Original article

Factors related to the place of first choice for the diagnosis of tuberculosis

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Fatores associados à primeira escolha de local para o diagnóstico da tuberculose

Factores asociados a la selección del primer lugar para el diagnóstico de la tuberculosis

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ABSTRACT

The objective of this study was to identify factors related to the place of first choice for the diagnosis and treatment of tuberculosis. A descriptive quantitative study was conducted in Natal/RN, throughout February/September 2012 with 60 individuals diagnosed with pulmonary tuberculosis that responded a questionnaire. Data were analyzed by the Chi-square and Fisher test. The factors associated to the place of first choice were: having had previous contact with the disease (p=0,04); the person's awareness of the disease (p=0,018) and having had previous care at the health service unit of choice (p=0,002). It is concluded that intrinsic and extrinsic factors may influence the individual's first choice of a place for care and diagnosis of diseases. It is important that nurses promote actions related to these factors, for the enhancement of early diagnosis of tuberculosis through case finding and access to the primary care unit thereby reducing the demand for emergency services.

Descriptors: Tuberculosis, pulmonary. Choice behavior. Health services. Patient care. Public health nursing.

RESUMO

Objetivou-se identificar os fatores associados à escolha do primeiro local para o atendimento e diagnóstico da tuberculose. Estudo descritivo, quantitativo, realizado em Natal, RN, entre fevereiro e setembro de 2012, com 60 indivíduos diagnosticados com tuberculose pulmonar que responderam a um questionário. Os dados foram analisados através dos testes Qui-Quadrado e Fisher. Os fatores associados à escolha foram: o contato anterior com a doença (p=0,040); alerta das pessoas sobre a doença (p=0,018); e o serviço de saúde ser o geralmente procurado antes da doença (p=0,002). Conclui-se que fatores intrínsecos e extrínsecos ao sujeito com tuberculose podem influenciar na escolha do local para o atendimento e diagnóstico. Torna-se necessário que os enfermeiros promovam ações relacionadas a esses fatores, favorecendo o diagnóstico precoce da tuberculose através da intensificação da busca ativa, a procura da unidade básica de saúde e a redução do fluxo de procura pelos serviços de urgência.

Descritores: Tuberculose pulmonar. Comportamento de escolha. Serviços de saúde. Assistência ao paciente. Enfermagem em saúde pública.

RESUMEN

El objetivo fue identificar los factores asociados con la selección del primer lugar de atención y diagnóstico de la tuberculosis. El estudio descriptivo y cuantitativo se llevó a cabo en Natal entre febrero/septiembre de 2012, con 60 individuos con tuberculosis pulmonar, que respondieron a un cuestionario. Los datos fueron analizados a través de las pruebas Chi-cuadrado y Fisher. Los factores asociados a la selección fueron: el contacto previo con la enfermedad (p=0,040), el aviso de las personas sobre la enfermedad (p=0.018) y el servicio de salud ser local antes utilizado (p=0,002). Se concluye que factores intrínsecos y extrínsecos pueden influir en elección del primer lugar de atención y diagnóstico de la tuberculosis, lo que requiere que enfermeros promuevan esos factores para la reducción de flujo de demanda de servicios de urgencia, favoreciendo el diagnóstico precoz de tuberculosis a través de búsqueda intensificada y la búsqueda de la atención primaria.

Descriptores: Tuberculosis pulmonar. Conducta de elección. Servicios de salud. Atención al paciente. Enfermería en salud pública.

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INTRODUCTION

Early diagnosis and treatment of cases of tuberculosis (TB), through active search for Symptomatic Respiratory (SR) and timely treatment are the main measures envisaged to interrupt the chain of transmission and disease control. In this perspective, we seek the diagnosis of 90% of expected cases and cure of 85% of diagnosed cases[1].

With the decentralization of disease control for the scope of Primary Health Care (PHC), the professionals working in these services, including nurses, have come to play an important role in the development of these actions, as they are permanently linked to the patient and family through units health condition reaffirmed by Ordinance No. 2.488/2011 on the review of primary care guidelines[2].

