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Quality of life and health behaviours of patients with tuberculosis — sex differences

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Abstract

Introduction: Despite the introduction of effective antituberculosis drugs, tuberculosis (TB) is still a serious health problem and one of the most significant causes of death among infectious diseases. Current publications indicate an increase of tuberculosis cases among smokers, diabetics, malnurished subjects and those abusing alcohol and drugs. In the literature, there are only few studies raising the topic of the quality of life (QoL), stress management and health behaviour among patients with tuberculosis. The aim of this study was to evaluate QoL of patients with tuberculosis taking into account gender differences. In the study, the analysis of knowledge, health behaviour and stress management among TB patients depending on sex was carried out.

Material and methods: The study included 80 subjects diagnosed with TB (including 38 females) who were hospitalised at the Regional Hospital Centre of Kotlina Jeleniogórska, Medical Unit Wysoka Łąka, Pulmonology and Phthisiology Department in Kowary between August 2012 and January 2013. The following questionnaires were used in the study: Mini-COPE — evaluating stress management, WHOQoL — assessing the quality of life of patients, IZZ — assessing health behaviour.

Results: A difference with regards to sociodemographic profile between females and males was observed. Half of the women surveyed were working (50% vs 19% of men), whereas half of men were entitled to unemployment benefit (50% vs 18.4% of women). More than half of women lived with their family (55.3%), whereas 47.6% of men lived alone. The majority of the subjects consumed alcohol occasionally (60.2% of women vs 45.2% of men), but as many as 31% of male patients vs 7.9% of females admitted that they consumed alcohol frequently. Among the respondents, people who consumed alcohol occasionally dominated (60.2% women vs. 45.2% of men), but as many as 31% of male patients vs. 7.9% of women admitted to consume alcohol frequently. Quality of life (QoL) assessment has shown no statistically significant differences between the sexes in this field. The respondents rated lowest their QoL in the physical domain, 12.4 ± 3.1 (12.9 ± 3.0 women vs. 11.8 ± 3.1 men) and 12.6 ± 2.4 in the environmental domain (13.1 ± 2.3 women vs 12.1± 2.4 men). Women received a higher rating of health behaviour on all subscales of the IZZ questionnaire, with the highest score in the prevention behaviour subscale (3.6 ± 0.7) and the lowest in the subscale of proper eating habits (3.1 ± 0.8). In men the highest score of health behaviour was observed in the subscale of positive mental attitude (3.1 ± 1.0) and the lowest in the subscale of proper eating habits (2.5 ± 0.8).

Conclusions: 1. There are differences between sociodemographic profile of TB patients: women are younger, better educated, economically active and more likely to remain in relationships; 2. There is no difference in QoL of TB patients between the sexes, whereas there are differences in the strategies of stress management and in applied health behavior; 3. Differences between genders indicate the need for matching treatment and preventive action for different patients profiles based on the cooperation of doctors, social workers, therapists, and psychologists.

Key words: tuberculosis, quality of life, health behaviours, coping with stress

Introduction

Despite the introduction of effective antituberculosis drugs, tuberculosis (TB) still remains a serious health problem and one of the most frequent causes of death due to infectious diseases [1]. The incidence of TB in Poland in 2012 amounted to 19.6 and it was lower by 11.7% compared to 2011 (22.2). Anyway, it was still higher than the mean in the countries of European Union, Norway and Island (13.5 cases per 100,000 persons — data for 2012) [2]. Recently, particularly in the Central Europe, the incidence of TB is growing among the elderly. In Poland, the median age of TB incidence was between 50−54 years. In 2012, similarly to the recent years, the incidence of TB in men was higher, compared to women (27.4 vs 12.2) [3]. It confirms the correlation between the occurrence of TB and numerous socioeconomic factors. The latter include: overpopulation, migration, homelessness, unemployment and malnutrition [4, 5]. Lifestyle-related factors are also considered to be important, as they considerably influence our health status. Currently there are more and more publications reporting the increase in risk of TB among smokers, diabetics controlling their disease ineffectively, and those who abuse alcohol or drugs [4, 5]. Researchers dealing with the topic define health behaviour in various manners. According to Heszen-Klemens [6], health behaviour includes intentional activities aimed to protect or improve health, however, it should be remembered that a healthy person has different health targets than a sick individual.

