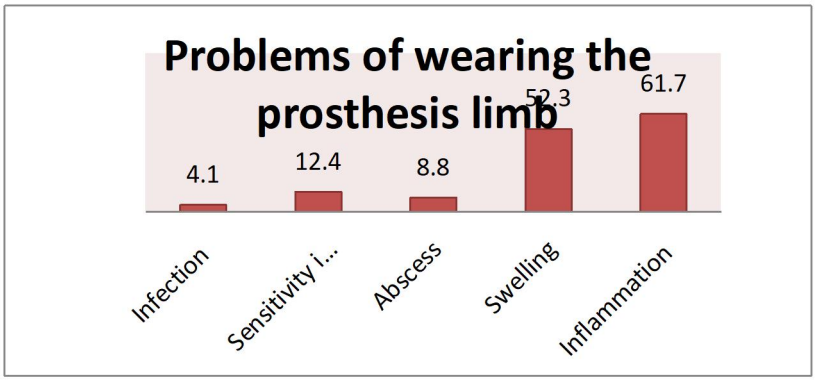

Figure (2): Distribution of studied sample according to total score of their knowledge about prosthesis limbs (n =193).

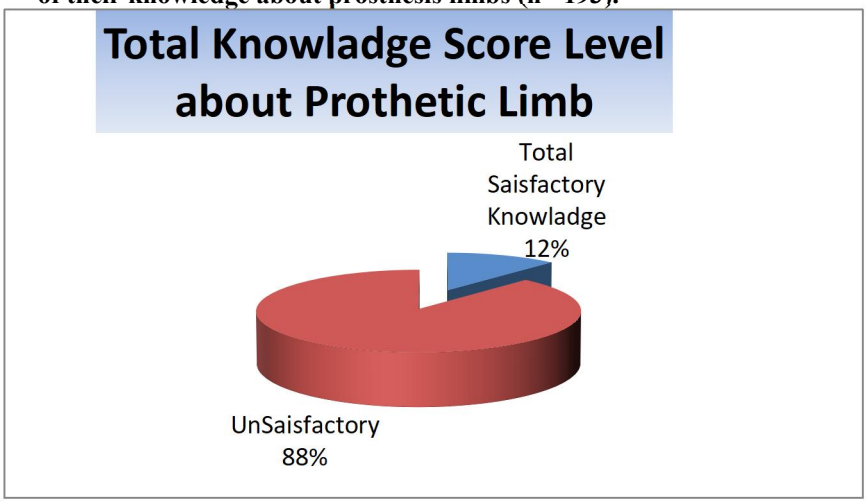

Figure (3): Distribution of studied sample according to total score of their practice regarding care and use of prosthesis limbs (n=193).

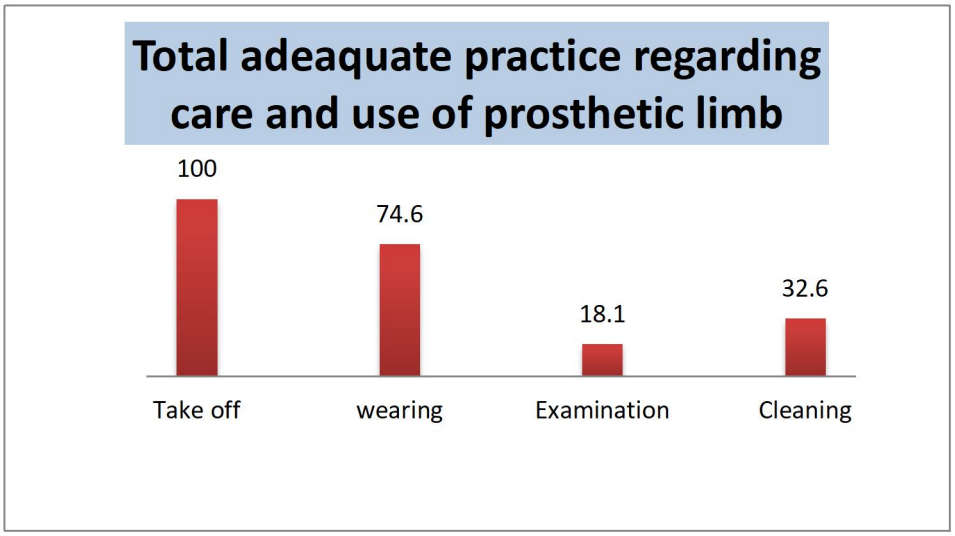
Total adeaquate practice regarding care and use of prosthetic limb
100
74.6
18.1
32.6
Take off
wearing
Examination
Cleaning

Table (3): Distribution of studied sample according to their total physical, psychological, spiritual, social and economical domains quality of life (n =193).

