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## Delay for Treatment and Associated Factors among Tuberculosis Patients in Jimma Town, Ethiopia



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### ABSTRACT

**Background:** Delay in Tuberculosis (TB) case detection and treatment may worsen the prognosis of the disease and spread of infection. The detection of a TB case in the country is through whereby people with symptoms are expected to go to health facilities for further investigation. Therefore, it is important to determine the factors responsible for the delay in seeking care in order to develop strategies to address them. **Objectives:** The objective of this study is to assess socio-cultural factors associated with patient delay in seeking care among tuberculosis patients attending TB clinics of Jimma University Specialized Hospital, Jimma Health Center and Shenen Gibe Hospital. **Methods:** A cross-sectional study was conducted from February 9 to 20/2015 involving 64, 27 and 14 TB patients from Jimma University Specialized Hospital, Jimma Health Center and Shenen Gibe Hospital TB clinics respectively. A face to face interview of selected TB patients was carried out at each TB clinic. The data were analyzed by the Statistical Package for Social Science (SPSS) version 16. Results were presented in frequencies, percentages and finally, the Chi-square test was applied to show the association between patient delay and associated factors. **Results:** Out of 105 participants, 64 (60.95%) of them were males and 41 (39.05%) were females. The average age of the respondents was 40 years; ranging from 15 to 65 years old. The study revealed that more than half of the patients (58.09%) delayed seeking care. The mean patient delay was 91 days with a range of 2 to 180 days. Older (above 45 years), farmers and patients with no formal education were significantly at an elevated risk to delay in seeking for health care. (P. value <0.05). **Conclusion:** Factors associated with a delay in seeking health care for more than 21 days after development of symptoms were age, education level, current occupation, and place of first resort and perceived severity of the disease.

## INTRODUCTION

Tuberculosis (TB) is a chronic infectious disease caused by *Mycobacterium tuberculosis* (MTB). It typically affects the lungs (pulmonary TB) but can affect other parts of the body as well (extrapulmonary TB). The disease is spread via droplet infection when people with pulmonary TB expel the bacilli while coughing, sneezing, talking, etc. Without treatment, mortality rates are high. Treatment using combinations of anti-TB drugs, developed in the 1940s and 1950s, can dramatically reduce mortality rates [1].

Tuberculosis (TB) is a major public health burden throughout the world. Almost one-third of the world population (about 2 billion) is infected with *Mycobacterium tuberculosis* and during the past decade, even industrialized countries have faced a resurgence of tuberculosis. About 95% of TB cases and 98% of deaths due to TB occur in developing countries [2]. Currently, TB is the leading cause of mortality among infectious diseases worldwide. Globally, TB remains the second leading cause of death from infectious diseases (after HIV/AIDS). Although progress has been made in global tuberculosis (TB) control, the disease remains one of the most intractable health challenges in low- and middle-income countries [1].

Knowledge plays an important role in determining the behavior and practices of individuals. Limited knowledge about signs and symptoms of TB, poor health-seeking behavior, and poor diagnosis and disease management in health facilities result in delays in TB diagnosis and treatment, which in turn, increase the risk of TB transmission and the development of MDR-TB [12]. Therefore awareness regarding the TB disease is essential to molding the attitude or behavior of the patients towards the disease.

### Statement of problem

According to the WHO Global TB report 2012, Ethiopia ranks 13th in the list of 22 high burden countries (HBCs) and 4th in Africa, with an estimated prevalence of all forms of TB in 200 per 100,000 populations. The diagnostic delay has been found to be a major obstacle in the control of TB especially in low-income countries [9, 8].

Literatures showed that many TB cases remain undiagnosed and untreated in many countries with a high incidence of TB that increases the risk of TB transmission in the community [2-5]. Studies on different parts of the world showed that different factors are associated with patient delay. Studies done in African countries mentioned that residence was an important predictor

of patient delay in initiating treatment [6, 7]. Similarly, in Asia and African countries being female was mentioned as a factor for predicting patient delay [6, 7].

### **The significance of the study**

Early diagnosis and treatment of Tuberculosis is crucial for the reduction of infection rate and improving outcome of the treatment. Despite efforts made through media to sensitize community warning symptoms of TB, still, there is a significant delay in healthcare seeking among TB patients.

Credible evidence on predictors of patient delay could be important information to look for a new strategy to curb the death and spread of TB. Therefore, this study aims to investigate the extent of patient delay and its influencing factors among tuberculosis patients in Jimma town and its surroundings. Moreover, the data from this study has identified barriers for the delay in care seeking to strengthen the strategies for prevention and treatment of TB patients.

