THE EFFECT OF EDUCATIONAL COUNSELING ON THE KNOWLEDGE OF THE AMPUTEE IN USING AND CARING THE PROSTHESIS

Burlian Mughnie[1a], Galuh Nurul Annisa[2], Ahmad Jet Adyas[3]
[1,2]Department of Prosthetics and Orthotics Polytechnic of Health Sciences Jakarta I
[3]STIKES An Nasher Cirebon
[a]Corresponding Author: bur_lian@yahoo.co.id

ABSTRACT

Disability number in Indonesia is 9,046 million people from 237 million in total population based on SUSENAS (2012). Prothesis is a device to replace the missing body part. The used of prosthesis itself might be interfered by the knowledge of the patient on how to use and take care the prosthesis. It is very important for the patient to have good knowledge in that aspect as it could improve their quality of life and daily activities. This study aimed to the knowledge level of amputee in using and taking care the prosthesis with its influences before and after counselling and its correlation with age, education level, and economic status. This research is pseudo experimental research (quasi experiment). The variable consist of amputee whom using lower limb prostheses and knowledge (education level, economic status, experiences, and information) in using and taking care the prosthesis. the research was focus to the lower limb prosthetics user. The participants were gathered to fill in the pre-test questioner to know the knowledge level in using and taking care the prosthesis while assessing the factors that might influences the knowledge level. Amputee were then given an educational counselling with the topic of treating the stump and prosthesis. The post-test questioner was given after. Result shown The pre-test shows mean that the of level of knowledge good is 0%, fair is 33,3%, and poor is 66,7%. was 46.31±10.18 and The the post-test shows that mean the of level of knowledge good is 0%, fair is 33,3%, and poor is 66,7%was 61.05±8.15. meaning Meaning that there is an improvement of knowledge in a good direction from the statistics calculation. Based on Mann Whitney calculation the p value is 0,001 which p value < 0,05 meaning that there is a significant influence in before and after counselling on the patients in using and taking care the prosthesis. There is no correlation between the education level, age, economic status, and experiences in using and taking care the prosthesis with the p value >0,005.

Keywords: Prosthesis, Transtibial and transfemoral amputation, knowledge

INTRODUCTION AND BACKGROUND

The prevalence of disability by amputation is very high, for example in developed countries such as the United States, there are 43.000 cases per year from a population of 280.562.489 or around 0,2%. In 2009 it was stated that there were around 158.000 cases of amputation per year from a population of 307.212.123 or around 0,05% (Permenkes RI No 22 Thn 2013). Of the many cases of amputation, it was more common in the lower extremities, of 1.2 million people in the United States there was 18,5 % who live with a loss of lower limbs on average 29.607 per year (Brown & Attinger, 2013).

Meanwhile the number of disabilities in Indonesia based on SUSENAS 2012 was around 9.046.000 people with disabilities of 237 million people. There were 2,432 people with mild mobility disability, and 656 people with severe categories. Based on SUSENAS 2012 data there was 2,45% of Indonesia's population are people with disabilities.

Prosthesis is an artificial substitute or replacement of a part of the body. Problems that often occur in the use of prostheses such as redness and damage to the skin or because of the skin that emits excessive sweat causing itching or redness on the skin. In addition, the use of prostheses also affects the effectiveness of the prosthesis itself to improve the quality of amputee's life . The misuse of prosthesis can be influenced by the low level of knowledge of amputee in using and treating the prosthesis. The factors that influence the level of knowledge consist of: Education, age, experience, economy, environment and information.

The role of the patient is very necessary, in how to use and treat the prosthesis. Amputee who use prostheses should have good knowledge about how to use and taking care good and correct prosthesis so that amputee can improve their quality of life / activities. The problem in using prosthesis redness and damage to the skin will be avoidable.

