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ORIGINAL RESEARCH

Sex-differences in socioeconomic status and health-seeking behaviour among tuberculosis patients in transitional Albania in 2012-2013

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Abstract

Aim: There is little scientific evidence about the main determinants of sex discrepancies in tuberculosis rates in Albania. The aim of this study was to assess the sex-differences in socioeconomic characteristics, knowledge and attitudes about tuberculosis and access to health care among tuberculosis patients in Albania, a transitional country in the Western Balkans.
Methods: Our analysis involved all the new cases of pulmonary tuberculosis diagnosed in Albania during the period June 2012 – June 2013 (N=197; 69% males; overall mean age: 44±19 years). The recording and reporting system of tuberculosis cases was performed according to the WHO and EuroTB Surveillance guidelines. Information on socioeconomic characteristics of the patients, knowledge and attitudes about tuberculosis and access to health care was also collected. Logistic regression was used to assess the correlates of sex-differences among tuberculosis patients.
Results: In multivariable-adjusted models, female sex was positively related to unemployment (OR=3.7, 95%CI=1.8-7.7), bad living conditions (OR=3.0, 95%CI=1.4-6.5), a longer distance to health care facility (OR=3.0, 95%CI=1.4-6.3), a lower level of knowledge about tuberculosis (OR=3.1, 95%CI=1.3-7.1) and a higher level of stigma against tuberculosis (OR=3.6, 95%CI=1.6-7.9).
Conclusion: Our study informs about selected correlates of sex-differences in tuberculosis rates in post-communist Albania. Future studies should more vigorously explore determinants of sex-differences in tuberculosis rates in countries of the Western Balkans.

Keywords: access to health care, Albania, case detection rate, health seeking behaviour, pulmonary tuberculosis, sex-differences, socioeconomic characteristics.

Conflicts of interest: None.

Introduction

To date, the information about determinants of sex-differences in tuberculosis occurrence is scant (1,2), notwithstanding the available evidence suggesting that, at a global level, tuberculosis affects men more frequently than women (3). In any case, tuberculosis remains a crucial public health issue at a global scale which, regardless of sex, affects mostly the disadvantaged young population subgroups (4,5). Hence, only for the year 2012, there were reported 8.6 million new tuberculosis cases and 1.3 million tuberculosis deaths (6).

For the European region, the tuberculosis case notification rate in 2012 was substantially higher than the global average notification rates (7). However, the relatively higher case-notification rate in the European region on the whole does not necessarily apply for the former communist countries of the Western Balkans including Albania and Kosovo. Among all countries of the Western Balkans, Kosovo exhibits the highest incidence rate of tuberculosis (8,9). It should be noted that in both Albania and Kosovo, the tuberculosis notification rates resemble the respective incidence rates (8,9). Furthermore, both Albania and Kosovo have a low prevalence of HIV infection (8,9).

However, the information about the sex-differences of tuberculosis rates in Albania is scarce. After the breakdown of the communist regime in 1990, Albania undertook a difficult journey from a rigid communist regime towards an open society (10,11). Nevertheless, the transition towards a democratic regime was associated with considerable socio-economic changes coupled with huge internal and external migration (12), which are believed to affect also the case-notification rates of tuberculosis. Yet, there are no recent scientific reports informing about the magnitude and determinants of tuberculosis in Albania.

In this context, the aim of our study was to assess the sex-differences in socioeconomic characteristics, knowledge and attitudes about tuberculosis and access to health care among male and female tuberculosis patients in Albania, a transitional country in the Western Balkans with a low prevalence of HIV/AIDS.

Methods

Design and study population

A cross-sectional study was conducted including all new pulmonary tuberculosis patients diagnosed in Albania from June 2012 to June 2013. During this time period, overall, there were recorded 197 new tuberculosis patients in Albania (69% males and 31% females; overall mean age: 43.84±19.2 years).

Data collection

All the recorded tuberculosis data from registers of the Tuberculosis Program in Albania were used for this analysis. The recording and reporting system was performed according to the WHO and EuroTB Surveillance guidelines (13).

All tuberculosis patients underwent a structured interview inquiring about factors related to access to health care, health seeking behavior and demographic and socioeconomic characteristics.

Information about access to health care and health seeking behaviour included data on the distance to health care facility (dichotomized into: ≤10 km vs. >10 km), knowledge about tuberculosis (dichotomized into: yes vs. no) and stigma against tuberculosis (yes vs. no).

Demographic and socioeconomic characteristics included age (dichotomized into: ≤45 vs. >45 years), gender (males vs. females), place of residence (urban areas vs. rural areas), employment status (dichotomized into: unemployed vs. employed/students/retired), educational attainment (dichotomized into: 0-8 years of formal schooling, vs. ≥9 years of formal schooling) and living conditions (dichotomized into: good/average vs. bad).

