

Tuberculosis Teaching in Graduation in Nursing: An Integrative Literature Review

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Abstract—Objective: to analyze scientific publications on teaching tuberculosis in undergraduate nursing. Method: The search was carried out in databases, with the time frame between the years 2011 to 2020. For the treatment of the data, the technique of content analysis was used, with categorization of the findings. Nine complete original articles were selected that answer the central question of the research, whose data were grouped in tables. Results: The analysis of the literature allowed the elaboration of three categories, namely: Category 1- Difficulties in teaching tuberculosis in undergraduate nursing, Category 2- Perception of teachers and students about teaching tuberculosis and 3- Teaching-learning methodologies of tuberculosis nowadays. Conclusion: Although there have been several advances with the improvement in the integration between teaching and health services, investments are still needed in the teaching-learning and evaluation process, since in the studies listed there are still several obstacles.

Keywords—Tuberculosis. Teaching. Nursing.

I. INTRODUCTION

Tuberculosis (TB) is still a serious and challenging global public health problem. Worldwide, in 2018, around ten million people became ill from tuberculosis and 1.5 million people died from it, with TB being the main cause of death from a single infectious agent. The disease disproportionately affects males, young adults and low-income countries, pointing to the association between the occurrence of TB and socioeconomic factors (Brasil, 2020).

Difficulties in the academic training of health professionals, especially nurses, have had an impact on health care for people with tuberculosis, such as delayed diagnosis. Therefore, there is a need to incorporate new methodologies to improve the skills of undergraduate and graduate students in the health field, as shown by Grecco et al. (2014) study who found weaknesses in undergraduate nursing education regarding the Directly Observed Treatment (DOT) of TB, as this is one of the priority strategies of the National Tuberculosis Control Program (PNCT). Among others, the fragility of teaching will have a negative impact on both the management of the program and the assistance to people with the disease.

Investment in education needs to be provided from the academy, through meaningful learning, as for Bittencourt (2011) regarding the teaching-learning of TB, it is emphasized that the use of active methodologies, capable of integrating different teaching strategies, is paramount to develop critical and reflective thinking.

Studies indicate that professional training in health is still partly disconnected from the reality of the labor market and the proposal of the Unified Health System (SUS), since there is still a poor distribution of the workforce, determined and conditioned by inter inequalities. and intra-regional, the training process that does not value the aspects of health promotion and prevention, the disarticulation between training and service institutions, teaching dissociated from work (Villa et al., 2006).

The health care process must be integrated with teaching and research (generation of new knowledge and new processes and methodological development), observing the real health needs of the population, from the perspective of interdisciplinarity, interprofessionality, interinstitutionality, which means work integrated, in a bilateral relationship with its partners and with a social impact (Villa et al., 2006).

Thus, this study aimed to analyze scientific publications on the teaching of tuberculosis in undergraduate nursing.

II. METHOD

The research is an integrative review which has the purpose of gathering and synthesizing research results on a delimited theme, in a systematic and orderly manner, being an instrument for the deepening of knowledge about the investigated theme, allowing the synthesis of multiple published studies and general conclusions about it (Polit; Beck; Hungler, 2011).

Although there are variations in the conduct of methods for the development of integrative reviews, there are standards to be followed. In carrying out this review, six steps were used: selection of hypotheses or guiding questions for the review; selection of studies that will compose the sample; definition of the characteristics of the studies; categorization of studies; analysis and interpretation of results; and, report of the review (Mendes; Silveira; Galvão, 2008).

The guiding question for the elaboration of this integrative review was: What are the scientific productions available on the teaching of tuberculosis with an emphasis on undergraduate nursing?

The survey of bibliographic studies took place during the month of July 2020 and five databases were chosen: Latin American and Caribbean Literature in Health Sciences (LILACS), Database in Nursing (BDENF), in the Scientific Electronic Library Online (SCIELO), Medical Literature Analysis and Retrieval System Online (MEDLINE) and Google Scholar.

Following, the validated DECS descriptors were used: "Tuberculosis"; "Teaching" and "Nursing", using the Boolean operators AND, in Portuguese and English, in the last 10 years, published in the period from 2011 to 2020. A total of 12,776 articles were found, which after reading the titles and abstracts, were selected nine articles that showed similarities with the object of this study.