MATERIAL AND METHODS

Participants and Sample Size

The research was conducted at the Clinical Laboratory of the Department of Orthotic Prosthetics of Health Polytechnic Of Ministry of Health Jakarta I in April 2018 to December 2018. The population in this study were amputee who had performed

prosthetic orthotic services in the clinical laboratory of Applied science prosthetic orthopedic study program in 2016 to 2018. The number of population was 110 amputee, and the required samples consist of 30 respondents whom met the inclusion criteria as follows: transfemoral and / or transtibial amputatee, using a prosthesis, and willing to be a respondent.

Instrument

The research instrument was a questionnaire. This questionnaire contained questions related to how to use and treat prosthesis in amputee using prosthesis

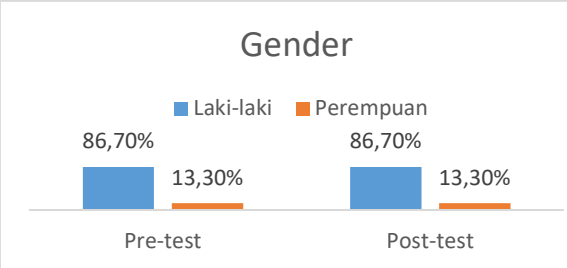
Procedures

This research was conducted after obtaining an ethical review at the Health Polytechnic Of Ministry of Health Jakarta I, then the respondents were invited and filled out the inform consent sheet to become respondents. Respondents who have filled out the inform consent sheet and are willing to become respondents are asked to fill out the questionnaire. After all respondents filled out the questionnaire, the educational counseling regarding knowledge in using and treating the prosthesis was held. After the educational counseling was completed, respondents were asked to refill the questionnaire.

RESULT

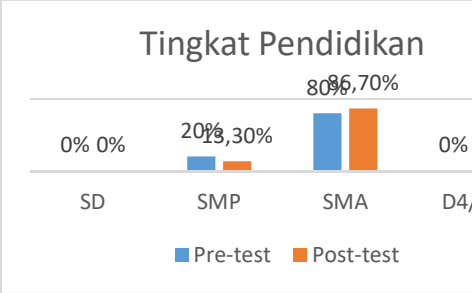
Univariate Data

A. Responden Characteristic (Gender)



The sex of respondents in the pre-test and post-test for men and women had a percentage of 86.70% and 13.30%, respectively.

B. Educational Level



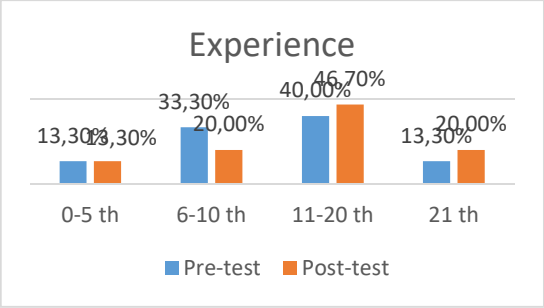
Respondents with junior high school education level in the pre-test and posttest were 20% and 13.30% respectively. Respondents with senior high school education level in the pre-test and posttest were 80% and 86.70% respectively.

C. Age

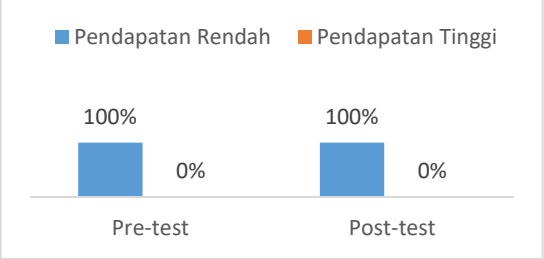
The average age of respondents was 39,27 ± 11,43 and 39,00 ± 11,38 for pre-test and post-test respectively.

D. Experience in Using Prosthesis

Respondents with experience of using Prosthesis was divided into four categories based on their age, 0-5 years, 6-10 years, 11 to 20 years, and more than 21 years. The percentage of pre-test respondents was 13.30%, 33.30%, 40%, and 13.30 % respectively. The percentage of posttest respondents was 13.30%, 33.30%, 46.70%, and 20 %.



