Original Article

Social Stigma and Health Beliefs about Tuberculosis: A Research from Rural Regions of Iran

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Abstract

Aim: The aim of this study was to determine the tuberculosis (TB)-related social stigma and health beliefs among residents of Gorgan's rural areas, North of Iran. **Materials and Methods:** In this cross-sectional research, 672 individuals in Golestan were enrolled. The target group included non-TB individuals aged 15 years and above with no TB patients in their families at the time of study. They were selected by two-stage cluster sampling. The data collection tool was a researcher-made questionnaire consisting of 2 sections. The first section included demographic information. The second section was related to the questions of perceived susceptibility (n = 5), perceived severity (n = 7), and social stigma (n = 11) measures. Data analysis was carried out using SPSS version 16. **Findings:** The mean age of respondents was 33.00 ± 1.17 years. In this study, only 5.6% of the individuals had high perceived susceptibility. 97.7% of the samples had a moderate and high level of severity. This percent is 91.5% for social stigma. Pearson correlation test showed a direct relationship between perceived severity and social stigma (r = 0.30) and an inverse relationship between perceived susceptibility and perceived severity (r = −0.13). **Conclusion:** Based on the findings of the present study, levels of perceived susceptibility, perceived severity, and social stigma among people were moderate. Therefore, intervention studies should focus on initiating health education and health promotion programs in order to increase perceived susceptibility and decrease social stigma.

Keywords: Health belief, rural people, social stigma, tuberculosis

Introduction

Tuberculosis (TB) holds the 10th rank in the global burden of disease.[1] This disease was declared a global emergency by the World Health Organization.[2] In 2020, 9.9 million people around the world were affected by TB. There were 1.5 million TB-related deaths worldwide. Based on the report of the Infectious Disease Center at the Ministry of Health, the incidence rate of TB in Iran is 6.74/100,000 people, and among the provinces, Golestan and Sistan and Baluchistan with 19.19 and 18.95/100,000 people had the highest TB incidence rate, respectively.[3]

TB has some indirect negative impacts on the quality of life of patients or their family members.[4] Studies have indicated that fear of TB transmission, fear of being left by others, fear of finding a marital partner, fear of losing job and absence from job, and social limitations cause symptomatic individuals to often hide their symptoms.[5-10] These attitudes and beliefs result in the development of a phenomenon called stigma, indicating the relationship between this type of attitudes with this disease.[5,7,11,12] Social stigma or its prediction may cause the affected individual to hide their situation. Those who experience stigma further feel worthless, embarrassed, and sinful.[8-10] Stigma affects TB control in two ways: firstly, it

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involves the recognition of the person as a patient with TB.[5,13] Therefore, individuals with long-term coughs do not refer to health-care centers to receive diagnosis and treatment. This in turn leads to the progression of such serious symptoms and isolation of the person, which further complicates the treatment.[5,14,15] The patient, furthermore, will remain infected for a longer time and will transmit the disease to more individuals. Secondly, continuation of the treatment would also be complicated, because the affected people fear of being recognized as a person with TB, causing them to hide their disease. This in turn results in the development of serious symptoms and increased transmission of the disease.[5,13] Social stigma has been identified as a major obstacle in a successful treatment.[11] Patients' TB stigma has been reported among up to 58.3% of the respondents.[15,16] In the study by Abebe *et al*., in Ethiopia, it has been reported that TB stigma is influenced by demographic variables including gender and marital status.[15]

Perceived susceptibility (as a main construct of mostly used behavior change theory named *Health Belief Model*) is one of the most powerful perceptions in preparing a person to adopt a healthy behavior.[17] If individuals feel themselves vulnerable to TB, they will attempt more to adopt preventive behaviors.[14] Perceived severity (another construct of *Health Belief Model*) also refers to subjective perceptions of the seriousness or severity of a disease.[17] The study of Gelaw *et al*. concluded that high perceived severity leads to the avoidance of TB patients and eventually social stigma.[18]

Accordingly, the present study has been carried out with the aim of investigating TB-related social stigma and health beliefs of people in the villages of Gorgan town (the center of Golestan province), so it could be useful as a foundation for educational interventions and developing effective interventions in the region.

Materials and Methods

The present study is cross-sectional research. The target population consisted of 672 individuals that had the following criteria: older than 15 years, did not have TB at the time of self-examination, or whose one of their family members did not have this disease at the time of investigation and lived for at least 2 years in one of the villages of Gorgan. They were excluded from the study if they migrated. The sampling was carried out through two-stage cluster method via $n = \frac{z^2 p(1-p)}{d^2}$ formula. The alpha value and power in order to detect a prevalence of social stigma in the population were set at 0.05 (2 tailed) and 0.80%, respectively. Specifically, six health-care centers were chosen from 17 rural health-care centers covered by the health center of Gorgan town. From every selected center, four health-care houses, and from each of them, 28 individuals were chosen with equal number of men and women. Initially, through coordination with *Disease Care and Control Unit* of the town, a surveyor team of experts against the disease was established in every center. In a meeting, individuals were trained on how to complete the questionnaire. The questionnaires of literate people were completed by the individual as a self-report, while those of illiterate people were carried out by the inquirer. In general, there was no dropped out in the samples in this study.

