Jurnal Berkala Epidemiologi
Volume 13 No 2. May 2025. 174 – 183
p-ISSN: 2301-7171; e-ISSN: 2541-092X

DOI: 10.20473/jbe.v13i22025.174–183
https://e-journal.unair.ac.id/JBE/
Email: jbe@fkm.unair.ac.id / jbepid@gmail.com

JBE Jurnal Berkala EPIDEMIOLOGI

Jurnal Berkala
EPIDEMIOLOGI
PERIODIC EPIDEMIOLOGY JOURNAL

ORIGINAL ARTICLE

ANALYSIS OF RISK FACTORS ASSOCIATED WITH DEPRESSION IN ELDERLY LEPROSY SURVIVORS IN TUBAN REGENCY

Analisis Faktor Risiko Yang Berhubungan Dengan Depresi Pada Lansia Penyintas Kusta di Kabupaten Tuban

Itsna Jannatul Kamilah[1], Ulfa Mudia Sari[2], Lucia Yovita Hendrati[3]
[1]Department of Epidemiology, Biostatistics, Population Studies and Health Promotion, Faculty of Public Health, Universitas Airlangga, Surabaya, Indonesia, 60115, itsna.jannatul.kamilah-2021@fkm.unair.ac.id
[2]Department of Epidemiology, Biostatistics, Population Studies and Health Promotion, Faculty of Public Health, Universitas Airlangga, Surabaya, Indonesia, 60115, ulfa.mudia.sari-2020@fkm.unair.ac.id
[3]Department of Epidemiology, Biostatistics, Population Studies and Health Promotion, Faculty of Public Health, Universitas Airlangga, Surabaya, Indonesia, 60115, lucia-y-h@fkm.unair.ac.id
Corresponding Author: Lucia Yovita Hendrati, lucia-y-h@fkm.unair.ac.id, Department of Epidemiology, Biostatistics, Population Studies and Health Promotion, Faculty of Public Health, Universitas Airlangga, Surabaya, 60115, Indonesia

ARTICLE INFO

Article History:
Received February, 5th, 2025
Revised form April, 16th, 2025
Accepted May, 19th, 2025
Published online May, 31th, 2025

Keywords:
Depression;
Leprosy Survivor;
Elderly;
Illness Perception;
Self-stigma

Kata Kunci:
Depresi;
Penyintas kusta;
Lansia;
Persepsi penyakit;
Stigma diri

ABSTRACT

Background: Leprosy is an infectious disease that has an impact on the physical, socioeconomic, spiritual, and psychological of sufferers with one example being depression. **Purpose:** This research aims to find the relationship between risk factors and depression in elderly leprosy survivors residing at the Leprosy Rehabilitation Center, Tuban. **Methods:** The research method used is analytical observational with a cross-sectional approach. The research population consists of 100 leprosy survivors at the Social Rehabilitation Unit for People with Chronic Illnesses, Nganget, Tuban. The total sample of the research is 64 respondents selected from the population using simple random sampling technique. The data analysis technique employed is the Chi-square test. **Results:** Most of the respondents had level 2 disability as much as 68.80% and as much as 65.50% experienced depression. The research findings indicate a relationship between the variables of gender (p=0.03; PR=1.49; 95% CI=1.00-2.21), level of disability (p=0.00; PR=2.26; 95% CI=1.08-4.71), disease perception (p=0.00; PR=2.05; 95% CI=1.27-3.31), self-stigma (p=0.00; PR=2.00; 95%CI=1.32-3.02), with depression among elderly leprosy survivors. **Conclusion:** The conclusion indicates that the factors of gender, level of disability, self-stigma, and disease perception have a significant relationship with depression in elderly leprosy survivors, while the factors of age, education level, and caregiver support are not related to depression in elderly leprosy survivors.

ABSTRAK

How to Cite: Kamilah, I. J., Sari, U. M., & Hendrati, L. Y. (2025). Analysis of risk factors associated with depression in elderly leprosy survivors in Tuban regency. *Jurnal Berkala Epidemiologi, 13(2),* 174−183. https://dx.doi.org/10.20473/jbe.v13i22025.174−183.

