

Medical students' self-perception about Leprosy at a university in the amazon region

Autopercepção de acadêmicos de medicina sobre Hanseníase em uma universidade da Amazônia

Victor Imanuel Pinho Rodrigues¹ , Katsuki Coelho Yano¹ , Tatiane Costa Quaresma^{1,3} , Marcos Manoel Honorato^{1,2} 

¹Universidade do Estado do Pará (UEPA), Santarém, Pará, Brasil

²Neurologista, PhD, Docente do curso de Medicina na Universidade do Estado do Pará (UEPA), Santarém, Pará, Brasil

³Bióloga, Doutora, Docente do curso de Medicina na Universidade do Estado do Pará (UEPA), Santarém, Pará, Brasil

ABSTRACT

Objectives: To assess the self-perception of medical students at the State University of Pará (UEPA) regarding their knowledge of leprosy and to compare this impression between the basic and internship cycles.

Methods: This is an exploratory and descriptive study with a quantitative survey approach using a questionnaire. The questionnaires were administered at the State University of Pará (UEPA), located in the municipality of Santarém, Pará, totaling 87 participants.

Results: Most students recognized that leprosy is a challenging and neglected disease. Many participants do not feel satisfied with their knowledge and skills regarding the diagnosis of neurological and dermatological manifestations. The comparison between the various subgroups revealed significant differences between the basic cycle and the internship concerning the recognition of neurological abnormalities. A large portion of the students considered the number of hours dedicated to teaching this subject insufficient.

Conclusion: Leprosy remains a public health challenge, and there are gaps in medical education that hinder a change in this scenario. Therefore, curricular restructuring and access to more effective learning environments regarding the pathology are necessary.

Keywords: Leprosy, Self-perception, Amazon Region, Medical Students, Health Attitudes and Practice, Knowledge.

RESUMO

Objetivos: Verificar a autopercepção de alunos do curso de medicina da Universidade do Estado do Pará (UEPA) acerca dos seus conhecimentos sobre Hanseníase e comparar essa impressão entre os ciclos básico e interno.

Métodos: Pesquisa de caráter exploratório, descritivo, com abordagem quantitativa do tipo levantamento de dados por meio de um questionário. A aplicação de questionários ocorreu na Universidade do Estado do Pará (UEPA), localizada no município de Santarém, Pará, totalizando 87 participantes.

Resultados: A maioria dos alunos reconheceu que a hanseníase é uma doença desafiadora e negligenciada. Muitos participantes não se sentem satisfeitos quanto aos seus conhecimentos e às suas habilidades para o diagnóstico das manifestações neurológicas e dermatológicas. A comparação entre os diversos subgrupos revelou diferenças significativas entre o ciclo básico e o interno quanto ao reconhecimento de anormalidades neurológicas. Uma grande parcela dos acadêmicos considerou insuficiente a carga horária destinada ao ensino dessa temática.

Conclusão: A hanseníase persiste como um desafio de saúde pública e há lacunas na formação médica que dificultam uma mudança nesse panorama, sendo necessária uma reestruturação curricular e acesso a espaços de aprendizagem mais assertiva sobre a patologia.

Palavras-chave: Hanseníase, Autopercepção, Região Amazônica, Estudantes de Medicina, Atitudes e Prática em saúde, Conhecimento.

ARTICLE INFO

DOI: <https://doi.org/10.46979/rbn.v62i2.74881>

Corresponding author: Marcos Manoel Honorato,
e-mail: marcos.m.honorato@uepa.br

Conflict of interest: The authors declare that there are no conflicts of interest in the research.

Financing statement: There was no financing.

CRedit taxonomy: Conceptualization VIPR; Data collection VIPR, KCY; Formal analysis VIPR, MH; Methodology TCQ, VIPR; Resources VIPR, KCY; Software management VIPR, KY, MH; Supervision MH, TQ; Validation MH, VIPR; Writing of the original draft VIPR, Katsuki Yano; Editing VIPR.

