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The Improvement of Eye Hand Foot Score of Disability through Empowerment Education, Home-Based Self Care, Peer Support



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Abstract

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Introduction: Mycobacterium leprae infiltration results in inflammation of the nerves. This condition results in a progressive decline of nerve function of the eyes, hands and feet. The main burden of people with leprosy is a disability that will affect all aspects of their lives. The objective of this study was to explain the effect of empowerment education, home-based self care, and peer support for disability. **Methods:** True experimental randomized pre-post test control group design. The sampling technique used simple random sampling consisted 16 respondents. The independent variable was empowerment education, home-based self care, and peer support. The dependent variable was disability. The data were collected by in-vivo biological observation sheets. The data were analyzed by Mann-Whitney Test and Wilcoxon Signed test. **Results:** The result showed that there was an effect of intervention on disability with Wilcoxon Sign Rank Test 0.046. **Discussion:** Empowerment education interventions, home-based self care, peer support increase the knowledge of leprosy clients in self care. The key to disability prevention is 3M, which is checking, protecting, and caring for the eyes, hands and feet. These three interventions will increase patient confidence in self-care at home. The support of peers will also make it easier for clients to weigh the advantages and disadvantages when not complying with comprehensive treatment.

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INTRODUCTION

Mycobacterium leprae causes inflammation of the nerves, resulting in progressive damage to the nerves of the eyes, hands, and feet (Slim, Schie, Keukenkamp, William, & Nollet, 2010). Damage to nerve function can exacerbate disabilities such as wounds, claw hands, finger amputations, and even blindness (Aditama, 2012; Slim et al., 2010). Most of the people with leprosy have structural and function damage (70%), activity limitation (60%), and a decrease in social function in their involvement in the community (participation problem) by 60% (Brakel et al., 2012; Veen, Mcnamee, Richardus, & Smith, 2009). The main burden of people with leprosy is disability and it affects all aspects of their life (Wewengkang, Palandeng, & Rombot, 2016).

Cases at Sumberglagah Mojokerto Hospital in 2015 did not have grade 1 disability, and 3 people (13%) had grade 2 disability, and in 2016 there were 11 people (50%) with grade 1 disability and 2 people (9%) with grade 2 disability from target of <5% (Dinas Kesehatan Provinsi Jawa Timur, 2016).

Leprosy disability degree 0 is a condition where there is no eye abnormality due to leprosy, there is no deformity of the palms and feet caused by leprosy (Aditama, 2012). Leprosy grade 1 disability, which is a condition where there is eye damage (anesthesia in the cornea, but visual impairment is not severe > 6/60), on the palm of the hand / foot there is anesthesia or muscle weakness (no defects / damage seen directly by the eye) (Aditama, 2012). Grade 2 leprosy disability, which is a condition in which there is eye damage (lagostalmus, iridocyclitis, corneal opacification and severe visual impairment > 6/60), on the palms / feet there are visible defects / damage due to leprosy (eg ulcers, clawing fingers, drop foot) (Aditama, 2012).

Leprosy disability prevention should be carried out properly in several places such as at home, health centers, or referral service units (Aditama, 2012; Sjamsoe, 2003; Wewengkang et al., 2016). The empowerment education method used by previous studies has been proven to have succeeded in increasing self-efficacy and self-care for clients with leprosy by 62.5%, but it has not been proven to have an impact on reducing disability (Wahyuni, 2013). The home-based self-care method in WHO's Enhance Global Strategy is expected to have a direct impact on leprosy patients so that they can prevent leprosy disabilities. This is because leprosy patients

with disabilities can take care of themselves independently which is closely monitored by the health workers / families involved (Aditama, 2012; WHO, 2009). Previous research also explained that the best practice is to do a balance and strength exercise intervention for 3 times per week or can use an intensive supervised training program based on Home Based that is controlled every week (Gschwind et al., 2013). Kotler (1996) states that a support group or peer support is a form of gathering of several people who have the same experience to build the strengths, common interests, and competences of each member so that each member gets full support from fellow members, can express all negative feelings, and is a place for members to find information (Lamak, Kusnanto, & Dewi, 2014)

Management of leprosy is comprehensive, starting from promotive, preventive, curative to rehabilitative. Preventive activity through empowering education are expected to change individual perceptions and empower clients' ability in leprosy prevention behavior. Preventive activity through peer support are expected to improve healthy behavior, and increase compliance with taking medication, which is expected to reduce of leprosy disability. Home-based self-care activities are closely monitored using cellphones and family assistance can improve client self-care at home independently. Therefore, the combination of interventions consisting of empowerment, education, home-based self care, peer support in improving the disability of leprosy still needs to be proven and research.

