PRIMARY HEALTH CARE CENTER NURSES' KNOWLEDGE REGARDING TUBERCULOSIS

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ABSTRACT: This quantitative cross-sectional study analysed the knowledge of 30 primary care nurses regarding tuberculosis in the city of Foz do Iguaçu, using a semi-structured questionnaire applied in March and April 2009. The majority were female (93.3%), worked in a Family Health Center (73.3%) and reported not having received training in tuberculosis (66.7%). The mean number of years worked in primary care was 4.3 (SD = 3.7 years). It was ascertained that the professionals' knowledge relating to the prevention, transmission, diagnosis and treatment of tuberculosis was superficial; these results indicate the need to organize training in this area.
DESCRIPTORS: Tuberculosis; Nursing; Primary care.

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INTRODUCTION

Tuberculosis (TB) is an important public health problem and, in spite of the implementation of strategies for its control, the disease's rates of incidence and mortality remain high. In the context of approximately 9,000,000 new cases of TB worldwide and 1.7 million deaths per year, Brazil occupies the 22nd place in the ranking of the 22 countries with the highest incidence of TB, and 14th place in the number of smear-positive cases[1], which makes the country stand out unfavorably.

In the Brazilian setting, following the declaration of a state of emergency in TB at the end of the 1990s, changes were made in the strategy for controlling the disease, as stipulated by the Brazilian National Tuberculosis Control Program. This strategy's central objective is to reduce the disease's incidence, through its early detection and treatment. As a result, efficient diagnosis is a growing challenge, taking into account not only the patients' difficulties in accessing the health services, but also organizational issues within the health service itself[2].

It is noteworthy that in the Brazilian context, actions for controlling TB are the responsibility of Primary Care (PC), under the Health Care Operational Norm (HCON), which defines areas for minimum strategic action, under the Full Management system, of Extended Primary Care. As a result, the PC services must undertake the identification of the respiratory symptoms, and the diagnosis, treatment and monitoring of the patients[3]. Furthermore, the PC teams must consist of, at the minimum, a doctor, nurse, community health worker, and auxiliary nurse or nursing technician. The responsibilities common to the team members are active searching, the recording of notifiable health issues and other health issues, and situations of local importance, including the control of TB[4].

The integration of the nurse into TB care in Brazil, in its turn, dates from the 1960s when adjustments were made in how the disease is treated, and it was identified that there is a need to include trained professionals for health education actions, supervised medication, contact tracing and articulation with the dispensary which, currently, relates to referral and counter-referral during the process of diagnosing and treating the disease[4].

Despite this reorganization, there is recognition of the difficulties involved in early diagnosis, resulting from the deterioration of the services and the health professionals' unpreparedness for identifying the disease[5]. Although the competences of the nurse involved in caring for service users with TB in PC have been defined, there are innumerable assistential barriers, such as the numerical shortage in human resources, overloading of roles, inadequate training, and a centralised and fragmented vision of the organisation of TB control actions (generally made available in services at the secondary level of care). These and other barriers can compromise patients' access to actions for controlling the disease in PC[4].

Due to these difficulties, one of the Ministry of Health's (MS) focal points is to encourage the raising of awareness among the managers and professionals who form part of the Unified Health System, the aim being to increase their knowledge and qualify the actions undertaken for controlling the disease[3]. This being the case, the managerial, organizational and technical-assistential qualification of the professionals who work in controlling the disease – including the nurses – is essential[6].

Given the importance of professionals' knowledge of TB, principally in relation to the importance of the nurses' role in the generating of actions for its control, this study is based on the following guiding question: what is the knowledge of the PC nurses on TB and actions for controlling it? In this way, the study aimed to analyse the PC nurses' knowledge in relation to TB, in the city of Foz do Iguaçu, in the Brazilian state of Paraná (PR).