## **MATERIALS AND METHODS**

### **Study area and period**

This study was conducted at Jimma University Specialized Hospital (JUSH), Jimma Health Center (JHC) and Sheneneh Gibe Hospital (SGH) tuberculosis DOTS clinics which were located in same, Jimma town from February 9 to 20/2015. Jimma town is found in Oromia region, southwest Ethiopia, 350km southwest from the capital of the country, Addis Ababa and at an altitude of 1780m above sea level.

### **Study population**

The study population was registered TB patients attending TB clinics at JUSH, JHC, and SGH during the study period. One hundred five (105) TB patients were enrolled from DOTS clinics of JUSH, JHC, and SGH during the study period.

### **Inclusion criteria**

All tuberculosis patients attending TB clinics and those registered for treatment during the study period were included in a study.

### **Exclusion criteria**

Patients under 15 years of age on the day of the start of treatment and those patients who will terminally ill and cannot respond were excluded from the interview.

### **Study design**

The study was a cross-sectional design based on patients' records and interviews during their follow up visits at TB clinics.

### **Sample size**

During the study period, the total number of TB patients attending TB clinics at JUSH (80), JHC (43) and SG (22) were 145. Among these, one hundred five patients, that is, 64, 27 and 14 patients were taken from JUSH, JHC, and SGH TB clinics respectively. Finally, one hundred five (105) patients were included in the study.

### **Sampling technique**

Those tuberculosis patients fulfilling inclusion criteria were selected to be eligible participants in the study.



### **Measurements**

The dependent variable in this study was a delay in seeking TB care which was defined as a patient presenting to a health facility after three weeks from onset of symptoms. The independent variables captured in the questionnaire included; Age, Sex, Level of education, occupation, marital status, place of first visit and use of alternative medical care such as self-medicating with herbal medicines.

### **Data collection techniques**

The interview schedule with a semi-structured questionnaire developed in English was translated to Oromic and Amharic to ensure that, participants understand the content. After leaving consultation room patients were asked for consent to be interviewed and those who are unwilling to participate were excluded. After data collected, field editing was done to check for errors, eliminate mistakes, making sure that the data was coded accordingly to make certain all the responses would be filled so as to prevent missing data.

## **Quality assurance and data analysis**

For completeness and consistency, a standardized questionnaire of the English version was translated into local languages: Oromic and Amharic. Then it was translated back to English and rechecked. The questionnaire in local languages was pretested and used. Finally, the data was sorted, coded and entered into the computer using statistical software, Statistical Package for Social Sciences (SPSS) version 16. Descriptive statistics for the socio-demographic characteristics such as number, frequency, percentage and mean were used to describe and summarize the data. The mean delay was calculated as average days the patients report to take before consulting a health facility since the onset of the symptoms. The percentage of patients who experienced stigma was calculated using the data obtained through a Likert scale to get two scales (agree and disagree). The percentage of respondents who have visited health facility and self-medicate themselves using different herbal medicines were calculated. Data were presented using tables and figures.

## **Ethical considerations**

First, an official permission and formal letter were received from Jimma University, College of Medical Sciences research and ethics committee and sent to JUSH, JHC, and SGH tuberculosis clinics. After the patient understands the reason data would be collected, data collection was preceded accordingly by keeping privacy and confidentiality.

## **RESULTS**

### **Socio-demographic characteristics of the study sample**

As depicted in Table 1, a total of 105 TB patients were studied and out of which 64 (60.95%) were males and 41 (39.05%) were females. The average age was 40 years; with a minimum age of 15 years and the maximum age of 65 years. Most of the respondents were Christians (60.95%), followed by Muslim (37.14%). With regards to marital status, 57 (54.30%) respondents reported to be married, 2 (1.90%) were widowed and 26 (24.76%) were single. Forty-three (40.95%) of the respondents reported having attained primary education, while 34 (32.39 %) had attained above primary education and 28 (26.66%) had no formal education. Majority of the respondents (51.43%) had no formal employment, followed by farmers/housewife, those running their business and employed by the government, which was 26 (24.76%), 13 (12.38%) and 12 (11.43%) respectively.