Latar Belakang: *Kusta merupakan penyakit menular yang berdampak pada fisik, sosial ekonomi, spiritual, dan psikologi penderita dengan salah satu contohnya adalah depresi.* ***Tujuan:*** *Penelitian ini bertujuan untuk mencari hubungan antara faktor-faktor yang berisiko dengan depesi pada lansia penyintas kusta yang menempati UPT Rehabilitasi Kusta, Tuban.* ***Metode:*** *Metode penelitian yang digunakan adalah observasional analitik dengan pendekatan potong lintang. Populasi penelitian adalah 100 penyintas kusta di UPT Rehabilitasi Sosial Bina Lara Kronis, Nganget, Tuban. Jumlah sampel penelitian sebanyak 64 responden yang diambil dari populasi dengan menggunakan teknik simple random sampling. Teknik analisis data yang digunakan menggunakan uji chi-square.* ***Hasil:*** *Sebagian besar responden memiliki kecacatan tingkat 2 sebanyak 68,80% dan sebanyak 65,50% mengalami depresi. Hasil penelitian menunjukkan hubungan hubungan antara variabel jenis kelamin (p=0,03; PR=1,49; 95% CI=1,00-2,21), tingkat kecacatan (p=0,00; PR=2,26; 95% CI=1,08-4,71), persepsi penyakit (p=0,00; PR=2,05; 95% CI=1,27-3,31), self-stigma (p=0,00; PR=2,00; 95%CI=1,32-3,02) dengan depresi pada lansia penyintas kusta.* ***Simpulan:*** *Kesimpulan menunjukkan faktor jenis kelamin, tingkat kecacatan, self-stigma, dan persepsi penyakit memiliki hubungan yang signifikan dengan depresi pada lansia penyintas kusta sedangkan faktor usia, tingkat pendidikan, dan dukungan petugas tidak berhubungan dengan depresi pada lansia penyintas kusta.*

INTRODUCTION

Leprosy is a serious health problem in the tropics and is classified as one of the neglected diseases. Leprosy can be spread through direct contact with untreated people. The prevalence of leprosy in Indonesia ranks third in the scope of countries in the world after Brazil and India (1).

The World Health Organization reports that globally there are more than 200,000 new cases recorded in 120 countries where leprosy is spread. In Indonesia, based on data from the Indonesian Ministry of Health in 2022, there was an increase in the prevalence of leprosy cases by 0.05 per 10,000 population from one year earlier or from 12,095 cases to 15,052 cases in 2022 (2). The East Java region found an increase in leprosy cases of 474 cases in 2022 with a description of 75.91% of cases without disabilities and 8.37% of cases with level 2 disabilities. This figure has not yet reached the target proportion of level 2 disabilities expected by the Ministry of Health of the Republic of Indonesia, which is <5% (3). This means that there is still a delay in the discovery of leprosy cases and their treatment, so the potential for disability due to a disease is still high. From the Tuban District Health Office profile data from 2022, it is known that 42.96% of new cases were found in five districts/cities, namely Sampang District, Sumenep District, Pamekasan District, Bangkalan District and Tuban District.

Leprosy is chronic and requires lifelong treatment if dysfunction occurs, resulting in a disabling condition in people with leprosy. Other impacts arise not only for patients, someone who has suffered from leprosy and has been medically said to be cured/recovered or known as a survivor or ex-leper, also has physical, psychological, social, economic, and spiritual consequences (4). This disruption to the welfare of leprosy sufferers and survivors is caused by the community's poor stigma towards leprosy.

Negative perceptions can lead to discriminatory treatment of people with leprosy. Rejection responses from the community include accessibility to employment, functional mobility and even loss of family roles. The community's response to the presence of leprosy patients varies. Some people have a normal attitude even though they express their fear. However, according to statements from the community, people with leprosy choose to stay away from the community because of the stigma. These conditions can affect the onset of depression in patients and survivors of leprosy (5). Based on the results of a study comparing those without chronic diseases and those with chronic diseases, it shows that the early elderly and the elderly have an increase in depression scores by 177.30% (6).

The research conducted by Niardhy et al (7) concluded that there exists a strong association between stigma and the incidence of depression in leprosy patients. In Govindasamy et al (8) research, as many as 33% of the 220 leprosy sufferers experienced depression due to gender, disability level, and socioeconomic factors. Therefore, motivation and support from the surroundings are needed for people with leprosy to help in self-acceptance by providing a constructive effect in understanding themselves related to leprosy. The purpose of this research is to analyze the relationship between risk factors and depression in elderly leprosy survivors at the Social Rehabilitation Unit for People with Chronic Illnesses, Nganget, Tuban.

