

MACIEJ MICHALIK, DONATA WOITAS-ŚLUBOWSKA

## Zachowania zdrowotne studentów wychowania fizycznego jako element ich przygotowania do prowadzenia edukacji zdrowotnej w szkołach

### Streszczenie

**Wstęp.** Rozporządzeniem Ministra Edukacji Narodowej z dnia 23 grudnia 2008 roku z dniem 1 września 2009 r. wprowadzono w gimnazjach i szkołach ponadgimnazjalnych obowiązkowy moduł „edukacja zdrowotna”. Jego realizację powierzono nauczycielom kultury fizycznej, którzy mają pełnić rolę liderów zdrowia w środowisku szkolnym.

**Cel.** Celem pracy było wykazanie wpływu procesu kształcenia i wychowania w uczelni wychowania fizycznego na zachowania zdrowotne przyszłych liderów zdrowia.

**Materiał i metody.** Badania przeprowadzono wśród studentów i studentek I i IV roku (n=197) studiów stacjonarnych, kierunku wychowanie fizyczne. Zastosowano anonimową ankietę audytoryjną, której pytania dotyczyły: płci, roku studiów oraz pięciu zachowań zdrowotnych. Liczba praktykowanych zachowań prozdrowotnych posłużyła do wyznaczenia Indeksu Zachowań Prozdrowotnych.

**Wyniki.** Niezależnie od płci i roku studiów, wśród badanych najczęściej stwierdzano występowanie nieprawidłowego sposobu żywienia, niewystarczający udział w rekreacji ruchowej oraz – nieco rzadziej – niedobory snu. Istotnie korzystniejszymi Indeksami Zachowań Prozdrowotnych charakteryzowali się: ogół studentów IV roku w porównaniu do ogółu studentów I roku, kobiety IV roku w porównaniu z kobietami I roku, mężczyźni obu roczników w porównaniu z kobietami.

**Wnioski.** W trakcie studiów następuje poprawa Indeksów Zachowań Prozdrowotnych młodzieży, jednak wśród studentów kończących studia wysoki poziom zachowań antyzdrowotnych jest nadal bardzo duże. Ponieważ absolwenci kierunku wychowanie fizyczne mają pełnić funkcje liderów zdrowia w środowisku szkolnym, niezbędne jest by promowanie ich prozdrowotnego stylu życia stało się ważną, integralną częścią procesu dydaktyczno-wychowawczego w uczelni.

## Health-related behaviours among physical education students as an element of their preparation for health education in schools

### Abstract

**Introduction.** The ordinance of the Minister of Education of 23 December 2008, which has been in force since 1 September 2009, implements a compulsory module of health education in middle and secondary schools. Its implementation has been entrusted to physical education teachers who are supposed to play the role of health leaders in school environments.

**Aim.** This study aims to demonstrate the effect of the process of education at the university of physical education on health behaviour among future health leaders.

**Material and methods.** The study was carried out among male and female students (n=197) at the first and fourth year of full-time studies in physical education. An anonymous auditorium testing was applied, with the questions concerning: gender, study year and five health-related behaviours. The number of health-related behaviours was used for determining Health Practice Index (HPI).

**Results.** Regardless of the gender or study year, the survey demonstrated that the most frequent unhealthy behaviours were: improper diet, inadequate participation in leisure time physical activity and, slightly less frequent, sleep deprivation. The significantly more favourable HPI was found for: all students in the fourth year compared to all students in the first year, women in the fourth year compared to women in the first year, men in both study years compared to women.

**Conclusions.** Although more favourable Health Practice Indexes were found in the fourth year, the level of unhealthy behaviours among university graduates remains very high. Since the graduates in physical education majors are supposed to perform the functions of health leaders in school environments in the future, it seems necessary that promotion of their healthy lifestyles becomes an important, integral part of the didactic and educational process.

**Słowa kluczowe:** studenci wychowania fizycznego, edukacja zdrowotna w szkołach, indeks zachowań prozdrowotnych.

**Keywords:** physical education students, health education in school, Health Practice Index.

## INTRODUCTION

Compared to the populations of other European Union countries (prior to Poland's accession to the EU), Poles are characterized by more unfavourable health status: they die younger, they more frequently fall ill and exhibit higher percentage of the disabled. This poor situation is caused by widespread unhealthy behaviours which have grown in popularity among all age groups and which have higher effect on health status among the population than low social and economic status [1].

