ADHERENCE THERAPEUTIC TO THE TREATMENT OF TUBERCULOSIS IN A MUNICIPALITY OF THE SÃO PAULO STATE[1]

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ABSTRACT

The aim of this study was to identify and analyze factors associated with adherence therapeutic of tuberculosis in Ribeirão Preto - SP. The study population consisted of tuberculosis patients in treatment for three months or more, in the period 2011 to 2012. It was interviewed a sample of 127 patients, a total of 204, using a structured form into four blocks: Sociodemographic data, clinical and organization of assistance for patients in treatment; Measure of Adherence to Treatment of the Tuberculosis; Knowledge of patients about the disease and treatment; Bond with the healthcare staff. Data analysis was performed Cluster Analysis and Multiple Correspondence Analysis. Two groups of analysis were constructed whose standardized mean allowed the classification of group 2 as satisfactory and involved 67 (52.8%) respondents, consisting of young adults with employment, default TB/HIV coinfection, higher frequency of the Directly Observed Treatment in home, bond with the healthcare staff and knowledge about the disease. The level of education, sex and clinical presentation were not aspects that determined membership. Highlights the importance of knowing the profile of TB patients associated with adherence therapeutic, since they could guide the offer actions and incentives.

Keywords: Tuberculosis. Medication Adherence. Knowledge. Professional-Patient Relations.

INTRODUCTION

Tuberculosis (TB), despite being an infectious disease curable if treated properly, still represents a global health problem whose size continues to grow[1].

In Brazil, although the Ministry of Health (MS) consider the TB control as a priority of the three spheres of Government, the country occupied, between 2010 and 2011, the 19th place among the 22 countries responsible for 80% of the global burden of TB. In this period, the incidence was estimated 83.000 cases, with coefficient of 36 cases per 100.000 inhabitants, and disease control goals set by the World Health Organization (WHO) were not affected, showing in 2011 low cure rate (74.9%) and high drop-out rate (11.8%)[1].

In Ribeirão Preto, a municipality selected for this study and considered as a priority to the control of the disease in the country before the number of cases of TB and high rate of TB/HIV co-infection, in 2011, 176 new cases were reported of the disease, with 28 cases per 100.000 inhabitants. In relation to the outcome of treatment, showed high rate of death (14.8%) and low cure rate (79%). Such results could be caused by the TB/HIV co-infection (20.3%) or non-adherence to treatment, even the municipality showing 5.7% drop-out rate[2].

Despite the literature[3-8] present numerous scientific articles with different approaches on

the adherence, there is a need for studies that show specific issues regarding the profile of patients who join or leave the treatment. Thus, it is important that health professionals pay attention to the characteristics of individuals, not restricting only the clinical aspects, since the control of TB is permeated by challenges to ensure adherence to treatment.

Means membership as a dynamic process and multifactorial, influenced by individual and external factors[9], with decisions shared among health service and user, to the extent that it is considered this autonomy in decision-making, and its responsibility for the follow-up to your treatment[3-5].

It is acknowledged that adherence is favored by the confidence of users in health services; by integrating these with other assistance levels; emotional and social support of the multidisciplinary team, family and community; by sharing information; for effective interventions to health of the population including a look not just specific treatments, but guided by a model of appropriate attention to the chronic condition, such as TB[3,5,8].

In this study was defined therapeutic adherence "*as the degree of correlation between the recommendations from health care providers and the person's behavior with regard to the treatment regimen proposed*"[10]. Means the adherence, as a comprehensive and complex concept to the extent that we consider the therapeutic recommendations, sociodemographic and clinical profile, and the aspects of the organization of the health service, as well as the link between patient and healthcare professional.

Justify the study of therapeutic adherence, since it sought from the beginning to the end of treatment, because the completion of incomplete or irregular mode can affect the prognosis of the disease, bringing negative implications both for public health and for the individual, in addition to compromising the same control[11], since it increases the transmission of the bacillus, the drug resistance and relapse cases.

Considering the epidemiological situation of TB and the importance of adherence to treatment for the control of the same, this study from the dissertation entitled "adherence to TB treatment: patient knowledge and ties to the health service"[12], aimed to identify and analyses aspects associated

with the adherence of TB therapy in the city of Ribeirão Preto – SP.

