

## Nursing Approach to the Control of Tuberculosis: Scientific Publications (2002-2011)

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### ABSTRACT

As a disease of chronic evolution, Tuberculosis (TB) requires more health care professionals, especially nursing staff, to encourage the patient not to abandon the treatment and achieve a cure. Thus, this study aimed to describe the state of the art of scientific publications regarding the approach that is given to nursing aids regarding TB control. The literature search was performed on the database of the Virtual Health Library, The Lilacs, indexed with the following descriptors: tuberculosis, nursing, nursing care, nursing services and nursing team. We established the following inclusion criteria: Papers published in Brazil between 2002 and 2011. Selected articles were separated into three categories: “daily practice of nursing care or planning for TB control”, “research and teaching in nursing” and “biosafety”. We selected twenty-four articles which met the criteria of the study. It was observed that there was an increase in the number of publications since 2005, with 70.9% of articles published in specific nursing journals; 54.2% dealt with actions related to the daily practice of nursing in TB control, 37, 5% were related to the occupational hazard caused by the direct care of patients with TB and just over 8% were related to the teaching and research of the disease for nurses. These findings highlight the interest in understanding the role of nursing care for patients with TB, raising relevant issues with respect to knowledge and skills of these professionals to fulfill their task, including concern about the risk of disease, since they are so exposed to the disease they become part of the care plan for the patient and also to the family of which this patient belongs.

**Keywords:** Communicable Diseases, Tuberculosis, Nursing Services, Specialties Nursing, Nursing Research, Nurse’s Role, Scientific and Technical Publications

### 1. INTRODUCTION

According to the WHO (2012), Brazil is one of the 22 countries with the highest Burden of Tuberculosis (TB) in the world, occupying 20th place in this ranking. Also according to WHO documents for 2009 data, TB incidence was 43 cases/100 000 population, the mortality rate was 2.6/100,000 population, with a detection rate of 88% and cure rate of 72%.

Being considered a disease of chronic evolution and with a stigma and prejudice still related to TB patients, the disease requires from health services and especially

from health professionals, a great responsibility towards assuring patients’ adherence to treatment and not endangering their own and the populations’ lives with an increasing chance of contamination between contacts (Monroe *et al.*, 2008; Villa *et al.*, 2008).

Faced with the complexity of the problem, nurses as well as nursing assistants become essential for patient and family encouragement in coping with the disease (Arcencio *et al.*, 2008; Montenegro *et al.*, 2009). The link between nursing staff and TB patient becomes as important as the drug intake, thus promoting the implementation of an individual and collective care plan,

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involving the trust that the patient and the patient's family lay in such professionals (Brunello *et al.*, 2009).

Therefore, understanding the importance of nursing care performance for TB patients and their involvement in health services planning for efficiency in providing care, this study aimed to identify the state of art in scientific articles published over the past nine years in Brazil and which approach is given to nurses in TB control. Thus, we seek to understand the role of nursing to fight this disease, in both prevention and cure.

## 2. MATERIALS AND METHODS

State of the art consists of a bibliographical study whose main challenge maps and discusses what is being produced on some aspects and dimensions related to a thematic (Ferreira, 2002).

The scientific literature search was conducted in April 2012, in the LILACS website (<http://lilacs.bvsalud.org/>), the most important index of scientific and technical literature of Latin America and the Caribbean. We used the following terms indexed in the Brazilian health subject headings thesaurus (DECS-<http://decs.bvs.br/1/homepagei.htm>): tuberculosis, nursing, nursing care, nursing services and nursing team in the database.

We established the following inclusion criteria for the study:

- Be classified as scientific articles, thus excluding documents, manuals or thesis
- Held in Brazil
- Published between 2002-2011

We excluded publications classified as editorials, letters to the editor and re-publications of articles with historical analysis.

To refine the search, we opted for some combination of terms, as shown in **Table 1**.