METHODS

This research method uses a quantitative method with a cross-sectional study approach because the independent variable and the dependent variable are observed simultaneously at one time. The population in this study were all leprosy survivors who had settled in the leprosy rehabilitation unit who met the inclusion criteria. There are several inclusion criteria for the study population, namely leprosy survivors with age ≥ 40 years, have been declared cured (release from treatment), stay at the Social Rehabilitation Unit for People with Chronic Illnesses, Nganget, Tuban for more than six months, can speak and communicate well, and are willing to participate in the study by agreeing to informed consent. The sample of this study amounted to 64 out of 100 elderly leprosy survivors who met the inclusion criteria and were taken using simple random sampling technique. The study was conducted from December 2023 to May 2024 at the Social Rehabilitation Unit for People with Chronic Illnesses, Nganget, Tuban. Primary data collection was carried out through filling out questionnaires by respondents independently. The data collection has obtained a research ethics permit with number 0010/HRECC.FODM/I/2024 from the Health Research Ethics Committee of the Faculty of Dentistry, Universitas Airlangga.

The variables in this study consisted of dependent and independent variables. The independent variables were age group, gender, education level, level of disability, perception of illness, self-stigma, and officer support. The dependent variable is depression in the elderly assessed through the Geriatric Depression Scale (GDS) questionnaire which includes affective aspects and social engagement. The Brief Illness Perception Questionnaire (B-IPQ) was used to determine the perception of illness in leprosy survivors which includes eight dimensions, namely identity, Consequences, Timeline, Personal Control, Treatment Control, Concern, Coherence, and Emotional Response. Internalized Stigma of Mental Illness (ISMI) Scale questionnaire to measure stigma variables with five domains, namely Alienation, Stereotype Endorsement, Discrimination Experience, Social Withdrawal, and Stigma resistance. Officer support variables were measured using a questionnaire that included emotional support, instrumental support, information support, and self-esteem support. The validity test showed that all statements were valid because the R count of each statement > R table. Based on the reliability test, it is known that the average instrument test results include high reliability with a value of 0.84.

Data were analyzed by univariate analysis and bivariate analysis using SPSS application to test the relationship between independent variables and dependent variables. Descriptive statistical analysis was used to determine the frequency distribution of each dependent and independent variable, namely age, gender, education level, level of disability, disease perception, self-stigma, and staff support. Inferential analysis to see the relationship between variables in this study used the Chi-square test 2 × 2 contingency table. This study also used the Fisher exact test because there was one analysis that did not meet the requirements of the chi square test. The relationship and the amount of risk were known by comparing the p value and calculating the prevalence ratio with a confidence interval of 95%.

RESULTS

Based on the results of the study, 64 samples were obtained with the variables in Table 1, namely age group, gender, education level, level of disability, disease perception, self-stigma, staff support, and level of depression. Table 1 shows the characteristics of respondents in the form of frequencies and percentages. Most respondents were in the premenopausal age category (40-64 years old), with a minimum and maximum age of 40 and 87 years old, respectively. Most of the respondents were male. Most respondents had a low level of education, including respondents with the highest education of elementary school at 73.40%, the highest education of junior high school at 3.10%, and respondents who did not go to school at 17.20%. Meanwhile, respondents with higher

education included respondents with the highest education of high school at 4.70% and Diploma 1 at 1.60%. Most respondents had level 2 disability.

Table 2 shows the characteristics of most respondents had a negative disease perception, with the three domains with the highest mean scores, namely timeline, consequences, and personal control (mean=7.60, 7.30, 7.20). Some respondents experienced low and high self-stigma at 50% each, with the highest mean score in the alienation domain, at 2.46. Higher mean scores indicate negative perceptions and high self-stigma. Most respondents indicated that staff were supportive, with the highest mean score in the instrumental support domain and the lowest mean score in the esteem support domain. In addition, most respondents showed symptoms of depression.

Table 1
Distribution of Respondent Characteristics

Variable	n	%
Age group		
Praenium (40-65)	35	54.70
Senium (> 65)	29	45.30
Gender		
Male	35	54.70
Female	29	45.30
Education Level		
Low	60	93.80
High	4	6.30
Disability Level		
0	15	23.40
1	5	7.80
2	44	68.80
Self-Stigma		
High	32	50
Low	32	50
Disease Perception		
Positive	27	42.20
Negative	37	57.80
Caregiver Support		
Low	17	26.60
High	47	73.40
Depression		
Normal	22	34.30
Depression	42	65.50

Relationship Between Age and Depression in Elderly Survivors of Leprosy

Based on the Chi-square bivariate test in Table 2, the p-value is 0.79. This can be interpreted that there is no relationship between the age of respondents and depression. The PR value based on the test results is 1.10 (95%CI=0.77-1.56), so it can be interpreted that elderly leprosy survivors of presenium age have a 1.10 times higher risk of experiencing depression compared to elderly leprosy survivors of senium age.

