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The role of trained cadres to find new cases of leprosy with a social learning theory approach in the City of Bima, Indonesia

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ABSTRACT

The role of empowering health cadres to change their perceptions of leprosy is very important for early detection. The aim of the research is to determine the role of trained cadres to find new cases of leprosy with a social learning theory approach. The quasi-experimental method was used in this study to identify new cases of leprosy, with a sample of 20 trained cadres and 20 untrained samples as controls. The data collected were then processed using the Mann-Whitney. The distribution of leprosy case findings in the control group revealed 17 negative cases and three suspected cases, and the distribution of leprosy case findings in the treatment group revealed 12 negative cases, one suspected case, and seven positive cases. On the results of the Mann-Whitney test, it was found that the value of p=0.03 <0.05 and the difference in the mean rank of the treatment was 23.52 and the mean rank in the control was 17.48. In conclusion, there was a difference in the range of case findings between the control and treatment groups that received leprosy identification training using social learning methods. The recommendation is to explore potential factors that may contribute to the observed differences in case findings.

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1. INTRODUCTION

Although leprosy is a treatable, non-lethal mycobacterial infection, delayed diagnosis and treatment can lead to permanent impairment, accompanied by social stigma and financial difficulties [1], [2]. The global detection rate of new leprosy cases decreased after the advent of multidrug therapy in 1981, but it has subsequently stabilized, with approximately 200,000 new cases reported annually since 2005 [3], [4]. Stopping the spread of illness is the goal of the WHO Global Leprosy Strategy 2016-2020 [5], which is hindered by the lengthy pathogenic bacterial incubation period (2–12 years) and information gaps regarding individual susceptibility to infection and disease progression in leprosy patients [1].

Many cases of leprosy that are found always have a positive correlation with the economic condition of an individual [6]–[10]. Some of them are also related to social conditions as shown in the review article by Pescarini *et al.* [11] each year, between 500,000 and 1.03 million cases of leptospirosis are reported worldwide, with a mortality rate of over 10% [12], [13]. However, leprosy is often underestimated because many diseases, such as dengue fever and malaria, are major concerns [12]–[15]. In addition, many countries do not have an early prevention system for leprosy [12], [16], [17].

Leprosy is a disease often found in developing countries, especially in tropical and subtropical regions such as Asia, Latin America, and Africa. Most of these countries are unable to offer a wide range of health and

leprosy education programmes. Most cases of leprosy worldwide are found in Southeast Asia, where developing countries are the areas where the disease is spread, with 154,834 new cases reported in 2014. After India and Brazil, Indonesia has one of the developing countries with the highest rates of newly diagnosed leprosy cases. third highest in the world [18].

The formation of cadre perceptions and understanding of leprosy need to be done because increased knowledge will increase the understanding and behavior related to leprosy. According to [19], [20] perception also includes how individuals or groups "see" other people (social perception) and how one interprets and comprehends an illness and its potential effects. Perception is a product of knowledge, ideas, and feelings. Perception is affected by attitudes, individual traits (e.g., personality and experience), and environmental aspects (e.g., culture and religion). This research will determine the role of empowering health cadres who have been given an understanding and training to change their perceptions and knowledge of leprosy so that they can identify and record new cases of leprosy compared with cadres who have not been given training and understanding.

2. METHOD

The quasi-experimental method is employed in this study. A post-test-only control group design was chosen for this study. The experimental and control groups were selected based on inclusion criteria. This study compared cadres who had been given training and those who had not been given training in tracking leprosy cases. The experimental group received treatment, whereas the control group did not. The researchers ensured that both groups were similar in terms of their demographic characteristics and previous knowledge about leprosy. Additionally, random assignment was used to assign participants to either the experimental or control group, reducing the likelihood of bias.

The study population consisted of 20 new cadres who were trained and 20 cadres as controls who were not trained. The sample in this study was taken by total sampling where the total number of cadres who were willing to be samples in this study resulted in 40 samples divided into 20 trained and 20 untrained samples. The validity of the instrument was tested on respondents with the same characteristics. The instrument used has a validity value of r-results (total-corrected item correlation) which is above the table r value (r=0.956). based on a significant test of 0.05, meaning that the items above are valid. Therefore, the instrument used in this study can be considered valid for measuring the intended variables. The researchers ensured that the sample size was evenly divided between trained and untrained cadres to ensure a balanced representation of both groups in the study.