According to the World Health Declaration adopted at 51<sup>st</sup> World Health Assembly in May 1998, having the highest possible health status is one of the fundamental rights of each human, whereas improvement in health and living conditions is the most important goal of social and economic development [2]. For ensuring health, however, medical activities are insufficient as they, after reaching a particular level of satisfying the needs, have insignificant effect on health status in society. A determinant role is being played by non-medical factors, such as lifestyles, working conditions and the conditions in the environment. Nowadays, it is widely known that health care systems should take responsibility for treatment and prevention of the disease, whereas improvement or maintaining public health status and reduction in incidence proportion should be the domain of health promotion (primary prevention) [3].

An essential part of health promotion is health education, which represents a particular 'social investment' with long-term effects. In Polish educational system, this domain has been underestimated and marginalized for decades. Some hope for improvement in this situation was offered by the ordinance of the Minister of Education of 23 December 2008, which implemented the compulsory module of health education in middle and secondary schools, with 30 lessons scheduled within the curricula. The implementation of this module was entrusted to physical education teachers which are supposed to perform a role of health leaders at schools [4].

In the environment promoting health among students, a leader means the teacher who is a role model in terms of healthy lifestyles and a person who initiates and organizes the activities of other individuals aimed at health promotion. The importance of these teachers to the effectiveness of the process of health results from the following rationale:

1. students identify themselves with the teacher they accept, which results in accepting their views and systems of values [5],
2. personal attitudes and behaviours of the teacher in terms of health exhibit significant relationships with the activities taken (or not) by them towards health promotion among students [6].

Due to a key role played by school environments and the health leaders, it seems necessary for the universities which prepare staff for school health education to implement educational curricula in this domain and to create the conditions for support of changes in students' lifestyles into more health-oriented.

## AIM

The aim of the study was to identify the differences in prevalence of health-related behaviours among the people who started and graduated from physical education universities and then to demonstrate the effect of the process of education in universities on lifestyles of future pedagogues.

## MATERIAL AND METHODS

The survey was carried out in October 2010 among the students of full-time studies in the physical education major in the Branch Faculty of Physical Culture in Gorzów Wielkopolski, Poland. The study included 197 people: 114 students from the first year (54 women, 60 men) and 83 students from the 4<sup>th</sup> year (36 women, 47 men). The method of a diagnostic survey was employed, using the technique of anonymous auditorium testing, with its questions concerning personality traits (gender, study year) and five health-related behaviours (length of night's sleep, participation in leisure time physical activity, dietary behaviours, smoking and consumption of alcoholic drinks). Selection of these behaviours was determined by the facts that:

1. they cause the increase in morbidity and mortality due to chronic diseases,
2. they are the most important health risk factors that can be modified [3].

### Measures of health behaviours

- Length of night's sleep (hours).
- Participation in Leisure Time Physical Activity (LTPA).

In order to estimate LTPA, the respondents recorded the duration and forms of LTPA during the previous week. Based on these data they were ranked in one out of three categories of LTPA:

I – sufficiently active: persons who reported the recommended level of LTPA, meaning at least 30 minutes of moderate physical activity, five or more days per week (e.g. walking, bicycling, light gardening) or at least 20 minutes of vigorous physical activity, three or more days per week (e.g. jogging and other recreational sports or heavy gardening [7],

II – insufficiently active: persons who reported LTPA during the week that was less than recommended level [7], but greater than none,

III – inactive: persons who reported no LTPA during the last week.

- Dietary behaviours.

Dietary behaviours were assessed based on the frequency of the intake: (1) breakfast, (2) five portions of fruit and vegetables a day, (3) animal butter and/or whole milk. The respondents answered how many days a week prior to the study they exhibited the above behaviours. The answers were classified as follows: a) behaviours 1 and 2: for 7-6 days – 2 points, for 5-3 days – 1 point, for 2-0 days – 0 points, b) behaviour 3: for 0-2 days – 2 points, for 3-5 days – 1 point, and for 6-7 days – 0 points.

Points for the behaviours obtained by individual respondents were totalled and resulted in the Dietary Behaviours Index, which ranged from 0-6 points. The Dietary Behaviours Index of 0-2 points was further classified as improper, 3-4 points as partially improper and 5-6 points as proper.

