

## Risk Factors Associated With Disabilities In Morbus Hansen Patient

Annisa Tri Srilistiany<sup>1</sup>, Dian Amelia Abdi<sup>2</sup>, Solecha Setiawati<sup>3</sup>

<sup>1</sup>Program Studi Pendidikan Profesi Dokter Umum Fakultas Kedokteran UMI, <sup>2</sup>Dosen Ilmu Kesehatan Kulit dan Kelamin Fakultas Kedokteran UMI, <sup>3</sup>Dokter Pendidik Klinik Ilmu Kesehatan Kulit dan Kelamin RSUD La Palaloi Maros

---

### ARTICLE INFO

#### Keywords:

Degree of disability,  
Mycobacterium Leprae,  
Morbus Hansen

---

#### Email :

<sup>1</sup>11120212087@student.umi.ac.id,

<sup>2</sup>dianamelia.abdi@umi.ac.id

---

### ABSTRACT

Morbus Hansen, or better known as leprosy, is an infectious disease that can cause various serious complications, including disability. This study aims to identify risk factors associated with the incidence of disability in Morbus Hansen patients. The research was carried out by collecting data from various sources, research journals conducted previously. The research results show that the risk factors that play a role in the incidence of disability in Morbus Hansen patients include the severity of the disease, delays in diagnosis and treatment, as well as socio-economic factors that influence patient access to medical care. These results have important implications for efforts to prevent and manage Hansen's Morbus, emphasizing the importance of early diagnosis, accessibility of treatment, and special attention to patients with more severe disease.

Copyright © 2023 Journal Eduhealth. All rights reserved is  
Licensed under a Creative Commons Attribution- Non Commercial  
4.0 International License (CC BY-NC 4.0)

## 1. INTRODUCTION

Morbus Hansen, better known as leprosy, is a disease infectious disease that has been a global health problem for centuries century. Although there have been significant advances in treatment and prevention, this disease still poses a serious threat to health communities in several regions of the world. One of the most serious complications from Morbus Hansen is a defect, which can change the quality sufferer's life drastically.

From ancient times to the present, stigma and fear of Leprosy has become one of the main obstacles in prevention efforts and treatment of this disease. However, it is important to understand that Hansen's morbus is a disease that can be treated and cured if identified and addressed in a timely manner. Hence, research about risk factors associated with disability in Morbus Hansen patients have significant relevance in the effort overcome the impact of this disease. The aim of preparing this journal is to explore and identify risk factors that contribute to the event disability in Morbus Hansen patients. With more understanding well about these factors, it is hoped that we can improve the strategy prevention, treatment, and care for affected individual this disease. Apart from that, this research can also help reduce stigmatization that is still associated with Morbus Hansen, so that patients easier to access the medical care they need. Prevention of disability is one goal handling Morbus Hansen. Morbus Hansen sufferers can experience disability due to several factors, including reactions Morbus Hansen, late seeking treatment, irregularity in treatment, nutritional status, Morbus Hansen type, knowledge, education, gender and stigma in society. Apart from that, treatment of Morbus sufferers.

Hansen needs a longer time so it will cause laziness and boredom sufferers and result in irregularity treatment and even drop out (DO) from treatment. Morbus Hasnen sufferers in general do not understand the early signs of Morbus Hasnen, embarrassed to come to health center, don't know if there are drugs that are given free of charge and the long distance made it late for him to seek service and treatment and was found to be in an advanced stage, even already experiencing disability.

In this journal, I will explore various risk factors that have been identified in the medical literature and related research. I will look at factors related to severity disease, such as the type of leprosy, speed of diagnosis, and initial treatment received by the patient. Next, I will discuss the factors social and economic factors that may influence patient access to appropriate and quality medical care. Besides, I would too consider environmental factors that may play a role spread of this

disease. By digging into this information, we can understand it better how these factors interact and contribute to risk disability in Morbus Hansen patients. All this knowledge will help us design more effective coping strategies for this disease and improve the quality of life of those affected.