METHODOLOGY

Descriptive, cross-sectional epidemiological study conducted in Ribeirão Preto, located in the northeastern region of the State of São Paulo, with a population of around 619.746 inhabitants for the year 2012. Attention to patients of TB occurred in four specialized services, distributed in four health districts with specialized teams for the treatment of the disease, with the rear of the tertiary level for cases requiring hospitalization, highlighting the cases of TB/HIV co-infection.

The study population consisted of TB patients in treatment for three months or more in the period of September 2011 and September 2012 in Ribeirão Preto city. Excluded: under 18 years, undergoing treatment in the prison system and/or another municipality, and with limits on the understanding of the issues.

In this period of 204 patients in treatment, were considered to interview 127 individuals, since 29 were excluded from the study in accordance with the criteria established in advance, 26 have not been located, 17 refused (and of these, six patients were institutionalized) and five had been interviewed at the pilot test. Such a test has been undertaken for training of interviewers.

The data collection instrument understood a form, divided into four blocks:

Block A – Social demographics and clinical data, and characterization of organization of assistance to TB patients in treatment - comprising 16 questions with answers dichotomous scales and multiple choice. The sociodemographic and clinical profile included, sex, age, education, employment status, clinical form of TB, case type, other associated diseases. The organization of assistance variables were: unit that has initiated and performs the treatment of TB, how often and where you take TB drugs, person who observes the food intake of the medication, how often and at what hours are observed; opening hours of the patient's preference for the food intake of the medication and incentives it receives from the TB program.

Block B – Measure of Adherence to TB Treatment based on a multidimensional concept of adhesion of the WHO, considering the aspects

related to the patient, treatment and health system[9], as well as from manuals proposed by MS[13], articles and previous studies that address the most important aspects for adherence[4,5,7,8]. Such block comprised 16 variables, with nine-point scale, with a variation of 0 = never to always = 8, and zero the worst response to adhesion and eight best (Table 1).

Block C – TB patients' knowledge about the disease and treatment built from *guidelines* [14] and previous studies[15], with answers dichotomous scales and four multiple-choice questions. Recognizing that despite the existence of different kinds of knowledge, this study was limited to working with the cognitive (Table 1).

Table 1. Related variables to measure of adherence to drug treatment of tuberculosis, the patient's knowledge about the disease and treatment, and the link with the health staff.

Blocks	Variables
B-measure of adherence to drug treatment of tuberculosis	Knowledge of tuberculosis;
	Knowledge about the treatment of tuberculosis;
	Search for information about tuberculosis in books and/or the internet;
	Patient involvement in decisions about your treatment;
	Attendance at scheduled appointments;
	Use of medication as the guidelines of health professionals;
	Avoid stop taking the medication for tuberculosis;
	Search for a health service when you have questions about my treatment;
	Can you identify the improvement or worsening of my symptoms during treatment;
	You know what to do if my symptoms worsen;
	Can devote some time to the care of his health;
	Avoid consuming cigarettes;
	Avoid drinking alcohol;
	Encourages family members to search for the health service to perform tests for tuberculosis;
	Seeking support to continue the treatment of tuberculosis;
	Seeks to participate in a support group;
C – the patient of tuberculosis Knowledge about the disease and treatment	Knowledge of tuberculosis transmission from one person to another;
	Cure of tuberculosis;
	Knowledge about the treatment time;
	Interest in get information out of the health service;
D-link between the sick with Tuberculosis and health team	Professional reference when you have a problem related to your treatment;
	Consultation with the same health care professional;
	Understanding by health professionals when the patient speaks to their problems and/or have any complaint;
	Time for the patient expose their doubts and concerns during medical consultations;
	Directly observed treatment carried out by the same health care professional;
	Time for the patient expose their doubts and concerns during the directly observed Treatment;
	Willingness to perform the monitoring of their illness in another health facility;
	Acceptance by health professionals during the directly observed Treatment;
	Search for health service when you have questions about treatment;
	Search for help if the symptoms got worse.

Block D – Link between from TB patients and the health staff, based in *Primary Care Assessment Tool* (PCAT)[16], validated in Brazil[17] and adapted to evaluate the attention to TB in Brazil[18]. Such block contained ten questions (Table 1) with rating scales varied as dichotomous, multiple choice with single and sum (Likert scale). The Likert scale, the values

of 1 to 5 recorded the degree of agreement of relationship, being the worst answer to 1 link and 5 the best.