**Table 1: Socio-demographic characteristics of TB patients at JUSH, JHC and SGH TB clinics, February 9-20/2015.**

<b>Characteristics</b>	<b>Males (N =64 )</b>	<b>Females(N =41 )</b>	<b>Total (N =105)</b>
<i>Age group (years)</i>	<b>N (%)</b>	<b>N (%)</b>	<b>N (%)</b>
15 – 24	19 (29.68)	26 (63.41)	45 (42.85)
25 – 44	31(48.44)	10 (24.40)	41 (39.04)
45+	14 (21.87)	5 (12.19)	19 (18.11)
<b>Religion</b>			
Christian	37 (57.81)	27 (65.85)	64 (60.95)
Muslim	26 (40.62)	13(31.71)	39 (37.14)
Waqeffanna	1 (1.57)	1 (2.44)	2(1.91)
<b>Education level</b>			
No formal education	15 (23.44)	13 (31.71)	28 (26.66)
Primary education	27 (42.18)	16 (39.02)	43 (40.95)
Secondary education	9 (14.06)	8 (19.51)	17 (16.20)
College and University	13 (20.32)	4 (9.76)	17 (16.19)
<b>Marital status</b>			
Single	24 (37.50)	22 (53.66)	46 (43.80)
Married/Cohabiting	39 (60.93)	18 (43.90)	57 (54.30)
Widowed/Divorced	1 (1.57)	1 (2.44)	2 (1.90)
<b>Occupation</b>			
Farmer/Housewife	14 (21.87)	12 (29.27)	26 (24.76)
Unemployed	29 (45.31)	25 (60.97)	54 (51.43)
Government employee	9 (14.06)	3 (7.32)	12 (11.43)
Private Business	12 (18.75)	1 (2.44)	13 (12.38)

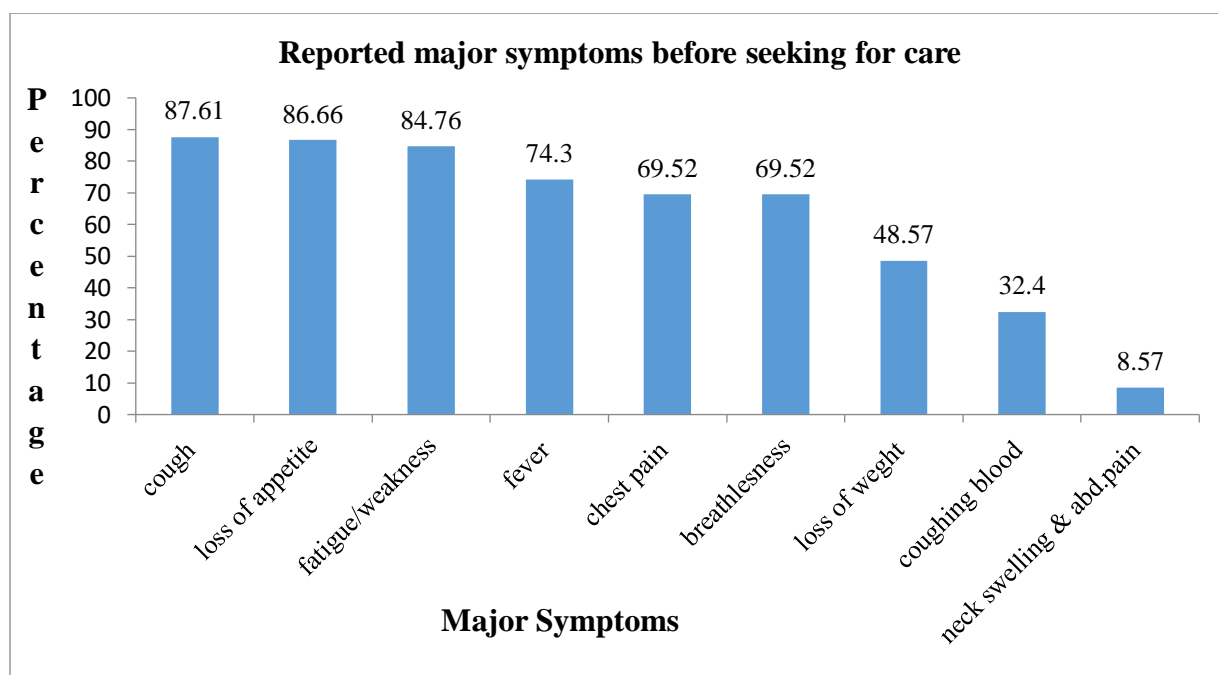
**Reported delay among tuberculosis patients**

In this study, it was found that 61 (58.09%) respondents reported delayed by more than 21 days to seek care from a health facility. The duration of patient delay before seeking health care for their symptoms ranges from 2 days to 180 days, with a mean of 91 days (Table 2).