For data collection, we opted to use the instrument validated by Ursi (Mendes, Silveira and Galvão, 2008).

The analysis of the selected studies took place in a descriptive manner, in order to enable the observance and description of the data, thus, it was possible to gather the synthesized knowledge on the subject in question. From this, three empirical categories were elaborated, which will be presented and discussed below, in which Bardin's content analysis method was used to explore the content. In order to guarantee the success of this study, it was decided to describe and distribute the results in tables, highlighting the main findings of each research. As for the discussion, it was carried out in a descriptive manner, in order to achieve the objectives of building an integrative review.

III. RESULTS AND DISCUSSION

There was a shortage of national scientific publications in the health area on the subject considering that Brazil is a country with a high incidence and prevalence of tuberculosis. Tables 1 and 2 shows the characteristics of these studies, in which articles in Portuguese predominate with 77.7%; as for the approach, 44.4% is qualitative, 44.4% is quantitative and 11.1% is an experience report; with regard to the type of magazine, 55.5% is national and 44.4% is international; as for indexing, 33.3% at SCIELO, 33.3% at LILACS and 33.3% at Google scholar.

In this integrative review, a total of nine original scientific articles were analyzed, which strictly met the selection of the sample previously established.

Table 1: Distribution of studies.

Nº	BASE	AUTHOR. YEAR.TITLE. PERIODIC.	OBJECTIVE	METHODOLOGY
TB01	SCIELO	Barrêto et al., 2013. Tuberculosis care management: from training to the practice of nurses. Revista Brasileira de Enfermagem.	Analyze the relationship between the education of nurses and actions directed to the management of tuberculosis care.	Qualitative study, carried out in one of the municipalities in the metropolitan region of João Pessoa-PB. Ten nurses from the Family Health Strategy participated in the study. Data collection was carried out in February 2010 through a semi-structured interview script. For analysis of the empirical material, the technique of content analysis was used.
TB02	SCIELO	Ponce et al., 2013. Tuberculosis diagnosis: performance of the first health service sought in São José do Rio Preto, São Paulo, Brazil. Cad.	Cross-sectional study with the objective of analyzing the performance of the first health service sought for the	81 patients undergoing treatment were interviewed. A questionnaire based on the Primary Care Assessment Tool, adapted for TB care, and the health service assessment framework (structure and process) were adopted. The data were analyzed using descriptive techniques and multiple

		Saúde Pública.	diagnosis of pulmonary TB in São José do Rio Preto, São Paulo, Brazil, in 2009.	correspondence analysis.
TB03	SCIELO	Pereira et al., 2016. Management and management of the hierarchical levels of the national tuberculosis control program. Interdisciplinary Journal of Health Education.	Know the structure and functioning of the PNCT at all levels of management and management (federal, state and municipal).	Experience report made by Nursing students of the 4th year, 8th semester, Block II, from the State University of Pará, together with two preceptor nurses. Planned visits and rounds of conversations were carried out with professionals who work at the levels responsible for the management and management of the Program in the city of Belém (PA), from 10/14 to 10/23/2015. For the development of conversation circles, a schedule of visits was prepared and the Ministry of Health's Manual of Recommendations for the Control of Tuberculosis in Brazil was used.
TB04	Google Scholar	Martins et al., 2020. Simulation of clinical skills of nursing students during the care of tuberculosis patients. International Journal of Development Research (IJDR)	Evaluate the clinical skills of nursing students regarding the diagnosis and assistance to patients with tuberculosis, using the Structured Objective Clinical Examination (OSCE) modality.	Descriptive study with a quantitative approach, carried out with 30 Nursing students from the last year of their graduation and who were taking the Supervised Internship in Collective Health curricular axis of a public university in northern Brazil.
TB05	Google Scholar	Martins et al., 2020. Objective Structured Clinical Examination (OSCE): perceptions of nursing students in tuberculosis diagnosis. International Journal of Advanced Engineering Research and Science (IJAERS)	To evaluate the perception of nursing students at a public university about the Objective Structured Clinical Examination (OSCE) on the topic of tuberculosis diagnosis.	Quanti-qualitative research, carried out in the Nursing Graduation Course of a public university, in June 2019, with the participation of 30 nursing students, who answered a self-administered questionnaire. Pearson's percentage and chi-square were used for statistical analysis. For the analysis of qualitative data, the free word evocation technique was used.
TB06	Google Scholar	Martins et al., 2020. Profile and experiences of nursing students related to tuberculosis: an evaluation of health education. International Journal of Advanced Engineering Research and Science (IJAERS)	This study aimed to evaluate the sociodemographic profile of nursing students and their experiences with tuberculosis (TB) in undergraduate nursing at a public university.	Quantitative-descriptive research, carried out in the Undergraduate Nursing Course of a public university, in 2019, with the participation of 30 5th year students, who answered a self-administered questionnaire. Percentage and Pearson's chi-square were used for statistical analysis.