Relationship Between Gender and Depression in Elderly Survivors of Leprosy

Based on the Chi-square bivariate test in Table 2, the p-value is 0.03. This means that there is a relationship between the gender of the respondents and depression. The PR value based on the test results is 1.49 (95%CI=1.00-1.21), so it can be interpreted that male elderly leprosy survivors have a 1.10 times higher risk of experiencing depression compared to female elderly leprosy survivors.

Relationship Between Education Level and Depression in Elderly Survivors of Leprosy

Based on the Chi-square bivariate test in Table 2, the p-value is 0.29. This can be interpreted that there is no relationship between the respondent's education level and depression. The PR value based on the test results is 0.63 (95%CI=0.52-0.77), so that elderly leprosy survivors with low education is a more protective factor than higher education against depression.

Relationship Between Disability Levels and Depression in Elderly Leprosy Survivors

Based on the Chi-square bivariate test in Table 2, the p-value is 0.00. This means that there is a relationship between the level of disability of respondents and depression. The PR value based on the test results is 2.27 (95%CI=1.09-4.72), so it can be interpreted that elderly leprosy survivors with grade 1 and 2 disability have a 2.27 times higher risk of experiencing depressive symptoms compared to elderly leprosy survivors with grade 0 disability or without disability.

Relationship Between Self-Stigma and Depression in Elderly Survivors of Leprosy

Based on the Chi-square bivariate test in Table 2, the p-value is 0.00. This means that there is a relationship between respondents' self-stigma and depression. The PR value based on the test results is 2.00 (95%CI=1.32-3.03), so it can be interpreted that elderly leprosy survivors with high self-stigma have a 2.00 times higher risk of experiencing depressive symptoms compared to elderly leprosy survivors with low self-stigma.

Relationship Between Disease Perception and Depression in Elderly Survivors of Leprosy

Based on the Chi-square bivariate test in Table 2, the p-value is 0.00. This means that there is a relationship between the perception of the respondent's illness and depression. The PR value based on the test results is 2.06 (95%CI=1.28-3.31), so it can be interpreted that elderly leprosy survivors with negative disease perceptions have a 2.06 times higher risk of experiencing depressive symptoms compared to elderly leprosy survivors with positive disease perceptions.

Relationship of Caregiver Support with Depression in Elderly Survivors of Leprosy

Based on the Chi-square bivariate test in Table 2, the p-value is 0.62. This means that there is no relationship between officer support and depression. The PR value based on the test results is 1.11 (95%CI=0.76-1.61), so it can be interpreted that elderly leprosy survivors with low officer support have a 1.11 times higher risk of experiencing depression compared to elderly leprosy survivors with high officer support.

Table 2
Relationship Between Respondent Characteristics and Depression Levels

Characteristics	Depression				p-value	PR (95%CI)
	n	%	n	%		
Age group						
Praenium (40-65)	22	62.90	13	37.10	0.60	1.09 (0.77-1.56)
Senium (> 65)	20	69.00	9	31.00		
Gender						
Male	27	77.10	8	22.90	0.03	1.49 (1.00-2.21)
Female	15	51.70	14	48.30		
Education Level						
Low	38	63.30	22	36.70	0.28	0.63 (0.52-0.76)
High	4	100.00	0	0.00		
Disability Level						
Level 1 & 2	37	75.50	12	24.50	0.00	2.26 (1.08-4.71)
Level 0	5	33.30	10	66.70		
Disease Perception						
Positive	15	40.70	16	59.30	0.00	2.05 (1.27-3.31)
Negative	27	83.80	6	16.20		
Self-Stigma						
High	28	87.50	4	12.50	0.00	2.00 (1.32-3.02)
Low	14	43.80	18	56.30		
Caregiver Support						
Low	12	70.60	5	29.40	0.61	1.10 (0.76-1.60)
High	30	63.80	17	36.20		
Total	42	65.50	22	34.30		

DISCUSSION

Respondent Characteristics Overview

The distribution of respondent characteristics based on age in this research showed that the majority of leprosy survivors were in the prasenium age category (40-65 years) at the Social Rehabilitation Unit for People with Chronic Illnesses where they were initially affected by leprosy when they were children and some mentioned that it began in adolescence. Childhood has a rudimentary immune system development unlike adults. According to Prakoeswa et al (9), the severity of leprosy is strongly influenced by the cellular immune response. Children are more susceptible to leprosy infection than adults because their immune system is still in a developmental stage and not fully mature and is strongly influenced by maternal and environmental factors.