INTRODUCTION

Leprosy is a chronic, infectious disease caused by the bacterium *Mycobacterium leprae* (*M. leprae*), characterized by the involvement of peripheral nerves, skin, and eyes, in addition to systemic repercussions in patients with the lepromatous (Virchowian) form.¹

There are several classifications for the disease. In Brazil, the most widely used was defined at the International Leprosy Congress in 1953, which determined the existence of two polar and stable types: lepromatous and tuberculoid leprosy, and two unstable groups that make up the rest of the spectrum: the borderline (dimorphous) and indeterminate forms of the disease. These classifications are guided based on the host's immune response to the bacterial infection and physical examination findings.

Furthermore, there is still a significant stigma associated with leprosy in Brazil, which often leads to social discrimination, impairing the social interaction and morale of patients.² Its diagnosis is eminently clinical, supported by the characteristic manifestations of the disease: dermatological lesions and classic symptoms of peripheral neuropathy. A case of leprosy is defined by the presence of one or more of the following criteria: (1) skin lesion(s) and/or area(s) with altered thermal and/or painful and/or tactile sensitivity; (2) peripheral nerve thickening associated with sensory and/or motor and/or autonomic changes; (3) presence of *M. leprae*, confirmed by intradermal slit-skin smear or skin biopsy.³

Despite advances in leprosy treatment methods, significant challenges persist, such as delayed diagnosis and the occurrence of leprosy reactions, which can worsen the patient's clinical condition.⁴

The effective management of the disease depends on the physician's skills in recognizing symptoms, performing specialized dermatological and neurological examinations, and properly requesting and interpreting complementary tests.

The objective of the present study was to investigate the self-perception of medical students at the Santarém Campus of the State University of Pará (UEPA) regarding their knowledge and skills related to leprosy and the content offered during their undergraduate training.

MATERIALS AND METHODS

This is a cross-sectional, exploratory, and descriptive survey-based study using an electronic questionnaire developed by the authors (Appendix 1) as a tool to evaluate students' self-perception regarding the disease and the teaching of this topic at the university.

The study population consists of students from all academic terms actively enrolled at the State University of Pará (UEPA), who were over 18 years old and had the full capacity to complete the questionnaire correctly. Data collection was carried out over a period of 1 month, totaling

87 participants distributed across the 12 semesters of the undergraduate program.

The collected data were stored in Excel® software spreadsheets and analyzed using Stata® software, version 14. Numerical variables were analyzed descriptively by calculating summary measures (mean and standard deviation), while categorical variables were expressed as percentages. Inferential statistics utilized Fisher's exact test to assess the presence of associations between inferential variables, with a significance level set at $p < 0.05$.

The study was conducted in compliance with the ethical principles of Resolution No. 466/12 of the National Health Council (CNS), which regulates research involving human subjects, ensuring their rights as research participants and adhering to international bioethical standards. The study was approved by the Research Ethics Committee of the State University of Pará under opinion No. 7.916.114.

RESULTS

In Table 1, a higher proportion of male participants can be observed (56.32%), the mean age was 23.1 years, and the predominant self-reported race/skin color was brown (52.87%). Participation across the different teaching cycles of the program was heterogeneous, with 41.28% from the basic cycle, 33.33% from the clinical cycle, and 25.29% from the internship. The total number of participants corresponds to 36.25% of the enrolled student body.

Table 1. Descriptive statistics of demographic and academic data.