TB07	LILACS	Carvalho et al., 2019. Tuberculosis: knowledge among undergraduate nursing students. Revista Brasileira de Enfermagem	To analyze the knowledge about tuberculosis among undergraduate nursing students at a Federal University of Higher Education.	Descriptive study carried out in a transversal way, with a quantitative approach. Data were collected through a questionnaire prepared based on the WHO guide for the development of instruments for assessing knowledge, attitudes and practices related to tuberculosis. The students were categorized into groups of "knowledge" and "little knowledge" based on the average percentage of responses for the analyzed variables. Descriptive statistics techniques were used.
TB08	LILACS	Assis et al., 2019. Importance of the tuberculosis theme in undergraduate nursing: teachers' discourse. Rev baiana enferm	Analyze teachers' discourse on the importance of tuberculosis in undergraduate nursing courses.	Qualitative exploratory study, developed between January and March 2015 at two public nursing universities in the state of Amazonas, Brazil. Fifteen nursing professors participated in the study, the majority of whom were female, had a master's degree, with more than five years in teaching, experience prior to teaching and only one professional bond.
TB09	LILACS	Grecco, 2014. Directly observed treatment of tuberculosis: learning processes in a higher education institution. Rev enferm UERJ.	To analyze the theoretical and practical learning processes related to the Directly Observed Treatment of tuberculosis among nursing students at a public institution of higher education in Ribeirão Preto, São Paulo.	I work with a quantitative and qualitative approach, whose collection was carried out in 2011. A self-administered instrument containing five questions was used, so that the analyzes took place, respectively, through descriptive statistics and the theoretical-analytical basis of the Collective Subject Discourse.

Source: Research protocol, 2019.

Table 2: Evidences from the studies.

Nº	EVIDENCE
TB01	There is a predominance of thematic in the hospital space, which results in the training of professionals with a restricted look at the disease clinic, due to the distance between what governs the policy of training workers for the Unified Health System (SUS) and education. It is possible to perceive the distance between TB care and the relation between theory and practice. It assumes that the inadequacy of traditional teaching-learning processes and organized in disciplines contributes to maintaining gaps between the training institution and service dynamics; the failure to monitor TB sick people in the internship spaces, limiting themselves only to the presentation of the structure and organization of the health service and observation of assistance; mechanistic and task practice more consistent with the biomedical conception, in which, based on the signs and symptoms presented by the patient, they elaborate the "menu" of assistance, as activities related to diagnosis, treatment and monitoring; Limitation in the identification of people with suspected TB, resulting in delayed diagnosis.
TB02	It shows that the Emergency Care Units (PA's), as one of the main entry points for the diagnosis of TB, should be qualified to suspect and detect the cases, as well as to carry out a joint / articulated work with the other