The distribution of respondent characteristics by gender shows that respondents are dominated by men. This occurs due to the disruption of the function of men's roles as breadwinners for the family. Most cases of leprosy sufferers or survivors are unable to fulfill the role of breadwinner to fulfill family needs and are replaced by other parties (10). According to Bhandari et al (11), leprosy occurs more in men with a ratio of 3 to 2. Men do more

outdoor work so the risk of experiencing infectious diseases including leprosy is much greater than women (12).

Most respondents in this research are leprosy survivors with low education levels. The majority of leprosy survivors reported dropping out of school due to suffering from leprosy. In line with this research, Rahman et al (13) stated that a large number of leprosy sufferers drop out of school or lose their jobs which results in income and quality of life of households.

The distribution of respondent characteristics based on disability level shows that the majority of leprosy survivors have a level 2 disability. This research is in line with previous research by Dirgantini et al (14) finding that the majority of leprosy survivors living in the Naob Leprosy Rehabilitation Home in North Central Timor Regency have a higher disability, namely a second degree disability compared to patients without disabilities.

In this research, it was found that the majority of leprosy survivors at the Leprosy Rehabilitation Unit, Nganget, Tuban were depressed. This is in line with research in four states in India that depression is experienced by more than 50% of leprosy sufferers (15). The triggering factors are feelings of isolation from social life due to lack of friendship, feeling abandoned, feeling lonely which leads to depression and losing the job that was once lived (16,17). A research conducted by Jufriyanto et al (18) said that as many as 14 out of 20 people who have been declared cured of leprosy (leprosy survivors) are still experiencing difficulties socializing in the community with their current condition and only 6 patients are able to socialize again and are well-accepted in the community.

Analysis of The Relationship Between Age and Depression in Elderly Survivors of Leprosy

The results of the analysis found that there was no significant relationship between the age category variable and the level of depression in elderly leprosy survivors. This research is in line with Manafe et al (19) which states that the early elderly age group will experience changes in body function such as decreased organ function due to the aging process. If this condition cannot be accepted by the elderly, it can be a trigger for depression. In addition, according to Muharrom and Damaiyanti (20), the older a person is, the more likely they are to have coping mechanisms and adaptive abilities that are more adaptive to physical and non-physical stressors where the higher the level of emotional control, the less prone they are to anxiety and depression.

However, this study is different from the results of previous research in that there is a significant relationship between age and depression, which is explained according to the concept of psychoneuroimmunology (21). Increasing age is directly proportional to the decrease in the anatomical function of the body where the level of a stressor, if not balanced with a good coping mechanism, will affect the high cortisol so that it accelerates cell damage in the body. Therefore, in general it can be concluded that the elderly age category (60-70 years old) is more likely to experience depression due to the aging process.

Analysis of The Relationship Between Gender and Depression in Elderly Survivors of Leprosy

The analysis results found a significant relationship between the gender variable and depression in elderly leprosy survivors. This is in line with previous research that explains why men tend to experience depression due to feelings of failure in fulfilling their role as breadwinners (16). According to Jansson et al (22), depression in elderly males is caused by a correlation between the A/A genotype of the 5- HTR2A gene promoter polymorphism and a depressed mood. Different results were found in van Dorst et al (23) study in that women with leprosy had a higher prevalence of depression than men. The main influencing factors were stronger social stigma against women, limitations in social life and marriage, as well as economic difficulties and dependence on family or husband.

Analysis of The Relationship Between Level and Depression in Elderly Survivors of Leprosy

The analysis results found no significant relationship between the level of education and depression in elderly leprosy survivors. This is likely due to elderly leprosy survivors having similar health issues and easier access to information regarding the health problems they face with physical guidance and health clinics at Social Rehabilitation Unit for People with Chronic Illnesses. This research contrasts with previous research that indicated a relationship between education level and depression (24). A lower level of education is found to have an impact on poorer mental health and a greater risk of experiencing mental health disorders due to being hindered by the development of an individual's attitude toward new accepted values. Meanwhile, an individual with a higher level of education will find it easier to accept

information, thus increasing the knowledge they possess.