### **Pathophysiology**

The mechanism of transmission of Morbus Hansen disease begins with germs *Mycobacterium Leprae*. These germs usually group together and live deep cells and has acid resistant properties (BTA). This Morbus Hansen germ first attacks the peripheral nerves, which can then attack the skin, oral mucosa, upper respiratory tract, reticuloendothelial system, eyes, muscles, bones, and testicles except the central nervous system. Transmission mechanism the exact one is not yet known. Several hypotheses have been put forward, such as: close contact and airborne transmission. There is evidence that it is not all those infected by the *Mycobacterium Leprae* germ suffer from leprosy, and it is suspected that genetic factors also play a role. Leprosy and the clinical manifestations shown are a dynamic interaction process between *Mycobacterium leprae* and cell mediated immunity (CMI) which is genetically predisposed to influence individual.

*Mycobacterium leprae* is unique in that it is the only one bacteria with neurotropism that are more suitable for peripheral nerves and those that do not can be cultured on artificial media. Multibacillary sufferers who do not get the right therapy becomes the main source of infection, where sufferers can produce 10<sup>7</sup> bacteria/day through droplets from the nose, mouth, and nodules. Resistant to ultraviolet radiation, hot climates, and can survive 6 weeks in the soil.

Crowded settlements and poor socio-economic conditions encourage the spread of leprosy. Mucosa in the upper respiratory tract is suspected It is the main route for bacteria to enter the body. Puncture wounds, tattooing, vaccinations and dog bites are believed to be a way of entry *Mycobacterium leprae* through the skin. The time of incubation is not yet known definite and varies from months to 20 years or more. Inoculation Transcutaneous often causes TT (Tuberculoid) or BT type leprosy (Borderline Tuberculoid) with a short incubation period, whereas bacteria that enter through the upper respiratory tract often cause type BB (Mid Borderline), BL (Borderline Leprosy), and LL (Lepromatous leprosy) with a long incubation period.

When *Mycobacterium leprae* enters the body, the bacteria will enter the lymph vessels and blood vessels to reach its target, namely Schwann cells. *Mycobacterium leprae* enters Schwann cells with binds to the G-domain of the  $\alpha 2$  chain of laminin 2 (a component of lamina basalis). This form of laminin blocks peripheral nerves from recognize *Mycobacterium leprae*. Schwann cells will engulf *Mycobacterium leprae* in phagosomes but cannot destroy bacteria because Schwann cells do not have lysosomal enzymes. Schwann cells is a protector for bacteria from macrophages and can replicate slowly over the years. *Mycobacterium leprae* binding with Schwann cells causes demyelination and loss of conduction axonal.

Abnormalities also occur on the skin, in this case it can be: hypopigmentation (a kind of tinea versicolor) red spots, infiltrates (thickening skin) and nodules (lumps). Granuloma infiltration into the skin adnexa consists of sweat tissue, sweat glands, and hair follicles resulting in dry skin and alopecia. This disease can cause gynecomastia due to hormonal balance disorders and due to granuloma infiltration in the seminiferous tubules of the testis. In the cornea of the eye paralysis occurs in the eye muscles resulting in their lack or disappearance blink reflex, so that dirt and objects will easily enter the eyes foreign objects that can cause blindness.

## **2. METHOD**

The method used in this research uses Systematic Literature Review (SLR) to find out the most appropriate method for designing Enterprise Architecture in government agencies. This research applies three stages, namely: planning, implementation, and results analysis, which analyzes the results of the Literature Review that the author has carried out. The planning stage involves formulating the problem that you want to identify. The implementation stage involves the process of collecting papers to conduct a Literature Review. Analysis of the results, namely answering the existing problem formulation sourced from the Literature Review carried out.

### 3. RESULTS AND DISCUSSION

#### Severity of Disease and Types of Leprosy

The first factor to consider in the relationship between Hansen's morbus and disability are the severity of the disease. Leprosy is divided into two main types, namely tuberculoid and lepromatous. with varying degrees of severity. Patients with types tuberculoids tend to have a lower risk of disability than patients with the lepromatous type. This is related to the response the immune system against the bacteria Mycobacterium leprae causes this disease

#### Delay in Diagnosis and Treatment

Disabilities in Morbus Hansen patients are often associated with delays in diagnosis and treatment. The faster the disease If these are identified and treated, the lower the risk of disability. Delay in diagnosis can result in nerve damage cannot recover, which in turn can result in disability permanent.