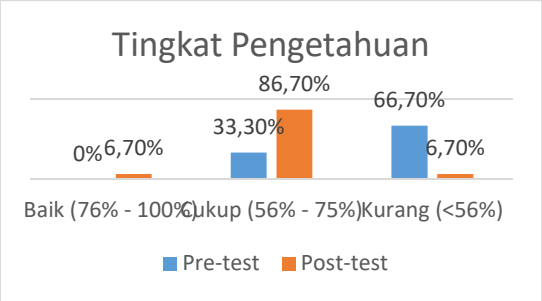
E. Socio-Economy



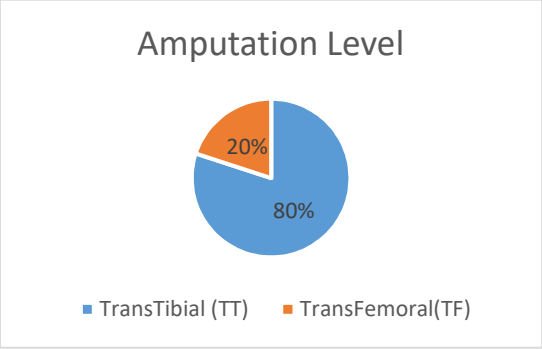
The socio-economy of respondents was divided into two categories; a. low income (<Rp. 3.648.035) and high income (<Rp. 3.648.035). All respondents were at low income category.

D. Knowledge level of amputee in using prosthetic

The knowledge level of amputee in using dan caring prosthetic was categorized into good, sufficient and less knowledge level. Respondents of pre-test were 0% of good knowledge, 33,30% of sufficient knowledge and 66,70% of less knowledge. Respondents of post-test were 6,7% of good knowledge, 86,70% of sufficient knowledge and 6,70% of less knowledge.



G. Amputation level



The transtibial (TT) respondents was 80% of all respondents.

H. The causes of Amputation

Table 1 The causes of amputation

The causes of Amputation	F	Percentage
Motor Vehicle Accident	21	70 %
Malignancy	1	3,33 %
Bone Infection	3	9,99 %
Congenital	2	6,66%
Diabetes	2	6,66%
Blood Vessels Explode	1	3,33 %
Total	30	100%

Motor Vehicle accident was the highest causes of amputation (70%), while Malignancy was the lowest causes of amputation (3,33%).

Bivariate Data

Table 2 The effect of educational counseling on amputee's knowledge

Group	*Mean±SD*	*p value*
Pre-test	46,31±10,18	0,001
Post-test	61,05±8,15	

The knowledge level of respondents on the pretest group was 46.31 ± 10.18 and post-test group was 61.05 ± 8.15 (posttest group). The statistical analysis showing that there was a significant increase of knowledge before and after the educational counseling.

Table 3 Correlation between the knowledge level of respondents with the education level

Group	*P value*	*Correlation Coefficient*
Pre-test Post-test	0.800	0,048

Based on the results it was known that the p value was 0.800 (p value> 0.05), which means there was no significant correlation between the level of knowledge of amputee about using and treating prosthesis with educational level. The results showed that the value of correlation coefficient was 0.048, which means that there was almost no relationship between the level of knowledge of amputee about using and treating prosthesis with the educational level.

Table 4 Correlation between the knowledge level with the age of respondents

Group	*P value*	*Correlation Coefficient*
Pre-test Post-test	0,502	0,128

Based on the above results it was known that the p value was 0.502 (p value> 0.05) which means there was no significant correlation between the level of knowledge of users of prosthetic patients about using and treating prosthesis with the age of the

respondents. The results of the above tests indicated that the value of correlation coefficient was 0.128, which means that there was almost no correlation between the level of knowledge of amputee about using and treating prostheses with the age of the respondent.