Analysis of The Relationship Between Disability Levels and Depression in Elderly Leprosy Survivors

The analysis results found a significant relationship between the level of disability variable and depression in elderly leprosy survivors. These research findings are in line with previous studies that indicate a high degree of disability is one of the factors significantly related (25). Due to the limitations experienced, individuals with disabilities face a decrease in activity and often encounter rejection from those around them when attempting to engage in social activities. This situation can lead to feelings of inferiority as a response to the depression experienced. Furthermore, the disabilities faced may result in physical disturbances such as pain, weakness, or changes in body temperature that trigger feelings of restlessness, anxiety, despair, and even depression. There is no relationship between the level of disability and the level of depression in leprosy patients in Sicanang, Belawan, North Sumatra. In this research, the depression experienced by patients was determined by the patients' perception of themselves, the presence or absence of a partner, the age of the patients at diagnosis, and the patients' understanding of religious teachings (26).

Analysis of The Relationship Between Self-Stigma and Depression in Elderly Survivors of Leprosy

The results of the analysis found a significant relationship between the self-stigma variable and depression in elderly leprosy survivors. The results of this research are in line with the findings of the research conducted by Niardhy et al (7) that there exists a strong association between stigma (including enacted, perceived, and internalized stigma) and the incidence of depression in leprosy patients. Lufianti et al (27) also found that disabilities that suffer from natural leprosy patients such as injuries and physical disabilities have an impact on feelings of uselessness, fear, shame, low self-esteem, and hopelessness so that leprosy patients turn away from the environment and away from society which can eventually develop into depression.

Among the five components measured in the Internalized Stigma of Mental Illness (ISMI) questionnaire, the domain of feelings of alienation from society received the highest score. This indicates that elderly leprosy survivors who have chosen to reside in the Social Rehabilitation Unit for People with Chronic Illnesses, Tuban for years feel disconnected or isolated from their families and the surrounding community, which influences the emergence of depression. This issue was also found in the research conducted by Bagaskara and Susilowati (28) on patients with HIV/AIDS at the Lens Rehabilitation Institution in Sukabumi which indicates that the self-stigma experienced by these patients can be observed from their minimal attendance at routine guidance activities at the service location, as patients often encounter feelings of shame, worthlessness, and a sense of not having a role in society.

Analysis of The Relationship Between Disease Perception and Depression in Elderly Survivors of Leprosy

The analysis results found a significant relationship between the disease perception variable and depression in elderly leprosy survivors. According to Lew and Centron (29), disease perception has been shown to predict a variety of psychosocial problems, including depression. In line with previous research that leprosy is defined as a chronic disease because the disability caused has an impact over a long period of time. This condition directly affects the motivation to adapt to a person's behavioral and emotional changes such as stress and anxiety. Previous theories stated that disease perception is a predictor of depression in adults with chronic diseases through the results of disease perception scores that increase by 1 score (the more negative) will increase the depression score by 0.06 times. A person with good perception has an impact on positive adaptation and better disease treatment. So, on the contrary, a person with a bad perception will have an impact on the condition of depression.

In this research, the consequences component received an average score of 7.30, indicating that respondents tend to have a perception of illness that can affect their lives. This is supported by recent research conducted by Rahman et al (13) that a leprosy survivor will experience significant changes in their life, starting from physical decline, stigma, isolation, discrimination, dropping out of school, loss of employment impacting their economy, to the influence on their household life.

The personal control component received an average score of 7.20, meaning that respondents were less likely to take care of themselves (self-care) due to their limitations. According to Stafford et al (30), personal control is associated with

reduced motivation and predicts quality of life (QOL) in people with chronic diseases.

Analysis of the Relationship of Caregiver Support with Depression in Elderly Survivors of Leprosy

The results of the analysis found that there was no significant relationship between the variable of officer support and depression in elderly leprosy survivors. The results of the research showed that the lack of support from officers lies in the support of awards where officers lack appreciation in giving praise when leprosy survivors have done as directed or routinely in participating in activities. This research obtained different results from previous research in that the role of the officer is related to depression in people with leprosy where the better the role of the officer is given, the lower the level of depression of people with leprosy.