Demographic and academic data	N=87	Description
Gender		
Feminine	38	43,68%
Masculine	49	56,32%
Age	23,138 (mean) / 3,643 (SD)	
Self-declared race		
Yellow	1	1,15%
Brown	46	52,87%
White	33	37,93%
Black	7	8,05%
Teaching cycle		
Basic	36	41,38%
Clinical	29	33,33%
Internship	22	25,29%

Regarding the descriptive statistical analysis of the perception of leprosy, as shown in Table 2, it was observed that 48.28% of the total participants had contact with leprosy patients during their training, and 56.32% consider leprosy a disease that is challenging to manage. When questioned about their knowledge regarding the clinical forms of the disease, 29.89% declared having satisfactory knowledge, 26.19% demonstrated confidence in identifying

dermatological lesions of leprosy, and 36.05% in identifying neurological alterations. As for diagnostic exams, 22.09% felt prepared to manage slit-skin smear, while 4.60% stated they were prepared to manage serological testing, and 6.90% for electromyography. Regarding the neurological examination, 19.54% reported feeling confident in identifying nerve thickening.

With respect to the perception of curricular aspects regarding the teaching of leprosy, 4.65% reported that the course load dedicated to teaching the disease was sufficient, 9.41% stated that the tutorials were able to provide appropriate training, 5.88% mentioned that the thematic lectures were sufficient to develop adequate knowledge about the disease, and 3.53% stated that the experiences in the GIESC (Interdisciplinary Group of Health and Community Studies) provided satisfactory training.

Table 2. Descriptive statistics of students' perception of leprosy.

Self-evaluation	N=87	Description
Did you know about leprosy before entering the program?	71	81,61%
Did you manage leprosy patients during your training?	42	48,28%
Is leprosy a challenging disease to manage?	49	56,32%
Is leprosy a neglected disease?	77	89,53%
Satisfactory knowledge of the various clinical presentations	26	29,89%
Confidence in identifying cutaneous leprosy lesions	22	26,19%
Confidence in identifying neurological manifestations of leprosy	31	36,05%
Satisfactory level of preparedness for skin smear management	19	22,09%
Satisfactory level of preparedness for serological testing management	4	4,60%
Satisfactory level of preparedness for electromyography management	6	6,90%
Confidence in identifying nerve thickening	17	19,54%
Sufficient workload allocated to the study of leprosy	4	4,65%
Was the coverage of the topic during problem-based tutorials sufficient for adequate training?	8	9,41%
Was the coverage of the topic during thematic classes sufficient for adequate training?	5	5,88%
Was the approach during GIESC* activities sufficient to ensure adequate training?	3	3,53%

*Management, Teaching-Service-Community Interaction Module, in which students perform weekly activities within the context of primary care from the 1st to the 4th year of the program.

Table 3 refers to the perception of medical interns regarding the teaching of leprosy during their undergraduate studies (n=22). Among these participants, 27.27% reported that internship activities were sufficient to ensure adequate training, while 43.48% mentioned that their undergraduate education was sufficient to ensure learning regarding the etiologic agent and transmission. Furthermore, 47.83% expressed that the program was sufficient to provide learning regarding the epidemiological and clinical aspects of the disease, as well as the treatment and complications of leprosy.

Table 3. Descriptive statistics of medical interns' perception regarding the teaching of leprosy during undergraduate training. (n=22)

Self-evaluation	Description
Were internship activities sufficient to ensure adequate training?	27,27%
Was undergraduate education sufficient for learning about the etiologic agent and transmission?	43,48%
Was undergraduate education sufficient for learning about epidemiological aspects?	47,83%
Was undergraduate education sufficient for learning about clinical aspects?	47,83%
Was undergraduate education sufficient for learning about the treatment and complications of leprosy?	47,83%

Table 4 statistically correlates the internship variable with the questionnaire variables using Fisher's exact test, specifying their respective p-values. The data revealed that a considerable portion of students in the internship cycle had the opportunity to follow leprosy patients. It was observed that most consider leprosy a

neglected disease; furthermore, an improvement in confidence to identify neurological alterations of leprosy was noted, including the evaluation of nerve thickening. On the other hand, there were no significant differences regarding difficulties in evaluating skin lesions or managing complementary exams.

Table 4. Inferential statistics: Association between the internship variable and questionnaire variables, using Fisher's exact test.