Initially, extensive search was conducted and related studies were examined. Finally, the tools used in this study were developed through available internal (in Persian language) and external questionnaires, literature review, similar articles including Abebe *et al*.[15] in southeastern Ethiopia and Study Van Rie *et al*.[19] in southern Thailand, and opinions of the research team. The data collection was a researcher-made questionnaire consisting of 2 sections. The first section included demographic information such as age, education, marital status, men's occupation status, women's occupation status, and dialect. The second section included 5 questions about perceived susceptibility (e.g., It is possible that I also get TB), 7 questions for perceived severity (e.g., TB is a fatal and malignant disease), and 11 questions related to social stigma (e.g., If you have TB, you will be shamed and embarrassed). In order to conduct the content validity, the opinions of 10 experts on health education and health promotion, health sociology, infectious diseases, and epidemiology were asked. Furthermore, for the face validity of the questionnaire, 10 individuals who were similar to the studied samples were requested to complete questionnaire and express their opinions about the questions. Thereafter, some necessary modifications were applied. Internal consistency method (Cronbach's alpha) was also used to determine reliability. This pilot research was carried out among 30 people similar to the research sample. Thereafter, the Cronbach's alpha coefficient was calculated across different sections which were as follows: This coefficient in the sections related to perceived susceptibility and perceived severity was 0.8 while in the questions related to social stigma was 0.6. By removing one question from this section, the coefficient value reached 0.86. Eventually, a questionnaire viewing 23 items was prepared. To measure the perceived susceptibility, 5 questions were used through 5-option Likert scale ranging from strongly agree to strongly disagree. The minimum and maximum required scores were 5 and 25, respectively. Based on the total score, perceived susceptibility was classified into 3 levels: *Low* (5-11), *Moderate* (12-18), and *High* (19-25). In the section of questions related to perceived severity, 7 questions with again 5-option Likert scale were considered, where the acquired score was 7–35. Based on the total score, perceived severity was classified into 3 levels: *Low* (7-16), *Moderate* (17-26), and *High* (27-35). In the section where all questions were related to perceived social stigma, 11 questions based on 5-option Likert scale were considered, with the acquired score ranging from 11 to 55. Based on the total score, perceived social stigma was classified into 3 levels: *Low* (11-25), *Moderate* (26-40), and *High* (41-55). The inquirers received the necessary training in this regard so that errors would be avoided in the completion of the questionnaire of illiterate people.

The collected data were analyzed by SPSS 16 using descriptive statistics (e.g., mean, standard deviation, and frequency) and inferential statistics (including ANOVA, independent sample *t*-test, and Pearson correlation coefficient test.). All analyzes were performed at a significance level of 0.05.

All stages of the study were carried out with the approval of Gorgan health center. All procedures performed in studies involving human participants were in accordance with the ethical standards of the Shahid Beheshti University of Medical Sciences Research Committee (SBMU.REC.1392.699). Verbal consent was obtained from respondents.

Results

The mean age of the participants was 33 years (age range: 15–82 years). Furthermore, 5.7% (n = 38) of the participants had a history of TB either themselves or in their family, out of whom 1% and 5.6% were the affected person themselves or one of their family members, respectively. Table 1 presents the demographic information of the participants. In this study, the mean perceived susceptibility, mean perceived severity, and mean social stigma were 17.19 ± 3.43, 18.56 ± 4.31, and 30.24 ± 7.77, respectively.

In this study, only 5.6% of the individuals had high perceived susceptibility. 97.7% of the samples had a moderate and high level of severity. This percent is 91.5% for social stigma [Figure 1].

Table 1: Baseline characteristics of the participants

	n (%)
Education	
Illiterate	52 (7.70)
Primary	141 (21.00)
Secondary school	194 (28.90)
High school and diploma	218 (32.40)
Academic	67 (10.00)
Marital status	
Married	108 (16.00)
Single	564 (84.00)
Age group	
15-24	144 (21.40)
25-34	243(36.16)
35-44	179 (26.63)
45-54	73 (10.90)
>55	33 (4.91)
Men's occupation status	
Employed	286 (85.12)
Nonemployment	50 (14.88)
Women's occupation status	
Employed	64 (19.05)
Nonemployment	272 (80.95)
Dialect	
Persian dialect	356 (53.00)
Non-Persian dialect	316 (47.00)

Data showed a significant positive correlation between perceived severity and social stigma ($r = 0.30$, $P < 0.001$), while there was a significant negative correlation between perceived susceptibility and perceived severity ($r = -0.13$, $P < 0.001$).

