How Healthy are the Health Educators? - A Cross-sectional Analysis of 1583 Young Men and Women

Goran Vasic and Sergej M. Ostojic*

Department of Biomedical Sciences, University of Novi Sad School of Sport and Physical Education, Novi Sad, Serbia

Corresponding author:
**Prof. Sergej M. Ostojic, MD, PhD,
Department of Biomedical Sciences,
University of Novi Sad School of Sport
and Physical Education, Novi Sad,
Serbia,
Tel: (++381)-21-450-188; Fax: (++381)-21-
450-199;
E-mail: sergej.ostojic@chess.edu.rs**

Abstract

In this cross-sectional study, we evaluated health status of 1583 young men and women (19.2 ± 1.3 years) studying health education from 2012 to 2016 at the University of Novi Sad, and presented data on the frequency of common chronic diseases in this specific population. Total prevalence of hypertension was 3.4%, while 17.1% participants were overweight and diabetes affected 0.6% of health educators. Future health educators could be seen as positive health role models in public health campaigns since they suffer from chronic diseases less often comparing to general population, suggesting affirmative health profiles of this profession.

Keywords: Health education; Chronic diseases; Community health

Introduction

Promoting healthy lifestyles and implementing evidence based programs at individual and population-based levels are main services of health education professionals, with their activity being recognized as a pivotal element of public health policies. [1] Adopting healthful behaviors in a population partly depends on a person that delivers health education, including his or her knowledge base, feedback skills, professionalism and role modeling. [2] In particular, health educators have a responsibility to be positive health role models by fulfilling their own health potential and modeling the healthiest behaviors of which they are capable. [3] Limited information is currently available concerning health profiles of health educators, including the prevalence of common lifestyle disorders. Here, we evaluated health status of men and women studying health education, and presented data on the frequency of hypertension, diabetes and overweight in this specific population.

Methods

From 2012 to 2016, a total of 1583 freshman students of health education (1212 men and 371 women; age 19.2 ± 1.3 years) were evaluated as part of a routine health pre-enrolment examination protocol. Health screening included personal and family medical history, height and weight measurements, blood pressure check, physical examination (including general patient appearance and specific organ systems), and laboratory screening (including hematology, metabolic screen, kidney and liver function). All procedures were approved by the local IRB, and participants provided verbal informed consent. Check-ups were conducted by the same medical staff consisting of 4 certified MDs throughout the screening period. The participants were classified as overweight if body mass index (calculated as weight in kilograms divided by height in meters squared) was at or above 25.0 kg/m². Hypertension has been defined as a systolic blood pressure above 140 mmHg or a diastolic blood pressure above 90 mmHg on at least three resting measurements on at least two separate visits. Diabetes was defined as fasting plasma glucose of 7.0 mmol/L (126 mg/dL) or higher, or history of diagnosis with diabetes, or use of insulin or oral hypoglycemic drugs. Abnormal lab values were characterized according to local laboratory reference values. All results were expressed as rates for categorical variables and mean ± standard deviation (SD) for continuous variables in the whole sample and sex-specific subsamples. Baseline characteristics of male and female participants were compared with two-sample t test while the frequencies of specific conditions between genders were compared using the Fisher exact probability test. Analyses were performed using SPSS 21.0 (IBM).

Results

Of 1583 participants recruited, 17.1% were overweight (95% CI, 15.3% - 19.1%) [Table 1]. Prevalence was significantly higher in men, with approximately one in five male health educators was overweight (20.9%; 95% CI, 18.7% - 23.3%); and one in 20 women (5.3%; 95% CI, 3.5% - 8.2%). Total prevalence of hypertension was 3.4% (95% CI, 2.6% - 4.4%), with high blood pressure occurred ~ 3.3 times more frequently in man than in women. Diabetes affected 0.4% of men (95% CI, 0.2% - 1.0%) and 1.1% of women (95% CI, 0.4% - 2.8%). Abnormal laboratory values, including elevated blood bilirubin and urea nitrogen, or low red blood cell (RBC) count, occurred in more than 10% of participants [Table 1]. Of these, the prevalence was highest for elevated total bilirubin in men (31.4%; 95% CI, 28.9% - 34.1%). Low blood hemoglobin count was more prevalent in women (13.9%; 95% CI, 10.6% - 17.7%) than in men (4.6%; 95% CI, 3.6% - 5.9%), with small average RBC size occurred 4.5 times more often in female health educators.