However, studies[3-4] indicate that, in most cases, the diagnosis of TB is not being developed in PHC services, but in hospital services, where patients are hospitalized due to cachexia and poor general condition occasioned by delay in diagnosis[4]. In the city of Natal/RN, one of the seven municipalities of the state of Rio Grande do Norte and one of Brazil's 315 priority for TB control, 72.04% of the SR are diagnosed in the hospital network[3].

This is a disturbing reality as it extends to the flow of care service recommended by the Unified Health System (SUS), which should be through increasing levels of technological density[5] and the non-fulfillment of this path. TB patients can be causing increased levels of secondary and tertiary care in the Brazilian health system demand, as occurs in other clinical situations.

The reversal in the recommended direction of flow of care service may be due to the spread of a population thinking that values a curative and hospitalized model of healthcare[6]. However, there is need for studies to elucidate the factors involved in selecting the location for the care and diagnosis of TB by respiratory symptoms. In this sense, we ask: What factors induce respiratory symptoms to choose among different health services, the first place of choice to the care and diagnosis of TB?

As a guiding theoretical framework of this study, we considered the basic variables of the Health Belief Model, which postulates the decision of an individual in order to have a healthy behavior is determined primarily by four psychological variables: perceived susceptibility to disease; severity of disease; the benefits of certain actions; and the perception of barriers to these actions[7].

These perceptions associated with some internal stimuli (symptom) or external stimuli (influence of family, friends or the media), as well as biographical, psychosocial and structural factors may affect individual perceptions and indirectly influence the process of decision making[8].

This study is justified due to our knowledge on the factors related to seeking the first place of choice to the diagnosis of TB, it may better understand the patient's behavior in the demand for consulting in the health service and support action planning leading to the strengthening of targets for early diagnosis and disease control.

Therefore, the objective of this study was to identify factors related to the choice of first place for the care and diagnosis of TB factors.

METHODS

This is a descriptive study with a quantitative approach, developed in Natal/RN, Brazil. The population included all individuals diagnosed with pulmonary TB quantified in 304 people in 2010, through the Information System for Notifiable Diseases (SINAN)[9].

The sample consisted of 60 subjects, number determined by the sample size calculation for finite population[10], with a margin of error of 0.05. The selection of participants was done by convenience and were individuals included were over 18 years old; followed from the second month of treatment of the disease in one unit of health of the health districts of Natal; they were not in the Brazilian prison system; they did not have mental illness and agreed to participate in the research. We did not predict exclusion criteria.

Data collection was conducted between February and September 2012 and implemented through the collaboration of two students of Nursing and a Master's student from the Nursing Graduate Program, properly trained for recruitment and application of the instrument used.

The subjects were identified with the help of nurses, responsible for pulmonary TB health units in Natal. These professionals provided information on the date of the monthly appointments for treatment control of the disease, which would be held at the health unit, or scheduled a home visit with Community Health Agents (CHA).

On the first meeting, one of the collaborators attended the place, date and time scheduled and invited the TB patient to participate and to read and sign the Consent Form (CF). Later, an interview was conducted and they would complete the instrument in a room provided by the health unit, or in an environment of the patient's residence that he felt comfortable to answer the questions.

In cases where the subject agreed to participate, but could not answer the questionnaire in this first meeting, another day was scheduled, and the location and time most convenient for the interview.

The instrument used consisted of closed questions and was developed by the researchers themselves. For its testing, a pre-test with five TB patients in an adjacent municipality to Natal, which were not included in the final sample, in January 2012, was conducted. After some adjustments, we sent the instrument to two PhD nurses with experience in TB studies to assess the content.

For the development of this study, specifically, variables were used such as socio-demographic profile (gender, age, race, marital status, education, employment, family income, dependent on income); place of care and diagnosis of TB and reason for choosing this location; institution usually sought before developing TB; health and some variables related to the health belief model, such as: knowledge and concern about the state of health, previous demand for the service and guidance to search for it, previous contact with the disease and warning of television, community, unit of health, neighbors, friends, colleagues or anyone else that could have the disease.

The project was approved by the Ethics Committee in Research of the Federal University of Rio Grande do Norte (UFRN) - No. 513/2011, No. CAAE 0246.0.051.000-11 and complies with Resolution 196/96 of the National Health Council, which determines the guidelines, regulatory standards and ethical aspects of research involving humans.