- Smoking and consumption of alcohol.

The investigations of smoking and drinking alcohol were based on the questions the reliability and validity of which were confirmed in previous epidemiological studies, representative of adult populations [8,9]. A dichotomy of (0) smoker (occasionally or daily), and (1) non-smoker was defined. Alcohol consumption was classified as: (0) low + moderate, and (1) high.

- Health Practice Index.

Health-related behaviours reported by the respondents were compared to the recommendation for public health [10] presented in Table 1. Each of recommended behaviour scored 1 point. The points in total gave HPI, which ranged from 0-5 points. HPI was classified as follows: improper for 0-1 points, partially proper for 2-3 points and proper for 4-5 points.

**TABLE 1. Health-related behaviours: recommended and improper.**

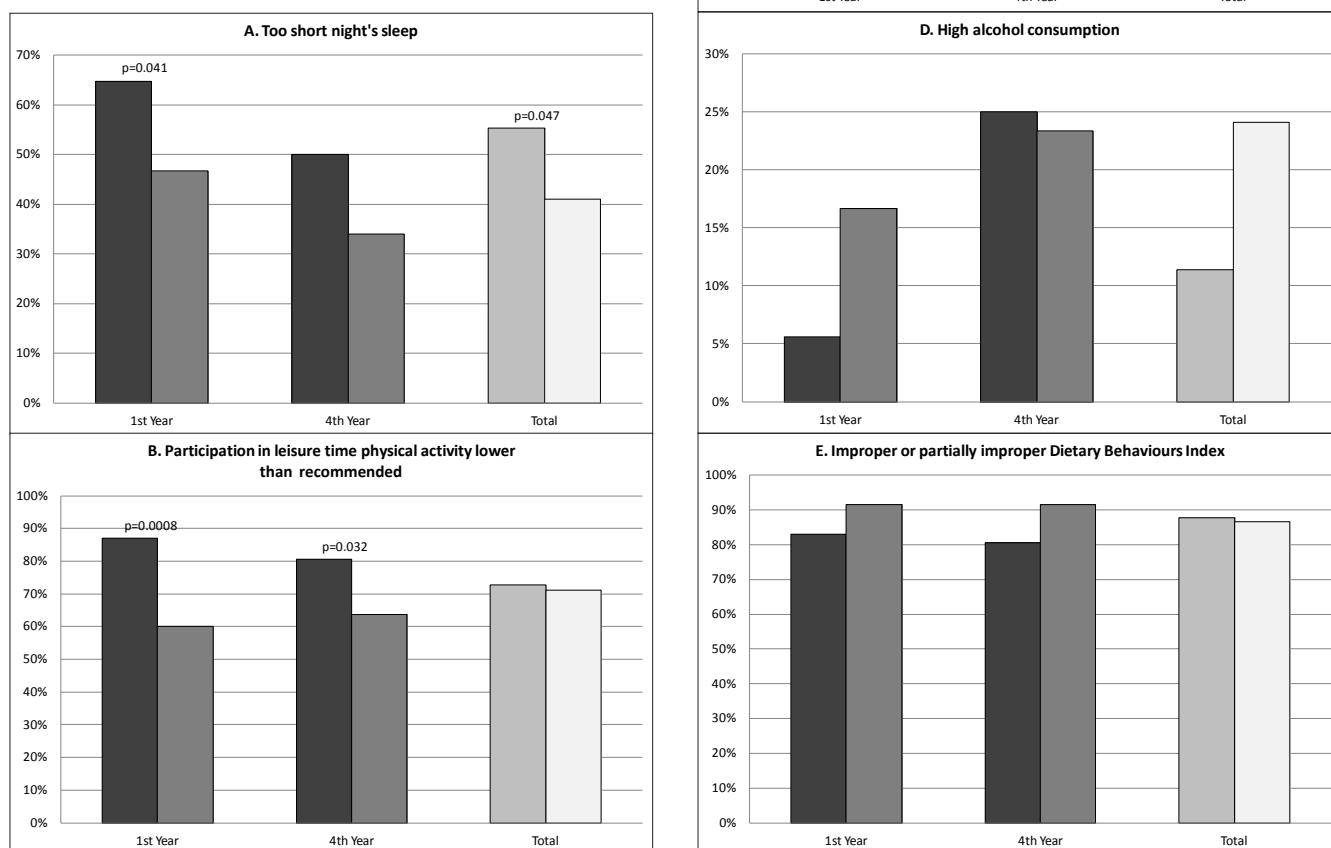
Health-related behaviours	Recommended	Improper
Night's sleep (hours)	7-8	over 7 and below 8
Leisure time physical activity	insufficiently active	insufficiently active or inactive
Dietary Behaviours Index	5-6 points	4 points or fewer
Smoking	I don't smoke or I have given it up	I smoke occasionally or everyday
Alcohol consumption	low or moderate	high