For data collection, some information from the Block A, as *clinical form, type of case* and *other associated diseases* were collected from secondary sources of data available in the Information System TB-WEB (online, via internet, for notification of TB cases, unique in the State of São Paulo) and the rest of the blocks and data were collected through interviews with TB patients after guide them on the objectives of the study, the confidentiality of interviews, and requested the signature on informed consent.

After collecting the data, they were typed, stored and analyzed through the statistical program, version 10.0 of Statsoft.

Initially, with the variables of block B, Cluster Analysis was carried out by non-hierarchical (*k-means*) to associate similar individuals as to adherence to treatment, so that to obtain a minimum number of groups (Satisfactory Adhesion and Unsatisfactory Adhesion). Later, the Multiple Correspondence Analysis (MCA) to verify the association between groups of adherence to the treatment of TB (formed in Cluster Analysis) with the other variables of the study (sociodemographic and clinical profile variables, and characterization of the organization of assistance to patients of TB – block A, as well as the knowledge of TB patients – block C and the link with the health staff – block D).

During the MCA, we chose to exclude from the analysis the variables "case type", "treatment on the same healthcare that began", "receiving incentive", "knowledge of the TB cure"; "enough time to talk about your questions and concerns during the consultation", "willingness to carry out the monitoring of the disease in another health facility", and "feeling of acceptance by health professionals during the Directly Observed Treatment (DOT)" by the case of variables with categories that have very unbalanced frequency, i.e. a category with very high frequency (above 90%) and other categories with very low frequency because the

contribution of a category for the construction of axes or dimensions in MCA is inversely proportional to its frequency, so that variables with categories with frequencies very unbalanced may cause distortions in the factorial plan. Were also excluded variables "clinical form", "diseases associated" and "sex" that presented low contribution to inertia (variability) of the factorial plan.

The project was approved by the Ethics Committee Research of the Ribeirão Preto School of Nursing – University of São Paulo, 1264/2011 Protocol.

RESULTS AND DISCUSSION

From the Cluster Analysis by the non-hierarchical, formed two groups whose standard averages of variables of patients ' adherence to TB treatment are presented in Figure 1. By these means, the Group 2 was rated as satisfactory and involved 67 (52.8%) respondents.

The groups showed statistically significant difference between the average variance analysis, except in three variables. They are: "food intake of the medication of TB according to the guidelines of health professionals" ($p = 0.052$), "identification of improvement or worsening of symptoms during treatment" ($p = 0.170$) and "participation of any group activity, whether in the health service or in the community" ($p = 0.930$).

In Figure 2, the variability of the data was explained by 10.63% in dimension 1, and 8.74% in dimension 2. It was observed in Group 2, Satisfactory Adhesion, association with young adults (between 18 to 39 years), with employment (employed or self-employed), not TB/HIV coinfection, received DOT at home from 3 to 5 times a week, the patient felt understood by professionals, had a professional reference, with enough time to answer and resolve possible questions, as the transmissibility of the disease and treatment time looking for information on the health service was the treatment of TB. While in Group 1 (Unsatisfactory Adhesion) showed association with adults (over 40 years), without employment activity (retired, unemployed, from home), TB/HIV coinfection and received DOT from 1 to 2 times a week.

Patients associated with variables that distanced themselves from groups 1 and 2, in factorial plan, had higher level of instruction (upper middle-level education), took the medicine in the health service, with greater time spacing (1 to 2 times a week or month), with supervision of food intake of medicine

carried out by family members or under the auto administered scheme, sought for information outside the health service (such as the internet and books), however such searches did not seem to meet the knowledge deficit, once these patients did not have knowledge about the disease and treatment time.