The data collected were implemented to an electronic database and analyzed using the Statistical Package for the Social Sciences (SPSS) version 15.0 for Windows. Data were analyzed using descriptive statistics, using means, frequencies, standard deviation and range. In order to evaluate associations between the variables, they were dichotomized and we conducted the Chi-square and Fisher's test, considering a significant association with $p < 0.05$.

RESULTS

Sociodemographic profile

Table 1 shows the sociodemographic profile of patients with pulmonary TB interviewed. It was found that participants were mostly men (55%, n=33), white (41.7%, n=25), married (40%, n=24) had incomplete elementary education (40%, n=24), were employed (33.3%, n=20) and had an income of up to two minimum wages (66.7%, n=34). Regarding the age of the participants, there was an average of 46.32 years (± 18.536; $X_{min} = 18$, $X_{max}=80$).

Table 1 – Sociodemographic profile of patients with pulmonary tuberculosis. Natal/RN, Brazil, 2013.

Variables	n	%
Gender		
Male	33	55
Female	27	45
Ethnicity		
White	25	41.7
Black	15	25
Brown	19	31.6
Yellow	1	1.7
Marital status		
Married	24	40
Single	23	38.3
Widow	5	8.3
Separated	7	11.7
Stable union	1	1.7
Education		
No education	8	13.4
Elementary incomplete	24	40
Elementary Complete	5	8,3
High school incomplete	4	6.7
High school Complete	15	25
College incomplete	2	3.3
College complete	2	3.3
Employment Bond		
Unemployed	12	20
Employed	20	33.3
Independent employee	6	10
House activities	6	10
Student	3	5
Retired	13	21.7
Family income		
< 1 minimum wage*	6	10
1 to 2 minimum wages	34	56.7
3 to 4 minimum wages	12	20
5 to 6 minimum wages	3	5
> 6 minimum wages	5	8.3
Dependent on income		
One person	4	6.7
Two people	10	16.7
Three people	10	16.7
Four people	13	21.7
Five people	11	18.2
Six or more people	12	20

Source: Research data.
*Minimum wage=R$622,00 monthly.

Place of first choice to the care and diagnosis of tuberculosis

Chart 1 shows the prevalence of demand from patients with pulmonary TB for the first place for the care and diagnosis of the disease. It is noteworthy that among the 43.3% who opted for elective services, the demand for health units accounted for 26.7%, and among those who sought emergency services in hospitals accounted for 41.7%.

Reason for place of first choice for the care and diagnosis

Among the reasons for choosing the place of first choice for service and diagnosis of pulmonary TB, the bond with health team was cited by 28.3% of subjects; ease of access to health services by 25%; advice of friends, neighbors, family, co-workers or anyone else, for 16.7%; signs and symptoms by 10%; service guaranteed by 8.3%; search for solving the problem, by 3.3%; and other reasons were mentioned by 8.3% of participants.

Table 2 shows the factors for choosing the first location for service and diagnosis of pulmonary TB mentioned by participants according to health service sought.

Factors related to place of first choice for the care and diagnosis

As shown in Table 2, it appears that previous contact with people with the same signs and symptoms (p=0.040), the frequency with which neighbors, friends, coworkers or others warned them about what could the disease be (p=0.018) and the health service generally sought before developing TB (p=0.002) were factors associated with the choice of care and diagnosis of pulmonary TB.

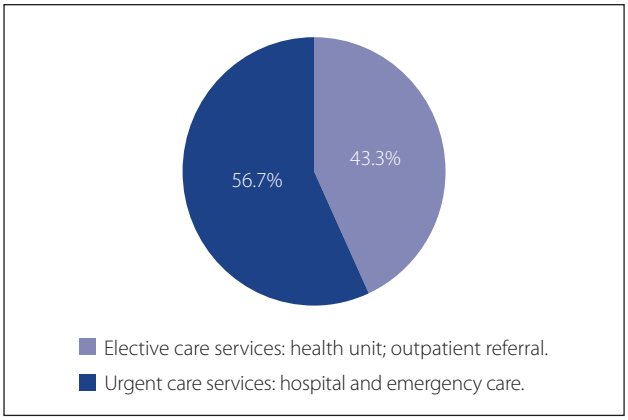

Chart 1 – Demand for first place of choice for service and diagnosis of pulmonary tuberculosis. Natal/RN, Brazil, 2013.
Source: Research data.