### Statistical Analysis

Statistical analysis of the study results was carried out with consideration of the study year and gender of the respondents. The chi square test of independence ( $\chi^2$ ) with Yates correction was employed. Statistically significant values were adopted for  $p < 0.05$ .

### RESULTS

Figure 1 presents the incidence of unhealthy behaviours among the students included in the study. Too short night's sleep was found among 34-65% of the respondents in individual subgroups. This behaviour concerned women particularly more often than men from the first year ( $p < 0.041$ ) and the total of students from the 1<sup>st</sup> year compared to the total of students from the 4<sup>th</sup> year ( $p = 0.047$ ) (Figure 1A).



**FIGURE 1. Incidence of unhealthy behaviours among the respondents versus gender and study year.**

Legend:

Female Male 1<sup>st</sup> year 4<sup>th</sup> year

p – for independence  $\chi^2$  test

Too low participation in LTPA was exhibited by 60-87% of the respondents. The percentage of the people with lower than recommended level of LTPA in both years of the university course was higher among women compared to men ( $p=0.0008$  for the first year and  $p=0.032$  for the fourth year). In subgroups: women, men and the total of students' participation in LTPA did not depend significantly on the year of the studies (Figure 1B). Smoking (occasionally or every day) was confirmed by 15-37% of students included in the study. This behaviour did not show significant relationships with gender and study year (Figure 1C).

In individual subgroups, high consumption of alcohol was observed among 5.6-25% of the respondents. High alcohol consumption was observed significantly more often among all students of the fourth year compared to all students of the first year ( $p=0.018$ ), and among women in the fourth year compared to women in the first year ( $p=0.013$ ). Among men, the consumption of alcohol did not depend on the year of the study. In the subgroups of students in the fourth year alcohol consumption did not depend on gender (Figure 1D).

Improper Dietary Behaviours Index was found in 80.5-91.6% of respondents from individual groups. The study year and gender did not show a significant relationship with Dietary Behaviours Index in the students (Figure 1E). Having breakfast for 6-7 days/week was confirmed by 43-61% of students. Not having animal butter and/or drinking whole milk for 6-7 days/week was confirmed by 37-55% of respondents. Eating 5 portions of fruit and vegetables/day for 6-7 days/week was found in 3-9% students.

Table 2 presents the results of students for Health Practice Index. Proper Health Practice Index was found among 3.7-27.8% of the respondents. The highest percentage in each group was characterized by partially improper Health Practice Index (38.9-77.8%). More favourable Health Practice Indexes were found significantly more often among men from both study years compared to women ( $p=0.049$  for the first year and  $p=0.003$  for the fourth year). The university year did not exhibit significant relationship with Health Practice Index among men, but this correlation occurred among women ( $p=0.0007$ ). Health Practice Index in nearly  $\frac{3}{4}$  of the female students from the first year was classified as partially improper, whereas among women in the fourth year high polarization of this index was found: it was manifested in high percentage of the respondents with improper (33.3%) or proper index (27.8%). Among total students from the fourth year, compared to total students from the first years, significantly higher Health Practice Index was demonstrated ( $p=0.16$ ).

## DISCUSSION

The aim of the present study was to examine the health-related behaviours among the students from selected physical education majors and definition of the relationship between health-related behaviours among students and the study year. The results obtained in the study confirmed that there is a small percentage of respondents who meet the recommendations concerning all the health-related behaviours included in the analysis in everyday routine. Independently of gender

and study year, the improper dietary behaviours and insufficient participation in LTPA were found most frequently, with sleep deprivation observed slightly less frequently.