	points of attention in order to link the patient. their unit of origin, making it possible to monitor and manage the case properly. In this study, the PA's showed the worst performance, and was associated with the suspicion of diseases other than TB, which may have led to the failure to request sputum smear and x-ray and, consequently, the failure to perform the diagnosis in the first health service sought. Such results reflect the professionals' unpreparedness to diagnose TB, in which the PA's are not included in the training and evaluations carried out by the PNCT, mainly due to work overload and limited number of human resources, causing the centralization of information. In this sense, the construction of contextualized strategies that promote dialogue between national political guidelines and the uniqueness of health services, with continuous training and supervision of health professionals, would assume a fundamental role for TB control in order to identify failures to be addressed. faced in care / management and improving skills. However, it is extremely important that the proposal for permanent health education is part of an organized and articulated service network. Therefore, the professional's preparation for TB control should start in technical and higher education institutions, by including guidelines with sufficient time for theoretical and practical teaching, in order to enable the future professional to deal with the disease. However, in Brazil, the teaching of TB at undergraduate level is still unsatisfactory, fragmented and disconnected from control programs, reflecting the Flexnerian formative model.
TB03	It reports the importance of nursing students in knowing all levels of the PNCT control program, in order to understand the skills of their management and management levels.
TB04	Academics performed better in procedural skills, specifically in pulmonary auscultation and physical examination of the respiratory system. Furthermore, cognitive spheres such as knowing and remembering, integrative spheres such as analyzing and reasoning and affective represent the lowest domain rates among academics.
TB05	The study shows that 73.3% of the students reported that the scenario developed in the OSCE exam contributed to the exercise of nursing in the face of the diagnosis of tuberculosis, 76.7% considered it necessary for the Nursing Courses to modify the preparation of the students in relation to tuberculosis and 76.7% recommend developing greater skill for nursing consultations and home visits to patients.
TB06	The results show that the majority of academics never participated in courses or scientific events, just as few had experiences with extracurricular activities. It was found that 76.6% underwent nursing consultation for patients with TB; 70% made administration / supervision of treatment directly observed; 53.3% requested sputum tests; 50% scheduled and monitored patient care; 33.3% were vaccinated with BCG; 23.3% instructed sputum collection; 20% applied and read tuberculin tests; 20% researched TB cases in the general clientele and no academic made a home visit to a TB patient, the latter being a worrying fact. Thus, they consider to be partially prepared to serve clients with tuberculosis.
TB07	60 nursing students were interviewed. "Little knowledge" was observed among students with less time spent studying at the university and without previous contact with the topic and "knowledge" among those whose knowledge about tuberculosis was acquired in health services. Knowledge gaps were identified among undergraduate nursing students, suggesting the need to rethink teaching-learning strategies on the topic.
TB08	As a result, two discursive blocks emerged: Importance of the theme of tuberculosis in the curriculum structure; and role of nurses in tuberculosis control. The meanings produced by the professors' discourse allowed us to conclude that tuberculosis, as an important disease from the epidemiological and social point of view, needs to have a wider scope in the curricular matrix of undergraduate nursing courses, considering the role of this profession in control actions disease.
TB09	It was observed that most of the 72 interviewees had no contact with the theme during the course and that the limited knowledge presented was based on the hegemonic model of health action. It is understood that a greater articulation of educational practices related to tuberculosis and the treatment directly observed in the training of generalist nurses is necessary, given that this has specific attributes in the management of care and assistance to patients with tuberculosis, family and other communicants.

Source: Research protocol, 2019.

The analysis of the literature found made it possible to elaborate three categories based on relevant points, namely: Category 1- Difficulties in teaching tuberculosis; Category 2- Perception of teachers and students about the teaching of tuberculosis and Category 3- Teaching-learning methodologies of tuberculosis today, which will be developed below.

Category 1- Difficulties in teaching tuberculosis

Regarding category 1, which addresses the difficulties in teaching tuberculosis, article TB02 shows that the Emergency Care Units (PA's) are one of the main entry points for the diagnosis of TB, so professionals should be better qualified to suspect and detect the cases, as well as to carry out joint / articulated work with the other health care points in order to link the patient to his / her health unit of origin, enabling the follow-up and appropriate management of the case. Such results reflect the professionals' unpreparedness to diagnose TB, in which the PA's are not included in the training and evaluations carried out by the Tuberculosis Control Program, mainly due to work overload and limited number of human resources, causing the centralization of information.

In this sense, the construction of contextualized strategies that promote dialogue between national political guidelines and the uniqueness of health services, with continuous training and supervision of health professionals, would assume a fundamental role for TB control in order to identify failures to be addressed in care or management and improving skills. However, it is extremely important that the proposal for permanent health education is part of an organized and articulated service network.

Therefore, the professional's preparation for TB control should be intensified in technical and higher education institutions, by including guidelines with sufficient time for theoretical and practical teaching, in order to enable the future professional to deal with the disease. However, in Brazil, TB teaching at undergraduate level is still unsatisfactory, fragmented and disconnected from control programs, reflecting the Flexnerian formative model. It is verified, therefore, that the gaps in graduation will have repercussions on the professional life of nurses, in which they will present difficulties in clinical management.