METHODS

This study used a true experimental randomized pre-post test control group design. The population used all leprosy patients at Sumberglagah Leprosy Hospital, Mojokerto, East Java who had met the homogeneity criteria, as many as 16 people. The sample in this study was 16 people divided into 2 groups, namely the treatment group and the control group. The sampling technique used simple random sampling.

Independent variables include empowerment education, home-based self care, and peer support. The treatment group was given 2 meetings with empowerment education interventions, two peer support interventions were given, while the home based self care consisted of self-care and taking

medication independently at home for 1 month. The total time needed to provide the treatment was about 6 weeks.

At the first empowerment education meeting, materials were given on the definition, causes, symptoms and diagnosis, classification, transmission of leprosy, MDT treatment regimens, side effects of MDT and their treatment, leprosy reactions and their management. Empowerment education materials at the second meeting included eye care, hand care, claw hand care, foot drop treatment, ulcer care. At the second meeting, range of motion exercises were also given which included ROM on the forearms, wrists, fingers, thumbs, legs, feet and toes.

At the third and fourth meetings, peer support was given to treatment group consisting of the stages of Cheking in, Presentation of problems, Clarifying problems, Sharing suggestions, planning

actions, and Cheking out. In the next stage, respondents were given home based self-care intervention which was carried out independently by the patient at home every day for 1 month which was controlled by telephone every week with family assistance.

The dependent variable was disability. The independent variable instrument was *satuan acara kegiatan (SAK)*. The three methods were combined to completion and the disability level test was then carried out. The dependent variable instrument used in-vivo biological measurements based on the degree of disability of leprosy from WHO. The collected data were then analyzed using the Mann Whitney test for 2 unpaired groups, and the Wilcoxon sign ranked test for the paired 2 groups test with a significant value of 0.05.

RESULTS

Table 1 Leprosy Disability

Level of Disability (EHF Score)	Treatment Group		Control Group	
	Pre test	Post test	Pre test	Post test
1	3	6	3	5
2	4	2	5	3
3	1	-	-	-
Bivariat Test	<p>The results of the pre-test treatment group with the control group used the Mann Whitney test = $p: 0.263$</p> <p>The results of the pre-test with the post-test of the control group used the Wilcoxon sign ranked = $p: 1.000$</p> <p>The results of the pre-test with the post-test of the treatment group used the Wilcoxon sign ranked = $p: 0.046$</p> <p>Post test results for the treatment group and the control group used Mann Whitney test = $p: 0.602$</p>			

Table 2 Cross-tab the treatment group for disability

Level of Disability (EHF Score)	Post test		Total	
	EHF1	EHF2		
Pre test				
	EHF1	3	-	3
	EHF2	3	1	4
	EHF3	-	1	1
Total		6	2	8

Table 3 Cross-tab the control group for disability

Level of Disability (EHF Score)		Post test		Total
		EHF 1	EHF 2	
Pre test	EHF 1	4	1	5
	EHF 2	1	2	3
Total		5	3	8

Table 1 explained that the pre-test value of the treatment group and the control group using the Mann Whitney test was p value (0.263) which means there is no difference in the pre-test value between the treatment and control groups. Table 1 also explains that the pre-test and post-test scores of the control group using the Wilcoxon sign ranked test are p value (1,000), which means that there was no difference in the pre and post test scores in the control group. Table 1 explained that the post test value of the treatment group and the control group using the Mann Whitney test was p value (0.602) which means there was no difference in the post test scores between the treatment and control groups. Table 1 also explains the pre-test and post-test values of the treatment group using the Wilcoxon sign ranked test, which was p value (0.046), which means that there was a difference in the pre and post test values in the treatment group.

The results of the cross tabulation test in the treatment group (table 2) explained that there was 1 person who experienced improvement in disability starting from an EHF score of 3 to an EHF score of 2, and no one experienced a worsening of the disability condition. Meanwhile, the results of the cross tabulation in the control group (Table 3) explained that there was 1 person who experienced a worsening of the condition from EHF score 1 to EHF score 2.

DISCUSSION

Analysis before intervention in the treatment and control groups using the Mann Whitney test showed a result of $p > 0.05$, which indicates that there was no difference in impairment of leprosy before treatment between the treatment group and the control group. The results of data analysis before and after treatment in the intervention group using the Wilcoxon signed ranks test showed that $p < 0.05$, which indicates that there was a difference in

impairment of leprosy before and after being given treatment to leprosy patients.

There was an effect of empowerment education, home-based self care, and peer support on leprosy disability, supported by data based on cross tabulation of leprosy disability before and after treatment in the treatment group (table 2). These results indicate that there were 3 people (100%) who had a disability EHF score of 1 (one) during the pre and post test, while 1 person (100%) had a disability EHF score of 3 (three) when the pre test changes to an EHF score of 2 (two) during the post test which shows improvement in disability.