The insufficient level of health-related behaviours among physical education students has also been reported in the studies of other authors [11-13]. Due to the methodological differences, however, direct comparison of the results of these studies with the findings of the authors' studies is impossible.

Among the physical education students (with particular focus on men), a lower percentage of those who smoke was found compared to Polish population (age: 15+) [14], however, contrary to these reports, the authors' studies demonstrated that gender of the respondents was not the factor which differentiated the incidence of smoking.

Similarly to general Polish population [14], higher alcohol consumption was found in men from the first study year compared to women. However, among students from the fourth year the percentage of women and men with high alcohol consumption did not differ significantly. The tendency to high alcohol consumption among young women in the cities was also confirmed by other studies [15]. The respondents, similarly to the young people from other physical education universities [11,13], drunk primarily low-alcohol drinks, with high intensity of consumption found only for beer.

The factors which differentiated between health-related behaviours included: gender and the study year. Men, compared to women, were characterized by higher percentage of those who met the recommendations for: sleep (1<sup>st</sup> year), participation in LTPA (1<sup>st</sup> and 4<sup>th</sup> year) and more favourable Health Practice Index (1<sup>st</sup> and 4<sup>th</sup> year). Study year did not correlate with the incidence of individual behaviours and Health Practice Index in men, but it was an essential factor which modified behaviours in women.

**TABLE 2. Health Practice Index among the students according to the university year and gender.**

Study groups	Health Practice Index						
	Improper		Partially improper		Proper		
	N	%	N	%	N	%	
1 <sup>st</sup> Year	Women	10	18.52	42	77.78	2	3.70
	Men	9	15.00	40	66.67	11	18.33
	$\chi^2$ p			6.03	0.049		
4 <sup>th</sup> Year	Women	12	33.33	14	38.89	10	27.78
	Men	3	6.38	32	68.09	12	25.53
	$\chi^2$ p			11.36	0.003		
Total	Women	19	16.67	82	71.93	13	11.40
	Men	15	18.07	46	55.42	22	26.51
	$\chi^2$ p			8.23	0.016		
Women	Women	10	18.52	42	77.78	2	3.70
	Men	12	33.33	14	38.89	10	27.78
	$\chi^2$ p			14.57	0.0007		
Men	Women	9	15.00	40	66.67	11	18.33
	Men	3	6.38	32	68.09	12	25.53
	$\chi^2$ p			2.76	0.250		

Legend: p – for independence  $\chi^2$  test

Among female students in the fourth year, significantly higher alcohol consumption was found and statistically insignificant low prevalence of other unhealthy behaviours. However, the accumulation of these insignificant proportional differences contributed to significantly higher Health Practice Index in women in the fourth year and among all students of the 4<sup>th</sup> year compared to those from the first year.

Although the results of the present study, carried out among the physical education students, confirmed the significantly higher Health Practice Index of the fourth year compared to the first year, incidence of unhealthy behaviours among the students who were going to graduate from the university soon, is still worryingly high. Therefore, the justifiable doubts can be voiced whether the physical education graduates will represent an adequate role model for promotion of healthy lifestyles among their future students.

Due to the great importance of health education in school to health of individuals and the whole society, it is necessary to comprehensively educate teaching staff for implementation of these activities. The curricula should incorporate not only the professional knowledge and skills in the field of health education and the related domains but also strive for formation of health-related lifestyles among students, which is a prerequisite in order for them to become credible health teachers in the future.

## CONCLUSIONS

1. Health Practice Index in all students from the fourth year is significantly more favourable compared to the students from the first year, which suggests improvement in health behaviours among the students throughout the period of their studies. Despite these favourable changes, the incidence of unhealthy behaviours among students who graduate from universities is very high.
2. Since physical education graduates are supposed to perform the role of health leaders in school environments, it is necessary for the universities to adopt promotion of healthy lifestyles in university students as an important and integral part of the process of vocational preparation.

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### Informacje o Autorach

Mgr MACIEJ MICHALIK; dr DONATA WOITAS-ŚLUBOWSKA – Zamiejscowy Wydział Kultury Fizycznej, Zakład Fizjologii, Gorzów Wielkopolski.

### Adres do korespondencji

Donata Woitas-Ślubowska  
ul. Estkowskiego 13, 66-400 Gorzów Wielkopolski  
tel. +48 95 7279161  
E-mail: donataws@op.pl