While, in article TB09, it was possible to identify that most of the study participants in question (70.84%) had no contact with the theme of DOT during the undergraduate nursing course. Consequently, many were unaware of the use of this strategy for TB control and, among those who reported having had contact (29.16%), a predominance of the response was identified in the last year of academic training. This fact is considered worrying, especially

because the professional nurse must have developed skills in the prevention and control of the disease, which must be guided by the adequate planning of comprehensive interventions (political, economic and health), starting primarily from the scope local.

Another difficulty revealed was the students' lack of information regarding biosafety standards and lack of knowledge of basic concepts in relation to the disease and its forms of contagion. In view of these data, the gap between the teaching proposed by the universities and the real health needs of the population can also be observed, a fact that can still be modified if, however, the content paradigms still prevalent in educational institutions are overcome.

In view of the fact that the area of nursing focuses its activities mainly on the care of people, the work process of these professionals is based on contact and human relationship. Thus, the idea that it is up to the university to play a fundamental role in what concerns the training of professionals imbued with scientific and technical knowledge, but above all, humanitarian, with a view to improving the quality of life and health of the population, is ratified.

Therefore, a greater articulation of educational practices related to TB and DOT is necessary in the process of training generalist nurses, given that this professional has specific attributes in the management of care and assistance to TB patients, their families and other communicants. Thus, an educational practice based on the incorporation of innovative and problematic learning processes is essential, in order to offer subsidies for the improvement in the qualification of health professionals with higher education, aiming at strengthening disease prevention and promotion practices to health population.

Category 2- Perception of teachers and students about the teaching of tuberculosis

The TB01 article brings reports from nurses regarding the experiences of the undergraduate course in which they reveal that, during the course, the learning spaces were mainly focused on the healing field. It is observed that the subjects with the longest training time had their experience to control the disease, exclusively at the referral hospital. As for nurses with less than ten years of training, in addition to the hospital space, they also experienced TB care at the Family Health Unit (FHU).

What draws attention in the testimonies is related to the predominance of the TB theme in the hospital space, which favors the training of professionals with a restricted look at the disease clinic and brings out an apparent distance

between what governs the policy of training workers for SUS and education.

It is observed in the nurses' statements that the curricular matrices emphasize a strictly biological approach, collaborating to train professionals to act in purely clinical health and, consequently, distanced from the reality in which the population groups experience the illness of TB. It is noticed that nurses addressed both the superficiality and the distance from TB care with regard to the relationship between theory and practice. It assumes that the inadequacy of traditional teaching-learning processes and organized in disciplines contributes to maintaining gaps between the training institution and service dynamics.

In addition, there are no testimonials from the nurses interviewed that emphasize preventive care, nor do they mention that their realization is done prioritizing the family and community, since they are constituents of the patients' lives.

As it is a social and stigmatized disease, it is considered important that this professional does not learn only the clinic, treatment and control, but that he advances in the understanding of the subjectivity and uniqueness involved in the care process based, above all, in the integrality of care. It is recognized that active learning methodologies are viable in this proposal, as the student places himself next to the teacher who has the task of guiding and facilitating the educational process as a being who also seeks knowledge.

However, dialoguing with these students does not mean delegating all the elaboration of the problem to them, but rather leading them to a process that allows a deep analysis of the problem, so that they can discover its dimension and seek answers to the proposed questions.

The TB07 study raises the problem that, more than half of the nursing students (55%), had not had previous contact with the TB theme (provided assistance, knows someone with TB or had a class on the subject), it was not considered well-informed on the subject (56.7%) and wished to obtain more knowledge on the subject (98.3%), although all (100%) reported having heard about TB, especially at the university (76.7%). As for the level of knowledge about TB, the majority (73.3%) reported that the causative agent of the disease was bacteria, while approximately a quarter of the students reported that the causative agent of the disease was a virus (26.7%).

Regarding the symptoms of the disease, everyone agreed that coughing for more than three weeks is one of the symptoms of the disease (100%), although they were not clear about its characteristic - dry (70%) or productive (76.7%) . Most reported that hemoptysis is necessarily

among the classic symptoms of TB (81.7%), as well as chest pain (66.7%), shortness of breath (90%) and fever without a definite cause for more than seven days (73.3%). Approximately a quarter of the students (23.3%) were unaware of the minimum duration of TB treatment, which is 6 months.

