

The relationship between education and self-reported mental and physical health

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ABSTRACT

Aim To investigate the relationship between educational level and self-reported physical and mental health in the population of Sarajevo Canton.

Methods This cross-sectional study was carried out in family medicine outpatient departments of the Primary Health Care Centre of Sarajevo Canton, Bosnia and Herzegovina. The study included 300 respondents who were divided into lower- and higher-education groups (≤ 12 years and > 12 years of education, respectively). The SF-36 questionnaire for self-assessment of mental and physical health and a questionnaire for the evaluation of socio-demographic characteristics were used.

Results The mean values for the mental component summary (MCS) were significantly lower in the lower education (56.86 ± 23.02) than in the higher education group (65.08 ± 20.91) ($p=0.001$). The mean values for the physical component summary (PCS) were significantly lower in the lower education (61.77 ± 21.60) than in the higher education group (74.26 ± 17.89) ($p=0.000$). On average, females had significantly lower scores than males on both the PCS ($p=0.00$) and the MCS ($p=0.00$). There was significant relationship of low education with self-reported poor mental ($B=6.547$, $SE=2.481$; $p=0.009$) and physical health ($B=10.870$, $SE=2.248$; $p=0.024$). Increased age was associated with poorer PCS and better MCS.

Conclusion Educational level is a strong determinant of perceived health. The importance of education should be emphasized to children as vitally important for their future health.

Key words: age, schools, female, male, quality of life

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INTRODUCTION

Health status is an individual's relative level of wellness and illness, taking into account physical, biological and emotional functioning (1). Traditionally, health status has been assessed by physical examination and other objective procedures or tests (2).

Self-reported health status is a measure of how one perceives and reports one's own well-being (3). Self-perception of one's own health has become necessary to consider particular subjective aspects of health to attain a more comprehensive understanding of relevant health and disease processes (4). People's self-perceptions about their health are often more effective than clinical measures for predicting help-seeking behaviours and health service use, because people generally seek health care only when they feel unhealthy (5). Self-rated health has been measured in various ways using single questions or scales (6).

Factors that may contribute to differences in health and in perceived health status include education, age, sex, income psychosocial characteristics, housing and living environment (7).

Many studies show a positive correlation between education and health (8-11). It is usually accepted that more highly educated individuals are healthier and tend to enjoy prolonged life spans (12). Previous studies in less developed regions suggest that even with small amounts of formal schooling (2-3 years), differences in health outcomes arise in comparison to non-schooled individuals (13).

Educational level is a strong determinant of perceived health (14). Higher level of education was found to be associated with higher self-rating of health (15). One study across 22 European countries found that people with low education were more likely to report poor general health and functional limitations. According to the European Social Survey 2003 educational health inequalities are relatively small in Austria, Norway, Sweden, and the United Kingdom, large inequalities were found in Hungary, Poland, and Portugal (16).

The aim of this study was to investigate the relationship between educational level and self-reported physical and mental health in Sarajevo Canton population.

EXAMINEES AND METHODS

Study design

This cross-sectional study was carried out in family medicine outpatient departments of the Public Institution Primary Health Care Centre of Sarajevo Canton, Bosnia and Herzegovina (B&H) in the period March – July 2017.

The respondents were patients who used health care services at the Primary Health Care Centre during the course of the study period. The study included 300 respondents on the principle of systematic random sampling. The respondents were divided into lower- and higher-education groups (≤ 12 years and >12 years of education, respectively).

The inclusion criteria were persons aged 18-65 years who have a medical record in the Primary Health Care Centre of the Sarajevo Canton. The exclusion criteria were persons younger than 18 or older than 65 years, persons who do not have medical records at the Primary Health Care Centre of the Sarajevo Canton and students.

The Ethics Committee of the School of Medicine, University of Sarajevo, approved the study. For this investigation, a written consent of the General Director of the Primary Health Care Centre of the Sarajevo Canton was obtained. An informed consent for participation in the study was taken from all respondents.

Methods

The respondents were supposed to fill out a questionnaire that included questions about their socio-demographic characteristics and the SF-36 questionnaire (17). Socio-demographic characteristics were included: education, age, gender and self-perceived financial status.

Education was measured by the highest self-reported level of completed education.

Education level was categorized as incomplete elementary school, completed elementary school, completed secondary school, high school/college completed and university completed.

Lower-education group included incomplete or complete elementary and secondary school. Higher-education group included high school / college or university level.

Self-perceived financial status was categorized as a lot worse than average, slightly worse than average, average, slightly better than average and much better than average.

The SF-36 questionnaire was used to measure the self-reported physical health (physical component summary) and self-reported mental health (mental component summary) (17).