Figure 1. Distribution of the standardized variable averages the accession of tuberculosis patients in each group by cluster analysis by the non-hierarchical method.
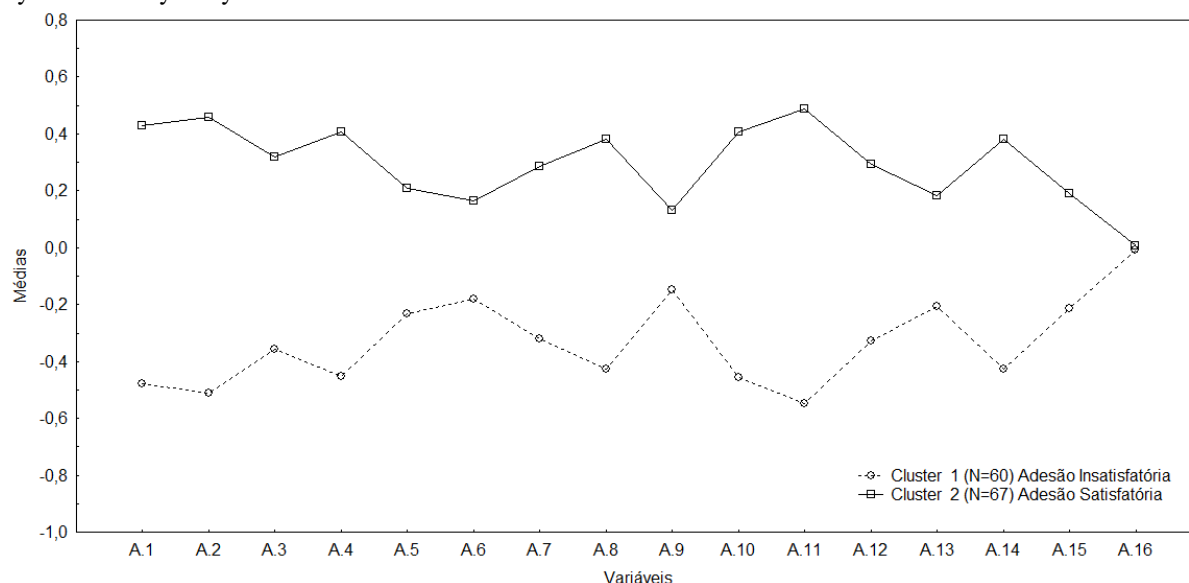
Caption: A.1 knowledge of tuberculosis; A.2 Knowledge on the treatment of tuberculosis; A.3 Search information on tuberculosis in books and/or the internet; A.4 Participation of sick in decisions about your treatment; A.5 Attendance at consultations; A.6 Makes use of drugs as the guidelines of health professionals; A.7 Prevents stop taking the medication for tuberculosis; A.8 search for a health service when you have questions about my treatment; A.9 Can you identify the improvement or worsening of my symptoms during treatment; A.10 Know what to do if my symptoms worsen; A.11 Can devote some time to the care of his health; A.12 Avoids consuming cigarettes; A.13 Avoids drinking alcohol; A.14 Encourages the family to search for the health service to perform tests for tuberculosis; A.15 Support to continue the Search treatment of tuberculosis; A.16 Search attend a support group.

The variables not analyzed by the MCA for the low quality of responses showed that TB patients were mostly male (62.2%), with predominance of the lung clinical form (83.5%), while 54.3% did not present co-morbidities, and of these 22% were TB/HIV coinfection. In other words, these aspects were not associated with the groups in this study, although they are consistent with the literature regarding the profile of TB cases[5,6,8,11].

For this study, the level of education, sex and clinical form are not aspects that determined the therapeutic adherence. In addition, it appeared more likely to not therapeutic adhesion among coinfected patients with HIV, which occurs due to the

high amount of medicine to ingest, drug interactions and adverse reactions[19].

As well as in another study[19], the lack of employment is a determinant for non-therapeutic adherence. It is believed that the work helps in recovery and continuity of treatment, since the patient doesn't want to lose the link with the same.

Several studies[5,6,11] show that young adults are more prone to failure TB treatment when compared with the older population. However, this study found the opposite, being therapeutic adherence of these young adults justified by the greater frequency of the DOT by health professionals.

In the municipality of study some aspects are potential components to ensure therapeutic

adherence and the continuity of the TB treatment, such as the completion of DOT and the smears control at home, followed by fixed and trained staff who work in specialized services, such as the TB Control Program (TCP). In addition, social service support is offered, with provision of incentives such as a liter of milk a week, a food basket by month and transportation to doctor's appointments. At the same time, the ease of TB patients to contact the health staff via phone or calling into the service even without prior scheduling for further information and in case of complications.