Diagnosis of TB is related to many difficulties that the patient experiences physically and mentally. The symptoms of the disease force the patient to change his personal and professional life. In order to function in suddenly changed conditions, the patient has to develop some ways and strategies for dealing in a new situation. Due to the nature of the disease, patients with TB have a lowered level of the quality of life. It is related to the fact that the disease may be perceived as something that limits most of the areas of human functioning. The issue of QoL has become of interest due to a new approach towards treatment effects, which consists not only in measurement of duration of treatment but also is seen from the perspective of 'the quality of life prolonged by a therapeutic success'. In medicine, the quality of life is referred to the definition given by the World Health Organization (WHO), according to which 'health is the complete physical, mental and social well-being of a person and not merely the absence of disease [7, 8]. Basing on this definition, human health should be considered not only in terms of symptoms and their intensification, but also as functioning in different areas of life. The assessment given by the patient shows limitations in his functioning, which are caused by disease or applied treatment. Self-assessment provides information on the possibilities of functioning and adopting new patterns of behaviour in various situations induced by disease [9]. The patient must learn to live with limitations resulting from disease and follow certain therapeutic strategies [10].

There are few studies raising the issue of the quality of life, stress management and health behaviour among TB patients.

The objective of the study was to evaluate QoL of patients with TB, taking into account sex differences. In the study, the analysis of knowledge, health behaviour and stress management among TB patients was conducted.

Material and methods

The study included 80 subjects diagnosed with TB (including 38 women, a mean age of women was 50.1 years, of men 55.8 years) hospitalised at the Regional Hospital Centre of Kotlina Jeleniogórska, Medical Unit Wysoka Łąka, Pulmonology and Phthisiology Department in Kowary (*Wojewódzkie Centrum Szpitalne Kotliny Jeleniogórskiej, Jednostka Medyczna Wysoka Łąka, Oddział Pulmonologiczno-Ftyzjatryczny w Kowarach*), between August 2012 and January 2013. Participation in the study was voluntary, and the subjects were assured that they would remain anonymous. The study was approved by the Bioethical Committee (consent No. KB-174/2013).

Inclusion criteria were as follows:
— age > 18 years
— diagnosis of tuberculosis
— the ability to communicate in Polish and complete the questionnaire by oneself
Exclusion criteria were as follows:
— age < 18 years
— severe concomitant diseases of the respiratory system (lung cancer, COPD, asthma, pulmonary oedema)
— lack of the willingness to participate in the study.

The study used the following instruments:
Mini-COPE Inventory for Measuring Coping with Stress, which is applied to the examination of healthy and sick adults. This type of measu-

rement is used to evaluate typical responses to severe stress. The questionnaire includes 28 statements out of 14 strategies (2 statements for each strategy): positive stress management — undertaking actions that improve the situation, planning — selecting and planning actions that should be undertaken in a specific situation, giving a new value to a problem — positive perception of a problem, acceptance of the current situation and the attempt to adopt to it, sense of humour — treating disease with a sense of humour, opening-up to religion — seeking alleviation and acceptance in prayer, searching for emotional support — seeking understanding and comfort in other people, looking for instrumental support — searching for help in other people, doing other things — undertaking actions in order to divert attention from a stressful situation, negation — avoiding thoughts about a stressful situation, giving vent to negative and violent emotions, taking psychoactive substances — using drugs to escape from problems, cessation of activities — discouragement and cessation of undertaking any actions, blaming oneself, accusing oneself of the current situation. The answers are given in a four-grade scale, from 0 (I almost never act in this way) to 3 (I nearly always act in this way). The scale allows to asses which of the given strategies are used by a sick individual [11]. The questionnaire was purchased in the Psychological Test Laboratory (*Pracownia Testów Psychologicznych*).

The WHOQoL-BREF questionnaire is used to assess healthy and sick people. The BREF version includes 26 questions and it originated from the WHOQoL-100 version, which comprises 100 questions. The questions allow to obtain information on QoL in four domains: physical, psychological, social relationships and environment. Reliability of the Polish version of the WHOQoL-BREF questionnaire was checked using Cronbach alpha ranging: for physical domain it was 0.81, for psychological one −0.78, for social relationships one −0.69, for environmental one −0.77, and for the whole questionnaire −0.90. The higher score, the better quality of life [12].