Statistical analysis

Chi-square test was used to compare the distribution of socioeconomic characteristics, knowledge and attitudes about tuberculosis and access to health care among male and female tuberculosis patients.

Binary logistic regression was used to assess sex-differences in socioeconomic characteristics, knowledge and attitudes about tuberculosis and access to health care among tuberculosis patients. Initially, crude (unadjusted) odds ratios (ORs), their respective 95% confidence intervals (95%CIs) and p-values were calculated. Subsequently, multivariable-adjusted ORs, their respective 95%CIs and p-values were calculated. Hosmer-Lemeshow test was used to assess the goodness of fit of the logistic regression models. In all cases, a p-value of ≤0.05 was considered statistically significant.

Statistical Package for Social Sciences (SPSS, version 15.0) was used for all the statistical analysis.

Results

Table 1 presents the distribution of socioeconomic characteristics, knowledge and attitudes about tuberculosis and access to health care among tuberculosis patients in Albania by sex. Males were somehow younger than females, a finding which was not statistically significant (P=0.09). There was no sex-difference in the proportions of urban/rural residents. Conversely, the unemployment rate was considerably higher among females (59% vs. 29% in males, P<0.001). Similarly, the proportion of low-educated (0-8 years of formal schooling) and individuals with bad living conditions was higher among females than in males (77% vs. 60%, P=0.02 and 46% vs. 24%, P=0.02, respectively). A significantly higher proportion of females reported a longer distance to health care facility (>10 km) compared with their male counterparts (64% vs. 40%, respectively, P=0.002). The knowledge about tuberculosis was lower among females (66% vs. 81% in males, P=0.03), whereas the level of stigma against tuberculosis was considerably higher (71% vs. 49%, respectively, P=0.008) [Table 1].

Table 1. Distribution of socioeconomic characteristics, knowledge and attitudes about tuberculosis, and access to health care among tuberculosis patients in Albania by sex

Variable	Females (N=61)	Males (N=136)	P[†]
Age:			
≤45 years	27 (44.3)[*]	79 (58.1)	0.089
>45 years	34 (55.7)	57 (41.9)	
Place of residence:			
Urban areas	24 (39.3)	64 (47.1)	0.354
Rural areas	37 (60.7)	72 (52.9)	
Employment status:			
Unemployed	36 (59.0)	40 (29.4)	<0.001
Employed/students/retired	25 (41.0)	96 (70.6)	
Educational level:			
0-8 years	47 (77.0)	81 (59.6)	0.023
≥9 years	14 (23.0)	55 (40.4)	
Living conditions:			
Good/average	33 (54.1)	104 (76.5)	0.002
Bad	28 (45.9)	32 (23.5)	
Distance to health facility:			
≤10 km	22 (36.1)	82 (60.3)	0.002
>10 km	39 (63.9)	54 (39.7)	
Tuberculosis knowledge:			

Yes	40 (65.6)	110 (80.9)	0.029
No	21 (34.4)	26 (19.1)	
Stigma:			
No	18 (29.5)	69 (50.7)	0.008
Yes	43 (70.5)	67 (49.3)	

[*] Absolute numbers and their respective column percentages (in parentheses).

[†] P-values from the chi-square test.

In crude (unadjusted) logistic regression models, there was no significant sex-difference in the age or place of residence of tuberculosis patients (Table 2). On the other hand, female gender was positively and significantly associated with unemployment (OR=3.5, 95%CI=1.8-6.5), a lower educational attainment (OR=2.3, 95%CI=1.2-4.5), bad living conditions (OR=2.8, 95%CI=1.5-5.2), a longer distance to health care facility (OR=2.7, 95%CI=1.4-5.0), a lower level of knowledge about tuberculosis (OR=2.2, 95%CI=1.1-4.4) and a higher level of stigma against tuberculosis (OR=2.5, 95%CI=1.3-4.7) [Table 2].

Table 2. Sex-differences in socioeconomic characteristics, knowledge and attitudes about tuberculosis, and access to health care among tuberculosis patients in Albania; crude/unadjusted odds ratios from binary logistic regression

Variable	OR[*]	95%CI[*]	P[*]
Age:			
≤45 years	1.00	reference	0.073
>45 years	1.75	0.95-3.21	
Place of residence:			
Urban areas	1.00	reference	0.315
Rural areas	1.37	0.74-2.53	
Employment status:			
Employed/students/retired	1.00	reference	<0.001
Unemployed	3.46	1.84-6.45	
Educational level:			
≥9 years	1.00	reference	0.019
0-8 years	2.28	1.15-4.54	
Living conditions:			
Good/average	1.00	reference	0.002
Bad	2.76	1.45-5.23	
Distance to health facility:			
≤10 km	1.00	reference	0.002
>10 km	2.69	1.44-5.03	
Tuberculosis knowledge:			
Yes	1.00	reference	0.021
No	2.22	1.13-4.38	
Stigma:			
No	1.00	reference	0.006
Yes	2.46	1.29-4.69	

[*] Crude/unadjusted odds ratios (OR: female vs. male), 95% confidence intervals (95%CI) and p-values from binary logistic regression.