Another finding of the study is that after examining the items of the questionnaire separately, it was found that 22% of the individuals were embarrassed and ashamed of having TB, 43% believed their disease affects their relationship with others and friends, and 39.7% mentioned that they would hide TB from others if they had it. Furthermore, 84% of the individuals believed that TB is a disease like other diseases which can be treated by drugs.

There was a considerable relationship between the variable of perceived susceptibility, perceived severity, social stigma, and the variable of level of education. Furthermore, the perceived susceptibility and severity had a significant correlation with age as well as the perceived susceptibility with the dialect of individuals ($P < 0.05$). However, none of the studied variables had any relationship with gender, marital status, and occupation ($P > 0.05$) [Table 2].

Discussion

The obtained results on the grading of the level of social stigma suggested that 607 individuals (91.5%) had high and moderate social stigma. This result highlights the need for further education on reducing stigma. A similar study in this regard reported that TB-related social stigma was highest in India.[20] Thus, it is necessary to design and implement appropriate strategies to reduce and eliminate misconceptions in society in order to decline social stigma caused by the disease to a minimum.

The findings of the present study illustrated a remarkable difference between social stigma and level of education, where the mean social stigma was maximum in individuals with primary education, while it was minimum in those with secondary school education. Further, illiterate people and those with academic degrees perceived less social stigma in comparison to other groups. This result has been in contrast to the study by Mohamed *et al*. in which they found that those with low levels of education experienced greater stigma

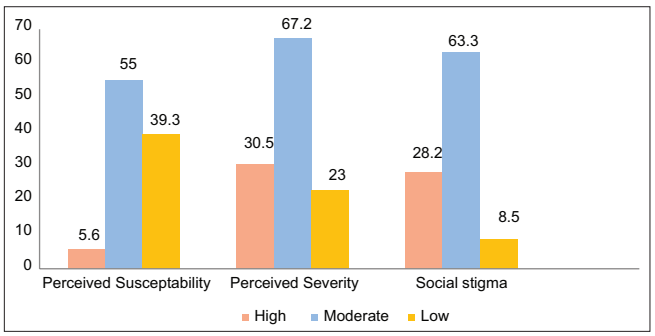

Figure 1: Levels of perceived susceptibility, perceived severity, and social stigma in population

Table 2: The association of study variables and perceived susceptibility, perceived severity, and social stigma

Variable	Perceived susceptibility	Perceived severity	Social stigma
Gender			
Male	17.44±3.54	18.58±4.25	30.08 ±7.68
Female	16.94±3.30	18.55±4.40	30.40±7.88
*P**	0.06	0.92	0.59
Education			
Illiterate (*n*=52)	18.21±2.83	19.01±4.26	29.34±7.53
Primary (*n*=141)	16.62±3.75	19.44±4.02	31.70±7.33
Secondary school (*n*=194)	17.30±3.50	18.34±4.10	28.97±7.76
High school and diploma (*n*=218)	17.03±3.37	18.31±4.60	30.88±8.15
Academic (*n*=67)	17.77±2.90	17.85±4.40	29.56±7.13
*P***	0.02	0.05	0.01
Marital status			
Single (*n*=104)	16.88±3.76	18.84±4.70	31.02±7.70
Married (*n*=564)	17.25±3.40	18.50±4.24	30.07±7.80
*P**	0.31	0.45	0.35
Single men (*n*=65)	17.00±3.97	19.25±4.35	32.82±8.70
Married men (*n*=269)	16.91±3.21	18.46±4.40	30.11±7.74
*P**	0.88	0.29	0.04
Single women (39)	16.81±3.66	18.60±4.90	29.95±7.85
Married women (295)	17.62±3.50	18.53±4.07	30.03±7.85
*P**	0.09	0.91	0.94
Age group			
15-24 (*n*=144)	16.44±3.30	18.41±3.86	31.03±6.65
25-34 (*n*=242)	16.70±3.32	18.57±4.20	29.78±7.56
35-44 (*n*=179)	17.84±3.74	18.83±4.71	30.40±8.44
45-54 (*n*=73)	17.56±3.10	17.53±4.40	28.70±7.84
>55 (*n*=33)	18.25±3.00	20.10±4.40	32.90±9.31
*P***	0.001	0.05	0.06
Occupation			
Employed men (*n*=320)	17.51±3.40	18.58±4.26	30.01±7.70
Unemployed men (*n*=16)	17.21±5.33	19.11±3.90	29.23±7.01
Employed women (*n*=63)	17.73±2.54	18.01±4.23	31.25±7.11
Unemployed women (housekeeper) (*n*=272)	16.74±3.45	18.67±4.40	30.20±85
*P***	0.48	0.52	0.37
Dialect			
Persian (*n*=356)	17.56±3.50	18.31±4.55	30.44±7.95
Non-Persian (*n*=316)	16.76±3.31	18.88±4.00	30.01±7.57
*P**	0.003	0.10	0.47

**t*-test, ***ANOVA

in comparison to their peers.[21] These results show that in designing interventions in this field, special attention should be especially paid to the individuals' level of education.