The results of this study show that most patients who have high officer support still experience depression. The absence of this relationship is based on researcher observations: officers provide good service, often interact with elderly leprosy survivors without being awkward, and the policies and facilities provided provide benefits for elderly leprosy survivors without distinguishing one from the other. The services provided by Social Rehabilitation Unit for People with Chronic Illnesses to the elderly leprosy survivors include basic services, health services, physical guidance, social guidance, religious guidance, and skills guidance. So that the four forms of social support of officers are almost all fulfilled.

Research Limitations

The research design used is cross-sectional, thus this research can only analyze the characteristics of respondents within a specific period. Therefore, the researcher cannot evaluate the consistency of respondents over different time frames.

CONCLUSION

This research found several variables that influence the condition of depression in elderly leprosy survivors, including gender, level of disability, self-stigma, and pain perception. Meanwhile, the variables of age, education level, and caregiver support were found to be unrelated to the condition of depression in elderly leprosy survivors. The main recommendation from the results of this study is that counseling programs that integrate strengthening self-esteem and restructuring perceptions of the disease need to be part of routine social rehabilitation services. In addition, an empowerment approach through peer support is also recommended to reduce self-stigma and improve the stress management capacity of elderly leprosy survivors. The direction of future research can be directed toward the development and evaluation of structured psychosocial interventions with a mixed methods approach to explore the dynamics of depression over time and deepen the understanding of the subjective experiences of elderly leprosy survivors towards stigma and perceptions of illness.

CONFLICT OF INTEREST

The authors stated that there was no conflict of interest in this research.

AUTHOR CONTRIBUTIONS

UMS and LYH contributed equally during conceptualization. UMS plays a role in conducting research, methodology, analyzing data, and writing initial manuscripts. LYH provides suggestions and inputs in the process of reviewing and revising this article. IJK contributes to the writing-review and editing of articles.

ACKNOWLEDGMENTS

All authors would like to thank the Department of Epidemiology, Biostatistics, Population Studies and Health Promotion, Faculty of Public Health, Universitas Airlangga, for their invaluable support and resources in facilitating this research endeavor. The authors also thank the Social Rehabilitation Unit for People with Chronic Illnesses and the East Java Social Office for giving approval and supporting the research.

REFERENCES

1. Ministry of Health of the Republic of Indonesia. Launching of distance learning training module for leprosy prevention and control. 2020.
2. Sutrisni E. Indonesia.go.id. 2024. Leprosy in Indonesia: data, facts, and handling steps.
3. East Java Provincial Health Office. Health profile of East Java Province. 2022 [cited 2024 May 5].
4. Agustin RA. Literature review of neglected tropical diseases: holistic aspects in leprosy