Discussion

Future health educators seemed to suffer from hypertension

Table 1: Health profiles of health education students (*n* = 1583).				
	Total	**Men**	**Women**	*P-value*
Age (years)	19.2 ± 1.3	19.4 ± 1.4	19.2 ± 1.0	0.001
Female sex (%)	23.4	-	-	-
Body mass index (kg/m²)	22.6 ± 2.7	23.1 ± 2.7	21.1 ± 2.1	0.000
Overweight (%)	17.1	20.9	5.3	0.000
Blood pressure (mmHg)				
Systolic	117 ± 10	118 ± 10	113 ± 9	0.000
Diastolic	72 ± 8	73 ± 8	70 ± 7	0.000
Hypertension (%)	3.4%	4.1%	1.2%	0.03
Fasting blood glucose (mmol/L) *	5.0 ± 0.6	5.1 ± 0.6	4.9 ± 0.6	0.000
Diabetes (%)	0.6	0.4	1.1	0.19
Abnormal laboratory values (%)				
AST > 40 IU/L	7.0	7.9	2.1	0.002
ALT > 56 IU/L	1.5	1.5	1.4	0.93
Total bilirubin > 20 µmol/L (1.2 mg/dL)	20.3	31.4	8.5	0.000
Direct bilirubin > 6.8 µmol/L (0.4 mg/dL)	11.3	13.1	5.0	0.001
Elevated serum creatinine[1]	8.8	8.3	12.2	0.06
BUN > 7.1 mmol/L (20 mg/dL)	15.2	20.1	10.3	0.001
Lower RBC count[2]	11.5	9.4	20.4	0.000
Low hemoglobin[3]	6.4	4.6	13.9	0.000
MCV < 80 fL	2.6	1.4	6.3	0.000

Plus-minus values are means ± SD. *Abbreviations*: AST, aspartate aminotransferase; ALT, alanine aminotransferase; BUN, blood urea nitrogen; RBC, red blood cell; MCV, mean corpuscular volume. * Conversion: mg/dL = mmol/L × 18.016. [1] Serum creatinine > 90 µmol/L (1.02 mg/dL) for women and > 110 µmol/L (1.24 mg/dL) for men. [2] RBC < 4.5 ×10¹²/L (4.5 × 10⁶/dL) for men and < 4.1 × 10¹²/L (4.1 × 10⁶/dL) for women. [3] Hemoglobin < 135 g/L (13.5 g/dL) for men and < 120 g/L (12.0 g/dL) for women.

and diabetes and were overweight less often comparing to general population, suggesting affirmative health profiles of this profession. While approximately 24.1% of men and 20.1% of women are estimated to have hypertension globally, [4] only 4.1% of male health educators and 1.2% of female health educators have been detected with the condition. Similarly, overweight occurred less frequently among health educators (17.1%) than in general adult population (37.5%). [5] Diabetes appeared rarely among health educators (0.6%), while global prevalence in adults is ~ 8.5%. [6] Still, prevalence of abnormal liver tests (including elevated liver enzymes and blood bilirubin) and possible kidney dysfunction (as assessed by elevated serum creatinine and blood urea nitrogen levels) reached significant proportions among health educators that are comparable to general population, [7,8] with young men particularly prone to abnormal values. In addition, a lower than normal hemoglobin level (a clinical sign of anemia) was found in 13.9% of female health educators, with the prevalence being similar to worldwide prevalence of anemia among women of reproductive age. [9] This study was not designed to explore the attributable causes of lifestyle disorders among health educators, although low prevalence is likely driven by relatively high level of physical activity in this population; prolonged activity can also lead to increased risk for exercise-induced changes in common laboratory markers. [10]

Limitations

Several limitations must be considered when study findings are interpreted. The study population included only college students of health education; it remains unknown whether health profiles of health educators change with age or throughout career. With a limited number of clinical tests employed, causes or subsets of such health profiles could not be reliably determined.

Conclusion

This study describes overlooked yet broad population, and invites for collection of additional information from other resources to address research gaps. Monitoring health profiles of health educators is of special importance given the role these professionals have for modeling and emulating behaviors of individuals and populations that face common lifestyle disorders.

Sources of Support

Competing Interests

The authors declare that they have no competing interests.

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