METHOD

This is a cross-sectional study with a quantitative character, of the enquiry type, undertaken in Foz do Iguaçu, Paraná (PR), Brazil, in 2009. In this city, the health services are organised in five Health Districts, among which are distributed 11 Primary Care Centers and 16 Family Health Centers with 32 Family Health Teams which cover 38% of the population. In 2009, in relation to TB, the State of Paraná had an incidence of 23.2 cases/100,000 inhabitants, while Foz do Iguaçu had a rate of 38.7 cases/100,000 inhabitants. TB control actions are centered in the Tuberculosis Control Program, and are initiated through a process of decentralization to PC[7].

In the data collection period, the PC centers had 40 nurses allocated in 24 centers and agreed to receive the interviewers following previous contact and scheduling via telephone. During the visit, the research's aim was explained, and, following reading and signing of the Terms of Free and Informed Consent, interviews were

held with 30 nurses in the health centers themselves. The other professionals declined to participate in the research.

A semi-structured questionnaire was used for data collection, constructed based on scientific and operational recommendations made available by the MS[3], containing 20 questions on professional training and experience, and the professionals' knowledge relating to the prevention, transmission, diagnosis, and Directly Observed Treatment (DOT) of TB, and decentralization of, and delays in, the diagnosis of TB. The questions were organized so that they could be answered using scales with varying classifications, such as dichotomous and multiple choice, with single or multiple answers.

Descriptive statistics was used for analysing the data, the variables being presented through medians, quartiles and standard deviation. Questionnaire answers related to knowledge relating to TB were categorized as adequate, inadequate, or partially adequate, in line with the Technical Manual for Tuberculosis Control[3].

In accordance with the National Health Council's resolution on ethics in research involving human beings, the project was submitted to the State University of West Paraná's Ethics Committee, and was approved under Decision N. 022/2009.

RESULTS

Of the total of nurses interviewed, the majority (93.3%) were female and 26.7% had undertaken specialization related to PC; the mean number of years worked was 4.3 years (SD = 3.7 years), varying from 0.33 to 18 years. In relation to the type of health center, 73.3% were allocated in USFs (Table 1).

Board 1 presents the results relating to questions specifically on the disease, evidencing that among the nurses who answered the specific questions on TB, either incorrectly or partially incorrectly, 75% had a high length of service compared to those who answered correctly. Those who had received training, contrary to expectations, obtained a lower percentage of correct answers. In addition to this, it was evidenced that the majority of the participants did not have sufficient knowledge on the disease's conditions of transmission, or on the signs and symptoms which give grounds for suspecting TB.

In relation to treatment, more than half of the professionals answered the question about guidance provided to the patient partially correctly, while 60% are not familiar with the service user's participation in the choice of place for undertaking DOT. The majority were not sure about the procedures necessary for identifying the treatment's resolutive capacity.

The professionals expressed their opinion about the decentralization of the actions for controlling TB to PC, the DOTS (Directly Observed Treatment Short Course) strategy, and the delay in the diagnosis of the disease, with significant inconsistency being identified regarding knowledge of the issue.

Table 1 – Distribution of general information on the nurses in Primary Care Centers. Foz do Iguaçu-PR-Brazil, 2009

Variables		n	%
Sex	Female	28	93,3
	Male	2	6,7
Academic title	Degree	18	60
	Specialization in Public Health	3	10
	Specialization in Family Health	5	16,7
	Specialization in other areas	4	13,3
Type of center where works	Primary Care Center	5	16,7
	Primary Care Center with Community Health Worker Program	3	10
	Family Health Center	22	73,3
Time worked in the health center	< 1 year	2	6,7
	1 to 2 years	10	33,3
	3 to 4 years	9	30
	5 to 7 years	4	13,3
	10 to 13 years	1	3,3
	14 to 18 years	2	6,7
		2	6,7
Total		30	100

Board 1 - Frequency of specific answers from nurses on tuberculosis. Foz do Iguaçu-PR-Brazil, 2009