Qualityof Life Domains	Good		Average		Poor	
	N	%	N	%	N	%
Physical	**71**	**36.8**	**28**	**14.5**	**94**	48.7
Psychological	**47**	**24.4**	**6**	**3.1**	**140**	72.5
Spiritual	**83**	**43.0**	**10**	**5.2**	**100**	51.8
Social	**91**	**47.2**	**0**	**0**	**102**	52.8
Economical	**46**	**23.8**	**7**	**3.6**	**140**	72.5
Total qualityof life	**63**	**32.6**	**23**	**11.9**	**107**	55.4

Table (4): Relation between Socio- demographic characteristic of studied sample and their total knowledge about prosthesis limbs (n =193).

Characteristics	Total knowledge				Chi Square test	
	Satisfactory		**Unsatisfactory**			
	No	%	No	%	X^2	**P.value**
Age:						.001 HS
▪**20 - <30 years old**	15	7.7	17	8.8		
▪**30 - < 40years old**	7	3.6	49	25.4	72.146	
▪**40 - 50 years old**	1	0.5	52	27		
▪**>50 years old**	0	0.0	52	27		
Gender:	12	6.2				.159
▪**Male**			114	59.1	1.981	
▪**Female**	11	5.7	56	29		NS
Residence :	11	5.7	86		.062	.804 NS
▪**Rural**				44.6		
▪**Urban**	12	6.2	84	43.5		
Marital status:	21	10.9	38	19.7	45.421	.000 HS
▪**Single**						
▪**Married**	2	1.0	115	59.6		
▪**Widow**	0	0.0	17	8.8		
Educational level**:**	0	0	22		60.606	.000 HS
▪**Illiterate**				11.4		
▪**Basic education**	1	0.5	61	31.6		
▪**Secondary education**	5	2.6	71	36.8		
▪**University education**	17	8.8	16	8.3		
Job :	5	2.6	27		12.977	.005 HS
▪**Government employee**				14		
▪**Private Employee**	10	5.2	34	17.6		
▪**Retirement**	0	0.0	56	29		
▪**Don't work**	8	4.1	53	27.5		
Income:	7	3.6	64	33.2	.453	.501 NS
▪**Sufficient**						
▪ **Insufficient**	16	8.3	106	54.9		

Table (5): Relation between Socio- demographic characteristic of studied sample and their total Practice (n =193).

Characteristics	Total Practice				Chi Square test	
	Adequate		Inadequate			
	No	%	No	%	X^2	p.value
Age: ▪ 20 - <30 years old	17	8.8	15	7.8	**52.437**	**.060** NS
▪ 30 - < 40years old	13	6.7	56	29.0		
▪ 40 - 50 years old	9	4.7	53	27.5		
▪ >50 years old	2	1.0	38	19.7		
Gender: ▪ Male	**26**	13.5	**100**	51.8	**.080**	**.777** NS
▪ Female	**15**	7.8	**52**	26.9		
Residence : ▪ Rural	**24**	12.4	**73**	37.8	**1.427**	**.232**\ NS
▪ Urban	**17**	8.8	**79**	41.0		
Marital status: ▪ Single	**21**	10.9	**38**	**19.7**	**10.575**	**.005** HS
▪ Married	**18**	9.3	**99**	**51.3**		
▪ Widow	**2**	1	**15**	**7.8**		
Educational level: ▪ Illiterate	**3**	1.5	**19**	9.8	**43.248**	**.000** HS
▪ Basic education	**6**	3.1	**56**	29.0		
▪ Secondary education	**11**	5.7	**65**	33.8		
▪ University education	**21**	10.9	**12**	6.2		
Job : ▪ Government employee	**4**	2.1	**28**	14.5	**17.709**	**.001** HS
▪ Private Employee	**14**	7.2	**30**	15.5		
▪ Retirement	**3**	1.5	**53**	27.5		
▪ Don't work	**20**	10.4	**41**	21.2		
Income: ▪ Sufficient	**11**	5.7	**60**	31.1	**2.220**	**.136** NS
▪ Insufficient	**30**	15.5	**92**	47.7		

Table (6): Relation between knowledge of adults with prosthetic limbs and their practice about use and care of prosthesis limbs (n =193).

