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ABSTRACT

BACKGROUND: Quality of Life (QOL) is an individual perception of their position in life. Some factors that affected a person's QOL may be physical condition. Related with this factor, amputation is a form of physical change that has a negative effect on physical, psychological and social life. One way to overcome is rehabilitation program. The program aims to improving mobility and re-integration to community. The aims of this study were to determine the effect of prosthesis and axillary use toward QOL.

SUBJECTS AND METHODS: This study was Quasi-Experiment with two-group only by post- test design. Forty individuals with lower limb amputation that using transfemoral prosthesis and axillary crutch in PT Kuspito Prosthetic Orthotic participated in this study. QOL was then measured using the WHOQOL-BREF. The data was analyzed by using descriptive statistics and Mann-Whitney test.

RESULTS: Prosthesis users overall QOL and health scores were 3.8824 and axillary crutch users scores were 3.8696 and 3.9130. Prosthesis users scored significantly higher on all QOL domains. Statistically, there were differences in QOL domains of prosthesis and axillary crutch users, with score in physical health ($p = 0.018$), psychological ($p = 0.017$), social relationship ($p = 0.026$) and environment ($p = 0.003$).

CONCLUSION: There are differences in the quality of life in the environmental domain between groups using transfemoral prosthesis and axillary crutches. In the environmental domain, the use of transfemoral prosthesis is more influential in improving the quality of life.

Keywords: Transfemoral Amputation, Transfemoral Prosthesis, Axillary Crutch, Quality of Life

INTRODUCTION

Amputation is a form of physical disability that occurs due to incomplete limbs (Dewi, 2014). The definition of amputation is the loss of a part of a person's body which is used to save lives, life-threatening conditions and also to utilize the failure of extremity function maximally. The level of amputation for the lower limbs can be classified based on their anatomic or prosthetic classification (Yamani 2016).

The capability and opportunity of patients in doing activities both inside and outside at home are also limited. Added, there are still many people who have not provided adequate facilities for people with disabilities. This situation ultimately worsened the quality of life of patients after amputation. In several studies, it was found that the quality of life of patients after amputation decreased with a quality of life 50-81% lower than normal people (Sinha et al., 2011).

Prosthesis can help to overcome the limitations of activity that occurs in someone who lost a leg because of amputation. (Murray 2010). By prosthesis, it is hoped that the patient's limbs can be equipped so that he can carry out daily activities.

The use of assistive devices as like transfemoral prosthesis can reduce social problems and improve global health (Hagberg 2006). The use of transfemoral prosthesis can improve the quality of life as evidenced by the increase in patient mobility (Schalk et al. 2015). The use of prosthesis has a positive effect on the physical health component rather than the mental health component (Sinha et al. 2011).

Axillary crutch is a type of tool that is widely used to help ambulation in various types of locomotor disabilities. Where its principle works is the transfer of the pedestal from the side of the disabled to the axilla so that the ambulation of the patient can be fulfilled, the use of crutches can improve the quality of life (Kahaduwa et al. 2009).

The purpose of this study is to determine the differences between the effect of the use of transfemoral prosthesis and axillary crutches toward the quality of life for the patient with knee amputation.

METHOD

This study used a quantitative approach by using Quasi-experimental design in the form of two-group with post-test only. Group of Transfemoral Prosthetic Users and groups of Axillary crutch users. The sample was 40 post-transfemoral amputation patients by simple random sampling. The data was collected by

questionnaire and documentation. QOL was then measured using the WHOQOL-BREF. The data were analyzed using descriptive statistics and the Mann-Whitney test.

RESULT AND DISCUSSION

Shapiro-Wilk normality test result showed that some variables have abnormal data distribution. Because the result in one of the variable groups had an abnormal data distribution, the hypothesis test used was the non-parametric Mann-Whitney test. From the Mann-Whitney test results, the significance value (p) <0.05 was obtained in all domains of quality of life. So that it can be concluded that there were differences in the influence of the use of transfemoral prosthesis and axillary crutches on the quality of life of patients with amputation of the knee.

DISCUSSION

The purpose of this study was to identify the difference of the effect of using transfemoral prosthesis and axillary crutches on quality of life. The study was conducted by considering the factors that affect the quality of life of amputation patients. It was expected to be a reference in providing services in accordance with patient characteristics so that the objectives of prosthetic orthotic services in helping to improve the quality of life of patients after amputation will be achieved.

1. Perception of quality of life and health in general

Based on the results of the study, showed that the perception of quality of life in general users of transfemoral prosthesis and majority of axillary crutches both with a mean value of 3,8696 and 3,9130. In this study there was no difference in perception of general quality of life between amputation patients who used transfemoral prosthesis and axillary crutches. The result of this study is in line with previous studies, the research which has been conducted by Adegoke (2012), which reveals that the overall value of perception of quality of life and health of respondents is 3.91 ± 0.65 (range = 3.26 - 4.56) and 3.62 ± 0.85 (range = 2.97 - 4.07). While Widya (2016) states that in essence the picture of a person's quality of life can only be illustrated by the person himself subjectively and cannot be defined exactly.