Karakteristik	Derajat Keusutan			Nilai P	
	Derajat 2	Derajat 3	Derajat 0		
<b>Paragradasi (%)</b>					
Rendah	2 (28,6%)	5 (71,4%)	0 (0,0%)	1,000	
Sedang	0 (0,0%)	0 (0,0%)	0 (0,0%)		
Tinggi	2 (20,0%)	8 (80,0%)	0 (0,0%)		
<b>Pendidikan (%)</b>					
Rendah	2 (22,2%)	7 (77,8%)	0 (0,0%)	1,000	
Tinggi	2 (25,0%)	6 (75,0%)	0 (0,0%)		
<b>Perawatan diri (%)</b>					
Tidak	2 (18,2%)	9 (81,8%)	0 (0,0%)	0,584	
Ya	2 (18,8%)	4 (39,7%)	0 (0,0%)		
<b>Socio-ekonomi (%)</b>					
Rendah	2 (10,0%)	7 (70,0%)	0 (0,0%)	0,603	
Sedang	0 (0,0%)	0 (0,0%)	0 (0,0%)		
Tinggi	1 (14,3%)	6 (85,7%)	0 (0,0%)		
<b>Lama sakit (%)</b>					
Lama	5 (25,1%)	10 (76,8%)	0 (0,0%)	1,000	
Baru	1 (25,0%)	3 (75,0%)	0 (0,0%)		
<b>Type Nisi</b>					
NS		1 (100,0%)		NA	
SB		0 (0,0%)			
<b>Resolusi</b>					
<b>NS</b>					
Type 1	0 (0,0%)	7 (100,0%)	0 (0,0%)	0,275	
Type 2	2 (66,7%)	1 (33,3%)	0 (0,0%)		
Type 1	1 (50,0%)	1 (50,0%)	0 (0,0%)		
Type 2	1 (20,0%)	4 (80,0%)	0 (0,0%)		
<b>Kontaminasi mikroskop cibot (%)</b>					
Tidak	0 (14,3%)	6 (85,7%)	0 (0,0%)		0,576
Ya	1 (12,5%)	7 (87,5%)	0 (0,0%)		

Based on the research results, it shows that the youngest age at this study was 16 years old and the oldest was 70 years old. This is in harmony with the theory stating that the degree of disability is greater occurs in old age because leprosy is a disease with chronic course, the longer Mycobacterium Leprae is present

In the body the worse the defects will be. 8 Types The highest gender is male and the lowest gender is Woman. This is in accordance with the theory which states that type Gender is related to different life roles and behavior between men and women. The female gender is usually more maintain their health compared to men . Based on this theory, resulting in more men having sex with the incidence of leprosy than the female gender 21.

#### Socioeconomic Factors

Socioeconomic factors also play an important role in disability risk in Morbus Hansen patients. Patients with limited access to medical care, including periodic check-ups and medications, have a higher risk of experiencing disability. These factors include education level, income level, and accessibility of care health in the patient's area of residence.

#### Stigmatization and Isolation

The stigma that is still associated with Morbus Hansen can be prevent patients from seeking medical care. Patients who feel being isolated or embarrassed by their condition tends to delay the search medical assistance, which may ultimately result in disability can be prevented.

#### Comprehensive Care

Another important factor in reducing the risk of disability is comprehensive care. Patients with Morbus Hansen require treatments involving multiple disciplines, including dermatology, neurology, and physical rehabilitation. This collaborative effort can help prevent or reduce defects that occur.

#### Monitoring and Management of Symptoms

Close monitoring of disease development and Symptom management is an important part of reducing risk disability. By identifying symptoms and complications as early as possible, Appropriate measures can be taken to prevent nerve damage Furthermore.

### **Proper Medication Administration**

Treatment of Hansen's Morbus with appropriate antibiotics is essential important to stop the progression of the disease. Patients who getting the right treatment on time has a better chance good for avoiding defects.

### **Community Education**

Public education about Morbus Hansen is an important step n reducing stigmatization and increasing awareness about the importance of early treatment. An effective educational campaign can help individuals seek care earlier.