Figure 2. Factorial Plan between variables and groups, in the city of Ribeirão Preto, 2012.
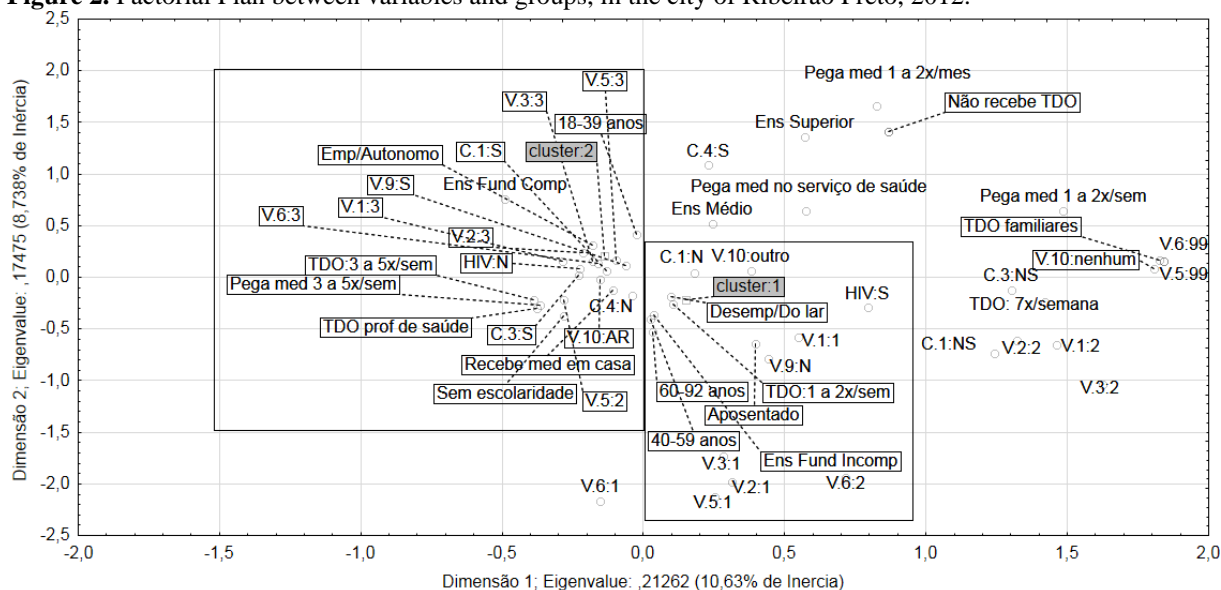
Caption: C.1 Knowledge about tuberculosis transmission from one person to another; C.3 Knowledge of the treatment time; C.4 Interest on seek information outside the health service; V.1 Professional reference you're looking for when you have a problem related to your treatment; V.2 Frequency by which the patient of tuberculosis is serviced by the same healthcare provider during medical consultations; V.3 frequency with which TB patient feel understood by health professionals when you talk about your problems or you have a complaint; V.5 Frequency with which is attended by health professionals during the directly observed treatment; V.6 Frequency with which the time available to directly observed treatment is enough to talk about questions and concerns; V.9 Search for the health service when you have questions about your treatment; V.10 Place would seek help if the symptoms got worse. Categories: 1-Never/almost never; 2-sometimes; 3-always/almost always; N-No; Y-Yes; NS-don't know.

The interpersonal relationship developed during the DOT at home becomes a facilitator for adherence, since it is possible that there are strengthening the link between patient-health staff, once demand closer to reality/social context allowing the establishment of priorities and strategies for an integrated approach and singular, with listening, dialogue and respect, manifested in attitudes based on careful, trust and familiarity, making him feel safe and supportive health care[8, 20].

In this sense, the patient goes on to understand the importance of treatment, recognizing that the health professional is an ally in the pursuit of their well-being, trust and follow the guidelines made in the pursuit of knowledge about the disease, solutions of problems and in the improvement of services, which are so essential about the supervision of drug intake[6].

Another important aspect found refers to patients, whose variables to distance themselves from groups formed, that despite performing a level of education higher than everybody else, had a deficit of knowledge about the transferability and treatment time, which can interfere directly on continuity of treatment, since it could not recognize the severity of the disease and the importance of healing and may discontinue treatment on improvement of symptoms and do not perform continuously[3,7].

One of the aspects that present themselves as challenges for health services include the

TB patients profile, as the low schooling, reside in areas of social risk or on the street, be drug and alcohol user, as observed during the data collection. For the patient, the difficulty of the link with health professionals refers to the distance of the service in relation to your residence, once the service is performed in district units. In the period of this study, some units had a deficit within the framework of human resources and the treatment was directed to other units.

Therefore, the adherence of TB therapy showed the importance of trust between users and health staff, with sharing of knowledge and information between them should be considered as a priority in health services, mainly in attendance to chronic conditions, such as TB, whose impact is high and requires a model of attention appropriate to meet the needs of the population in its entirety, since most features comorbidities, reaches socially disadvantaged individuals and involves a long treatment (even in the absence of symptoms) usually with side effects.