DISCUSSION

Considering the large number of diagnoses of TB occurred in hospitals[3-4], the present study, by bringing results that point to factors statistically related to patient demand for this health service, contributes originally and significantly to the advancement of the state of the art of this phenomenon.

Table 2 – Reasons for place of first choice for service and diagnosis of tuberculosis according to the health service sought. Natal/RN, Brazil, 2013.

Reason for place of first choice for the care and diagnosis	First health service searched					
	Elective*		Urgency†		Total	
	n	%	n	%	n	%
Signs and symptoms	0	0	6	100	6	100
Bond with health team	12	70,6	5	29,4	17	100
Advice from friend, family, etc.	5	50	5	50	10	100
Ease of access to health services	6	40	9	60	15	100
Service guaranteed	1	20	4	80	5	100
Other	2	40	3	60	5	100
Search for solving the problem	0	0	2	100	2	100

Source: Research data.
*Elective = Services: health unit, outpatient referral.
†Urgency = Services: hospital and emergency care.

Table 3 – Association between intrinsic and extrinsic factors to the subject with pulmonary tuberculosis and place of first choice for the care and diagnosis of disease. Natal/RN, Brazil, 2013.

Intrinsic and extrinsic factors	First health service searched				p‡
	Elective*		Urgency†		
	n	%	n	%	
Health State					
Impaired	18	43,9	23	56,1	0,896
Not impaired	8	42,1	11	57,9	
Knowledge about the health condition‡‡					
Yes	7	63,6	4	36,4	0,093
No	17	36,2	30	63,8	
Previous contact with people with the same signs and symptoms					
Yes	18	56,3	14	43,8	0,040
No	8	29,6	19	70,4	
Concern for the health state					
Little concern	5	38,5	8	61,5	0,689
High concern	21	44,7	26	55,3	
Importance given to health for life‡‡					
Little importance	3	75	1	25	0,212
High importance	23	41,1	33	58,9	
Frequency of television, community, health facility, or other means warned about what the disease could be‡‡					
Hardly	24	44,4	30	55,6	0,614
Often	2	40	3	60	
Frequency of neighbors, friends, coworkers or other people warn about what the disease could be‡‡					
Hardly	24	52,2	22	47,8	0,018
Often	2	15,4	11	84,6	
Orientation for searching service					
Someone advised	12	37,5	20	62,5	0,330
Searched in their own	14	50	14	50	
Demand for health services chosen as the first place, prior to the current illness					
Yes	20	50	20	50	0,141
No	6	30	14	70	
Health service generally sought before developing tuberculosis‡‡					
Elective health service	24	55,8	19	44,2	0,002
Urgency health service	2	11,8	15	88,2	
Purchasing medicines before seeking					
Yes	9	34,6	17	65,4	0,233
No	17	50	17	50	

Source: Research data.
*Elective = Services: health unit, referral outpatient clinic; †Urgency = Service: hospital and emergency service. ‡In less than five cells, the Fisher test was considered. ‡‡ Variables that used Fisher test.

We highlight in this study, the prevalence of strong social content of the disease that strikes mostly, individuals with low income and education[11], common characteristics to people with this disease in different geographical regions of Brazil, as showed in other studies[12-13].

As found in this investigation, these patients are entering the health system for urgent care institutions, as shown in other studies[3,12,14]. This reality reflects a reversal of the flow of service and diagnosis of pulmonary TB, since it advocates the PHC as the front door to SUS[5,14], as well as suggests the inability of the basic network to identify community needs and caring for them, which causes overcrowding of the emergency room with problems that could be solved in other levels of care[5].

Therefore, investigations of suspected cases of TB may not be limited to individuals who seek health services[15], because it could testify to the late diagnosis of the disease, worsening the condition and overcrowding of service of high complexity. The search actions by SR for health units should be intensified in order to provide early identification of cases of pulmonary TB.