Table 5 Correlation between the knowledge level with the socio-economy of respondents

Group	*P value*	*Correlation Coefficient*
Pre-test Post-test	0,200	0,141

Based on the results it was known that the p value is 0.200 (p value> 0.05) which means there is no significant relationship between the knowledge level of amputee about using and treating prosthesis with the socio-economy respondents. The above test results indicated that the value of correlation coefficient was 0.141, which means that there was almost no correlation between the knowledge level of amputee about using and treating prosthesis with the socio-economy respondents.

Table 6 Correlation between the knowledge level with the experience in using prosthesis

Kelompok	*P value*	*Correlation Coefficient*
Pretest Posttest	0,993	0,002

Based on the results it was known that the p value was 0.993 (p value> 0.05) which means there was no significant correlation between the knowledge level with the experience in using prosthesis. The above test results showed that the value of correlation coefficient was 0.002, which means that there was almost no correlation between the knowledge level of amputee in using and treating prostheses with the respondents' long experience using prosthesis.

DISCUSSION

The mean of the knowledge level of pre-test respondents was 46.31 ± 10.18 and 61.05 ± 8.15 of post-test group. The statistical analysis showing that there was a significant increase of knowledge before and after the educational counseling.

Based on the results it was known that the p value was 0.800 (p value> 0.05), which means there was no significant correlation between the level of knowledge of amputee about using and treating prosthesis with educational level. The results showed that the value of correlation coefficient was 0.048, which means that there was almost no relationship between the level of knowledge of amputee about using and treating prosthesis with the educational level.

Differently from the theory of Notoatmodjo (2003) which states that a tiered education is expected to increase knowledge through a certain pattern, and in general people with higher education will have more knowledge than people who have lower education. Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed by themselves, society, nation and state.

Indonesian constitution UU no.20, 2003 about National Education System stated that education affects the learning process, the higher one's education is, the easier it is for the person to receive information. With higher education, someone tend to get information, both from other people and from the mass media. The more information comes the more knowledge is gained. But it needs to be emphasized that someone who has low education does not mean to have a low level of knowledge. Increased knowledge is not absolutely obtained in formal education, but also can be obtained in a non-formal education.

A person's knowledge of an object also contains two aspects, positive and negative aspects. These two aspects will ultimately determine a person's attitude towards a particular object. The more positive aspects of the object are known, will foster an increasingly positive attitude towards the object. The existence of other supporting factors that influence someone knowledge is experience. Experience as a source of knowledge is a way to obtain the truth of knowledge by repeating the knowledge gained in solving problems faced by the past (Notoadmojo 2003).

In this case the researchers observed that amputee would learn from experience

about how to treat stumps and prostheses. As an example: if the patient does not change socks often, the stump skin will be more often experienced problematic cases and the amputee will increase intensity in changing socks more often to avoid the same problem.

Based on the results on the correlation between the knowledge level and the age of respondents, it was known that the p value was 0.502 (p value> 0.05) which means there was no significant correlation between the level of knowledge of users of prosthetic patients about using and treating prosthesis with the age of the respondents. The results statistical analysis indicated that the value of correlation coefficient was 0.128, which means that there was almost no correlation between the level of knowledge of amputee about using and treating prostheses with the age of the respondent.

This is not in line with the existing theory which states that, age affects the perception and mindset of a person. Increasing age will also develop the power of capture and mindset, so that the knowledge gained is getting better Notoatmodjo (2003). The two traditional attitudes regarding the course of development during life: the older the wiser, the more information is found and the more things that are done to increase someone's knowledge. Some theories argue that a person's IQ will decline quite rapidly in line with age (Sujarwo, 2012). In line with the declining knowledge because of aging, it is necessary to have the awareness of amputee to properly treat stumps and prostheses which are also assisted by orthotic and protective colleagues who carry out further examinations of their stumps and prostheses when visiting the clinic prosthetic orthotics. Literally awareness, consciousness means the introspection (awareness). Awareness can also be interpreted as a condition where an individual has full control of internal stimulus and external stimulus. However, awareness also includes perceptions and thoughts that are vaguely realized by individuals so that their attention is finally centered on theory (Hamifa, 2013).

