

## Original Article

## Knowledge of the Companions of Tuberculosis Patients Hospitalized in The Pneumology Department of The Hassan II Hospital Agadir About the Disease

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## Abstract

**Background:** Tuberculosis is a major public health problem worldwide, and in Morocco, it is the leading cause of hospitalization in the Pneumology department. Hospitalized patients are often accompanied by family members who primarily act as caregivers. This study aimed to describe the knowledge related to the disease among the companions of tuberculosis patients hospitalized in the pneumology department of Hassan II Hospital in Agadir, Morocco.

**Methodology:** We conducted a cross-sectional observational study with the objective of evaluating the knowledge of the companions of tuberculosis patients.

**Results:** One hundred companions participated in this study, with an average age of 33.8 +/- 10.1. The male-to-female sex ratio was 1.5. More than half of our participants had a low socio-economic level, and over a third were illiterate. Knowledge was assessed through questions related to the disease. Results showed that 82.0% of participants declared that they were aware of the disease called "tuberculosis," and 46.0% knew about its infectious origin. Almost all of them were aware of the contagious nature of the disease and its airborne transmission. Schooling was found to be associated with knowledge of the disease, its infectious nature, contagiousness, and free treatment. The associations were statistically significant with p-values of <0.001, 0.004, <0.001, and 0.002, respectively.

**Conclusion:** The low level of schooling appears to be a hindrance to TB education. This observation could explain the very poor level of knowledge found in our study, despite the efforts made by various programs.

**Keywords:** Knowledge; Tuberculosis; Companions; Morocco.

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Quick Response Code:



## Introduction

Tuberculosis is an infectious and contagious disease caused by *Mycobacterium tuberculosis*. This disease is significant global public health issue affecting all countries and age groups. <sup>(1)</sup>

In Morocco, despite the free therapeutic care provided to patients and the widespread coverage of the Calmette-Guérin (BCG) vaccine, tuberculosis remains an endemic disease. In 2020, the number of recorded cases reached 29,018, encompassing all forms of the disease <sup>(2)</sup>. To combat tuberculosis, Morocco has implemented the DOTS (Directly Observed Treatment Short Course) strategy, which necessitates the involvement of relatives, caregivers, families, and friends as treatment supporters <sup>(2)</sup>.

Several studies have examined the knowledge level of this community regarding tuberculosis. These studies have demonstrated a positive correlation between the community's knowledge about tuberculosis and the utilization of early diagnosis and treatment, which are fundamental aspects of the DOTS strategy <sup>(3,4)</sup>. However, no national-level study has been conducted on this topic.

To gain a better understanding of these issues, this study aimed to describe the knowledge of tuberculosis (including its nature, symptoms, and treatment) among companions of tuberculosis patients receiving treatment in the pneumology department of Hassan II Hospital in Agadir. Furthermore, the study aimed to identify factors associated with this knowledge.

## Materials and Methods

We conducted a cross-sectional observational study at the pneumology department of Hassan II Hospital in Agadir from September 2019 to January 2020. The study included companions of patients aged 18 and above who were hospitalized in the pneumology department and provided their consent. Health professionals acting as companions were excluded from the study. The sampling method used was non-probabilistic convenience sampling.

Data collection was performed using a pre-established, hetero-administered questionnaire developed based on a literature review. The questionnaire gathered socio-demographic information of the participants, including sex, age, level of education, and socio-economic status. The second part of the questionnaire focused on the participants' knowledge of tuberculosis, covering aspects such as the nature of the disease, mode of transmission, contagiousness, suggestive symptoms, mortality, curability, and availability of free treatment.

The collected data were entered into Excel software and analyzed using SPSS software. Qualitative variables were presented as numbers and percentages, while quantitative variables were presented as means and standard deviations. Bivariate analysis was conducted using the chi-square test or Fisher's exact test to compare percentages between groups. The significance level was set at 0.05.

Oral consent was obtained from the participants after providing a clear explanation of the study process, its objectives, and its relevance. Each participant indicated their consent by providing their fingerprint on the questionnaire.