**Table 2: Time taken from first felt sick and went to health facilities/ another place among TB patients at JUSH, JHC, and SGH TB clinics, February, 9-20/2015**

Delay time(days)	2	3	4	7	14	21	30	37	45	60	75	90	120	150	180
Frequency	2	2	1	12	12	15	28	1	4	16	1	3	3	2	3

Mean =91 days



**Figure 1: Major symptoms before seeking TB care among patients at JUSH, JHC and SGH TB clinics, February, 9-20/2015.**

**Distribution of TB patients by their reported main symptoms and delay status.**

Out of the total 105 patients, 94 (89.51%) and 93 (88.58%) patients who had a cough and loss of appetite, 58 (55.23%) and 55 (52.38%) reported late presented to the health facilities respectively (Figure 1, Table 3).

**Table 3: Distribution of TB patients by their reported main symptoms and delay status, JUSH, JHC and SGH tuberculosis clinics, February, 9-20/2015**

Main symptom	Delayed n (%)	Not delayed n (%)	Total n (%)
A cough	58(55.23)	36(34.28)	94 (89.51)
Coughing blood	36(34.28)	8(7.61)	44 (41.89)
Breathlessness	41(39.09)	32(30.47)	73 (69.87)
Chest pain	45(42.85)	29(27.61)	74 (70.46)
Fever	44(41.90)	35(33.33)	79 (75.23)
Loss of appetite	55(52.38)	38(36.20)	93(88.58)
Fatigue /weakness	52(49.52)	36(34.28)	88(83.8)
Loss of weight	25(23.80)	34(32.38)	86(56.18)
Others (Swelling & abdominal Pain)	6(5.71)	3(2.85)	9(8.56)

### Perception about delay

Out of 105 respondents, 61 patients who actually delayed, but 17 (25.76%) patients considered themselves to have not delayed for treatment. On the other hand, of the 44 TB patients who were not actually delayed to seek treatment, 14 (31.82%) considered themselves to have delayed to first seek for treatment (*Table 4*).

**Table 4: Relationship between perceived delay and actual delay of TB patients, JUSH, JHC, and SGH tuberculosis clinics, February, 9-20/2015**

Perceived delay	Actual delay		
	Delay n (%)	No delay n (%)	Total n (%)
Delayed	44 (72.13)	14 (31.82)	58 (58.24)
No delay	17 (25.76)	30 (76.93)	47 (47.76)
Total	61 (100.00)	44 (100.00)	105 (100.00)

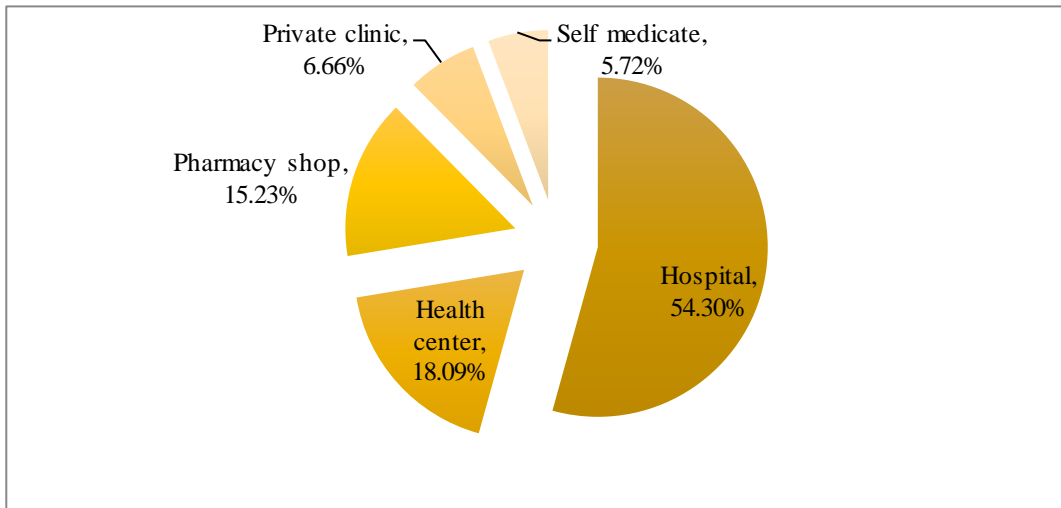
### Reasons for patient delay in seeking health care

Majority 52 (49.52%) of the patients delayed in seeking care from health facilities thought that the symptoms they were feeling will go away without medication or with some antibiotics they were using. Eighteen (17.14%) and 4 (3.80%) respondents were mentioned that financial constraints and poor health services were the other reason for their delay respectively (*Table 5*).