Health Behaviour Inventory (IZZ, Inwentarz Zachowań Zdrowotnych) created by Z. Juczyński consists of 24 statements describing various attitudes that are the marker of preserving health. A respondent indicates the frequency of preferred health behaviour on a 5-grade scale. The statements included in the questionnaire are divided into 4 categories: following proper eating habits, prevention behaviour, health habits and positive mental attitude of the respondent. The

general index of intensive health behaviour, measured with the IZZ scale lies within the limits of 24–120 points. The higher score, the most frequently declared health behaviour. The obtained number of points was then calculated into sten scores and interpreted in the categories of low scores (1−4 sten), medium (5−6 sten) and high (7−10 sten) [13]. The questionnaire was purchased in the Psychological Test Laboratory.

The authors' questionnaire including 20 sociodemographic and clinical questions concerning responses to the disease, the use of stimulants, the impact of TB on everyday professional and family life.

Results

Sociodemographic analysis of patients is presented in Table 1.

A difference in sociodemographic profile was found between the examined females and males. A mean age of the study subjects was 53.1 years, but men were older than women (55.8 ± 12.7 vs 50.1 ± 15.2). The proportion of subjects without profession (33.8%), with a university degree (33.8%), and those who were entitled to unemployment benefit (35%) or who were employed (33.8%) was equal or comparable. But among women, working individuals dominated (50% vs 19% of men), and among men, there were more patients who were entitled to unemployment benefit (50% vs 18.4% of women). 52.5% of examined patients lived in towns. More than half of the examined women lived with their family (55.3%), whereas among men, patients living alone prevailed (47.6%). There were differences between the subjects in respect of tobacco smoking: 60.5% of women vs 35.7% of men did not smoke tobacco. Most of the study subjects consumed alcohol occasionally (60.2% of women vs 45.2% of men), but as many as 31% of males vs 7.9% of females admitted that they consumed alcohol frequently.

Both groups responded with anxiety to the news about diagnosis of TB (57.9% of women vs 67.4% of men), and the necessity for hospitalisation was difficult for women (42.1% vs 25.6% of men), but they were conscious that in this way they would not infect other members of their family (36.7% vs 27.9%). Whereas the examined men were indifferent where they would stay (46.5% vs 18.4% of women).

Clinical characteristics of the respondents is presented in Table 2. No statistically significant differences were found among the examined women and men.

Table 1. Socio-demographic analysis of patients based on our own questionnaire

Answers to the questions:	Sex		Total n = 80	p
	Women n = 38	Men n = 42		
Age (year of life):				
mean ± SD	50.1 ± 15.2	55.8 ± 12.7	53.1 ± 14.2	0.060
median (min−max)	49 (18−80)	57 (19−85)	54 (18−85)	
Education				0.004
without profession	7 (18.4%)	20 (47.6%)	27 (33.8%)	
professional education	15 (39.5%)	7 (16.7%)	22 (27.5%)	
secondary education	4 (10.5%)	0 (0.0%)	4 (5.0%)	
higher education	12 (31.6%)	15 (35.7%)	27 (33.8%)	
Economic situation:				0.006
employed	19 (50.0%)	8 (19.0%)	27 (33.8%)	
pension	12 (31.6%)	13 (31.0%)	25 (31.3%)	
unemployment benefit	7 (18.4%)	21 (50.0%)	28 (35.0%)	
Place of residence:				0.372
village	8 (21.1%)	11 (26.2%)	19(23.8%)	
town	23 (60.5%)	19 (45.2%)	42 (52.5%)	
city	7 (18.4%)	12 (28.6%)	19 (23.8%)	
You live:				0.211
alone	13 (34.2%)	20 (47.6%)	33 (41.3%)	
with family (wife, husband, children)	21 (55.3%)	15 (35.7%)	36 (45.0%)	
with parents	4 (10.5%)	7 (16.3%)	11 (13.6%)	
Do you smoke cigarettes?				0.046
yes	15 (39.5%)	27 (64.3%)	42 (52.5%)	
no	23 (60.5%)	15 (35.7%)	38 (47.5%)	
Do you drink alcohol?				
a) no	12 (31.6%)	10 (23.8%)	22 (27.5%)	0.025
b) often	3 (7.9%)	13 (31.0%)	16 (20.0%)	0.022
c) only occasionally	23 (60.2%)	19 (45.2%)	42 (52.5%)	0.264
What was your reaction to the news about diagnosis of TB?				
a) I was anxious	22 (57.9%)	29 (67.4%)	51 (63.0%)	0.514
b) It was a relief to know diagnosis	12 (31.6%)	9 (23.3%)	21 (27.2%)	0.557
c) I was ashamed of the disease	9 (23.7%)	17 (39.5%)	26 (32.1%)	0.20
The decision about hospitalisation was for you:				
a) very difficult	16 (42.1%)	11 (25.6%)	27 (33.3%)	0.185
b) I was indifferent where I would stay	7 (18.4%)	20 (46.5%)	27 (33.3%)	0.015
c) I was glad that I would not infect other members of my family	14 (36.8%)	11 (27.9%)	25 (32.1%)	0.541
d) I was afraid of being with other patients	12 (31.6%)	10 (23.3%)	22 (27.2%)	0.561