There were participants who reported that TB transmission occurs via contact with saliva (75%), by handshaking (25%), by touching / contacting public items (43.3%), via sexual contact (8 , 3%) and per insect bite (1.7%). Regarding disease prevention, the participants stated that to avoid contamination by the bacillus, it is necessary not to share glasses and cutlery (75%), avoid handshakes (26.7%), wash hands after touching public items (78, 3%), use a condom (20%) and use repellent (13.3%). It was observed that the students did not assume the relationship between good nutritional status and vulnerability to TB (63.3%).

One nursing student reported that TB has no cure (1.7%). Although all (100%) reported that the cure for TB occurs through "specific" drugs, it was observed that some (12.3%) students were unaware that such drugs were antibiotics. Some study participants also mentioned that one of the ways to obtain a cure for TB is by taking the vaccine (38.3%) and praying (18.3%).

Sputum smear microscopy and chest x-ray were not cited as the main diagnostic methods for TB (6.7% and 23.3% respectively). Some students did not believe that they could contract the disease (13.3%), considering it not very serious (25%).

When analyzing the knowledge and beliefs of nursing students about TB, in relation to previous contact with the topic, it was possible to observe that, among people who had previous contact with the subject, basic questions were answered incorrectly. Therefore, this study showed vulnerability on the part of the students with regard to knowledge related to TB.

This fact is worrisome, as the nurse inserted in a health institution must systematize care for the individual, family and community. In the context of TB control actions, one of its interventions is to guide them regarding transmission and environmental measures to prevent the disease, in order to collaborate with the interruption of the transmission chain and to demystify misconceptions, avoiding the stigmatization of the disease and abandonment of treatment. Furthermore, as health professionals, the lack of knowledge can lead them to not adopt individual safety measures, making them more vulnerable to contamination by the TB bacillus.

The TB05 article showed that after the clinical skills test on tuberculosis, students received feedback using the debriefing technique, in which the team of evaluating professors highlighted the most relevant points observed during the test, in order to generate reflections in students about conduct towards patients. The results show that, in the opinion of most nursing students (73.3%), the scenario developed in the Objective Structured Clinical Examination (OSCE) contributed to the practice of nursing in the face of TB diagnosis; the majority (76.7%) considered it necessary that Nursing Courses should modify the preparation of academics in relation to TB, in addition, the majority (76.7%) of academics recommended the development of greater skill for nursing consultations and home visits to TB patients.

The academics described their perception of the OSCE method and the moment of debriefing, in which the most evident words were: knowledge; learning; reflection; confidence; empowerment; required. During the performance of the OSCE exam, the evaluating professors made important notes to be observed during the moment of debriefing, such as the need to further investigate the symptoms of TB; difficulties in performing the physical examination; nervousness during the test, evidenced by the student's attempt to interact with the examiner, which is not allowed during the test; some academics did not read the exam results that were on the table; at Station 5, little emphasis was placed on the importance of not abandoning treatment; doubts about where the patient should be referred; some academics identified tuberculosis, but did not identify it in the exam, which was the multidrug-resistant form; some scholars wrongly cited treatment time.

This study shows that it is necessary to reflect on the structuring of the current nursing curriculum, especially with regard to practical training and the acquisition of all the necessary skills throughout the course. Academics must effectively and intensively train these skills (manuals, clinical reasoning and conduct) in real patients, real situations and real scenarios, and which also include hospitals, basic health units, urgencies and emergencies and ambulatories.

There must be a balance in the distribution of the workload and in the focus of practical learning among all sectors of nursing. It is through mandatory internships in all sectors of activity that students will have the opportunity to apply their acquired knowledge and develop the skills and competencies necessary for the exercise of the profession.

However, possibly, these academics are not fully and adequately inserted in their practice scenarios throughout

their undergraduate studies, or else they are not the main "actors" in these scenarios. Thus, they do not gain autonomy, do not acquire security for decision making and, above all, do not develop clinical reasoning skills, as they are unable to apply the knowledge they have learned.

Regarding TB teaching, the need to incorporate new teaching methods, new forms of assessment and new practice scenarios was highlighted, in order to diversify students' experiences and contemplate their expectations regarding the nursing course and according to skills and competencies necessary for the professional nurse in the management of care for TB patients.