Upon simultaneous adjustment for all covariates (Table 3), female sex was positively related to unemployment (OR=3.7, 95%CI=1.8-7.7), bad living conditions (OR=3.0, 95%CI=1.4-6.5), a longer distance to health care facility (OR=3.0, 95%CI=1.4-6.3), a lower level of

knowledge about tuberculosis (OR=3.1, 95%CI=1.3-7.1) and a higher level of stigma against tuberculosis (OR=3.6, 95%CI=1.6-7.9).

Table 3. Sex-differences in socioeconomic characteristics, knowledge and attitudes about tuberculosis, and access to health care among tuberculosis patients in Albania; multivariable-adjusted odds ratios from binary logistic regression

Variable	OR*	95%CI*	P*
Age:			
≤45 years	1.00	reference	0.102
>45 years	1.87	0.88-3.98	
Place of residence:			
Urban areas	1.00	reference	0.645
Rural areas	1.19	0.57-2.50	
Employment status:			
Employed/students/retired	1.00	reference	0.001
Unemployed	3.68	1.78-7.65	
Educational level:			
≥9 years	1.00	reference	0.230
0-8 years	1.64	0.73-3.65	
Living conditions:			
Good/average	1.00	reference	0.006
Bad	2.97	1.36-6.48	
Distance to health facility:			
≤10 km	1.00	reference	0.004
>10 km	3.00	1.42-6.34	
Tuberculosis knowledge:			
Yes	1.00	reference	0.009
No	3.06	1.33-7.08	
Stigma:			
No	1.00	reference	0.002
Yes	3.57	1.62-7.88	

* Multivariable-adjusted odds ratios (OR: female vs. male), 95% confidence intervals (95%CI) and p-values from binary logistic regression.

Discussion

Main findings of our study include a strong positive association of female gender with a lower socioeconomic status among tuberculosis patients diagnosed in Albania during mid-2012 to mid-2013. In particular, unemployment and poor living conditions were considerably more prevalent among female patients with tuberculosis compared with their male counterparts. Furthermore, a lower access to health care and scarce personal resources for a proper and effective health seeking behaviour were substantially more prevalent among female tuberculosis patients.

The finding of a positive association of female sex with a lower socioeconomic status, a lower access to health care and a poor health seeking behaviour may point to a lower degree of case notification rate among females compared to males in Albania. Indeed, our finding pointing to a higher case notification rate of tuberculosis among males compared with the females is generally in line with the abundant global evidence on this matter (3-7). Nonetheless, despite the current evidence obtained in various countries and regions, it is not clear whether these sex-differences reflect a distinctive tuberculosis epidemiology (14), or an under-notification

driven by socio-cultural characteristics and/or access to health care services or health seeking behavior (15,16).

Regardless of sex, it has been shown that there is a high possibility of under-notification of tuberculosis cases in low-and-middle income countries due to their limited resources coupled with a weak tuberculosis surveillance system (17,18). In this context, the under-notification may affect mostly females, which are assumed to be more vulnerable in terms of their socioeconomic conditions and health seeking behaviour. Thus, biological explanations aside, it has been argued that there is a link between female under-notification rates in the context of specific cultural factors which play an important role in developing and transitional societies (19), such as the case of Albania and perhaps other former communist countries in the Western Balkans. In any case, given the lack of sufficient information, the World Health Organization stimulates further vigorous research related to determinants of sex-differences in case notification rates of tuberculosis (2).

On the other hand, in our study, there was no evidence of sex-differences with regard to the place of residence (urban areas vs. rural areas) of tuberculosis patients.

Our analysis may have several limitations. Notwithstanding the fact that we included all new patients with tuberculosis diagnosed during the period June 2012 – June 2013, the possibility of under-recording of tuberculosis cases may affect differentially males and females in Albania. Furthermore, it is reasonable to assume a differential recording of new cases based on the demographic and socioeconomic profiles of the patients with tuberculosis. Also, measurement of socioeconomic characteristics and health seeking behaviour – which was based on interview – may have affected, to some degree, our findings. Therefore, future studies in Albania should more vigorously assess determinants of sex-differences in tuberculosis rates in the overall population.

In conclusion, our study provides useful evidence about selected correlates of sex-differences among tuberculosis patients in Albania. Health care providers, policymakers and decision-makers in Albania should be aware of the current sex-differences in socioeconomic characteristics, access to health care and health seeking behaviour among tuberculosis patients in this post-communist society. Future studies in Albania and other transitional countries of the Western Balkans should further explore the main determinants of sex-differences in tuberculosis rates.

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