A database was built in Excel with the 55 publications. Articles that were found more than once by the combination of terms were eliminated and 24 articles remained for reading, which were classified according to the following categories:

- Year of publication
- Journal in which it was published
- Study Subject

Items categorized were:

**Table 1.** Number of articles found and selected for reading according to the combination of terms, Lilacs (2012)

| Combination of Descriptors        | Articles Found n | Selected articles n |
|-----------------------------------|------------------|---------------------|
| Tuberculosis and nursing          | 95               | 33                  |
| Tuberculosis and nursing care     | 33               | 7                   |
| Tuberculosis and nursing services | 16               | 7                   |
| Tuberculosis and nursing team     | 14               | 8                   |
| Total                             | 158*             | 55*                 |

**Table 2.** Distribution of articles about tuberculosis and nursing according to the year of publication, Lilacs (2012)

| Year of publication | n  | (%)   |
|---------------------|----|-------|
| 2002                | 1  | 4,2   |
| 2003                | 0  | 0,0   |
| 2004                | 0  | 0,0   |
| 2005                | 4  | 16,7  |
| 2006                | 2  | 8,3   |
| 2007                | 4  | 16,7  |
| 2008                | 4  | 16,7  |
| 2009                | 1  | 4,2   |
| 2010                | 4  | 16,7  |
| 2011                | 4  | 16,7  |
| Total               | 24 | 100,0 |

### 2.1. Daily practice or Planning in Nursing Care for TB Control

Articles dealing with nursing care in health services, whether hospital-based or primary care-based; directly concerned with practices carried out by nursing staff with patients for TB control whether in case identification, disease control, supervision of contacts or drug intake.

### 2.2. Research and Teaching in Nursing

Articles related to research and education for TB control involving nursing professionals or nursing students.

### 2.3. Biosafety

Articles dealing with the vulnerability of nursing professionals and students in acquiring TB infection in the workplace.

The content analysis to produce the categorization of articles was based solely on an exhaustive reading of the works selected for the study. Due to the design of the study, there was no need for authorization from the Ethics Committee of the institution.

## 3. RESULTS

The publications involving TB and nursing have been increasing since the year 2005, maintaining an average of three articles published per year in Brazil in the studied period (**Table 2**).

**Table 3.** Distribution of articles according to their title, authors, journal, study objective and object, Lilacs (2012)

| Article   | Authors                        | Journal                  | Study objective   | Study object  |
|---|--------------------------------|--------------------------|---|---|
| Exploring knowledge, practices and attitudes of undergraduate nursing students of a governmental university concerning the prevention of tuberculosis dissemination | Malveira <i>et al.</i> (2002)  | Esc Anna Nery Rev Enferm | To discuss knowledge, attitudes and practices regarding prevention of nosocomial transmission of tuberculosis among nursing students of the last period of graduation.  | Research and teaching in nursing                          |
| Active search for individuals with respiratory symptoms as part of community health workers' role in tuberculosis control   | Muniz <i>et al.</i> (2005)     | Cienc. Saude Coletiva    | To analyze the incorporation of the active search for respiratory symptoms for Tuberculosis Control at a Municipal Health District in Ribeirão Preto-SP, Brazil, according to the perception of nursing supervisors in the Community Health Agent Program (CHAP). | Daily practice or planning in nursing care for TB control |
| Nursing workers' experiences in care for pulmonary tuberculosis patients  | Bertazone <i>et al.</i> (2005) | Rev Lat Am Enfermagem    | To identify the positive and negative aspects related to nursing care for pulmonary tuberculosis patients, based on the reports of nursing workers at an isolation unit.  | Daily practice or planning in nursing care for TB control |
| Epidemiological profile of outpatients with HIV/AIDS at a school hospital: São Paulo city   | Gabriel <i>et al.</i> (2005)   | Rev Lat Am Enfermagem    | To characterize the epidemiological profile of patients with HIV/AIDS at an outpatient service, to analyze the infection stage on the patient's first return, lethality and program evasion   | Daily practice or planning in nursing care for TB control |
| Prevalence and incidence of Mycobacterium tuberculosis infection in nursing students in Vitória, Espírito Santo   | Maciel <i>et al.</i> (2010)    | Rev Soc Bras Med Trop    | Evaluated the incidence of <i>Mycobacterium tuberculosis</i> infection among nursing students at the Federal University of Espírito Santo, using the purified protein derivative test.  | Biosafety   |
| Practical tuberculosis teaching in nursing schools, Brazil 2004   | Villa <i>et al.</i> (2006)     | Online Bras J. Nurs      | To analyze practical tuberculosis (TB) teaching in Nursing Schools (NS) in Brazil in 2004.  | Research and Teaching in Nursing                          |
| The nursing team's knowledge of care for patients suspected of having or diagnosed with pulmonary tuberculosis: An exploratory study                                | Avelar <i>et al.</i> (2006)    | Online Bras J. Nurs      | To identify the knowledge of nursing team members of protective measures to be deployed in caring for adult patients suspected of having or diagnosed with pulmonary tuberculosis, confined in clinical-surgical and emergency units of a university hospital     | Biosafety   |
| Peculiarities of tuberculosis control in a scenario of urban violence in a disadvantaged community in Rio de Janeiro, Brazil  | Souza <i>et al.</i> (2007)     | J. Bras Pneumol          | To describe the difficulties and peculiarities encountered by health professionals during the treatment and investigation of contacts of tuberculosis (TB) patients in disadvantaged communities.   | Daily practice or planning in nursing care for TB control |
| The vulnerability of nursing workers to tuberculosis in a teaching hospital   | Souza and Bertolozzi (2007)    | Rev. Lat. Am. Enfermagem | To identify aspects that potentially increase the vulnerability of nursing workers to tuberculosis, through the verification of personal life, work and disease knowledge indexes.  | Biosafety   |
| Nosocomial Mycobacterium tuberculosis transmission among healthcare students in a high incidence region, in Vitória, State of Espírito Santo                        | Maciel <i>et al.</i> (2010)    | Rev. Soc. Bras Med. Trop | To evaluate hypersensitivity to tuberculin among medical students   | Biosafety   |