Cross tabulation of leprosy disabilities before and after treatment in the control group (table 3) showed that there were 4 people (80%) who had an EHF score of 1 at pre and post test. Meanwhile, 1 person (20%) who had an EHF score of 1 during the pre test changed to an EHF score of 2 during the post test, which means that leprosy has worsened.

Internasional Classification of Function Disability and Health (ICF), impairment is damage to structure and function that is pathological, physiological, or anatomical (for example, claw hands, ulcers, foot drop)(Aditama, 2012; Brakel et al., 2012; Veen et al., 2009).

Knowledge is a result of knowing someone after that person senses an object (Notoatmodjo, 2010). There are 3 principles in the prevention of leprosy disabilities are 3M. The first M is to check the eyes, hands and feet regularly. The second M is to protect the eyes, hands and feet from physical trauma. The third M is self-care (Aditama, 2012).

Empowerment education is education given to leprosy patients with a empowerment approach (client-focused empowerment). Castilo et al (2010) explained that empowerment education is also called self-management education, which consists of teaching strategies with a problem solving

approach and sharing of information and knowledge in order to manage the disease.

This is supported by previous research which explains that self-management education will increase knowledge, self-confidence / stigma, support from family, and adherence to treatment of someone who has chronic diseases such as leprosy. Better knowledge about leprosy is obtained from learning processes, which leads to understanding related to self-care (Mufarokhah, Putra, & Dewi, 2016)

The results of this research intervention are reinforced by research Rawlett E Kristen (2011), an education such as empowerment education will affect the main aspects of the health belief model such as perceived vulnerability, perceived seriousness, the benefits of perceived obstacles, and cues or signs. A person will act to treat his disease, he must know and feel that he is susceptible to disease (Nursalam, 2015; Rawleat, 2011). Self-management education or also called empowerment education will be able to change the attitudes and beliefs of someone suffering from chronic disease (Mufarokhah et al., 2016).

Home base self care is a care activity carried out by someone at home when that person completely takes over the care of themselves independently. The disability prevention principle is that 3M includes examining, protecting, and caring for oneself from the eyes, hands, and feet (Aditama, 2012; Arif, Haryanto, & Yunitasari, 2017). Self-care theory is also proven to strengthen the results of this study. Empowerment education is a form of nursing agency that can be provided by nurses to leprosy patients to increase leprosy patient knowledge in conducting self-care, especially the prevention of leprosy disability (Nursalam, 2015).

Peer group support is a type of social support that combines information (knowledge), assessment (feedback) and emotional assistance. Support group activities are one form of individual so that knowledge increases (Notoatmodjo, 2010). In the Support group, respondents will discuss the understanding of leprosy and skills or efforts to care for and care for themselves so that it will increase the knowledge of leprosy patients. Increased knowledge will be improve the method and prevention of leprosy disability by leprosy patients (Kewa, Kusnanto, & Dewi, 2014).

Self-care theory explains that the existence of a nursing agency through empowerment education,

home based self care, and peer support will have an influence on conditioning factors and self-care agencies. One of the conditioning factors is a predisposing factor consisting of knowledge and attitude (Nursalam, 2015).

Basically, disability in leprosy can be prevented by comprehensive leprosy treatment. Delays in the diagnosis of leprosy cases do have a big impact on disability, but one of the factors causing disability that often appears is adherence to medication and the ability to self-care to prevent disability. Many leprosy patients think that when their condition has improved, it means that the disease has been cured so that they will reduce or even stop the process of treatment or self-care. The impact is that the level of disability will increase due to the patient's lack of understanding of leprosy prevention care.

Individuals who feel themselves vulnerable to diseases that are considered serious, will take certain actions. The correct level of acceptance of the vulnerability, urgency, and benefits of action, signals in the form of external factors are needed. These factors, such as an education, information from peers (peers) or other family members of the sick.

This is because there are respondents who have grade 2 disabilities due to an ulcer. This ulcer requires a longer time to treat, while the study time only lasted approximately 1 month after treatment. This makes home-based self care a very important thing to do regularly so that wounds don't get worse and can heal. Self-care which consists of 3 M, consisting checking, protecting, and taking self care also needs to be carried out independently at home. This is because almost the majority of leprosy patients have grade 2 disabilities due to injuries to their body areas due to the inability of the patient and family to carry out self-care independently at home.

CONCLUSION

Empowerment education, home-based self care, and peer support affect the level of leprosy disability. Empowerment education intervention makes leprosy patients understand and more confident in doing self-care at home (home-based self care). In addition, peer support also increases confidence and experience in overcoming problems so that leprosy patients can weigh the advantages and disadvantages of complying with the leprosy treatment process comprehensively.

SUGGESTION

For the Sumberglagah Leprosy Hospital, Mojokerto, East Java, it is hoped that it will further increase the empowerment of patients and families in the treatment of leprosy disability prevention. In addition, health promotion media through home based self care booklets to empower leprosy clients to care for themselves at home are further improved.

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