Fisher's Exact Test (Internship vs. Questionnaire)	P-value
Did you know about leprosy before entering the program?	1
Did you manage leprosy patients during your training?	0,003
Is leprosy a challenging disease to manage?	0,32
Is leprosy a neglected disease?	0,036
Satisfactory knowledge of the various clinical forms	0,1
Confidence in identifying cutaneous leprosy lesions	0,09
Confidence in identifying neurological manifestations of leprosy	0,019
Satisfactory level of preparedness for skin smear management	0,07
Satisfactory level of preparedness for serological testing management	0,26
Satisfactory level of preparedness for electromyography management	0,16
Confidence in identifying nerve thickening	0,031
Sufficient workload allocated to the study of leprosy	1
Was the coverage of the topic during problem-based tutorials sufficient for adequate training?	0,67
Was the coverage of the topic during thematic classes sufficient for adequate training?	0,32
Was the approach during GIESC activities sufficient to ensure adequate training?	0,56

DISCUSSION

Leprosy persists as a highly relevant public health problem in Brazil, a fact that demands consolidated clinical skills from the multidisciplinary team, particularly the physician, for early diagnosis and effective clinical management of the disease.

Although Brazil shows a trend toward a reduction or stabilization in leprosy detection in some regions, it still occupies a prominent global position in terms of case numbers and maintains worrying rates of physical disabilities and cases in children under 15 years old, especially in the North region.⁵

This reality reinforces that qualifying medical education regarding leprosy in the Amazon is not merely an academic demand, but an essential public health strategy to reach the goals of both the Global Leprosy Strategy 2021–2030 and the Brazilian National Strategy, which prioritize timely detection, prevention of disabilities, and stigma reduction.

The research showed that the majority of surveyed students had a self-perception of satisfactory knowledge regarding the etiologic agent and clinical forms; however, the same did not occur when referring to dermatological and neurological examination procedures. This is in agreement with what was observed in a 2016 study in their study, which evaluated the knowledge of healthcare students regarding leprosy. This fact likely reflects a lack of opportunities during undergraduate training for practicing technical skills related to neurological and dermatological examinations.

Despite a satisfactory perception regarding the general aspects of the disease, a persistent, self-reported

difficulty was observed throughout the course in managing complementary diagnostic exams—an essential factor for the correct classification of the disease and proper clinical management of cases. Various studies have revealed data consistent with those observed in this study's sample, showing that even in endemic areas, students demonstrated insufficient mastery over complementary diagnostic tests, especially when questioned about the criteria for requesting a slit-skin smear, indications for skin biopsy, and interpretation of results.^{6,7} This difficulty may be explained by the clinical predominance of leprosy diagnosis, which relies on identifying the characteristic neurodermatological manifestations of the condition. Consequently, the value of complementary exams in choosing the appropriate course of action is underestimated, and the study time dedicated to them by students becomes insufficient.

Histopathological examination and intradermal slit-skin smear constitute essential resources for the operational classification of cases into paucibacillary (PB) and multibacillary (MB), establishing the appropriate therapeutic strategy and treatment duration.^{8,9} This scenario of technical insufficiency is particularly worrying because, as pointed out by national guidelines and the National Strategy for Confronting Leprosy, the general practitioner in endemic areas plays a fundamental role in early diagnosis, timely treatment, and interrupting the transmission chain.^{8,10}

In the Amazonian context, marked by a high disease burden, socioeconomic inequalities, and barriers to accessing services, the lack of diagnostic competencies among future physicians tends to perpetuate delayed detection and the registration of cases with grade 2 physical disability, a scenario widely described in recent epidemiological analyses.^{8,11}

A considerable portion of participants reported an insufficiency of content related to the subject across the various stages of their training: tutorials, thematic lectures, clinical skills, GIESC, and the internship. Given this, reflections arise regarding the root of the problem motivating students' dissatisfaction with the content offered during their undergraduate studies. It is understood that leprosy is a complex disease with diverse clinical presentations and phenotypic peculiarities; therefore, it requires preceptors to utilize different strategies to approach the topic in order to simplify the delivered content and improve student absorption.