The SF-36 Health Survey includes one multi-item scale measuring each of the eight health concepts: physical functioning (10 items), physical role limitations (four items), bodily pain (two items), general health perceptions (five items), energy/vitality (four items), social functioning (two items), emotional role limitations (three items) and mental health (five items). Items and scales were constructed using the Likert method of summated ratings. Answers to each question were scored (some items need to be recoded). These scores were summed to produce raw scale scores for each health concept which were then transformed to a 0 – 100 scale. Higher scores indicate better health (18).

Scoring algorithms were then applied to produce the two summary scores: physical and mental component summary. The physical component summary score was derived from four health concepts: physical functioning, physical role limitations, bodily pain and general health perceptions. Mental component summary score was derived from four health concepts: energy/vitality, social functioning, emotional role limitations and mental health.

All scale questions refer to a four-week period (17).

Statistical analysis

Testing of the difference in self-perceived financial status between the lower- and the higher-education groups was performed by χ^2 test.

Testing of the difference in self-reported physical and mental health between the lower- and the higher-education groups, males and females was performed by Kruskal-Wallis test. Linear regression analysis was used to assess the association of self-reported physical and mental health with age, gender, education and self-perceived financial status. Level of significance set at $p < 0.05$, and or the confidence level of 95%.

RESULTS

The study evaluated 300 respondents in two groups of 150 (i. e. lower- and higher-education).

In the total sample, females were slightly more represented than males, 182 (60.7%) and 118 (39.3%), respectively. Mean age of males and females was 34 ± 10.34 years and 33 ± 10.43 years, respectively ($p = 0.473$).

Higher education (more than secondary school) rate of males, 54.2% (64 out of 118) than females was noticed, 47.3% (86 out of 181) ($p = 0.144$). Self-perceived financial status of females in the lower- and higher-education groups was significantly different ($p = 0.001$). Twice as many females with the financial status which was slightly/ much better than average were in the higher education group, 43 (50%), than in the lower education group, 20 (20.9%). Self-perceived financial status of males in the lower- and higher-education groups was not significantly different ($p = 0.435$) (Table 1).

Table 1. Self-perceived financial status by gender and education level

Education level (No)	No (%) of respondents with self-perceived financial status					P
	Lot worse than average	Slightly worse than average	Average	Slightly better than average	Much better than average	
Males (118)						
Lower (54)	0 (0)	4 (7.4)	31 (57.4)	16 (29.6)	3 (5.6)	0.435
Higher (64)	0 (0)	6 (9.4)	27 (42.2)	26 (40.6)	5 (7.8)	
Total	0 (0)	10 (8.5)	58 (49.1)	42 (35.6)	8 (6.8)	
Females (182)						
Lower (96)	2 (2.1)	12 (12.5)	62 (64.6)	18 (18.8)	2 (2.1)	0.001
Higher (86)	2 (2.3)	4 (4.7)	37 (43.0)	34 (39.5)	9 (10.5)	
Total	4 (2.2)	16 (8.8)	99 (54.4)	52 (28.6)	11 (6.0)	

The mean values for the MCS scores were significantly lower in the lower education than in the higher education group, 56.86 ± 23.02 and 65.08 ± 20.91 , respectively ($p = 0.001$). There was 8-point difference between lower and the higher education groups. Both females and males in the lower education group reported worse mental health than in the higher education group ($p = 0.002$, and $p = 0.511$, respectively) (Table 2).

The mean values for the PCS scores were significantly lower among the participants with lower education (61.77 ± 21.60) than among the participants in the higher education group (74.26 ± 17.89) ($p = 0.000$). The 12-point difference between lower and the higher education group

Table 2. Mean values for the mental component summary (MCS) score by gender and education group

Gender/education level (No)	Mean value for the MCS score (SD)	p
All (300)		
Males (118)	68.57 (18.01)	0.000
Females (182)	56.05 (23.51)	
Lower education (150)	56.86 (23.02)	0.001
Higher education (150)	65.08 (20.91)	
Males (118)		
Lower education (54)	67.38 (19.84)	0.511
Higher education (64)	69.58 (16.37)	
Females (182)		
Lower education (96)	50.95 (22.65)	0.002
Higher education (86)	61.74 (23.26)	

SD, standard deviation

ps was found. Both females and males in lower education group reported worse physical health than in the higher education group (p=0.000 and p=0.198, respectively) (Table 3).

Table 3. Mean values for the physical component summary (PCS) score by gender and education group

Gender/education level (No)	Mean value for the PCS scores (SD)	p
All (300)		
Males (118)	72.69 (17.57)	0.000
Females (182)	64.98 (22.12)	
Lower education (150)	61.77 (21.60)	0.000
Higher education (150)	74.26 (17.89)	
Males (118)		
Lower education (54)	70.41(18.01)	0.198
Higher education (64)	74.60 (17.11)	
Females (182)		
Lower education (96)	56.91 (22.02)	0.000
Higher education (86)	74.01 (18.54)	

SD, standard deviation

There was significant relationship of low education with self-reported poor mental health (p=0.009) as well as significant relationship of females (p=0.000), younger age (p= 0.024) and slightly worse financial status than average (p=0.001) with self-reported poor mental health.