**Table 5: Reasons cited by TB patients for not seeking care on time, JUSH, JHC and SGH tuberculosis clinics, February, 9-20/2015**

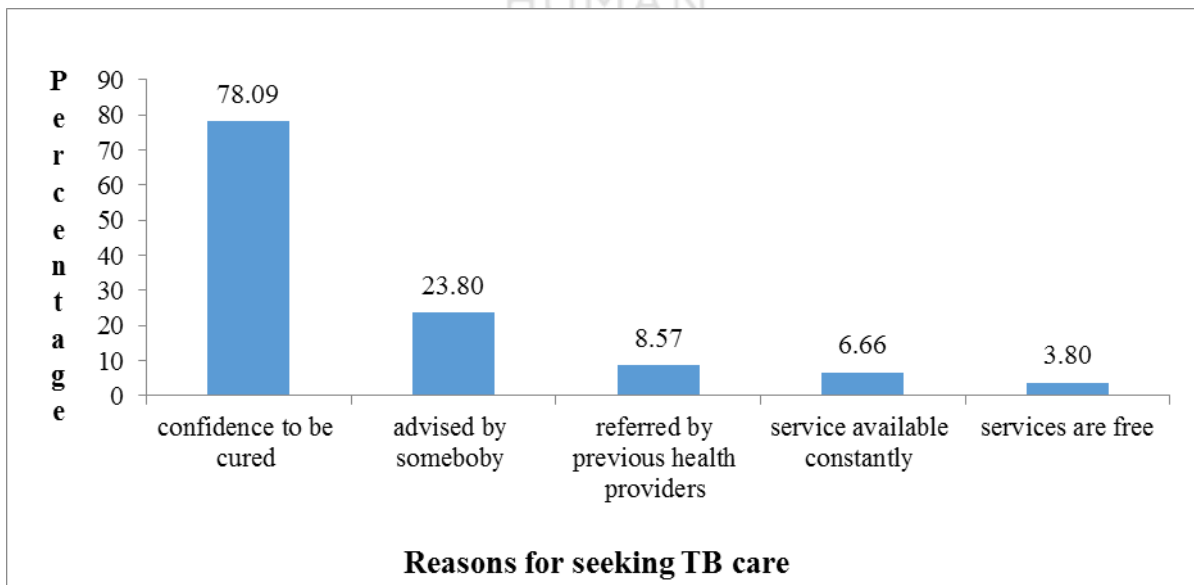
Reasons for not seeking care	Number	Percent
Hope that symptoms go away by themselves	52	49.52
Financial constraints	18	17.14
Poor health services	4	3.80





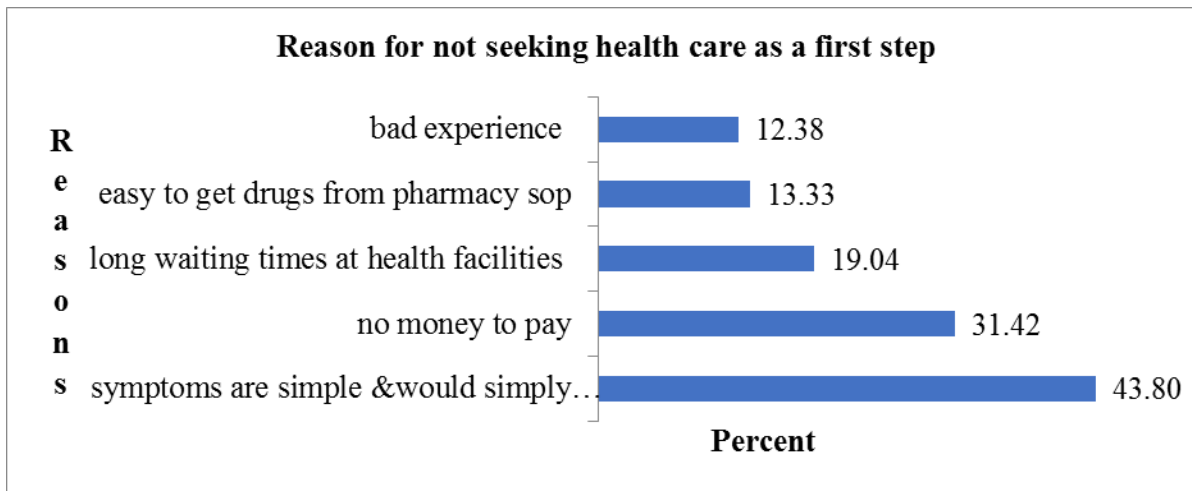
**Figure 2: Place of the first visit after the onset of symptoms among TB patients at JUSH, JHC and SGH TB clinics, February, 9-20/2015.**