Total Knowledge of adults with prosthetic limbs	Total practice of adults with prosthetic limbs				Chi Square test		
	Adequate (n=41)		**Inadequate (n=152)**				
	N	**%**	**N**	**%**	**X^2**	**P.value**	**Sig**
Satisfactory	**16**	8.3	**25**	13	**43.248**	**.000**	**HS**

(n=23)							
Unsatisfactory (n=170)	**7**	3.6	**145**	75.1			

Discussion:

Limb loss has become one of the common problems in the present society. A number of people have one or both limb loss and the situation moves to an increase worldwide. Limb loss is a major cause of disability. External prosthetic appliances are devices used to replace the function of a missing body part and are often referred to as prosthetic devices, or prostheses **(*Bella and Margery ,2011)*).** Adults with prosthetic limb have to adapt to several losses and changes to their lifestyle, social interactions, and identity. Prosthetic limb is important for functioning, quality of life, and to enable social participation of individual with limb loss **(Khlood& Ronald, 2010)** therefore, the current study aims to assess QOL among adults with prosthetic limb

The findings of this study reported that mean age of adults with prosthesis limbs was 40.27±10.59 years **(table 1).** This result agreement with the study conducted about Quality of Life among Egyptian Patients with Upper and Lower Limb Amputation: Sex Differences by **Mohammed &Shebl (2014),** they found that mean age of Egyptian Patients with Upper and Lower Limb Amputation was 47.6 ± 11.85 years. Also this findings are supported by **Sinha et al., (2010),** they conducted study about Adjustments to amputation and artificial limb in lower limb amputees in India which showed that mean age of studied sample was 43.05 ± 10.96 years. In contrast to this result, Carolyn et al., (2010), found that mean age of studied sample was 62. .05 ±10.59 in their study about Quality of Life in Patients with Prosthetic Legs: A Comparison Study in Untied State

As regard to gender, about two third of them were male and more than one third were female **(table 1).** Also, **Mohammed &Shebl (2014)** reported that 59% of the study sample was male and 41% were female. This result also agreement with the study conducted about Prosthetic usage in major upper extremity amputations in Untied State by **Wright et al., (2015),** they found that the majority of the studied sample were male. According to investigator opinion this result it may be due to male more expose to work injuries, accident and they recruiting in the army so they more expose to acts terrors which may lead to limbs loss then requires to wear prosthesis limb.

Regarding medical history of the studied sample, 26.9% had hypertension and 24.8% had diabetes mellitus and 12.4% had cardiac diseases **(table 2).** This result disagreement with the study conducted about The Impact of Lower Limb Amputation on Quality of Life in the Johannesburg, South Africa by **Godlwana, (2012)** which showed that about 60% of the studied sample had hypertension and 64% had diabetes.

In relation to cause of limb loss, the present study showed that less than half of them loss their limb related to accident and about one quarter related to diseases as diabetes mellitus and cancer, while less than one quarter related to acts terror and demonstrations and 3.6%, 1.0%, 0.5% loss their limb related to congenital defect, electricity, and medical error respectively **(table 2).**This result agreement with **Marzen&Bartman, (2010**) reported that the main cause of limb loss was accident. Also **Desmond,(2011)** in his study about Coping, affective distress, and psychosocial adjustment among people with traumatic upper limb amputations which showed that about diabetes mellitus was to be the leading

cause of amputation in his study.**According to investigator opinion** the main cause of limb loss in the present study was accident may be related to that the mean age of the study sample was 40.27±10.59 and this age more exposed for accident.

Regarding problem with prosthetic limb, the present result found that the majority of adults with prosthesis limb had skin problems with prosthetic limbs **Figure (1)**. Consistent with the findings of the present study, **Tintle et al., (2016)** who reported that skin problems are one of the most common conditions affecting limbs prosthetic users today. Skin problems are experienced by approximately 75 percent of amputees' using-limb prosthesis. In fact, abnormal mechanical and thermal conditions are introduced in prosthesis, such as socket contact against the skin; this can traumatize tissue by excessive tension, friction or heat. Additionally, the skin reacts to increased temperature with perspiration, which is unable to evaporate because of the closed prosthetic environment. While the result of the present study disagreement with **Sinha et al., (2011)** they found that only 18% had skin problems. **The results of the present study might be related to**sensitisation from chemical compounds of the socket or liner may lead to allergic contact dermatitis and continued friction and pressure from the socket may result skin problem.

In relation to knowledge about prophesies limb, this study illustrated that the majority of adult with prophesies limb had unsatisfactory total knowledge score level about prosthesis limbs while only 12 % of them had satisfactory total knowledge score level **(Figure 2).** In agreement with this result, the review article conduct by **Francesca et al., (2016)** about Literature Review on Needs of Upper Limb Prosthesis Users, who reported that information about prosthesis is a significant need for limb prosthesis users. In consistent with the findings of the present study, the study conducted by **Godlwana, (2013)** who stated that the majority of the study sample had good knowledge about prosthesis limbs. The results of the present study might be related to the adult with prophesies limb interested only about knowledge of how to use and care of prophesies limb not general knowledge about prophesies limb.