## Results

### Sociodemographic characteristics:

One hundred participated in this study, the average age was 33.8 +/- 10.1, the male/female sex ratio was 1.5, more than half of our participants have a low socio-economic level and more than a third was illiterate.

**Table 1:** Socio-demographic characteristics of those accompanying patients with tuberculosis

Variables		Participants (N=100)	
		Effectives(n)	Percentages (%)
Sex	Men	60	60.0
	Women	40	40.0
socio-economic level	Low	56	56.0
	Medium	27	27.0
	High	17	17.0
Educational level	Illiterate	46	46.0
	Primary	14	14.0
	Secondary	30	30.0
	University	10	10.0
Average age ± Standard deviation		33.83±10.18	

**Knowledge about tuberculosis**

Knowledge was assessed by questions relating to the disease, 82.0% of our participants declare that they know the disease called "tuberculosis" and 46.0 % know the infectious origin of the disease, almost all of them know the contagious nature of the disease and its airborne transmission. The knowledge was evaluated by questions relating to the disease.

**Table 2:** Participants' knowledge of tuberculosis

	Participants (N=100)	
	Effectives (n)	Pourcentages (%)
Knowledge of the disease called "tuberculosis"		
– Yes	82	82.0
– No	18	18.0
Nature of disease		
– Infectious disease	43	43.0
– Tumor	12	12.0
– System disease	13	13.0
– Cold	29	29.0
– Juggling (spiritual disease)	3	3.0
Tuberculosis is a contagious disease		
– Yes	80	80.0
– No	20	20.0

Mode of transmission		
– Air	80	80.0
– Sexual	11	11.0
– Direct contact	9	9.0
– Blood	15	15.0
Site organ of tuberculosis		
– Heart	5	5.0
– Lung	77	77.0
– Brain	3	3.0
– Kidney	4	4.0
– Bone	11	11.0
– Other	21	21.0
Tuberculosis symptom		
– Cough	88	88.0
– Fever	43	43.0
– Night sweat	7	7.0
– Weight loss	47	47.0
– Hemoptysis	17	17.0
– Chest pain	49	49.0
Existence of a TBK/HIV relationship		
– Yes	7	7.0
– No	93	93.0
Existence of tuberculosis treatment		
– Yes	72	72.0
– Non	28	28.0
Free treatment		
– Yes	12	12.0
– No	60	60.0
Duration of treatment		
– Less than a month	66	66.0
– More than a month	5	5.0
Tuberculosis is a curable disease		
– Yes	71	71.0
– No	29	29.0
Tuberculosis is a deadly disease		
– Yes	83	83.0
– No	17	17.0
Tuberculosis can be prevented		
– Yes	57	57.0
– No	43	43.0

### Factors associated with knowledge of the disease.

Regarding the factors associated with the disease, Level of Education is associated with knowledge of the disease, its infectious nature, its contagiousness and free treatment and the association was significant with degrees of significance respectively of <0.001, 0.004, <0.001 et 0.002.

**Table 3:** Factors associated with knowledge of tuberculosis.

Knowledge of participants about tuberculosis	Participants (N=100)								
	Sex		p	socio-économic level		p	Schooling		p
	men	women		low	Medium/high		illiterate	educated	
Knowledge of the disease called tuberculosis	85.0	77.5	0.33	78.6	86.4	0.31	60.9	100	<0.001
Nature of disease	46.7	45.0	0.87	42.9	50.0	0.47	30.4	59.3	0.004
the contagiousness of the disease	76.7	85.0	0.30	76.8	84.1	0.36	65.2	92.6	<0.001
Mode of Transmission	83.3	75.0	0.30	82.1	77.3	0.54	80.4	79.6	0.92
morbidity of the disease	86.7	92.5	0.51	89.3	88.6	1.00	89.1	88.9	0.96
curability of the disease	68.3	77.5	0.31	75.0	68.2	0.45	73.9	70.4	0.69
freetreatment	35.0	37.5	0.79	32.1	40.9	0.36	19.6	50.0	0.002