Knowledge on tuberculosis		Received training		Time worked in the area		Total
		Yes (n=10)	No (n=20)	Median	Quartiles	(n=30)
Form of transmission	Correct	8 (38,1%)	13 (61,9%)	3	[2; 4]	21 (70%)
	Incorrect	2 (22,2%)	7 (77,8%)	4	[4; 12]	9 (30%)
Condition for transmission	Correct	4 (36,4%)	7 (63,6%)	2	[2; 4]	11 (36,75)
	Incorrect	6 (31,6%)	13 (68,4%)	4	[3; 6]	19 (63,3%)
Risk indicator for transmission	Correct	6 (37,5%)	10 (62,5%)	3,5	[2; 6]	16 (53,3%)
	Incorrect	4 (28,6%)	10 (71,4%)	3	[2; 4]	14 (46,7%)
Signs and symptoms giving grounds to suspect	Partially Correct	8 (32%)	17 (68%)	4	[4; 12]	25 (83,3%)
	Correct	2 (40%)	3 (60%)	3	[2; 5]	5 (16,7%)
Signs and symptoms giving grounds to suspect	Correct	1 (33,3%)	2 (66,7%)	3	[0,1; 4]	3 (10%)
	Incorrect	9 (36,6%)	17 (65,4%)	3	[2; 6]	26 (86,7%)
	Don't know	0	1 (100%)			1 (3,3%)
Basic guidance for the patient	Correct	6 (45,2%)	7 (53,8%)	2,5	[2; 4]	13 (43,3%)
	Partially Correct	4 (23,5%)	13 (76,5%)	4	[2,5; 7,5]	17 (56,7%)
Choice of place for treatment	Correct	4 (33,3%)	8 (66,7%)	4	[2; 5,5]	12 (40%)
	Incorrect	6 (33,3%)	12 (66,7%)	3	[2; 6]	18 (60%)
Priority for treatment	Correct	6 (46,2%)	7 (53,8%)	3	[2; 4]	13 (43,3%)
	Partially Correct	3 (18,7%)	13 (81,3%)	4	[2; 6]	16 (53,4%)
	Incorrect	1 (100%)	0	3,5	[3; 4]	1 (3,3%)
Evidence for identification of cure	Correct	2 (100%)	0	3	[2; 6]	2 6,7%)
	Partially Correct	7 (25,9%)	20 (74,1%)	12	-	27 (90%)
	Incorrect	1 (100%)	0	2,5	[2; 4]	1 (3,3%)
Identification of worsening of the case	Partially Correct	4 (40%)	6 (60%)	4	[2; 6]	10 (33,3%)
	Incorrect	6 (30%)	14 (70%)	4	[2; 5]	20 (66,7%)
Preventive measures	Partially Correct	7 (36,8%)	12 (63,2%)	3	[2; 13]	19 (63,3%)
	Incorrect	3 (27,3%)	8 (72,7%)	4	[2; 6]	11 (36,7%)
Decentralization of the diagnosis and treatment to Primary Care	Good	6 (25%)	18 (75%)	2	[2; 6]	24 (80%)
	Very good	3 (60%)	2 (40%)	3	-	5 (16,7%)
	Do not agree	1 (100%)	0	3	[2; 5]	1 (3,3%)
Knowledge on the DOTS* strategy	Yes	5 (41,7%)	7 (58,3%)	3,5	[2; 6]	12 (40%)
	No	5 (27,8%)	13 (72,2%)	3,5	[2; 6]	18 (60%)
Factors related to the delay in diagnosis	Factors related to the patient	5 (35,7%)	9 (64,3%)	3	[2; 4]	14 (46,7%)
	Factors related to the health services	5 (33,3%)	10 (66,7%)	4	-	15 (50%)
	Don't know	0	1 (100%)	2,5	[2; 3]	1 (3,3%)
Total		10 (33,3%)	20 (66,7%)	4	[2; 6]	30 (100%)