Added to this, the fact that the OSCE does not evaluate the student in real conditions, especially checking "show how you do" and not "he does". Arguably, direct and practical observation in real patients provides a more realistic and integrated view of clinical skills, but the lack of standardization in this form of assessment provides low reproducibility and reliability for use in scientific research.

The TB06 article shows that academic experiences in relation to TB need to be intensified and more valued by universities. It is necessary to implement evaluations of curricular axes to detect possible flaws in its structure. Corroborating these findings, the DCNs recommend that the training of nurses be based on competences and skills to be developed during the training process and favor technical-scientific, ethical-political and socio-educational conduct, in order to allow future professionals to recognize health as a right, in order to guarantee the quality of care at all levels, planning, organizing, managing and evaluating the nursing work process, in partnership with other professionals in the workplace.

Therefore, nurses must have training with a generalist, humanistic, critical and reflective profile, able to know and intervene in the most prevalent health-disease situations in the national epidemiological profile, with emphasis on their region of activity, identifying the bio-psychosocial and effects of its determinants. Universities invest little in teaching evaluation and are stuck with archaic models of summative evaluation, in which many teachers are more concerned with assigning grades than with the quality of teaching. This may be related to the precariousness of the training offered to teachers in relation to the new assessment tools. Therefore, investing in new teaching and assessment methods is essential in the current reality of higher education, in addition to offering qualifications to teachers.

The article TB08 analyzes the speech of professors of undergraduate nursing courses and two discursive blocks emerged, which address the importance of the theme of

tuberculosis in the curriculum and the role of nurses in tuberculosis control actions. The speeches emphasize TB as an endemic, reemerging, neglected, socially constituted disease and signal the importance of the knowledge acquired about TB during graduation for future professional practice. With regard to the knowledge of students, they emphasize their importance because they can be professionals who apply the knowledge acquired, organizers, guardians or managers of the health units. In addition, other relevant points such as the need for a multidisciplinary approach to disease control, expanding the theme in the curriculum matrix, as well as "demystifying TB" in relation to teachers, students and the population.

The professors make an analysis as to the different positions that nurses occupy in the exercise of their profession and that may be related to TB control actions. Nursing has shown itself to have a legitimate discourse on issues related to care for people with TB, with great experience in controlling the disease, both in the hospital and in public health, involving the prevention, treatment and training of health workers to act against the disease.

The discursive sequence "students will be future nurses" leads us to consider that being a nurse is a protagonist in the organization and management of the TB program. They emphasize the importance of students already encountering situations that involve the person with TB during the academic course and during their internships. Knowledge about the prevention and diagnosis of diseases are basic elements for the future nurse, since the lack of this can make the care for people with TB and their contacts deficient, which increases the risk of disease transmission among professionals and in population.

The meanings produced by the professionals' discourse allowed us to conclude that TB is an important disease from an epidemiological and social point of view and needs to have a wider scope in the curricular matrix of undergraduate nursing courses, in view of the protagonism of this profession in actions to control disease. Thus, the teaching-learning process about TB needs to be constantly reframed by teachers and by the higher education institution, so that the profile of the graduate is that of a professional capable of acting in the control activities of this disease of great epidemiological relevance.

Category 3- Teaching-learning methodologies for tuberculosis today

In view of the difficulties and challenges previously exposed, several methodologies have been used as a way to diversify the theoretical and practical activities in teaching tuberculosis in undergraduate nursing, which can provide

rich experiences in learning in which students are motivated to be the protagonists in building knowledge and exercising autonomy in decision making.

The TB03 article shows that planned visits and rounds of conversations were carried out with the spheres responsible for the management and management of the PNCT in the city of Belém, Pará, year 2015, during the practices of the discipline Management and Management of Health and Nursing Services, where were visited:

- State Coordination of the Tuberculosis Control Program / Secretariat of Public Health Attorney (SESPA);
- 1st Regional Health Center / SESPA;
- Municipal Coordination of the Tuberculosis Control Program / Municipal Health and Environment Secretariat-Belém (SESMA);
- State Reference Hospital in Tuberculosis - Hospital Barros Barreto;
- Escola do Marco Health Center;
- Curió Municipal Health Unit.

For the operationalization of the conversation circles, the competences at the federal level were discussed among researchers to understand their role. Then a schedule of visits for the state and municipal spheres was elaborated, which was extremely important for the organization of this study. Conversation rounds took place between researchers and local officials.