The majority of respondents knew the ways of transmission of infection with TB (63.2% of women vs. 64.3% of men), and after diagnosis they informed their environment about the disease (60.5% of women vs 47.6% of men). In the group of women, the members of their family considerably more frequently did control check--ups targeted at TB (44.7% vs 38.1% of men). More than half of the examined men (54.8%) felt long-term symptoms prior to diagnosis of TB.

Table 2. Clinical analysis of the surveyed men and women with tuberculosis

Answers to the questions:	Sex		Total n = 80	p
	Women n = 38	Men n = 42		
Do you know the ways of infection with TB?				0.891
yes	24 (63.2%)	27 (64.3%)	51 (63.8%)	
no	14 (36.8%)	15 (35.7%)	29 (36.2%)	
Have you informed your environment that you are infected with TB:				
a) yes, everyone	23 (60.5%)	20 (47.6%)	43 (53.8%)	0.352
b) I was afraid to tell them	6 (15.8%)	8 (19.0%)	14 (17.5%)	0.935
c) I was ashamed to tell them	10 (26.3%)	15 (35.7%)	25 (31.3%)	0.506
Have all members of your family and friends done control check-ups targeted at TB?				0.714
a) yes	17 (44.7%)	16 (38.1%)	33 (41.3%)	
b) yes, partially	16 (42.1%)	18 (42.9%)	34 (42.5%)	
c) no, they were ashamed that they came into contact with a person with TB	5 (13.2%)	8 (19.0%)	13 (16.3%)	
How has your life changed after diagnosis of TB?				
a) I was excluded from social life and other relatives	8 (21.1%)	7 (16.7%)	15 (18.8%)	0.829
b) they point the finger at me and my family	4 (10.5%)	9 (21.4%)	13 (16.3%)	0.309
c) my family is under a lot of stress due to the appearance of the disease at home	15 (39.5%)	17 (40.5%)	32 (40.0%)	0.891
d) the disease has not affected my life, when I will return to home, everything will be as before diagnosis	16 (42.1%)	17 (40.5%)	33 (41.3%)	0.934
14. Is this your first disease of the respiratory system?				0.062
a) I have never suffered from the respiratory system disease	16 (42.2%)	13 (31.0%)	29 (36.3%)	0.419
b) since I was a child, I was often ill	11 (28.9%)	6 (14.3%)	17 (21.3%)	0.187
c) I cannnot recover from some time	11 (28.9%)	23 (54.8%)	34 (42.5%)	0.035
Have you ever used drugs?				0.844
yes	7 (18.4%)	6 (14.3%)	13 (16.3%)	
no	31 (81.6%)	36 (85.7%)	67 (83.7%)	
Symptoms prior to the disease ?				
a) weight loss	17 (44.7%)	22 (52.4%)	39 (48.8%)	0.643
b) nocturnal sweating	15 (39.5%)	18 (42.9%)	33 (41.3%)	0.935
c) strength reduction	22 (57.9%)	26 (61.9%)	48 (60.0%)	0.892
d) cough	22 (57.9%)	23 (54.8%)	45 (56.3%)	0.957
e) fever	11 (28.9%)	13 (31.0%)	24 (30.0%)	0.968

Both sexes most often had the following symptoms: reduction of strength (57.9% of women vs 61.9% of men), cough (57.9% of women vs 54.8% of men) and weight loss (44.7% of women vs 52.4% of men).