In our study, participants demonstrated concern regarding the low course load allocated during undergraduate training for teaching leprosy, in agreement with a research presented in 2022, which observed that although leprosy is a disease of great epidemiological relevance in Brazil, the course hours taught to students regarding the disease are suboptimal.

Despite this, the perception of some parameters differed when comparing students in the initial cycles with

those in their internship, suggesting that these contents are being offered at different times throughout the program, while in an unstructured manner. In the final phase of training, a large portion of the students already demonstrated greater confidence in neurological evaluation and the detection of nerve thickening, and there was a significant difference in the reported experience of having managed leprosy patients. This fact aligns with the natural evolution of students throughout the medical program; however, when correlating the degree of dissatisfaction with the disease content offered during training with studies that indicate low course hours dedicated to studying leprosy, the need for restructuring the teaching of the disease within the curricula becomes clear.

The self-perception of medical students regarding their level of knowledge about leprosy represents important data for evaluating their educational process. Research shows that self-perception is directly associated with practical experience during undergraduate training, as students who expressed greater confidence in making diagnoses and choosing therapeutic strategies were those who had the opportunity to provide care to leprosy patients.^{12,13}

Furthermore, epidemiological studies indicate the maintenance of transmission chains and a high proportion of multibacillary cases. Consequently, low practical exposure of medical students to real care situations poses a significant risk to the continuity of endemicity.¹⁴

In this context, the authors of a 2022 study discussed the implementation of care services through the neurology outpatient clinic in the medical program at UEPA in Santarém, where students have the opportunity to experience patient care, putting the theoretical knowledge acquired in classes into practice. However, there is no specific program for the care of individuals with leprosy, which would benefit both students and the population and could represent a paradigm shift regarding the disease within the university.

Thus, when analyzing the results obtained from this research, there is a clear need to create strategies that provide an educational process capable of bridging theory and practice. These could include conducting activities in reference centers at different stages of the program and implementing a program in the neurology outpatient clinic focused on caring for leprosy patients, ensuring that future professionals possess the clinical skills necessary to identify, diagnose, and treat leprosy patients effectively. Regionally, the creation of an academic dermatology outpatient clinic could also be beneficial, since a large portion of diagnoses are made through cutaneous manifestations, especially considering that the majority of participants reported difficulties with this skill.

In a broader context, the responsibility of medical schools to discuss and re-evaluate their curricular structures is clear, aiming to provide academic spaces for meaningful learning related to knowledge and skills

regarding leprosy, thereby ensuring the acquisition of specific competencies. In the long term, this will result in greater efficacy in diagnosing and managing the disease within primary care, ultimately reducing endemicity and the impact on public health.

CONCLUSION

Teaching about leprosy in undergraduate medical programs still leaves gaps in the training of future professionals, failing to encompass the acquisition of the competencies necessary for its assertive diagnosis and management. In the national scenario, given the epidemiological situation, this finding represents a challenge in combating the disease, a fact that makes explicit the need to expand efforts to scale up teaching strategies that reinforce the study of leprosy in medical schools.