and filariasis patients. J Ilmu Kesehat. 2020 May 8;8(2):138–46.
5. Hannan M, Hidayat S, Nirmala Sandi M. Community stigma towards leprosy sufferers in Batuputih District, Sumenep. Wiraraja Med J Kesehat. 2021 Dec 27;11(2):86–92.
6. Li D, Su M, Guo X, Liu B, Zhang T. The association between chronic disease and depression in middle-aged and elderly people: The moderating effect of health insurance and health service quality. Front Public Heal. 2023 Jan 24;11:01–14.
7. Niardhy ALP, Prakoeswa FRS, Dewi LM, Herawati E. The association of stigma with the incidence of depression in leprosy patients: a systematic review. J Kedokt Syiah Kuala. 2024 Jan 3;23(3):377–83.
8. Govindasamy K, Jacob I, Solomon RM, Darlong J. Burden of depression and anxiety among leprosy affected and associated factors—a cross sectional study from India. PLoS Negl Trop Dis. 2021;15(1):e0009030.
9. Prakoeswa F, Prakoeswa AC, Prakoeswa CA, Listiawan MY, Endaryanto A, Prakoeswa CRS. Immune profile (Th1, Th2, Th17, T-reg) of maternal-paediatrics population in leprosy endemic areas in East Java, Indonesia: a cross-sectional study. 2022;
10. Najmuddin M. Stigma towards leprosy: a review of interpersonal communication. Al-Din J Dakwah dan Sos Keagamaan. 2022;8(1):70–83.
11. Bhandari J, Awais M, Robbins BA, Gupta V. Leprosy. StatPearls Publishing; 2023.
12. Amaliah H. R. R, Yuniati L, Roem NR, Vitayani S, Setiawati S. Characteristics of leprosy patients undergoing outpatient treatment at the Tamalate Makassar Health Center for the period 2018–2021. Fakumi Med J J Mhs Kedokt. 2023 Jul 16;3(5):357–65.
13. Abdul Rahman N, Rajaratnam V, Burchell GL, Peters RMH, Zweekhorst MBM. Experiences of living with leprosy: A systematic review and qualitative evidence synthesis. PLoS Negl Trop Dis. 2022;16(10):e0010761.
14. Dirgantini T, Lidia K, Trisno I, Buntoro IF. The relationship between the length of time suffering from Morbus Hansen and the level of depression in patients at the Naob Leprosy Rehabilitation Center, North Central Timor Regency. J Kesehat Masy. 2022;10(4):405–10.
15. Mangeard-Lourme J, de Arquer GR, Parasa J, Singh RK, Satle N, Mamhidi R. Depression and anxiety in people affected by leprosy and lymphatic filariasis: a cross-sectional study in four states in India. Lepr Rev. 2020;91(4):367–82.
16. Septianawati P, Mustikawati IF, Kusuma IR, Maulana AM. Characteristics of the Elderly and the Incidence of Depression at the Sodagaran Banyumas Elderly Social Services Center (PPSLU). Muhammadiyah J Geriatr. 2022 Dec 31;3(2):36.
17. Shi P, Yang A, Zhao Q, Chen Z, Ren X, Dai Q. A hypothesis of gender differences in self-reporting symptom of depression: implications to solve under-diagnosis and under-treatment of depression in males. Front psychiatry. 2021;12:589687.
18. Jufriyanto M, Yusuf A, Mundakir M. The psychosocial experiences in ex-Leprosy patients: a qualitative study. Str J Ilm Kesehat. 2020;9(2):733–42.
19. Manafe LA, Berhimpon I. The relationship between the level of depression in the elderly and social interaction in the elderly at BPSLUT Senja Cerah Manado. J Ilm Hosp. 2022;11(1):749–58.
20. Muharrom M, Damaiyanti M. Relationship between age, gender, physical activity and depression in the elderly in Samarinda. Borneo Stud Res. 2020;1(3):1359–64.
21. Listiyorini MW, Sahar J, Nurviyandari D. Internal and external factors related to depression in the elderly at the Tresna Werdha Budi Dharma Bekasi social home. Malahayati Nurs J. 2022 Oct 13;4(10):2708–28.
22. Jansson M, Gatz M, Berg S, Johansson B, Malmberg B, McClearn GE, et al. Association between depressed mood in the elderly and a 5-HTR2A gene variant. Am J Med Genet Part B Neuropsychiatr Genet. 2003;120(1):79–84.
23. van Dorst MMAR, van Netten WJ, Waltz MM, Pandey BD, Choudhary R, van Brakel WH. Depression and mental wellbeing in people affected by leprosy in southern Nepal. Glob Health Action. 2020;13(1):1815275.
24. Joannès C, Redmond NM, Kelly-Irving M, Klinkenberg J, Guillemot C, Sordes F, et al. The level of education is associated with an anxiety-depressive state among men and

women–findings from France during the first quarter of the COVID-19 pandemic. BMC Public Health. 2023;23(1):1405.
25. Ali O, Deribe K, Semrau M, Mengiste A, Kinfe M, Tesfaye A, et al. A cross-sectional study to evaluate depression and quality of life among patients with lymphoedema due to podoconiosis, lymphatic filariasis and leprosy. Trans R Soc Trop Med Hyg. 2020;114(12):983–94.
26. Batubara DE, Nuralita NS. The relationship between the grade of disability and the degree of depression in leprosy patients in SiCanang, Belawan, North Sumatra. Bul Farmatera. 2022;7(1):39.
27. Lufianti A, Mahanani S, Idris DNT. Stigma and Self-concept of leprosy patients. Open Access Maced J Med Sci. 2022;10(G):300–5.
28. Bagaskara V, Susilowati E. Pormation of self stigma of people with hiv/aids fostered by social institution lensa sukabumi. J Ilm Rehabil Sos. 2022;4(1):12–22.
29. Lew SQ, Centron P. Psychiatric challenges in patients treated with peritoneal dialysis. In: Psychosocial aspects of chronic kidney disease. Elsevier; 2021. p. 311–33.
30. Stafford L, Berk M, Jackson HJ. Are illness perceptions about coronary artery disease predictive of depression and quality of life outcomes? J Psychosom Res. 2009 Mar;66(3):211–20.