* Directly Observed Treatment Short Course

DISCUSSION

In 2004 the MS ratified a health policy focused on PC and, since then, has regulated the control of TB as the responsibility of the Brazilian cities, and actions for controlling it as under the competency of PC. Specifically, actions such as health surveillance, the formation of multi-professional teams, ascription of the population and longitudinality of care, necessary for strengthening the bonds of responsibility and trust between the professionals and the community assigned to them, fall to the ESF[6]. The cities seek the decentralization of the TB control actions to PC, and the study of the implantation of this strategic plan in the city of Foz do Iguaçu is of great importance, bearing in mind that it was possible to identify gaps in one of the fundamental components in the health services' structure – that is, the professionals' knowledge of TB; few of the nurses interviewed have undertaken a specialization course in Public Health or in Family Health.

The unpreparedness of the workforce in the PC, in relation to activities for controlling the disease, was also ascertained in the State of São Paulo[6]. A study undertaken in Minas Gerais[8] showed that the workers with specialization perform better in evaluating PC's responsibilities and are more effective in the daily performance of the complex roles in this source of health care.

It is noteworthy that for there to be transformation in health practices, the training of human resources must be of sufficient quality to assure the nurse a high level of competence for the care actions, principally in the technical-scientific, administrative and political ambit[9]. One of the elements which can contribute to improving this picture is additional training, bearing in mind that the teaching of the subject of TB in undergraduate health courses is weak[10]. Consequently, specialization, or a residency in Family Health, may be an option for preparing the nurses to work in PC with a focus on the health-illness process and the organization of their own work process, as well as that of the team in conjunction with which they work.

For success to be achieved in implanting TB control actions, it is necessary for there to be arrangements which optimize the actions for early diagnosis and treatment of the disease. The fact that a large proportion of the professionals interviewed had doubts as to how TB is transmitted is worrying, and reveals weaknesses in the activities of early diagnosis of the disease in Foz do Iguaçu; this result was also found in a study undertaken in a different Brazilian city[11]. This reality is not only found in the Brazilian context[12]. Lack of knowledge about TB's cause, as well as how it is transmitted, makes the care for the patients and their contacts inadequate, a fact which increases the risk of the disease's transmission among the professionals and the general population[13].

The analysis made in this study suggests that the nurses had difficulties in undertaking actions involving searching for respiratory symptoms, as the low frequency of correct answers on this issue may evidence unpreparedness for detecting the signs and symptoms of TB. It stands out that only 16.7% of the interviewees correctly identified the classic signs of the disease as a possible means for suspecting its presence, which reveals limited knowledge in relation to clinical diagnosis. These results raise doubts as to the effectiveness of the PC services in diagnosing the disease, given that this shortcoming contributes to late diagnosis, resulting in its occurring later on, in the specialized services and in the hospital environment, by which point the disease's clinical picture has worsened, a hypothesis corroborated by a study in which 50% of the cases had the diagnosis made in Emergency Room/hospital[14].

Knowing the disease's signs and symptoms is a basic condition for undertaking the diagnosis, this also being necessary for identifying the therapeutic efficacy or evidence of failure. As a result, the recognition of the disease's clinical picture is shown to be intrinsic to making an early diagnosis and to be a condition sine qua non for controlling this health issue; the integration of trained and committed professionals in the health services being required for this[6,15].

In relation to guidance provided to the patient regarding treatment, partially correct and incorrect answers predominated; the topics addressed varied from the adverse effects of the drugs, through to the consequence of abandoning the treatment, and DOT. The analysis showed the nurses to have insufficient knowledge, especially in relation to the evidence needed for identifying the worsening of the disease during treatment and for recognising whether there were indications of a cure after the treatment.

In relation to choice of the most appropriate place for undertaking treatment, the patient's participation in the care was rejected, a context similar to that found in another study[11]. Considering this, the present study reveals a situation which differs from that called for by the MS, in which the service user has the right to participate in the choice of the place in which he or she shall receive treatment[6].