The mean of social stigma was greater in single men than in married men, where this difference was statistically significant. In single men, in spite of higher perceived susceptibility, the level of perceived severity and social stigma was also higher. This suggests that the greater social stigma in single men is not due to their low susceptibility; rather, it can indicate frustration, hopelessness, or misconception among them, demanding further educational interventions for its resolution. There was no remarkable difference in social stigma among single and married women. In a study by Somma *et al*., social stigma was higher in single individuals than in married individuals.[20]

Another finding indicated that 22% of the individuals were embarrassed and ashamed of having TB. In the study by Ritu *et al*., it was also mentioned that 56% of the participants were ashamed of having this disease.[22]

The study findings represent that only 37 individuals (5.5%) had high perceived susceptibility, while 361 (92.1%) showed average and low perceived susceptibility. The level of perceived susceptibility of the study population was average. This result has been congruent with the study by Sarani *et al*.[23]

Another finding showed that there is a significant relationship between level of education and perceived susceptibility. In further investigations, perceived susceptibility was greater in illiterate people than in other groups. The reason is that since only part of the elderly and old age groups are currently

illiterate, due to greater exposure to TB patients throughout their lifetime, their perceived susceptibility has also increased. However, in groups with a different level of education, difference was also found in their perceived susceptibility such that with the elevation of the level of education, their perceived susceptibility also increased.

A considerable relationship was also found between age and perceived susceptibility. This susceptibility was maximum in age groups of 55 and older, and with aging, the perceived susceptibility also increased. This can be due to the fact that in individuals older than 55 years, most of them also have other diseases, the power of their immune system diminishes, and they consider themselves at greater risk of developing different diseases including TB. However, younger individuals relying on their sense of being healthy and young consider themselves to be at lower risk of developing the disease.

According to the mentioned results, it seems a necessity to provide trainings to increase the perceived susceptibility so that all people believe that they are at risk of contracting TB.

The findings suggest that the perceived susceptibility was greater in individuals with Persian dialect than non-Persian dialect subgroups, where this difference was statistically significant. The reason can be attributed to the fact that high health situation, the economic, social, and cultural level of individuals with Persian dialect living in villages of Gorgan town caused them to have greater susceptibility to their health and having TB. Due to the traditions, customs, and cultural status of non-Persian dialect, it is recommended to provide training to increase the perceived susceptibility of these people.

According to the results of this study, 647 (96.3%) of individuals had high and moderate perceived severity. Most of the participants in this study showed an average level of perceived severity. This result has been in line with the findings of Qazi Shafayetul *et al*., in which TB was widely perceived as a dangerous disease.[24] A striking correlation was observed between perceived severity and age groups. Furthermore, individuals in the age group of 55 years and above had the maximum level of perceived severity. It can, thus, be concluded that the individuals of this age group who are illiterate or with primary education, in comparison to other groups, consider the disease as critical and dangerous.

Another finding suggested that there is an indirect significant relationship between perceived severity and perceived susceptibility. The better understanding people have of the severity of the disease, the more they tend to deny their vulnerability to the disease. Moreover, there was a direct relationship between social stigma and perceived severity. Similar studies in this regard include Gelaw *et al*. who stated that the high perceived severity observed in the study had resulted in rejecting TB patients and eventually social stigma.[18]

In order to increase people's perception of severity from TB, trainings such as using scientific documents and various methods and highlighting the complications of the disease (in various physical, psychological, social, economic dimensions, etc.) were recommended.

In answering to the questions of the perceived susceptibility section, 42.3% of the respondents answered "agree" to "It is possible that I also get TB." This result was similar to the findings of the Ilongo *et al*.'s study.[25] And also, in the perceived severity section, 30.7% of the respondents agreed with "TB is a fatal and malignant disease." This result was similar to the findings of Ilongo *et al*.'s study.[25] Furthermore, in answer to the questions in the social stigma section, 37.6% of the respondents answered "agree" to "If you have TB, your disease affects your relationship with friends and others. "This result was confirmed by the findings of Sima *et al*.'s study.[26]

The present study has some limitations, including the use of self-report tool, the high number of questionnaire items, as well as the completion of questionnaires by the inquirer of illiterate people.

Conclusion

Although, as this study was carried out in the villages of Gorgan town, another research is required across the town to fulfill this investigation. Furthermore, it is suggested that further studies are investigated on the psychological dimensions and social consequences of social stigma on patients and their families.

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Conflicts of interest

There are no conflicts of interest.

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