### **Rehabilitation and Psychosocial Support**

Patients who have experienced disabilities need support psychosocial and rehabilitation to help them overcome the impact physical and mental of this condition. These programs can help they return to everyday life and maximize quality life.

### **Further Research**

Further research is needed to understand the risk factors more complex ones that may be involved in the risk of disability in Morbus Hansen. These include genetic factors, drug resistance, and impact climate change on the spread of this disease. This continued research can help develop prevention and treatment strategies which is more effective.

So the risk of disability in Morbus Hansen patients is greatly influenced by a number of factors, including the type of disease, delay in diagnosis, socioeconomic factors, stigmatization, and medical care appropriate. To reduce the risk of this disability, an approach is needed comprehensive involving community education, medical care timely, psychosocial support, and ongoing research to increase our understanding of this disease.

## **4. CONCLUSION**

Hansen's morbus, or leprosy, remains a health problem serious global disease with the potential to cause serious disability can be prevented. In this discussion, several factors have been identified risks associated with disability in Morbus patients Hansen. Types of leprosy, delays in diagnosis and treatment, as well as Socioeconomic factors play an important role in determining risk of disability. Stigmatization and isolation are also possible factors hindering patient access to necessary medical care. In addition, comprehensive care, monitoring symptoms, administering medications appropriate measures, community education, rehabilitation and psychosocial support has a key role in reducing the risk of disability in Morbus Hansen. The importance of a thorough understanding of these risk factors very important in efforts to prevent and manage this disease. With a holistic approach involving prevention, diagnosis early, timely care, and support for patients, we can move towards reducing the risk of disability in Morbus Hansen and improve the quality of life of affected individuals this disease. Continued research and increased public awareness will also be the key to overcoming the challenges that still exist efforts to control and eliminate this disease globally.

### **REFERENCES**

1. Aviana F, Birawan IM, Sutirini NNA. "Profil Penderita Morbus Hansen di Poliklinik Kulit dan Kelamin RSUD Bali Mandara Januari 2018-Desember 2020". 2022;49(2):66-68. doi:10.55175/cdk.v49i2.192
2. Dermatologi D, Kedokteran PS. pISSN:2355-7583 | eISSN:2549-4864 <http://ejournalmalahayati.ac.id/index.php/kesehatan>. 2023;10(5): 2029-2038.
3. Dirgantini T, Lidia K, Trisno I, et al. Hubungan Lama Menderita Morbus Hansen dengan Tingkat Depresi pada Pasien di Panti Rehabilitasi Kusta Naob Kabupaten Timor Tengah Utara. *Jurnal Kesehatan (Undip)*. 2022;10(4):405-410.
4. Nusartha PY, Arimbawa IK, Putra IP, Pratiwi NMD. Characteristic of ENMG examination in Morbus Hansen patient in polyclinic Sanglah General Hospital. *Int J Med Rev Case Rep*. 2020; 4(11): 59-62. Doi:10.5455/IJMRCR.morbus-hansen-patient.
5. Liesbeth Tinungki Y, Jeane Kalengkongan D. The Risk Factor of Leprosy and The Care Process of Patient with Leprosy in Mahengetang Island of Sangihe: Qualitative Study. *JurnalUtuAcId*. 2021;8(2):66-72.