Majority of the patients 83 (79.05%) reported having directly visited the modern health facilities (hospital, health center, and private clinics) when they decided to seek for care. The remaining patients reported to have used unprescribed drugs from pharmacy shops and self-medicate themselves with herbal medicines before reported to health facilities as their first action following the onset of symptoms (*Figure 2*).



**Figure 3: Reasons for seeking care first at the destined institution, JUSH, JHC and SGH TB clinics, February, 9-20/2015.**

As inferred from the above figure 3, the following reasons were reported for visiting the mentioned destinations. They include patients having confidence in getting cured, 82 (78.09%), having been advised by friends or relatives 25 (23.80%) and referred by previous provider 9 (8.57%). Others were convinced that services were available all the time and free.



**Figure 4: Reasons for not seeking health care from health facilities as a first step, JUSH, JHC, and SGH Tuberculosis Clinics, February, 9-20/2015**

As depicted from the above figure 4, the reasons why patients did not initially consult health facilities as their first health-seeking destination include, 43.80% who thought that symptoms are too simple and could simply fade away, 31.42% had no money to pay. However, 19.04% thought that health facilities have long waiting time, 13.33% easy to get drugs from pharmacies and 12.38% bad previous experience.

#### **Perceptions of patients related to tuberculosis**

Majority of respondents, 93 (88.57%) reported that the disease has affected their work performance and 55 (52.38%) mentioned that, they preferred to live isolated since diagnosis. About a quarter, 27 (25.71%) considered the disease as shameful such that 21 (20.00%) would hide (Table 6)

**Table 6: Perceptions of TB patients about TB at JUSH, JHC and SGH tuberculosis clinic, February, 9-20/2015.**

Perception about TB	Number	Percent (%)
Feel shamed	27	25.71
Hide others	21	20.00
Affect relation with others	21	20.00
Prefer to live isolated since diagnosed	55	52.38
Affect work performance	93	88.57
Affect marital relation	4	3.80
Affect family responsibilities	9	8.57
Affect family relation	1	0.95

**Association between delay in seeking care and socio-demographic factors of TB patients**

Table 7 shows selected socio-demographic factors in relation to delay in seeking care. Age, education level, occupation and marital status of the patient were significantly associated with delay ( $p.value \leq 0.05$ ).

**Risk factors for TB patients delay seeking health care**

In this study, the patient delay in treatment of TB was associated with a patient's education level, age, marital status, and current occupation. Patients having no formal education were more likely delayed when compared with patients who attended primary and above. Patients older than 45 and married were also associated with a delay in seeking care when compared with those less than 45 and single. Farmers were more delayed in seeking care followed by individuals who were unemployed such as students, laborers, and prisoners compared with patients who were formally employed and work on their own business.

**Table 7: Association between delay in seeking care and socio-demographic factors, JUSH, JHC, and SGH tuberculosis clinics, February, 9-20/2015**