The analysis of QoL carried out with the help of the WHOQoL-Bref questionnaire did not show statistically significant differences in the quality of life among the study subjects. The respondents gave the lowest assessment to their QoL in the physical domain 11.8 ± 3.1 (12.4 ± 3.1 women vs 12.9 ± 3.0 men) and in the environmental domain 12.6 ± 2.4 (13.1 ± 2.3 women vs 12.1 ± 2.4 men), whereas best rated were the psychological domain 13.8 ± 2.9 (13.9 ± 2.7 women vs 14.1 ± 2.6) and social domain 13.6 ± 3.0 (14.0 ± 2.9 women vs 13.3 ± 3.2 men). The examined men obtained a slightly lower rating of QoL in each domain, however, the differences were not statistically significant (Table 3).

The analysis of health behaviour in the study group of TB patients was carried out using the IZZ questionnaire. The mean of the health behaviours of the population was 4.5 ± 2.4, thus the coeffi-

Table 3. Analysis of the quality of life in patients with tuberculosis

WHOQoL	Total n = 80	Sex		p
		Women n = 38	Men n = 42	
Physical domain				
mean ± SD	12.4 ± 3.1	12.9 ± 3.0	11.8 ± 3.1	0.093
median (min−max)	12.0 (5.7−19.4)	13.7 (6.3−19.4)	11.4 (5.7−19.4)	
Psychological domain				
mean ± SD	13.9 ± 2.7	14.1 ± 2.6	13.8 ± 2.9	0.572
median (min−max)	13.3 (8.0−20.0)	14.0 (10.0−20.0)	13.3 (8.0−19.3)	
Social domain				
mean ± SD	13.6 ± 3.0	14.0 ± 2.9	13.3 ± 3.2	0.266
median (min–max)	13.3 (6.7−20.0)	14.0 (8.0−20.0)	13.3 (6.7−20.0)	
Environmental domain				
mean ± SD	12.6 ± 2.4	13.1 ± 2.3	12.1 ± 2.4	0.073
median (min–max)	12.5 (7.5−19.0)	13.2 (7.5−17.5)	12.0 (8.0−19.0)	

Table 4. Evaluation of health behaviour with the IZZ questionnaire

Evaluation of behaviour using IZZ	Total n = 80	Sex		p
		Women n = 38	Men n = 42	
Sten:				
mean ± SD	4.5 ± 2.4	5.0 ± 2.3	4.1 ± 2.5	0.116
median (min−max)	4 (1.0−10)	5 (1−10)	4 (1−10)	
Proper eating habits:				
mean ± SD	2.8 ± 0.8	3.1 ± 0.8	2.5 ± 0.8	< 0.001
median (min−max)	2.7 (1.2−5.0)	3.1 (1.5−5.0)	2.3 (1.2−4.3)	
Prevention behaviour:				
mean ± SD	3.3 ± 0.9	3.6 ± 0.7	2.9 ± 1.0	< 0.001
median (min−max)	3.3 (1.5−5.0)	3.7 (1.5−5.0)	3.0 (1.5−4.7)	
Positive mental attitude:				
mean ± SD	3.2 ± 0.9	3.4 ± 0.9	3.1 ± 1.0	0.083
median (min−max)	3.3 (1.3−5.0)	3.3 (2.0−5.0)	3.2 (1.3−4.8)	
Health habits:				
mean ± SD	3.1 ± 0.9	3.2 ± 0.9	3.0 ± 0.9	0.385
median (min−max)	3.2 (1.3−5.0)	3.2 (1.3−5.0)	3.0 (1.3−4.7)	

cient of variation was 0.116, and there were no differences in health behaviour between women and men. The sten score comprised mean values; the lowest result obtained by the respondents was 1, whereas the highest — 10. The status of the subjects oscillated between 4 (women 5 ± 2.3, men 4 ± 2.5), hence, it may be assumed that health behaviour of the examined men and women was low.