With this purpose, professionals must receive constant training to be prepared to identify them[16], because one of the reasons related to the delay in identification of cases, occur due to inadequate evaluation of suspected individuals or delay in seeking health care for these individuals. With this reality, the passive case finding converges to the late diagnosis of TB, mainly by the lack of managerial planning relating to active search activities[17].

However, a peculiarity concerning the coverage of the Family Health Strategy (FHS) in the city of Natal should be considered: only 31.13% of the population is covered[18]. Despite not having been the focus of this study, it is believed that this characteristic may also be influencing the choice of the emergency services as the first place of choice for the diagnosis of pulmonary TB, since most of the population is not enrolled in the area and therefore when they need health care, must go to these services, as they do not have the PHC institutions near the residence which allow access to care.

Another study suggests that the choice for the emergency services is guided by previous experiences with some health and cultural aspects. In addition, it states that many patients believe that these places have greater infrastructure to diagnose and treat health problems and therefore, people rely more on these services[19].

In this study, the reasons for choosing hospitals and emergency care corroborates the hypothesis that patients who present signs and symptoms require more intensive care and often are hospitalized due to health state[4]. And, moreover, we emphasize the persistence of cultural values still linked to curative and hospital-centered models, motivating patients to seek these services for the solution of their health problem[6].

This situation relates to a culture in which health units are seen as places for health promotion and disease prevention, rather than institutions capable of resolving and ensuring compliance of greater complexity when it is necessary[5]. Thus, data related to the delayed diagnosis of TB in people seeking first place of choice for treatment of the disease is PHC units[14], corroborating to the perpetuation of that thought.

Therefore, it is believed that in order to overcome this cultural conception and consequent prioritization of choice for primary care services, health units need to promote users' access to care and to solving their problems from the first choice for the service.

But for this, the primary care team, as well as municipal managers must develop strategies that promote the overcoming of geographical, structural, organizational and operational difficulties, to allow users access to entry in the health service by offering service and thus fortify the view that these sites are able to be resolute.

Despite all these aspects, some variables from the Health Belief Model, such as a previous contact with the disease, external trigger factors and alert people nearby about what could be the disease[8], besides the health service generally sought before having TB, which showed statistically significant association with the use of health services chosen priority when people are sick with TB.

Among these variables, the alert of people is an external trigger factor[8], and previous contact with the disease a structural variable, both modifying health behavior, that with regard to TB, correspond to important factors for the decision on the choice of health service sought. This is because the individual that may have an infectious disease and thus influence decision and searching for leading institutions in the diagnosis and/or treatment of disease, as well as stimulate the practice of an attitude towards the health problem presented.

In addition, the institution generally chosen by the individual, who is showing any health problems, was also associated with choosing the front door to the care and diagnosis of pulmonary TB. In this context, it is assumed that health services, which attend these people favor the creation of a bond between health professionals and patients, who, in other clinical situations, are predisposed to a new search for these services, both for credibility and satisfaction with care as the confidence the health unit will solve their problem.

For the creation of this bond, the existence of a health professional who people may always refer when they have a problem (biological or not) is essential. The service by the same professional signed in support, understanding, communicating and listening predisposes the establishment of a bond between the patient and the team[20].

Guided by these considerations, the variable related to the health service usually sought before developing TB can be worked by professionals in the PHC, the prospect of strengthening the bond with the community, seeking to provide the search for that place in situations of emergence of a new health problem.

CONCLUSION

Previous contact with the disease warn people about what could be the disease and the health service sought before developing TB are factors which are statistically related to the place of first choice for the care and diagnosis of disease. This suggests intrinsic and extrinsic factors to the individual with TB may influence the choice of location for the diagnosis.

Perception of barriers is a variable that may be related to the decision of an individual to healthy behavior unanalyzed and therefore constitutes a limitation of the study. It is suggested that further studies are developed in order to complement the information produced in the current investigation.

Finally, it is understood that the study contributes to scientific knowledge about the health behavior on TB patients, in that it describes a trend in demand for diagnostic service and describes factors related to this behavior. We hope these data can be used by PHC professionals, especially nurses, to create supportive and educational strategies that provide change of flow in the demand of patients for urgent care to the diagnosis services of TB.

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