<b>Socio-demographic factor</b>	<b>Total n (%)</b>	<b>Delay n (%)</b>	<b>No delay n (%)</b>	<b><math>\chi^2</math>; p-value</b>
<b>Sex</b>				
Male	64 (60.95)	38 (59.37)	26 (40.63)	0.07; 0.935
Female	41 (39.05)	25 (60.97)	16 (39.03)	
<b>Age group (years)</b>				
Less than 44	85 (80.95)	47 (55.30)	38 (44.70)	4.251; 0.045
Above 45	20 (19.04)	14 (70.00)	6(30.00)	
<b>Religion</b>				
Christian	62 (59.04)	38 (61.29)	24 (38.71)	3.060; 0.217
Muslim	39 (37.14)	24 (61.53)	15 (38.47)	
Waaqeffanna	4 (3.82)	-	4(3.82)	
<b>Education level</b>				
No formal education	23(21.90)	18 (78.26)	5 (21.74)	5.806; 0.041
Primary	40 (38.09)	24 (60.00)	16 (40.00)	
Above primary	42 (40.01)	20 (47.62)	22 (52.38)	
<b>Current marital status</b>				
Married	58 (55.23)	37 (63.79)	21 (36.21)	1.389; 0.050
Single	43 (40.95)	23 (53.48)	20 (46.51)	
Divorced/widow	3 (3.82)	3 (100.00)	-	
<b>Occupation</b>				
Farmer/housewife	26 (24.76)	20(76.92)	6 (23.07)	8.879; 0.031
Private business	13 (12.38)	6 (46.15)	7 (53.84)	
Formal employment	18 (17.14)	10 (55.55)	8 (44.44)	
Unemployed	48 (45.72)	27 (56.25)	21 (43.75)	
<b>First place visited</b>				
Hospital	54(51.44)	31 (57.40)	23 (42.59)	5.714; 0.335
Health Centre	20 (19.05)	12 (60.00)	8 (40.00)	
Pharmacy shop	16 (15.23)	12 (75.00)	4 (25.00)	
Private clinic	9 (8.57)	4 (44.44)	5 (55.55)	
Self-medication	6(5.71)	3 (50.00)	3 (50.00)	

## DISCUSSION

In this study, it was found that 61 (58.09%) out of 105 patients had reported late for treatment. Twenty-one days were considered as a cut off point for the patient delay, taking into account other studies conducted in Ethiopia [7]. This study showed the mean duration between the onset

of symptoms and the time of care seeking was 91 days with a range of 2 to 180 days. This means a delay of 91 days found in this study is much greater than the study done in the Gezira state of Sudan, India, Tigray of Ethiopia and, Luanda of Angola which showed mean of 27.2, 60, 29.24 and 71.37 days respectively [18, 27, 20, 19]. The difference may be probably explained by the difference in awareness on tuberculosis following various interventions.

The magnitude of delay of seeking care among patients (58.09%) found in this study correlates to what was found in other studies conducted in Nairobi Kenya, Bahir Dar, India, [32, 7, 27] but it was much higher than study conducted in East Wollega which was 37% [5]. In this study coughing (87.61%) and loss of appetite (86.66%) were mentioned by most of the patients as the main symptom that prompted them to seek health care. This finding is almost comparable with a study done in Brazil in which 80% of patients reported a cough for more than 3 weeks [31]. Prolonged coughing was also found in 59% of patients in a study done in China [13]. Because a cough is one of the most common symptoms of tuberculosis, it was expected that patients who developed a cough would suspect tuberculosis and seek care early, however, this was not the case as 58 (55.23%) patients with a cough delayed to seek care. This is important when making decisions about to provide health education on TB awareness for the community. This also gives clues for a need to review health promotion interventions to address this challenge.

In this study, most of the respondents (49.52%) who had a prolonged delay had the thought of having the hope that the symptoms will disappear by using unprescribed antibiotics from pharmacy shops. Other reported reasons for delay were financial constraints (17.14%) and poor health services (3.80%), which is comparable with study done in South India [21] where the patients reported that the most common reasons for delaying care seeking due to lack of awareness of health facility (13%) and domestic preoccupation (8%). Moreover, our findings are inconsistent to the findings of a study conducted by Wondimu, East Wollega who reported that 33% of patients assumed that symptoms will disappear itself, 32% had financial constraints and 7% had an absence of transportation [5].

Tuberculosis patients would be expected to be knowledgeable about tuberculosis symptoms, diagnosis, and treatment [22]. The finding from the current study showed that the majority (74.24%) of the patients who actually delayed to seek care knew that they reported late for treatment. On the other hand, 25.76% of the patients who delayed to seek care did not appreciate this fact. This may be an indication of low knowledge about the disease and therefore

there is a need to strengthen health education for all community at clinical setting to equip them with the necessary knowledge about tuberculosis. According to WHO, it can be concluded that patient delay is mainly dependent upon the health-seeking behavior of tuberculosis patients which is mainly determined by their socio-demographic characteristics, culture and degree of stigma felt [11].

Findings of this study showed that patients with age above 45 years were more likely to delay in seeking care. It was found that 70.00% of respondents who were above 45 years delayed seeking care while for those with less than 44 years was 55.30% (p.value= 0.045). Similar results were found in Nigeria which used 45 years and above for age [23, 33]. Another study was done by Jagadish S. et al also showed that patient delay was significantly high among older age groups [29]. In addition, patients who were single were less likely to delay compared to those who were married (p.value=0.05). This is also similar to the study done by Jagadish S. et al in Bangalore, India [29]. This difference may be explained by preoccupations with family commitments as the likely reasons why older and married TB patients delayed care seeking.