Women obtained a higher evaluation of health behaviour in respect of all subscales of the IZZ questionnaire: proper eating habits (3.1 ± 0.8 vs 2.5 ± 0.8; p < 0.001) (Table 4), prevention behaviour (3.6 ± 0.7 vs 2.9 ± 10; p < 0.001),

Table 5. Analysis of stress management among the respondents

Mini-COPE	Total n = 80	Sex		p
		Women n = 38	Men n = 42	
1. Positive stress management				
mean ± SD	2.0 ± 0.7	2.2 ± 0.7	1.8 ± 0.8	0.019
median (min−max)	2 (0−3)	2.2 (0.5−3)	2 (0−3)	
2. Planning				
mean ± SD	1.9 ± 0.8	2.2 ± 0.7	1.6 ± 0.7	< 0.001
median (min−max)	2 (0−3)	2.5 (0.5−3)	1.5 (0−3)	
3. Giving a new value to the problem				
mean ± SD	1.8 ± 0.8	1.7 ± 0.8	1.8 ± 0.8	0.634
median (min−max)	2 (0−3)	2 (0−3)	2 (0−3)	
4. Acceptance				
mean ± SD	1.9 ± 0.7	2.0 ± 0.8	1.8 ± 0.7	0.193
median (min−max)	2 (0−3)	2 (0−3)	2 (0−3)	
5. Sense of humour				
mean ± SD	0.8 ± 0.8	0.5 ± 0.7	1.0 ± 0.8	0.005
median (min−max)	0.5 (0−3)	0.5 (0−3)	1 (0−3)	
6. Opening-up to religion				
mean ± SD	1.1 ± 0.9	1.4 ± 1.0	0.9 ± 0.8	0.020
median (min−max)	1 (0−3)	1.5 (0−3)	1 (0−3)	
7. Seeking emotional support				
mean ± SD	1.7 ± 0.8	1.9 ± 0.8	1.5 ± 0.8	0.028
median (min−max)	1.5 (0−3)	2 (0.5−3)	1.5 (0−3)	
8. Seeking instrumental suport				
mean ± SD	1.5 ± 0.8	1.7 ± 0.7	1.2 ± 0.8	0.005
median (min−max)	1.5 (0−3)	1.5 (0−3)	1 (0−3)	
9. Doing other things				
mean ± SD	1.7 ± 0.7	1.7 ± 0.6	1.6 ± 0.8	0.388
median (min−max)	1.5 (0−3)	1.8 (0.5−3)	1.5 (0−3)	
10. Negation				
mean ± SD	1.2 ± 0.9	1.3 ± 0.9	1.2 ± 1.0	0.901
median (min−max)	1 (0−3)	1.2 (0−3)	1 (0−3)	
11. Giving vent to negative and violent emotions				
mean ± SD	1.4 ± 0.7	1.2 ± 0.7	1.5 ± 0.8	0.095
median (min−max)	1.5 (0−3)	1 (0−2.5)	1.5 (0−3)	
12. The use of psychoactive substances				
mean ± SD	0.9 ± 1.0	0.4 ± 0.7	1.3 ± 1.1	< 0.001
median (min−max)	0.5 (0−3)	0 (0−3)	1 (0−3)	
13. Cessation of activities				
mean ± SD	1.0 ± 0.7	0.9 ± 0.8	1.1 ± 0.7	0.343
median (min−max)	1 (0−3)	1 (0−2.5)	1 (0-3)	
14. Blaming oneself				
mean ± SD	1.5 ± 0.9	1.4 ± 0.8	1.7 ± 0.9	0.106
median (min−max)	1.5 (0−3)	1.5 (0−3)	1.5 (0−3)	

positive mental attitude (3.4 ± 0.9 vs 3.1 ± 1.0, ns) and health habits (3.2 ± 0.9 vs 3.0 ± 0.9, ns).

Health behaviour in women most frequently concerned the subscale of prevention behaviour (3.6 ± 0.7) and least frequently the subscale of proper eating habits (3.1 ± 0.8). In men, health behaviour was observed most often in the subscale of positive mental attitude (3.1 ± 1.0), and least often in the subscale of proper eating habits (2.5 ± 0.8).