For the development of the activity, the Ministry of Health's Manual of Recommendations for the Control of Tuberculosis in Brazil was used, specifically the chapter relevant to the competences of the management and program management spheres. From these competencies, all the actions, in accordance with the manual, performed by each sphere were detailed. A bibliographic search was also carried out on the subject for the acquisition of relevant knowledge and information to be discussed in the visits.

The experience allowed the students to understand in loco the whole process for the operationalization of the PNCT actions, from the moment of identification of the suspected case in the Basic Health Unit, until its entry in the records of the Diseases Information and Notification System (SINAN- TB) which is the main source of data for the actions of Epidemiological Surveillance (VE) of tuberculosis in the federal, state and municipal levels. SINAN-TB works in a network and aims to collect, transmit, consolidate data routinely generated by VE, through a computerized network, thus enabling the dissemination of data and the dissemination of information.

The data entry of the notification / investigation form in Sinan-TB must always be performed by the notifying municipality. Proper completion of the fields in these forms (completeness) is essential to monitor the dynamics of the disease and define intervention priorities, as well as the forms of diagnosis and treatment of cases, in addition to the operational and epidemiological indicators of importance for the control of the PNCT. This enabled a more in-depth view of the PNCT and to understand its importance for the city of Belém.

The relevance of experiences like this is emphasized for academic and professional training in the health area, specifically in nursing, since nurses often exercise management activities at all levels. Beyond knowing the pathological characteristics of tuberculosis, it is the duty of every health professional inserted in the services to know the rules of the PNCT, as well as to understand the skills of their levels of management and management, so that they can base their actions, collaborating for the control disease.

The TB04 article deals with the use of the OSCE method during an evaluation process in an undergraduate nursing course, in which a checklist was used to assess the clinical skills of students in the diagnosis of tuberculosis. The instrument consisted of five stations divided as follows: Station 01: Anamnesis (symptomatology, socio-epidemiological conditions and Basic Human needs); Station 02: Physical Examination; Station 03: Nursing Actions (request for exams, guidance on sample collection); Station 04: Diagnostics and monitoring on the network; Station 05: Diagnosis of multidrug-resistant tuberculosis and Nursing Care.

These areas were chosen because they represent the steps of the nursing consultation and the skills necessary for the diagnosis of tuberculosis, according to the skills of the nurse, who needs to be constantly updated, as new knowledge and technologies are constantly created. Therefore, it is up to the nurse to provide comprehensive assistance to users with suspected or confirmed tuberculosis. In view of this need, the OSCE constituted a valid, reliable, viable and reproducible form of assessment, making it possible to assess, in its multiple dimensions, specific competences, in a planned, structured and diversified manner.

This research made it possible to verify the skills and difficulties of nursing students regarding the diagnosis of tuberculosis, as well as to know the factors that contribute to the improvement in performance or that hinder this process. In addition, the results allowed a joint reflection between teachers and academics about teaching and learning practices, as well as the evaluation process. The

findings also point to possible flaws in the current curricular structure of nursing courses, with regard to practical training and the acquisition of skills by students.

IV. CONCLUSION

From this study it was possible to know about the teaching-learning methodologies currently applied in the teaching of tuberculosis in undergraduate nursing, as well as to understand the difficulties and the perception of teachers and students about this process. Although there have been several advances, such as the improvement in the integration between teaching and health services, investments in changes in the teaching and evaluation process are still necessary, since, in the studies listed, several obstacles still persist.

Despite the increase in the number of undergraduate courses in Nursing, the studies analyzed showed that the curricula of undergraduate courses in nursing have inadequacies in content and pedagogical practices for the exercise of activities that involve the plurality of health system needs.

When expanding this discussion, there is a need to understand that the construction of a thought based on the recognition of transdisciplinarity collaborates in the formation of professionals working in a perspective of teamwork and, consequently, with the management of care. In this sense, the pedagogical methods used by the training institutions should assist in the training of health professionals with the ability to see the user as a singular subject, with experiences and stories to be considered in the care process.

There is a need for training institutions to approach health services, in a dialogical relationship, in order to better organize the learning spaces, while the methodologies adopted in this process are able to build critical and reflective subjects about the reality to be faced. It is recognized that there is still a long way to go in the perspective of the training of professional nurses, who work with innovative care practices and who come close to SUS precepts.

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