As regarded practice of adult with prophesies limb about care and use of prosthesis limb, the present result showed that all of study sample had adequate practice regarding take off prosthesis limb and about three quarter of them had adequate practice regarding wearing while the majority of them had inadequate practice regarding cleaning and examination of prosthesis limb **(Figure 3).** This result might be related to, the prosthetist in the rehabilitation center give to adult with prophesies limb instructions about how use the prosthesis (take off &wear) but not made stress about how cleaning and examination.

Carey et al., (2015) reported that the prosthesis should be checked over at least once per week. Straps, harnesses and their attachments to the prosthesis need to be checked for tear and to ensure that the attachments are secure. Joints should also be checked to ensure they are not too loose or too tight. When the prosthesis is removed, check to ensure the liner is in good condition with no incidence of splits tear.

Regarding QOL of adult with prosthetic limb clarifies that less than

half of studied sample had poor physical quality of life, less than three quarter of them had also poor psychological and economical quality of life. Also more than half had poor spiritual quality of life. Totally more than half of the studied sample had poor quality of life **(Table 3).**

Consistent with the results of the present study, **Biddiss and Chau (2007)** who found in their survey about upper limb prosthesis use and abandonment: many challenging faced user of prosthetic limb regarding physical domain quality of life related to household maintenance, heavy lifting, sports, activities of daily living as cooking, eating, dressing, personal hygiene, typing. The most desired activity is using cutlery, followed by handicrafts, personal hygiene, opening and closing a door, dressing and undressing; the least wanted activity is writing with the prosthesis.

In contrast to the result of the present study, **Alicia et al., (2013)** who reported that performing activities of daily living mainly related to eating and dressing, such as combining fork and knife motion, cutting the meat, handling buttons, tying shoelaces, this is desired by all the prosthesis users, independently either of the level of limb loss the type of prosthesis.

Poljak-Guberina et al, (2005) reported thatquality of life for a person's with the prosthesis depends on their psychological status. People who do not use prostheses or wear them for short periods, due to reasons of a psychological nature they may not be using the device because they are not confident or do not feel that it plays any role in their lives. People who are dissatisfied with prosthesis of objectively good quality have psychological problems. These people tend to have higher scores when evaluated for depression and anxiety.

Anxiety is a normal response to perceived stressors or threats and is manifested by feelings of nervousness or fear, recurrent and uncontrollable frightening thought, and a variety of physical responses (increased heart rate, sweating, difficulty breathing and muscle tension). Moreover, Body image distortion and body image anxiety occur among some people who have amputation. Meanwhile, there is growing evidence that these problems are related. Disability experience does not affect all components of stigma equally. Anxiety has been found to be associated with depression, poorer perceived quality of life, lower level of self esteem and higher level of general anxiety **(Ostlie et al., 2011).**

This result were supported by **Sinha et al., (2011)** who reflected changes in an amputee's physical appearance may initially make it more difficult to engage in personal relationships and may have significant impact on their ability to view themselves sexually. In addition, amputated limbs often cause feelings of revulsion in the patient, family member and society.

The study proved that there was highly statistical significant difference between age, marital status, educational level and job of adult with prosthesis limbs and their total knowledge about prosthetic limb **(Table 4).** This finding was congruent with **Menychtas et al., (2016):** A robotic human body model with joint limits for simulation of upper limb prosthesis users, who found that the knowledge of prosthesis users about prosthesis were significantly higher when educational level of prosthetic user increased.

Our study stated that there was highly statistical significant difference (p< .01) between marital status, educational level and job of adult with prosthetic limb and their total practice **(Table 5). Also Menychtas et al., (2016)** found that the practices of prosthesis users about prosthesis were significantly higher when educational level of prosthetic user increased.

The current study illustrated that there was highly statistical significant difference (p< .01) between total knowledge of adults with prosthesis limbs and their total practice **(Table 6)**. This result were supported by **Sinha et al., (2011)** who reported that the level of care of prosthetic user satisfied when they had the basic knowledge about their prosthesis limb.

Conclusion:

On the light of the finding of the present study, it can be concluded that: there was highly statistically significant relation between knowledge of adults with prosthetic related to prosthetic limb and their age, educational level and. and Job. Also there was highly statistically significant relation between educational level, marital status and job of adult with prosthetic limb and their practice. This study reflected that there was a highly significant relation between knowledge of adults with prosthetic related to prosthetic limb and their practice. Finally, this study clarifies that more than half of adults with prosthetic had poor quality of life.

Recommendation:

1. Regular awareness program should be conducted regarding prosthetic limb its newer types, parts, complication and prevention of problem
2. Guidelines or simplified booklet contain basic information about prosthetic limb and its care.
3. Appropriate intervention to decrease stress levels and anxiety to enhance quality of life among adults prosthetic limb.
4. Further researches are required involving larger study sample of individual with prosthetic limb and their family at different study settings, all over Egypt, in order to generalize the results.

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