REFERENCES

1. Britton WJ, Lockwood DN. Leprosy. *The Lancet*. 2004 Apr;363(9416):1209–19.
2. Nations MK, Lira GV, Catrib AMF. Stigma, deforming metaphors and patients' moral experience of multibacillary leprosy in Sobral, Ceará State, Brazil. *Cadernos De Saude Publica* [Internet]. 2009 Jun 1 [cited 2021 Jul 24];25(6):1215–24. Available from: <https://pubmed.ncbi.nlm.nih.gov/19503952/>
3. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde. Diretrizes para vigilância, atenção e eliminação da hanseníase como problema de saúde pública. Brasília: Ministério da Saúde; 2016 [cited 2025 Nov 30]. Available from: <https://www.gov.br/saude/pt-br/centrais-de-conteudo/publicacoes/svsa/hansenase>
4. Rodrigues LC, Lockwood DN. Leprosy now: epidemiology, progress, challenges, and Research Gaps. *The Lancet Infectious Diseases* [Internet]. 2011 Jun 1;11(6):464–70. Available from: <https://www.sciencedirect.com/science/article/pii/S1473309911700068>
5. Brasil. Ministério da Saúde. Hanseníase no Brasil: perfil epidemiológico segundo níveis de atenção à saúde. Brasília: Ministério da Saúde; 2022 [cited 2025 Nov 30]. Available from: https://bvsm.ssaude.gov.br/bvs/publicacoes/hansenase_perfil_epidemiologico_atencao_saude.pdf
6. Barros P, Tavares C, Holanda J, Alves R, Santos T, Arcêncio R. Conhecimento teórico sobre hanseníase por estudantes universitários da área da saúde em município do nordeste brasileiro. *Hansenologia Internationalis: hanseníase e outras doenças infecciosas*. 30 de novembro de 2016;41:14–24. doi:10.47878/hi.2016.v41.34977
7. Viana ACB, Araújo FC, Pires CAA. Conhecimento De Estudantes De Medicina Sobre Hanseníase Em Uma Região Endêmica Do Brasil. *Revista Baiana de Saúde Pública*. 2017 Sep 12;40(1).
8. Brasil. Ministério da Saúde. Secretaria de Ciência, Tecnologia, Inovação e Insumos Estratégicos em Saúde. Protocolo clínico e diretrizes terapêuticas da hanseníase. Brasília: Ministério da Saúde; 2022 [cited 2025 Nov 30]. Available from: https://www.gov.br/conitec/pt-br/midias/protocolos/publicacoes_ms/copy_of_20230131_PCDT_Hansenase_2022_eletronica_ISBN.pdf
9. Silva JFP, Takenami I, Palácio MAV. Estratégias para aprendizagem sobre hanseníase no ensino em saúde. *Rev Docência Ens Sup*. 2022;12:e038304. doi:10.35699/2237-5864.2022.38304.
10. Ferreira LM, Souza YA de, Batista GG, Vieira CP, Nunes CC, Magalhães LS, et al. Hanseníase Na Amazônia central: Um Olhar Epidemiológico. *Revista De Medicina* [Internet]. 2023 Mar 31;102(2):e–194245. Available from: <https://www.revistas.usp.br/revistadc/article/view/194245/192350>
11. Alecrin ES, Oliveira ALG, Guimarães NS, Lyon S, Martins MAP, Rocha MOC. Factors associated with the development of leprosy in Brazilian contacts: a systematic review. *Rev Inst Med Trop Sao Paulo*. 2022;64:e55. doi:10.1590/S1678-9946202264055.
12. Alves CRP, Araújo MG, Ribeiro MMF, Melo EM. Evaluation of teaching on leprosy by students at a Brazilian public medical school. *Rev Bras Educ Med*. 2016;40(3):393-400. doi:10.1590/1981-52712015v40n3e00522015.
13. Palácio MAV, Takenami I, Gonçalves LBDB. O ensino sobre hanseníase na graduação em saúde: limites e desafios para um cuidado integral. *Rev Baiana Saude Publica*. 2019;43(1):260-70. doi:10.22278/2318-2660.2019.v43.n1.a2932.
14. Bentes AAS, Lima KS, Souza RR, Castro SHM. Perfil epidemiológico da hanseníase no estado do Amazonas (2018-2023). *Braz J Implantol Health Sci*. 2024;6(5):2081-96. doi:10.36557/2674-8169.2024v6n5p2081-2096.
15. Honorato MM, Silva JFD, Honorato LGF, Oliveira SMS, Cremaschi RC, Coelho FM. Implantação do ambulatório de habilidades neurológicas na graduação médica: práticas e reflexões. *Res Soc Dev*. 2022;11(12):e368111234428. doi:10.33448/rsd-v11i12.34428