Understanding activities were carried out by providing training with the help of the leprosy identification module. We use modules that have been registered on ISBN 978-623-7865-52-0. The data obtained were then entered into an observation sheet. The collected data were then processed, which included the identification of research problems using the Mann-Whitney test to determine whether the model of tracking leprosy care cadres had an effect on finding new cases of leprosy using the social learning theory approach in Bima City. If a p-value <0.05 is obtained, then the hypothesis is accepted. The p-value >0.05, meaning that there is no effect of using the Tangguh Care Cadre Tracking Model on the discovery of new cases with the social learning theory approach in Bima City. The Mann-Whitney test is a statistical method commonly used to compare two independent groups, in this case, the group using the Tangguh Care Cadre Tracking Model and the group not using it. The social learning theory approach is based on the idea that individuals learn from observing others, and it was applied in this study to understand its impact on finding new cases of leprosy.

The inclusion criteria were newly formed health cadres, aged 20-48 years, with a minimum education of high school or equivalent, domiciled in the Bima city, and not pregnant. These criteria were established to ensure that the study participants had recently joined the healthcare workforce and were within a specific age range. Additionally, the minimum education requirement aimed to include individuals with a basic level of knowledge and skills necessary for their roles as health cadres. The inclusion of only those domiciled in Bima city was important to maintain geographical consistency, while excluding pregnant individuals helped eliminate potential confounding factors related to pregnancy. Research ethics permit was obtained through the health research ethics committee at the Polytechnic of the Ministry of Health of Mataram, Indonesia with number: LB.01.03/6/3198/2021.

3. RESULTS AND DISCUSSION

In the control group, 80% of the respondents were aged 33-42 years. About 70% had a high school educational background, and 80% became cadres for less than two years as shown in Table 1. In the treatment group, 60% of the respondents were aged 24-32 years, 70% had a high school educational background, and 85% had been cadres for more than two years.

Table 1. Frequency distribution of control and treatment group respondents according to characteristics

	Characteristics	Total	Percentage
Control group cadres	Age		
	24-32	3	15.0
	33-42	16	80.0
	42-48	1	5.0
	Total	20	100
	Education		
	Senior high school	14	70.0
	Diploma	2	10.0
	Bachelor	4	20.0
	Total	20	100
	Work duration		
	<2 Years	16	80%
	>2 Years	4	20%
	Total	20	100%
Treatment group cadres	Age		
	24-32	12	60.0
	33-42	6	30.0
	42-48	2	10.0
	Total	20	100
	Education		
	Senior high school	14	70.0
	Diploma	2	10.0
	Bachelor	4	20.0
	Total	20	100
	Work duration		
	<2 Years	3	15.0
	>2 Years	17	85.0
	Total	20	100

As shown in Table 2, the distribution of leprosy case findings in the control group was 17 negative cases and 3 suspected cases. The distribution of leprosy case findings in the treatment group was 12 negative cases, one suspected case, and seven positive cases. Overall, there were 28 negative cases, 4 suspect cases and seven positive cases. Based on the data obtained from the control group as shown in Table 2, there were no positive cases of leprosy in the control group without training. Positive cases of leprosy have not been found because cadres have not received knowledge from cadre training.

Table 2. distribution of respondents in the treatment and control groups

Cadre group	Case finding							
	Negative	%	Suspect	%	Positive	%	n	%
Treatment	12	30	1	2.5	7	17.5	20	50
Control	17	42.5	3	7.5	0	0	20	50
	28	72.5	4	1.0	7	17.5	40	100
p=0.03<0.05								

Table 3 shows that the results of the Mann-Whitney test obtained a value of p=0.03<0.05. The difference in the mean rank of the treatment was 23.52 and the mean rank in the control was 17.48. This shows that there was a difference in the range of case findings between the control group and the leprosy training group using social learning methods. This shows that there was a difference between the range of finding control cases and leprosy training treatment using the social learning method.

Table 3. the results of Mann-Whitney test analysis

Evaluation result	n	Mean rank	Sum of rank
Treatment group	20	23.52	470.50
Control group	20	17.48	349.50

Based on the data obtained from the control group as presented in Table 2, there were no positive cases of leprosy in the control group without training. Positive cases of leprosy have not been found because cadres have not received knowledge from cadre training. therefore, cadres have not been able to identify leprosy sufferers in detail. Increased knowledge is expected to provide better services to the communities. From

exploration and other studies, we know that knowledge of leprosy plays an important role in stigma [2], [21]–[23]. While information can close knowledge gaps, altering attitudes and perceptions is more challenging and calls for a combination of behaviour change and health education interventions [24], [25]. Therefore, in the treatment group, there were seven cases of leprosy. This illustrates the formation of resilient leprosy care cadres using a social learning approach in the community for early detection of leprosy to make it easier to find new cases of leprosy. Knowing the symptoms and indicators of leprosy is crucial to avoid delays in seeking medical attention, and it can be taught to cadres so they can identify it early [26], [27].