The study subjects had different ways of coping with stress. Among women with TB, the following strategies dominated: positive stress management (2.2 ± 0.7 vs 1.8 ± 0.8; p = 0.019), planning (2.2 ± 0.7 vs 1.6 ± 0.7; p < 0.001), opening-up to religion (1.4 ± 1.0 vs 0.9 ± 0.8; p = 0.020), seeking emotional support (1.9 ± 0.8 vs 1.5 ± 0.8; p = 0.02) and seeking instrumental support (1.7 ± 0.7 vs 1.2 ± 0.8; p = 0.005). In the group of the men surveyed, the most frequent were strategies basing on the sense of humour (1.0 ± 0.8 vs 0.5 ± 0.7; p = 0.005) and the use of psychoactive substances (1.3 ± 1.1 vs 0.4 ± 0.7; p < 0.001) (Table 5).

Discussion

The evaluation of QoL has become recently a crucial marker of the advantages gained by the patient during various diagnostic and therapeutic procedures. Clinical studies assessing treatment results, apart from biological aspect of the evaluation of human health, adopt a multifaceted view that pays particular attention to emotional response of the patient, his well-being and functioning in everyday life. Of particular importance is the assessment of QoL in cases where treatment is onerous, lasts several months and recovery is not always possible [14]. Due to the nature of the disease and long, frequently burdened by complications treatment, TB patients have a lowered level of the quality of life. The disease is often perceived as limitation to the functioning in many areas of human life. The measurement of QoL in the case of TB patients may prove useful in modifying the way and mode of treatment, supplementing objective evaluation of health status, introducing the support system and paying attention to non-medical aspects of TB [15–17].

In Poland, it is widely believed that a person with TB comes from low classes. The study by Korzeniewska-Koseła confirmed the occurrence of TB in less privileged classes of the society, however, they were not predominant in the examined group [18]. The results of this paper support the

commonly held belief to some extent. The analysis of the male patients profile showed that he is a lone person, unemployed, with a propensity to consume alcohol. The characteristics of the female patients are slightly different.

The present study revealed the differences in sociodemographic qualities between the sexes. A mean age of the subjects was 53.1 years, and males were 5 years older than females. The proportion of the respondents without profession, with a university degree, entitled to unemployment benefit or those who were employed was comparable. But among women, professionally active persons predominated, whereas among men, those who were entitled to unemployment benefit. More than half of women lived with their family, whereas most men lived alone. As many as 31% of men admitted that they often drank alcohol.

According to Korzeniewska-Koseła [18], the highest TB incidence is observed in the group between 45 and 64 years of age. A mean age of the study subjects was comparable with the present paper, yet the profile of TB patient was different. In the study by Korzeniewska-Koseła, the group of TB patients experienced homelessness, unemployment, alcohol abuse and imprisonment, however, the subjects with pathological features did not predominate [18]. In the paper by Błachnio et al. [19], the majority of sputum-positive women from the Mazovia region were unemployed, living alone, over 40 years of age inhabitants of cities. Many studies showed that alcoholism, loneliness and TB often are closely connected [15, 16]. In the present study, the proportion of patients without profession and those with a university degree was similar, but in the group of the men surveyed, there were several risk factors that favoured the incidence of TB: as many as 30% of the subjects admitted frequent consumption of alcohol, nearly half of them declared that they lived alone, and 80% were entitled to unemployment benefit or were unemployed.

Successful treatment of TB depends on both early diagnosis and prompt and consistent introduction of pharmacotherapy [20]. The patients from the present study, when they learned about diagnosis, apart from annoyance, were ashamed that the disease affected them. The information on compulsory hospitalisation caused the feeling of relief in women, as they did not want to infect other members of their family. The examined men were indifferent to the place they stayed. Reluctance to the disease and failure to feel the necessity for treatment in men may be explained

by their lower education and the lack of family. According to the available literature, men achieve worse treatment results and stop the therapy on a general basis [21, 22]. In addition, alcoholism, drug addiction and unemployment make the proper cooperation more difficult. In the group of alcohol addicts, the risk of failure to complete the therapy was seven times higher compared to the study population [23]. In the current paper, the symptoms of the disease in men lasted for some time and they were difficult to treat. It may be related to concomitant diseases of the circulatory system or unsuccessful attempts to seek help in medical centres.

For nearly half of the respondents, diagnosis of TB meant withdrawal from social and professional life. This fact may be the reason for concealing the disease, having a sense of alienation from the society and being under great stress, which consequently leads to lowered quality of life.