Appendix 1 - Data collection tool

I. Demographic information

1. Gender: () Masculine () Feminine () Other

2. Age:

3. Self-declared race: () Black () White () Brown

() Yellow

II. Academic data

() 1st semester () 2nd semester () 3rd semester

() 4th semester () 5th semester () 6th semester

() 7th semester () 8th semester () 9th semester

() 10th semester () 11th semester () 12th semester

III. Self-assessment data and access to leprosy topics

Very Unsatisfactory / Would not consider	Unsatisfactory	Neutral / Unlikely to consider	Satisfactory / Likely to consider	Very Satisfactory / Definitely would consider
1	2	3	4	5

1. Did you know about leprosy before entering the program?

Yes	No
-----	----

2. Did you manage leprosy patients during your training?

Yes	No
-----	----

3. Is leprosy a challenging disease to manage?

1	2	3	4	5
---	---	---	---	---

4. Is leprosy a neglected disease?

1	2	3	4	5
---	---	---	---	---

5. How would you rate your level of knowledge about the different clinical forms of leprosy (indeterminate, tuberculoid, borderline, lepromatous)?

1	2	3	4	5
---	---	---	---	---

6. How would you rate your level of knowledge and confidence in identifying skin lesions suggestive of leprosy?

1	2	3	4	5
---	---	---	---	---

7. How would you rate your mastery of the simplified neurological examination to identify sensory, motor, and autonomic changes in leprosy?

1	2	3	4	5
---	---	---	---	---

8. How would you rate your level of knowledge and preparedness to order and interpret the slit-skin smear examination used in the diagnosis of leprosy neuropathy?

1	2	3	4	5
---	---	---	---	---

9. How would you rate your level of knowledge and preparedness to order and interpret the anti-PGL-1 IgM serological test used in the diagnosis of leprosy neuropathy?

1	2	3	4	5
---	---	---	---	---

10. How would you rate your level of knowledge and preparedness to order and interpret the electromyoneurography examination used in the diagnosis of leprosy neuropathy?

1	2	3	4	5
---	---	---	---	---

11. How would you rate your proficiency in detecting nerve thickening during the physical examination?

1	2	3	4	5
---	---	---	---	---

12. Do you consider that the number of hours allocated to leprosy education during medical school was sufficient to ensure adequate training on the topic?

1	2	3	4	5
---	---	---	---	---

13. Do you consider that the content covered during medical school tutorials was sufficient to ensure adequate training on leprosy?

1	2	3	4	5
---	---	---	---	---

14. Do you consider that the content covered during medical school thematic lectures was sufficient to ensure adequate training on leprosy?

1	2	3	4	5
---	---	---	---	---

15. Do you consider that the experiences during GIESC in medical school were sufficient to ensure adequate training on leprosy?

1	2	3	4	5
---	---	---	---	---

16. Do you consider that during the medical school internship it was possible to acquire the knowledge needed to strengthen adequate training on leprosy?

1	2	3	4	5
---	---	---	---	---

17. Do you consider that content regarding the etiological agent and modes of transmission of leprosy was provided during your undergraduate studies?

1	2	3	4	5
---	---	---	---	---

18. Do you consider that content related to the epidemiological aspects of Hansen's disease was provided during your undergraduate studies?

1	2	3	4	5
---	---	---	---	---

19. Do you consider that content related to the clinical aspects of Hansen's disease was provided during your undergraduate studies?

1	2	3	4	5
---	---	---	---	---

20. Do you consider that content related to the treatment and complications of Hansen's disease was provided during your undergraduate studies?

1	2	3	4	5
---	---	---	---	---