There was significant relationship of low education with self-reported poor physical health (p=0.000). There was also significant relationship of female gender (p=0.004) and slightly worse financial status than average (p=0.000) with self-reported poor physical health. An increase of age was associated with poorer PCS and better MCS (Table 4).

DISCUSSION

This study explored the relationship between educational level and self-reported physical and mental health. The obtained results indicate that

Table 4. Linear regression model for the physical and mental component summary

	B	SE	95%CI	p
Mental Component Summary				
Age	0.270	0.119	0.036-0.504	0.024
Gender: female/male	-11.433	2.480	-16.313- -6.552	0.000
Education: higher/lower	6.547	2.481	1.664-11.430	0.009
Financial status: lot worse than average	-13.520	10.623	-34.428-7.389	0.204
Financial status: slightly worse than average	-15.545	4.420	-24.244- -6.845	0.001
Financial status: average	0.685	2.586	-4.405-5.774	0.791
Financial status: slightly better than average	0.992	2.777	-4.474-6.458	0.721
Financial status: much better than average	-2.447	5.179	-12.639-7.746	0.637
Physical Component Summary				
Age	-0.204	0.108	-0.417 - 0.008	0.059
Gender: female/male	-6.462	2.247	-10.884 - -2.041	0.004
Education: higher/lower	10.870	2.248	6.446 -15.293	0.000
Financial status: lot worse than average	-16.575	9.624	-35.516 - 2.366	0.086
Financial status: slightly worse than average	-15.523	4.005	-23.404 - -7.641	0.000
Financial status: average	-1.445	2.403	-6.175 - 3.285	0.548
Financial status: slightly better than average	3.151	2.516	-1.801 - 8.102	0.211
Financial status: much better than average	3.729	4.692	-5.505 - 12.963	0.427

B, regression coefficient; SE, standard error; CI, confidence interval

low education was strongly associated with a low self-reported physical and mental health. We found that both male and female with low education had poorer self-reported physical and mental health. These findings are consistent with the literature on the association between education and health, and confirm that low education is a predictor of having low self-reported health (19,20).

More education seems to be associated with reporting better health (7). Those with less than a high school education in the United States are 2.4 times as likely as high school graduates and 4.1 times as likely as those with post-secondary education to rate their health as poor (21). The benefits of education on health may relate to the fact that higher educational attainment can increase the capacity for better decision making regarding one's health, and provide scope for increasing personal resources that are vital for physical and mental health (22). In addition, education is likely to be a determinant of other socioeconomic markers such as income (9). Higher education and income levels have been linked to better health in individuals (23). Recently, the European Community Household Panel reported that income inequality was negatively and consistently related to self-rated health status in the European Union member states in both men and women

(24). In this study, slightly worse financial status than average was significantly associated with poorer self-reported physical and mental health. These findings are similar to the results reported by Parna et al. who found that poor self-reported health is related to poorer self-rated financial situation (25).

This study also demonstrates a relationship of age with poor self-reported physical and mental health. Older age was linked with worse self-reported physical health. These findings are similar to the results reported in previous studies (26, 27). Ageing affected physical health directly and indirectly through increased levels of pathology (28). On the other hand, the results of the study conducted by Wang et al. have shown no relationship between age and self-reported physical health (29).

In this study, increased age was associated with better self-reported mental health, which is consistent with previously reported studies (30, 31). Whitehall II study found significant increases (i. e. improvements) with age in general mental health (32). Furthermore, ageing itself had a protective effect on mental health. Westerhof and Keyes found that older age was correlated with lower positive affect, less feeling of personal growth and purpose in life, less meaning in life and less social coherence and social contribution (33).

In this study, we observed significant relationship of female gender with self-reported poor physical and mental health. We found that, in general, females report poorer health than males.

On average, females had lower scores than males on both the PCS and the MCS. This finding is consistent with the findings of many previous studies. In almost all of them, women have repor-

ted lower levels of self-reported health (34,35). The finding that, on average, females had lower scores than males on both the PCS and the MCS suggests that they may be particularly vulnerable (36). Other studies have found no gender differences in self-reported health in countries such as Finland, the United Kingdom and the United States (21,25,37). In contrast to the findings from previous studies, in France, males rated their health significantly poorer compared to women (38).

Therefore, findings of this study provide evidence on the socio-demographic determinants of self-reported health status. The future studies should extend research on the role of intermediate factors such as living standards, working conditions and health-related behaviours on self-reported health status.

In conclusion, our findings indicate that the low educated groups have a significantly lower self-reported health status. Education is an important mechanism for enhancing the health of individuals and a crucial factor for good perceived health. The health benefits of education have risen in the last years making education even more valuable in achieving better health.

The importance of education, at the very least, a high school education, should be emphasized to children as vitally important for their future health.

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