6. Geritz J, Welzel J, Hansen C, et al. Cognitive parameters can predict change of walking performance in advanced Parkinson's disease – Chances and limits of early rehabilitation. *Front.Aging Neurosci.*2022;14(December):1-17. doi:10.3389/fnagi.2022.1070093
7. Hidayat M, Irawati D, Waluyo A. Phenomenology Study: Community Perception Of Lush Disease In The Working Area Of Puskesmas Talango, 2020. *STRADA Jurnal Ilmiah Kesehatan.* 2020;9(2):1463-1473. doi:10.30994/sjik.v9i2.487
8. Widasamara, Dhelya.2018. Penyakit Kusta Sebuah Perspektif Klinis. ISBN: 97860242324810
9. AN. Hidayati. 2019. Infeksi Bakteri di Kulit. Dep Ilmu Kesehatan Kulit dan Kelamin FK Universitas Airlangga. ISBN:9786024731786.
10. Ayu AmaliaN. Faktor Risiko Yang Mempengaruhi Kejadian Kusta (Studi di Kecamatan Petarukan Kabupaten Pemalang). Universitas Muhammadiyah Semarang. 2018.
11. Luh N, Ratih P, Karna V, et al. seorang anak dengan riwayat narakontak erat kusta tipe mulibasiler : laporan kasus. 2023;14(2):806-810. doi:10.15562/ism.v14i2.1591
12. Paramita MD, Anggraini DI, Rakmanisa S, et al. Faktor-Faktor yang Berhubungan dengan Derajat Kecacatan Pasien Morbus Hansen di Kota Bandar Lampung The Factors Related to the Degree of Disabilities of Morbus Hansen Patients in Bandar Lampung. *Medula.* 2019;8(2):100-106.
13. Pramaswari A, Laksmidewi A, Adnyana I, Widyadharma I. Primary Central Nervous System Lymphoma (PCNSL) Type Diffuse Large B Cell in Immunocompetent Patient: A Case Report. *International Journal of Medical Reviews and Case Reports.* 2020;4(0):1. doi:10.5455/ijmrcr.primary-central-nervous-system-lymphoma
14. Pristianto A, Utami KI. *JOURNAL OF AGROMEDICINE AND MEDICAL SCIENCES (AMS )* ISSN: 2460-9048 ( Print ), ISSN: 2714-5654. Available online at <http://jurnal.unej.ac.id/index.php/JAMS> Pengaruh Massage dengan Olive Oil dan Scrub Terhadap Xerosis et Morbus Hansen Multi Basiler Effect of Massage with Olive Oil and Scrub on Xerosis et Morbus Hansen Multi Basiler.2023;9(2):64-69.
15. Ebenso, B., Newell, J., Emmel, N., Adeyemi, G., & Ola, B. (2019). Changing stigmatisation of leprosy: an exploratory, qualitative life course study in Western Nigeria. *BMJ Global Health,* 4(2), e001250. doi:10.1136/bmjgh-2018-001250 .
16. Roberta Olmo Pinheiro, Patricia Sammarco Rosa, John S. Spencer. Leprosy reactions: New knowledge on pathophysiology, diagnosis, treatment and prevention. *journal Frontiers in Medicine.*2022;9:1-3. doi:https://doi.org/10.3389/fmed.2022.1072274
17. Berto Pucca M, Danielly C Rocha, Amanda MA Cunha, Isadora S Oliveira. "Leprosy Overview: Pathophysiology, Immune Responses, and Epidemiology in Brazil." *Biomed J Sci Tech Res.* 2023;48(4). doi:10.26717/bjstr.2023.48.007676
18. Putra NR, Gofur. Clinical Images and Medical Case Reports Genes associated as risk factor Morbus Hansen' s disease: A reviewarticle. Department of Health, Faculty of Vocational Studies, Universitas Airlangga, Surabaya, Indonesia. 2021;2.
19. Reza NR, Kusumaputro BH, Alinda MD, Listiawan MY, Thio HB, Prakoeswa CRS. Pediatric Leprosy Profile in the Postelimination Era: A Study from Surabaya, Indonesia. *The American journal of tropical medicine and hygiene.* 2022;106(3):775-778. doi:10.4269/ajtmh.21-0458
20. Rspal K, Periode R, Mahaputra PW, et al. Profil Pasien Morbus Hansen Di Poliklinik Kulit. 2023;7:1139-1145.
21. Sulistyoningtyas S, Khusnul Dwihestie L. *JurnalIlmiah Permas:Peran Mikronutrisi Sebagai Upaya Pencegahan Morbus Hansen.* 2022;12(Januari):75-82.
22. TunggalL,SeorangP,LakiA,etal. Morbus HansenPausibasiler Tipe Borderline-Borderline Dengan Jarang Morbus Hansen Pausibasiler Tipe Borderline-Borderline Dengan Lesi TunggalPada Seorang Anak Laki – Laki.,pp 75-80, 2020