The results of the Mann-Whitney test also showed that p=0.03 <0.05 and the difference in the mean rank for the treatment was 23.52 and the mean rank for the control was 17.48. This shows that there was a difference between the range of finding control cases and leprosy training treatment using the social learning method. Thus, it can be concluded that there was an average difference between the findings of leprosy cases in the control group and the group that received leprosy training using a social learning theory approach. social learning theory, according to [28] is a social learning theory or social cognition and self-efficacy that shows the importance of the process of observing and imitating the behavior, attitudes, and emotions of others. This theory explains human behaviour in the context of continuous reciprocal behavioural interactions between cognitive behaviour and environmental influences.

Subsequent results showed that cadres with more than two years of experience tend to have the ability to track positive cases of leprosy. According to theory, most human knowledge is obtained through education, self-experience, the experiences of others, mass media, and the environment. Knowledge increases with experience [29]–[31]. Knowledge is a very important domain in the formation of one's behaviour. Health cadres, also known as health promoters, must have good health knowledge, which will be useful in conveying health information to the public. In carrying out their duties, cadres will side by side with health workers and will immediately find problems, especially those directly related to leprosy, because cadres are in direct contact with the community. The more often cadres encounter problems, the more experienced they have to deal with them. Of course, this is something that is positive in increasing the knowledge of cadres, especially leprosy.

Respondents' age was another supportive aspect of this study. A person's psychological and psychological (mental) features change with age. In general, changes in size and proportion will occur throughout physical growth when this happens as a result of the maturity of organ functions. From a psychological (mental) perspective, there is a change in a person's thinking levelas they become more mature. as seen from the ages of the respondents, including the adult age group. In terms of public trust, someone who is more mature will be more trusted than people who are not yet sufficiently mature. It is also said that age affects the mental and psychological aspects of a person [32]. This is the result of the soul's experience and maturity. When viewed from the age of the oldest cadre, 42 years, this age is still in the productive category. However, with increasing age, productivity decreases because physical skills such as speed, flexibility, strength, and coordination decrease with age [33], [34].

Cadres with high knowledge have the possibility of carrying out their roles better. In the education variable, it can be seen that in cadres with secondary and higher education levels, namely, at least senior high school and tertiary education, the level of education affects one's perspective and mindset in solving a problem. Education increases knowledge, skills, reasoning, effectiveness, and other abilities that can be applied to improve health [35]. Considering that cadres are key to the success of programs to increase knowledge and skills in the health sector in the community, it is necessary to have quality cadres with a higher education base to achieve the goal of forming health cadres. The presence of cadres with good educational qualifications affects their performance, especially in their role in preventing leprosy. Leprosy knowledge was shown to have a statistically significant association with education, male sex, and work status, but attitudes toward leprosy were found to have a statistically significant relationship with education and marital status. Similar studies demonstrate the significance of educational attainment in leprosy response [36], [37]. Knowledge of health cadres is an important domain as a basis for health cadres carrying out their activities in controlling leprosy cases. Knowledge is a factor that influences a person's behavior [38]–[41]. The results showed that there were more cadres with more than two years of service than cadres with less than two years of service. Working period is significantly related to the motivation to become a cadre. Someone with low motivation will not be able to last long in healthcare, considering that cadres are a type of work done voluntarily. Research on cadres' tenure also states that a longer tenure allows them to gain more experience and skills in carrying out their duties and roles as community health educators.

4. CONCLUSION

There is an influence of identifying leprosy cases using social learning methods with the help of cadres. Knowledge of cadres will influence the tracking of leprosy cases because with good knowledge, identification of the symptoms and early effects of leprosy will be seen more clearly in cadres with more knowledge of leprosy cases. Furthermore, the involvement of cadres in identifying leprosy cases through social learning

methods can also lead to increased community awareness and acceptance. By utilizing their knowledge, cadres can educate and inform community members about leprosy, reducing stigma and encouraging early detection and treatment-seeking behavior. The experience of treating and interacting with people with leprosy is also a determining factor in identifying early symptoms of leprosy. The results of the study also showed that experience affected the knowledge level of cadres in leprosy tracking. The low number of leprosy cases can be caused by various factors, including the lack of a strong surveillance system, the lack of ability to diagnose leprosy, the lack of access to health services that are not yet optimal, the lack of public knowledge about the early symptoms of leprosy, lack of a screening system for sufferers at the Health Center in carrying out anamnesis that is not optimal, people are not open about leprosy because it is considered a hereditary disease, and people are reluctant to check themselves because they are embarrassed. Furthermore, social stigma surrounding leprosy further discourages individuals from seeking medical help and sharing their condition with others. Additionally, the limited availability of specialized healthcare professionals and resources dedicated to leprosy diagnosis and treatment exacerbates the problem, making it difficult for affected individuals to receive timely and appropriate care. The future research and development of new diagnostic tools and treatment options for leprosy is crucial in order to improve the overall management of the disease. This could potentially lead to earlier detection, more effective treatments, and ultimately, better outcomes for individuals affected by leprosy.

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