Based on the results on the correlation between the knowledge level and the socio-economy of respondents, it was known that the p value is 0.200 (p value> 0.05) which means there is no significant relationship between the knowledge level of amputee about using and treating prosthesis with the socio-economy respondents. The above test results indicated that the value of correlation coefficient was 0.141, which means that there was almost no correlation between the knowledge level of amputee about using and treating prosthesis with the socio-economy respondents.

CONCLUSION

The results of this study indicated a significant relationship before and after educational counseling about how to use and care for prosthesis for amputee. However, there was no significant correlation between the level of knowledge of amputee about using and treating prosthesis with the level of education, age, economic level, and experience of the respondents.

Acknoledgment

Thank you to the Director of the f Health Polytechnic of Ministry of Health Jakarta I who has provided support for this research. This study is very useful for orthotic and prosthetic patients and lot of gratefull for all respondents within their limitations was willing to be respondents in this study

REFERENCES

Akmer Multu 2017 The effect of segmental weight of prosthesis on hemodynamic response and energy expenditure o lower extrimities amputees. Journal of physical therapy sciences. Hlm 9-10 dikutid dari https:/www.ncbi,nlm.nih.gov/pmc/articles/PMC5430262/ (diakses pada 25 January 2018

Allen W Heinemann, Linda Ehrlich-Jones, Lauri Connelly, Patrick Semik and Stefania fatone. (2017). Enhancing quality of prosthetic services with process and outcome information. Prosthetics and Orthotics International Journals, volume 41, April.journals.http://poi.sagepub.com .

Brown, B. J., & Attinger, C. E. (2013). The Below-Knee Amputation: To Amputate or Palliate? *Advances in Wound Care*, *2*(1), 30–35. https://doi.org/10.1089/wound.2011.0317

Campbell, D.T. dan Stanley, JC Experimental and quasi-experimental dsigns for research. Houghton Mifflin Company, Boston 1963

D Hamacher 2011 Kinematic measures for assessing gait stability. NCBI dikutif dari http://www.ncbi.nlm.nih.gov/pubmed/21880615 (diakses pada 13 Januari 2018

Jawad F Abulhasan and MJ Grey 2017 *Anatomy and physiologi of knee stability* Journal of Fungsional Morphology and Kinesiology Hlm 2,4,34

JSPO, Introduction to Prosthetics and Orthotics Training Course 2011,

J.C. Beel at al 2014 *Transfemoral Amputation is there any effect of residual limb lenth on energy expenditure*. Walter Red National Militery Medical Research Hlm 3-4 dikutip dari https://www.ncbi,nml.nih.go/pubmed/24752912 (diakses pada 14 January 2018)

Kate L Newton, Craig Evans,et.al 2016 The timed up and go and two-minute walking test: exploration method for estabilishing normative values for established lower limb prosthetics user; European Juornal of Physiotherapy Hlm 5-6 dikutip dari https://www.researchgate.net/publication/299347092 (diakses 26 Januari 2018)

G. Murdoch, A Bennet Wilson JR, (2000), A *primer on amputations and artificial limb*.

Gary M Berke, Noelle C Bueell, john m fergosen 2008 Transfemoral amputation research study Standford University California Hlm 6-7 Dikutif dari www.prs.research.org/files/TFA.pdf (diakses pada 14 Januari 2018)

Marion Trew 2005 *Human movement and introductory test. Elsevier Churchill livingsone* hlm 81-82

Matthew Hoffan MD, 2005 *Transfemoral* Amputation, Quality of life and Prosthetic Function NCBI Hlm 5-6

Michael D Pil lon, et al 2017 *Geographic Variation of the Incidence Rate of Lower Limb Amputation in Australia from 2007-2012* Journal Ploa. Availabe at:https:doi.org?10/1371/journal/phone.01070705, diakses 13 januari 2018.