Another factor that has found to be associated with a delay in care seeking for tuberculosis patients in the current study was a lower education level. The finding showed that 78.26% of the patients with no formal education and 60.00% attended primary education delayed to seek care. This concurs with findings of other studies conducted in Peru in which attaining education less than completion of secondary schooling was associated with 57% delay and in Zambia associated with 65 % delay [22, 24]. A study was done in the province of Luanda, Angola and Nigeria also reported that patient attained primary education was independently associated with longer delay time [19, 28]. Furthermore, in a systemic review study on TB diagnostic and treatment delay done by Storla et al reported a similar case [34]. This calls for a need to strengthen the efforts of TB case detection and creating awareness among low socio-economic and illiterate group.

With regard to occupation, the study finding showed that 76.92% farmers/housewife, 56.25% unemployed and 55.55% formal employment delayed respectively to seek care, while for those with private business delay was 46.15%. Among these, farmers were more delayed to seek care, which might be related to unawareness of TB disease and illiteracy. A systemic review and meta-analysis studies were done in China and a study conducted in seven Mediterranean countries found similar results [35, 11]. Similarly, a study conducted in Nigeria revealed urban residence and a longer walking distance to public facilities was among the determinants

associated with longer treatment delay [33]. Another study conducted in Dar-e-salaam by Iran et al also revealed that the disease was more associated with poverty and unemployment [10]. Therefore, efforts should be done to incorporate these vulnerable groups in poverty reduction strategies, which in turn could contribute to the reduction of TB burden.

In this study, cough (87.61%) and loss of appetite (86.66%) were the main symptoms reported by the patients and which prompted them to seek health care. These findings concur with reports from Vitoria, Brazil, Pwani Region and Ilala, Tanzania where 80%, 78.6% and 60.1% of tuberculosis patients presented with a cough respectively [31, 25, 10]. With the onset of symptoms, majority 54.30% of the patients sought care from the hospital; followed by 18.09% health center, 15.23% pharmacy shops and 6.66% private clinics and 5.72% self-medicate themselves with herbal medicine. In contrast to this, other studies reported that most the participants usually seek health care from traditional healer before they go to the hospital or local aid post [15, 36]. Majority of the patients 78.09% visited the aforementioned destination because of confidence in getting the cure. Similarly, a study done in Tigray found that 34% reported that they visited a hospital in order to get quality services regardless of the distance [14]. According to WHO, a study done on diagnosis and treatment delay in tuberculosis in seven countries of the Eastern Mediterranean Region showed similar results [11]. A significant number of patients (43.80%) considered that their illness was not severe and did nothing hoping that the symptoms will fade away by themselves or by using over the counter drugs including herbals.

Stigma is a major determinant of health-seeking behavior among tuberculosis patients [11]. The present study found approximately a quarter of the respondents felt ashamed of being diagnosed with tuberculosis and one fifth were forced to hide the diagnosis. Twenty percent of patients said that the disease is affecting their relationships with others. The majority (88.57%) of the patients felt that the disease affects their work performance. A study conducted in Dares Salaam showed that 36% of the patient had noted social isolation, 46% preferred not to disclose their condition [10]. Another study conducted in different countries highlighted perceived stigma to the disease, which was one of the predictors for delayed presentation to health care facilities [30, 12, 23, 16]. In contrary, another study conducted in Somalia indicated that patients, who perceived a high degree of stigma, reported earlier to the health facilities [11].

## CONCLUSION

This study has shown that 58.09% of the TB patients attending TB clinics in Jimma town delayed seeking health care for more than 21 days. A factor associated with delay was age older than 45 years, lower education level, unemployment and being married. It was also found that destinations like pharmacy shop, private clinic, and self-medication with herbal medicine were consulted by the patients before going to health facilities. This finding showed a considerable level of stigma against tuberculosis.

## Recommendations

Based on results found in this study, the following recommendations were made:

- The community should be sensitized on seeking appropriate health care by using culturally convenient media of communication to ensure that the whole community is reached, special consideration should be taken in account for groups of society such as elders, illiterate and poor.
- The health department of the local authorities should sensitize drug sellers and traditional healers to refer symptomatic people for a tuberculosis test.
- Further studies need to be done to further investigate other factors associated with a delay in seeking care provided that it should include individuals who are not attending health facilities.

## Competing interests

The authors declare that they have no competing interests.

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