**Table 3.** Continue

|  |                                |                        |  |   |
|--|--------------------------------|------------------------|--|---|
| Tuberculin skin test applied to nursing students   | Moreira <i>et al.</i> (2007)   | Rev. Enferm. UERJ      | To quantify the prevalence of positive Tuberculin Skin Test (TST) among nursing students from the Federal  | Biosafety   |
| Bibliographic production about adherence/non-adherence to therapy  | Reiners <i>et al.</i> (2008)   | Cienc. Saude Coletiva  | University of Goiás ù UFG, in Goiania, GO, Brazil, in September, 2006.<br>To analyze the Latin American bibliographical production over the last 10 years regarding the adherence / non-adherence to treatment of people with chronic health problems: leprosy, tuberculosis, hypertension, diabetes and AIDS.   | Daily practice or planning in nursing care for TB control |
| Epidemiological profile of tuberculosis cases reported among health care workers at the University Hospital in Vitoria, Brazil       | Prado <i>et al.</i> (2008)     | J Bras. Pneumol.       | To describe the epidemiological profile of tuberculosis cases reported among health care workers in the Tuberculosis Control Program of the Cassiano Antonio of Moraes University Hospital in Vitoria, Brazil.   | Biosafety   |
| Tuberculosis in nursing personnel: A population based epidemiological approach   | Lorenzi and Oliveira (2008)    | Rev. Bras              | To present the incidence of tuberculosis saúde ocup all forms) among nursing workers in São Paulo, comparing (it with the general population in year 2004 estimate your risk of TB disease, to describe notified according to the individual workplace (type of work where EAS) discuss the implications and the possible consequences of actions articulated surveillance in the presence of NR-32, compared to aspectsepidemiology of this injury. | Biosafety   |
| The expansion of the treatment observed (TS) for the control of tuberculosis in Paraíba (2000/2005)                                  | Rodrigues <i>et al.</i> (2008) | Rev. Eletrônica Enferm | To analyze the strengths and weaknesses in the expansion process of the supervised treatment in six cities considered as priorities for the TB control in Paraíba-PB/Brazil.   | Daily practice or planning in nursing care for TB control |
| Prevalence of tuberculosis infection in students at the State University in Montes Claros, Minas Gerais, Brazil                      | Coelho <i>et al.</i> (2009)    | Rev. Bras. Edu. Med.   | To identify the tuberculosis infection rate among students from the first and last two years in the Schools of Medicine and Nursing at the State University in Montes Claros, Minas Gerais, Brazil, in addition to verifying their knowledge on transmission and prevention of occupational tuberculosis and the use of the recommended preventive measures.   | Biosafety   |
| Multicultural and morbidity related by Bolivian immigrants in the Family Health Strategy   | Melo and Campinas (2010)       | Mundo Saúde            | To identify the more frequently reported morbidity by Bolivian immigrants who are users of a USF (Family Health Unit) of São Paulo city  | Daily practice or planning in nursing care for TB control |
| The Active Search for Respiratory Symptomatics for the Control of Tuberculosis in the Potiguara Indigenous Scenario, Paraíba, Brazil | Nobrega <i>et al.</i> (2010)   | Rev Lat Am Enfermagem  | To analyze the actions of an active search for Respiratory Symptomatic (RSs) in the control of Tuberculosis (TB) in the Potiguara Special Indigenous Sanitary District, Paraíba, Brazil, between May and June 2007.  | Daily practice or planning in nursing care for TB control |
| Accessibility: hindrances to decentralization of tuberculosis control in units of family health                                      | Clementino and Miranda (2010)  | Rev. Enferm. UERJ      | To analyze social representations of tuberculosis by users of family health units in Campina Grande, PB, Brazil, in view of decentralization of disease control.   | Daily practice or planning in nursing care for TB control |