Mohd Hawari, N., Jawaid, M., Md Tahir, P., & Azmeer, R. A. (2017). Case study: survey of patient satisfaction with prosthesis quality and design among below-knee prosthetic leg socket users. *Disability and Rehabilitation: Assistive Technology*, 1-7.

MM.Lusardi, Caroline Nilson ,2011, *Orthotics and prostetics in rehabilitation*.

Nicola Sncisi, Raffaele Caminati, Vincenzo Parenti-Castelli, *Optimal Four Bar Linkage for stability and the Motion of Human Knee Prostheses*. DIEM Departement of Mechanical Engineering University of Bologna Italy Hlm 2-3 dikutip dari: …. tangga 14 Januari 2018

Notoatmodjo, S (2010) Metodologi Penelitian Kesehatan (Revisi) Jakarta Rineka Cipta

Notoatmodjo, S (2003) Pendidikan dan Perilaku Kesehatan, Renika Cipta Jakarta

Peraturan Menteri Kesehatan Republik Indonesia Nomor 22 tahun 2013 tentang Penyelenggaraan Pekerjaan dan Praktik Ortotik Prostetis

Plan P 2007 *Transfemoral Amputation* (361) pp 2-5 dikutip dari: http/www.prs-research.org/files/TFA.pdf.

Pirouzi, G., Abu Osman, N. A., Eshraghi, A., Ali, S., Gholizadeh, H., & Wan Abas, W. A. B. (2014). Review of the socket design and interface pressure measurement for transtibial prosthesis. *Scientific World Journal*, *2014*. https://doi.org/10.1155/2014/849073

Raiche KA, Osbome TL, Jensen MP 2009 *Person Undergoing Lower Limb Amputation*, sage pub journal HLM 6-7

Razak, M. M. A., Tauhid, M. Z., Yasin, N. F., & Hanapiah, F. A. (2016). Quality of Life among Lower Limb Amputees in Malaysia. *Procedia-Social and Behavioral Sciences*, *222*, 450-457.

Ron Seymour,2002, *Prostetisc and orthotics lower limb and spinal*.

Salim Akarsu, Levent Tekin, Ismail Safasz, Ahmet Salim Goktepe and Kamil Yazicioglu, *Quality of life and functionality after lower limb*

amputations : comparison between uni-vs.bilateral amputee patients. Prosthetics and Orthotics International Journals, volume 37, February 2013.journals.http://poi.sagepub.com..

Sinha, R. (2013). Adjustments to amputation and artificial limb, and quality of life in lower limb amputees.

S Fatone, R Caldwell Northwestern *University Flexible Subischial Vacuum Socket for persons with transfemoral amputation: Part 2 Description and Preliminary evaluation* - Prosthetics and Orthotics 2017 - journals.sagepub.com

S Fatone, R Caldwell *Northwestern University Flexible Subischial Vacuum Socket for persons with transfemoral amputation-Part 1: description of technique* - Prosthetics and Orthotics …, 2016 - journals.sagepub.com

Sugiyono (2011) *Metode penelitian kuantitatif kualitatif dan R&D* (alfabeta, ED) Bandung

Undang Undang No.8 tahun 2016 tentang Penyandang Disabilitas

Undang-Undang No. 20 tahun 2003 tentang Sistem Pendidikan Nasional

Veteresiana 2017 Perbandingan spatiotemporal polycentric knee D dan R Jakarta Poltekkes Kemenkes Jakarta 1 hlm 201-21

Vitriana, (2002), *Rehabilitasi Pasien Amputasi Bawah lutut* Jakarta Bag.Ilmu Kedokteran Fisik FKUI

Wawan dan Dewi (2010) *Teori dan Pengukuran Pengetahuan, sikap dan Perilaku Manusia, Nuha Medika.*

WHO (2011) *World Health Organization* Retrieved March 21,2014 from world report on disability http://www.who.int/disabilities/world_report/2011