As limitations of this study, the not location of the TB patients considered vulnerable (mostly the homeless) and/or who were under hospitalization in another municipality (drug users), which could point out essential aspects and determinants of non-adherence of TB therapy because of the specifics presented these cases.

CONCLUSIONS

The results show the importance of knowing aspects (profile of patients) associated with the adherence of TB therapy (adulthood, largest of 40 years, without employment, link with the health service), that could guide the DOT offer, systematic guidance on disease and treatment, incentives program and examinations, providing better organization of assistance to TB patients, favoring therapeutic adherence.

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COLLABORATION

Orfão devised, analyzed and interpreted the data. Andrade, Beraldo, Brunello, Scatena and Villa contributed in writing the article and critical review of the intellectual content. All authors approved the final version to be published.

ADESÃO TERAPÊUTICA AO TRATAMENTO DA TUBERCULOSE EM UM MUNICÍPIO DO ESTADO DE SÃO PAULO

RESUMO

O objetivo deste estudo foi identificar e analisar os aspectos associados à adesão terapêutica da tuberculose no município de Ribeirão Preto – SP. A população do estudo foi constituída por doentes de tuberculose em tratamento, há três meses ou mais, no período de 2011 a 2012. Foi entrevistada uma amostra de 127 pacientes, de um total de 204, utilizando-se um formulário estruturado em quatro blocos: Dados sociodemográficos, clínicos e de organização da assistência aos doentes em tratamento; Medida de Adesão ao Tratamento da Tuberculose; Conhecimento dos doentes sobre a doença e tratamento; Vínculo com a equipe de saúde. Para análise dos dados realizou-se Análise de Agrupamento e Análise de Correspondência Múltipla. Foram construídos dois grupos de análise cujas médias padronizadas permitiram a classificação do grupo 2 como satisfatório e envolveu 67 (52,8%) entrevistados, constituídos por adultos jovens, com vínculo empregatício, ausência de coinfecção TB/HIV, maior frequência de Tratamento Diretamente Observado no domicílio, vínculo com a equipe de saúde e conhecimento sobre a doença. Nível de escolaridade, sexo e forma clínica não foram aspectos que determinaram a adesão. Destaca-se a importância de conhecer o perfil dos doentes associados à adesão terapêutica, uma vez que poderiam nortear a oferta de ações e incentivos.

Palavras-chave: Tuberculose. Adesão à Medicação. Conhecimento. Relações Profissional-Paciente.

ADHESIÓN TERAPÉUTICA AL TRATAMIENTO DE LA TUBERCULOSIS EN UN MUNICIPIO DEL ESTADO DE SÃO PAULO

RESUMEN

El objetivo de este estudio fue identificar y analizar los aspectos asociados a la adhesión terapéutica de la tuberculosis en el município de Ribeirão Preto – SP. La población del estudio fue constituida por enfermos de tuberculosis en tratamiento, durante tres meses o más, en el período de 2011 a 2012. Fue entrevistada una muestra de 127 pacientes, de un total de 204, utilizándose un formulario estructurado en cuatro bloques: Datos sociodemográficos, clínicos y de organización de la atención a los enfermos en tratamiento; Medida de Adhesión al Tratamiento de la Tuberculosis; Conocimiento por parte de los enfermos sobre la enfermedad y el tratamiento; Vínculo con el equipo de salud. Para el análisis de los datos se realizó el Análisis de Agrupamiento y el Análisis de Correspondencia Múltiple. Fueron construidos dos grupos de análisis cuyas medias estandarizadas permitieron la clasificación del grupo 2 como satisfactorio y involucró a 67 (52,8%) entrevistados, constituidos por adultos jóvenes, con vínculo laboral, ausencia de coinfección TB/VIH, mayor frecuencia de Tratamiento Directamente Observado en el domicilio, vínculo con el equipo de salud y conocimiento sobre la enfermedad. El nivel de escolaridad, sexo y forma clínica no fueron aspectos que determinaron la adhesión. Se destaca la importancia de conocer el perfil de los enfermos asociados a la adhesión terapéutica, una vez que podrían basar la oferta de acciones y incentivos.

Palabras clave: Tuberculosis. Adhesión a la Medicación. Conocimiento. Relaciones Profesional-Paciente.

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