A few available papers concerning QoL in TB patients focused mainly on the issue of correlation between therapy and QoL. The authors described the quality of life of TB patients as low until the moment of the beginning of appropriate treatment. In their opinion, duration of therapy does not play a crucial role [17, 24].

In the present study, the respondents rated lowest their QoL in the physical domain, whereas men assessed their QoL lower than women. The current paper confirms the research by Mamanii [24], according to which, TB patients rated lowest their physical and social domain. Low evaluation of the quality of life among the respondents may be the effect of the use of chemotherapeutic agents negatively affecting physical and mental status, and the intensification of the disease. Patients complained most frequently of fever, strength reduction, weight loss and nocturnal sweating. In addition, low assessment of QoL may be the result of the approach to the disease, the lack of acceptance thereof by the society and the patient. In the study by Dhuria et al. [4], TB patients obtained lower evaluation of QoL in all domains of the WHO-100 Bref questionnaire, compared to patients from the control group. The lowest rating was obtained, similarly to the present paper, in the physical domain and, contrary to the present paper, in psychological domain. In the study by these authors [5], women, contrary to men, obtained higher assessment of QoL in the physical and environmental domain, whereas in the present paper, women achieved higher evaluation in every examined domain of the questionnaire.

In the present study, the environmental domain, which is related to the sense of safety, home environment, transport and finances, was assessed as low as the physical domain. In the research by Khan et al. [25], women in the environmental domain rated their quality of life lower than the examined men, whereas the results of the present paper are different. The differences in the results of the present study may be caused by dissimilar profile of women, who were better educated, more often worked and lived with their families.

Chronic disease is regarded by psychologists as a long-term stress extending over time and undergoing typical stages. Disease-related stress is often dynamic and undergoes frequent changes resulting from the patient interacting with the broader environment. A long-term stressor imposes the use of remedial strategies. In the present study, differences between the sexes in stress management strategies and health behaviour were found [26].

The analysis of health behaviour showed that among TB patients, they are low and there are no differences between the sexes. In women, health behaviour most frequently concerned the subscale of prevention strategies, and in men, the subscale of positive mental attitude. The examined women wanted to undergo treatment of TB, they were glad about prompt hospitalisation, and their behaviour was the effect of concern for the remaining members of their family. Whereas men were indifferent to the fact of being treated, which was the result of their sociodemographic profile. Such attitudes are confirmed by the applied stress management strategies. Male patients were using strategies based on the sense of humour and taking psychoactive substances. There is a popular belief that alcohol consumption reduces psychophysical tension and may be used as stress management strategy. According to Terlak, such opinion is formed by addicts who think that alcohol consumption decreases tension and anxiety [27]. It happens frequently that an alcohol addict who cannot deal with difficulties, adapt to the situation. More than 30% of men in the present study often consumed alcohol. The women surveyed more often used positive strategies, tackling the difficulties and seeking support.

In other researches into stress management strategies, the ways of coping with stress were the same as used by women in the present paper. Patients with multiple sclerosis often turn to religion and seek emotional support [26]. The appliance of evasion strategies may be aimed to distract attention from the disease. In compar-

ison with men, women are more likely to ask for help, share their problems with others, join associations and support groups. They are more sociable and more willing to share their experiences related to the disease. They gain a lot of satisfaction from meeting other people, not only those who have similar experiences.

Conclusions

There are differences in sociodemographic profile in TB patients: women are younger, better educated, professionally active and more frequently live in relationships.

There are no differences in the assessment of the quality of life of TB patients between the sexes. The study subjects rated lowest their quality of life in the physical and environmental domain.

There are differences between women and men with TB in stress management strategies and health behaviour.

Owing to the differences between women and men, it is necessary to adjust treatment and prevention measures appropriate for various profiles of patients, basing on cooperation between doctors, social workers, therapists and psychologists.

There is the need for prevention measures and health education aimed to arouse public awareness of TB patients. Many patients, except for pharmacotherapy, require social and psychological support and treatment for addictions. Undoubtedly, the efforts will be more effective with simultaneous cooperation between doctors, nurses, social workers, therapists and psychologists.

Conflict of interest

The authors declare no conflict of interest.

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