Extended communication, based in bio-psycho-social aspects, and not restricted to the biological focus, is a factor which contributes to therapeutic success, as was demonstrated in a study which identified the possibility for treatment based only in aspects related to the medication, the side-effects, and duration of treatment, and which resulted in a greater risk of non-adherence to the drug therapy[16]. These considerations are of extreme importance for adherence to the treatment, as this is successful when the subject accepts their role as co-responsible for their own health. For this, the service user must have knowledge about all of the aspects related to the care, and must participate in the decisions in a way that is inter-related, competent and resolutive - and not simply based in a cure-focussed approach. This reaffirms the need to widen the aspects related to the care. Under this approach, it is emphasised that better preparation allows the nurse the opportunity to bring together conditions for caring for the TB patient appropriately. In this study, there were reports about the difficulties of providing care for these patients when there is a lack of training at work, a context also identified in Teresina, in the Brazilian State of Piauí[17].

The fact that the interviewees approved the decentralization of the TB control actions to PC reveals this strategy's potential for strengthening the bond between the health team and the patient – and makes it possible to monitor the patient's life history, which contributes to better results in the treatment and a rise in rates of cure. However, for decentralization to fully occur, it is necessary for the nurse to be able to provide care which involves critical reflection about the process of falling ill and its cultural, social, political and economic implications. Although they recognise the importance of decentralization, the majority of the professionals mentioned not having knowledge about DOTS, which corroborates results found in a study undertaken in Iran[18]. This strategy must be fully understood by the nurses, especially when the disease control actions are the responsibility of PC, considering that this is one of the pillars of ensuring the patient's adherence[6,12].

In relation to the cause of delay in diagnosis, the answers were divided between factors linked to the patients and factors linked to the health services; information on the disease cannot be considered the exclusive responsibility of service users[19].

It was observed that training in TB was not determinant for adequate knowledge of issues related to the disease, implying that ad hoc training may not be sufficient for providing the professionals with knowledge and skill[13]. Irrespective of the reasons for such gaps, it is necessary to change this situation, with emphasis on the preparation of the professionals in PC[12].

The lack of actions for training and additional training in public health may have contributed to the fact that the nurses had superficial knowledge of TB, the DOTS strategy and the decentralization of the actions. It is confirmed that professionals who participate in continuous education activities are better prepared to attend the service users[20], this practice being of great importance so that nurses and the other professionals may be able to help the service user in the process of diagnosis, treatment and cure, using the DOTS strategy[17-18].

In contrast with another study[11], it was not identified that the length of time a professional had worked in PC influenced the proportion of correct answers in relation to knowledge about TB. It is believed that this result is partly owed to the little contact the workers have with the patient, as the majority of cases are diagnosed and treated in the Tuberculosis Control Program's outpatient center, an observation which may be related to the lack of knowledge among PC nurses[19]. It is known that TB diagnosis in secondary and tertiary services is common among patients who are already presenting complications and who, often, need inpatient treatment; as a result, the fact that this issue involves all the levels of the health system is a subject of discussion. There is a need for continuous education programs focusing on TB, undertaken with the PC professionals, given that this strategy optimises the professionals' learning through reflection related to the reality experienced in the routine of their work[6,17].

FINAL CONSIDERATIONS

The present work identified insufficient knowledge among nurses in relation to TB care, a situation which goes against the strategy of controlling the disease, proposed through the decentralization of the actions to PC. The results point to the need to institute a continuous education program, with the aim of qualifying the nurses in the different aspects related to TB's diagnosis, treatment and control, contributing to the decentralization of the TB care actions and to the implantation of the DOTS strategy.

It is considered relevant to provide spaces for the discussion of the topic among managers, workers and the community, the aim being to viabilize strategies so as to attribute greater importance to TB as a persistent public health problem.

This study may have limitations due to the presence of extrinsic variables, and the results found may not be generalized to other localities, given the specific characteristics of the setting.

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