**Table 3.** Continue

|   |                               |  |  |   |
|---|-------------------------------|--|--|---|
| Household members and health care workers as supervisors of tuberculosis treatment.   | Maciel <i>et al.</i> (2010)   | Rev. Saude Publica/ Salud Publica            | To compare tuberculosis cure rates among patients supervised by household members or health care workers.  | Daily practice or planning in nursing care for TB control |
| Tuberculin skin test: operational research in the state of Mato Grosso do Sul, Brazil | Oliveira <i>et al.</i> (2009) | J. Bras Pneumol                              | To investigate operational aspects of Tuberculin Skin Test (TST) use in tuberculosis control programs and at specialized Brazilian National Sexually Transmitted Diseases/AIDS and Viral Hepatitis Program health care clinics in priority municipalities for tuberculosis control in the state of Mato Grosso do Sul, Brazil. | Daily practice or planning in nursing care for TB control |
| Prevalence of tuberculosis infection in employees from university hospital            | Sousa <i>et al.</i> (2011)    | Rev. Para. Med.                              | To describe the prevalence of tuberculosis infection in employees of the sectors of the internal medicine, Infectum -Parasitic Diseases (IPD) and pneumology of the University Hospital João de Barros Barreto (UHJBB) by TST  | Biosafety   |
| Assessment of a clinical score for screening suspected pulmonary tuberculosis case    | Castro <i>et al.</i> (2011)   | Rev. Saude Publica/ Salud Publica            | To assess the accuracy (sensitivity) of a clinical score for presumptive pulmonary tuberculosis cases during screening.  | Daily practice or planning in nursing care for TB control |
| Alcohol use during tuberculosis treatment: Patients' perception                       | Silva <i>et al.</i> (2011)    | SMAD Rev eletrônica Saúde Mental alcool drog | To describe and analyze the perception of alcohol use during TB treatment and discuss the interventions by the health and nursing team.  | Daily practice or planning in nursing care for TB control |

Of the 24 articles selected for analysis in this study, 70.9% were published in journals in the area of nursing (41.7%), public health (16.7%) and pulmonology (12.5%). The remaining articles (29.1%) were published in journals covering various themes, from medicine in general to occupational and mental health (**Table 3**).

Regarding to the study objective, most articles (54.2%) approached nursing actions for TB control and daily practice and planning in nursing care, which involves the day-to-day assistance for TB patients and their families in health services, from diagnosis through to treatment. Other articles (37.5%) addressed the concern with the occupational health of nursing professionals and students related to TB infection when exposed to the patients, showing the concern with the biosafety of these professionals (**Table 3**). The theme of teaching and research in nursing was the least discussed (8.3%) among the studies analyzed, showing that this objective is still rarely covered in research conducted in Brazil. It is noteworthy that in 58.3% of the papers, nursing was not even mentioned in the title, nor in the study objective, showing that in most studies, nursing is discussed

throughout the text by mentioning practical aspects of nursing care for TB patients and families.

#### 4. DISCUSSION

The link between nursing practice and control of TB has a long history relating to the policies of disease control in Brazil (Baptista *et al.*, 2006; Almeida-Filho *et al.*, 2009), where nurses have autonomy in test ordering and also in starting treatment to fight the illness.