## Discussion

In the present study, 82% of the respondents were already familiar with tuberculosis, which aligns with findings from similar research conducted in Malaysia, Nigeria, and India<sup>(5,6,7)</sup>. Furthermore, 80% of the participants were aware that tuberculosis is contagious, a finding consistent with other studies<sup>(7,8,9)</sup>. A significant majority of the surveyed individuals (80%) correctly identified the mode of transmission of tuberculosis, recognizing that it can be transmitted through the air. Similar observations were reported by Garcia PJ et al. in Peru, where 97.8% of the subjects knew that tuberculosis is primarily transmitted through coughing<sup>(10)</sup>, in contrast to 59.3% in East Ethiopia in 2013<sup>(11)</sup>. However, it is worth noting that some respondents mentioned incorrect modes of transmission such as sexual transmission, direct contact, or blood transmission. This knowledge gap is also reported in several other studies<sup>(5,8,9)</sup>.

The participants' knowledge regarding the signs of tuberculosis was found to be moderate. The majority of respondents demonstrated awareness of the common symptoms of tuberculosis, including cough (88%), persistent fever (43%), and weight loss (47%). These findings are consistent with similar studies conducted in Conakry<sup>(3)</sup>, Brazil<sup>(12)</sup>, and Tanzania<sup>(13)</sup>. This can be attributed to the role of the national tuberculosis control program in our country, which emphasizes the importance of consulting a doctor for a persistent cough lasting more than three weeks to screen for tuberculosis. As a result, chronic cough has become firmly entrenched in people's minds as the primary symptom of tuberculosis.

On the other hand, the respondents in our study showed good awareness of the existence of treatment for tuberculosis (72%), although only 12% were aware that it is provided free of charge. These findings align with similar studies<sup>(14)</sup>. Furthermore, only 5% of the participants knew the duration of tuberculosis treatment, which typically lasts for six months or longer. Our figures are lower compared to those reported in Pakistan, Mali, and Tanzania. This finding helps explain why many tuberculosis patients prematurely discontinue their treatment once they start feeling better, failing to complete the full course of medication<sup>(3,4)</sup>. Additionally, during our study, we observed that only 47% of the respondents believed that tuberculosis can be prevented, which is lower than what has been reported in the literature<sup>(3,4,14)</sup>.

In our study, a statistically significant relationship was found between the participants' level of education and their knowledge of the disease, its nature, contagiousness, and the availability of free treatment, as

Aitnasser K, et al - Knowledge of Tuberculosis among Patient Companions compared to those with no formal education. These results are consistent with studies conducted by Das R et al<sup>(15)</sup>, Rami K et al<sup>(16)</sup>, Sharma N et al<sup>(17)</sup>, and Obuku EA et al<sup>(18)</sup>, which demonstrated that literacy plays a crucial role in determining the overall level of knowledge about tuberculosis. Our survey indicates that the level of education was the primary factor associated with knowledge of the disease among our respondents. According to Luba TR et al<sup>(19)</sup>, higher levels of education increase the likelihood of individuals being knowledgeable about the cause, transmission, symptoms, risk factors, treatment, and prevention of tuberculosis. Moreover, studies conducted in Vietnam<sup>(20)</sup>, Mexico<sup>(21)</sup>, and Colombia<sup>(22)</sup> have shown that individuals' inclination to seek treatment and undergo screening depends on their knowledge and perception of the risk associated with tuberculosis.

The results of our study should be interpreted with certain limitations in mind. The sample of respondents was derived from a single district in southern Morocco, thus limiting the generalizability of the findings to larger populations. Additionally, we encountered language difficulties, necessitating the translation of the questionnaire from French into local languages. This translation process, along with the interpretations provided by a translator for the participants' responses, may have introduced inaccuracies or alterations in meaning. To mitigate this potential issue, we conducted a preliminary survey using a small sample to test the questionnaire's validity before commencing the main study.

### Conclusion

The low level of education can hinder tuberculosis education efforts. This finding may help explain the very limited knowledge observed in our study, despite the various programs implemented to raise awareness. Community sensitization campaigns have the potential to greatly reduce delays in diagnosis and treatment, as well as the transmission of tuberculosis.

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### Conflicts of interest

There are no conflicts of interest.

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