2. Physical health

Based on the results in domain of physical health, the physical health of respondents was at a level both in the category of transfemoral prosthesis users and axillary crutches. However, based on the mean value, it was known

that the quality of life of respondents based on the physical health domain was greater in transfemoral prosthesis users (79.52) than compared with axillary crutch users (70.86). While based on hypothesis, it was known that in the domain of physical health, there was a difference in the influence of the use of transfemoral prosthesis and axillary crutch on the quality of life of patients with knee amputation with a significance value (p) 0.018 ($p < 0.05$). This study is supported by research conducted by Hagberg (2006) which reveals that general health, mobility and global health have improved after using prosthesis and few problems have emerged in the last two years. Sinha et. al. (2011) also concludes that the use of prostheses has a positive effect on the physical health component.

In the aspect of physical health, the value of simple quality of life of men is higher than the sample of women even though the proportion which is owned is not too large. This is in accordance with research conducted by Adegoke et. al. (2012) which states that male amputation patients has a significantly higher quality of life score than women in the domain of physical health, social relations and general quality of life.

Then another theory is presented by Dajpratham et. al. (2011) that the length of time the amputation is related to the physical health domain. It proves that the mean value of the physical health domain occupies the largest value in the long time category of amputation. Da Silva et. al. (2011) adds that amputation of the lower limb does not affect neither outdoor leisure activities nor the quality of life.

So, it can be concluded that there is a difference between groups using transfemoral prosthesis and axillary crutches toward quality of life in the physical health domain. Then, it also concludes that in the domain of physical health, the use of transfemoral prosthesis is more influential in improving the quality of life.

3. Psychological

Deborah (2012) argues that the substance of the psychological domain on the quality of life of amputation patients including the feelings of pleasure, hopelessness, self-appraisement, beliefs, an ability to think, learning, memory and concentration in making decisions and assess to the problem which is happened. Based on the results of the study noted that the mean value of subjects using transfemoral prosthesis (77.82) was higher than axillary crutch

users (70.78). However, the value of quality of life is classified as good quality of life. Now, the results of data analysis revealed that (p) 0.017 (p <0.05), so it can be concluded that there was a difference between the effect of using transfemoral prosthesis and axillary crutches of patients with knee amputations in the psychological domain. Psychologically, prosthesis provides a better psychological view. The growing cosmesis component makes it difficult for ordinary people to distinguish whether an amputee uses prosthesis or not.

Da Silva et. al. (2011) thought that a person's level of physical activity affects the psychological domain. The data analysis showed that the athlete profession overall has a higher quality of life (mean = 81.00) with a very good category than someone who does not work (mean = 63.00) who only belongs to the category of good quality of life.

4. Social Interaction

In the domain of social interaction, the quality of life of users with transfemoral prosthesis and axillary crutches is in the category of good quality of life with mean values of 74.47 and 68.43. Based on the significance value obtained p value of 0.026 (p <0.05) it means that there is a difference between the effect of the use of transfemoral prosthesis and axillary crutches on the quality of life of knee amputation patients. According to Deborah (2012), the quality of life in the domain of social interaction such as personal relationships that describe the relationship between individuals and other individuals, social support that illustrates the availability of assistance which is obtained by person from the surrounding environment, as well as sexual activities that describe the sexual activities which are experienced by person.

Based on the data analysis, it was known that the social interaction scores in women were higher than men. In other opinion, Adegoke's (2012) stated that men have significantly higher social relations scores than women. However, Cox et. al. (2011) expressed that women's quality of life scores are significantly higher than men in the four quality of life domains.

Furthermore, based on marital status, Mailani (2014) argued that patients who are divorced or do not have a life partner tend to have a lower quality of life value than patients who are married. Apparently, this statement was not proven in this study, where it was found that the value of the quality of life of social interaction in the marriage and divorce categories is the

same. Meanwhile, Horne & Neil (2009) found that marital status is not an important factor determining the quality of life score of the domain of social relations. So that it can be concluded that, marital status has no influence on the quality of life of knee amputation patient.

5. Environment

The substance of the environmental domain for the individual quality of life after getting amputation includes financial resources that describe the financial condition of the subject, the environment of residence as well as participation and opportunities for recreational or fun activities (Deborah, 2012). Based on the results of the study revealed that in the environmental domain, the quality of life of users of transfemoral prosthesis was in the good category with a mean value of 71.00. While for axillary crutch users with a mean value of 59.30, the quality of life was medium. The results of data analysis obtained p value 0.003, it meant that there was a difference in the effect of quality of life in the environmental domain both in transfemoral prosthesis users and axillary crutch users.

Turney et. al. (2001) stated that there is a significant difference between the scores of individual environmental domains after getting amputation and amputation levels. Turney also stated that amputation level is the only predictor of environmental adaptation for the person after getting amputation. The same with Nagarajan et. al. (2003) found that the environmental domain was also influenced by occupational categories.

In transfemoral prosthesis users, the data analysis on stump length characteristics showed that the quality of life score in the environmental domain increases along with increasing of amputation whilst on job characteristics, the highest quality of life score from the environmental domain was the athlete profession.

CONCLUSION

There was a difference quality of life in all domains between knee amputation patient using transfemoral prosthesis and axillary crutches. In all domains of quality of life, the quality of life of knee amputation patient using transfemoral prosthesis was better than the knee amputation patient using axillary crutches. The most influence domain for the quality of life of amputation patient who uses transfemoral prosthesis or axillary crutch was physical health domain.

SUGGESTION

Amputation patients over the knee would be better by using transfemoral prosthesis as a mobility assist. Because using prosthesis is able to improve not only the quality of life but also help functional activities and improve body image.

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