In 1998, Directly Observed Therapy (DOT) began to be implemented in Brazil in order to reduce drop-out of the treatment, improve cure rates and increase case identification (BMH, 2002). Thus, this may explain the number of articles published over the past nine years. The nursing staff became one of the main links between patient and health service, acting directly for adherence to treatment (Brunello *et al.*, 2009), which may also suggest that the increase in studies related to the theme could be an attempt to evaluate and analyze the new policies established in Brazil after DOT.

Once it had become a field of interest to nursing practices in health services, because the nurse and nursing staff in most cases are primarily responsible for TB case monitoring and supervision of drugs intake (Gabriel *et al.*, 2005; Reiners *et al.*, 2008), we noted that most of the articles were published in journals specific to the nursing area, followed by journals in public health, justified by social and living determinants of TB (Brunello *et al.*, 2011; Vendramini *et al.*, 2006; 2010).

The categorization of articles reflects the responsibilities involving the care provided to patients with TB case detection, through daily practice of nursing in health services and care planning for TB assistance. Studies selected for analysis in this study showed that nursing staff need to have innovative and efficient tools for patients and their families for early diagnosis (Castro *et al.*, 2011; Silva *et al.*, 2011), as well as effective strategies for monitoring TB treatment (Maciel *et al.*, 2010; Rodrigues *et al.*, 2008).

As well as addressing the day-to-day practices of direct nursing care to patients, families and vulnerable groups, we highlight the need for nurses in previous care planning, identifying the vulnerable groups for TB disease within the community and then perform active case identification (Souza *et al.*, 2007; Melo and Campinas, 2010; Nobrega *et al.*, 2010), to increase case detection rates among the population.

Another aspect raised among the studies analyzed, was the training of nursing professionals to promote awareness of TB transmission and prevention, in addition to the organizational problems of health services with human resources. We also identified discussions about addressing active case identification in the community and strengthening professional-patient interaction in areas of high health care professional turnover (Muniz *et al.*, 2005; Bertazone *et al.*, 2005; Rodrigues *et al.*, 2008; Clementino and Miranda, 2010).

A significant portion of the selected studies showed the fear of scholars with the possibility of nursing students and professionals in acquiring TB during their profession (Avelar *et al.*, 2006; Souza and Bertolozzi, 2007; Prado *et al.*, 2008; Coelho *et al.*, 2009; Sousa *et al.*, 2011). Thus, discussions about the occupational risk of developing active TB is a frequent concern, raising questions about time of exposure and contact with TB patients, tuberculin skin testing among nursing students (Moreira *et al.*, 2007), as well as the use of safety equipment (Lorenzi and Oliveira, 2008). Additionally, a study conducted in Brazil in 2008 (Lorenzi and Oliveira

2008) outlined some indicators concluding that the risk of developing active TB is higher among nurses, because they are in longer contact with patients.

The worksheet offered on TB for nurses' formation (Villa *et al.*, 2006) and nursing students' knowledge of TB (Malveira *et al.*, 2002) was the approach found in two articles selected for the study. We can see the concern with the wrong knowledge about TB transmission that nursing students still have, as well as the little time that is dedicated to teaching and practice in the area. This shows a deficit in health education and prevention of this disease among future health professionals, leading to barriers in identifying cases, since some students leave education unprepared to take over the management of similar TB cases (Malveira *et al.*, 2002; Villa *et al.*, 2006).

Though only two articles with a teaching and research approach were selected, according to Villa (2008), nursing has contributed significantly to research in the TB field, especially in operational studies, which allows the generation of new knowledge of the social and political determinants surrounding the disease.

It shows superficiality in the studies as regards to the control of TB, since research abides to more technical knowledge aspects in the field of nursing, which may explain the low number of outputs connected to TB research and teaching as well, with little or no involvement of nursing in the political and managerial programs of disease control in Brazil.

## 5. CONCLUSION

The results of this study indicate that there is a greater concern about the practices and performance of nursing professionals who deal directly with TB patients in health services, showing that nursing is recognized as an important element in disease control. Therefore, the planning of care from detection to treatment of the case is most often up to the professionals.

The selected articles show the interest in understanding the role of nursing care for TB patients, raising relevant issues of professionals' knowledge and skills to fulfill their task and includes concern about infection risks, since the professionals are so exposed to *Mycobacterium tuberculosis* that they are actually part of the care plan to which the patient belongs.

Thus, it is essential for the continued interest of scholars, in the context of nursing professionals and in addressing more often the issues facing the teaching and research of TB in nursing training, practice and research.

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