



Health-related Behaviours of Post-secondary Students in the Context of Health Perception

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Authors' contribution

This work was carried out in collaboration between both authors. Both authors designed the study, supervised the work, performed the statistical analysis and jointly wrote this manuscript. Both authors managed the analyses of the study, wrote the first draft, managed the literature searches, read and approved the final manuscript.

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ABSTRACT

Studying the health behaviours of adolescents essential for the promotion of healthy lifestyles for adolescence and beyond.

The aim of this study was to determine differences in health behaviours in two groups of post-secondary students: One group which presented the holistic approach to good health, and the other that presented a biomedical approach to health. To achieve this aim, the following research questions were utilised: a) How do post-secondary students understand good health; b) What kind of connotations does the term good health have for them? c) What are participants' current health behaviours? d) Does gender have an influence on responses?

The research was conducted with two hundred twenty nine post-secondary students from one of

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the largest high schools in Opole. Two standardized questionnaires were used: Questions from the survey *Pro-health lifestyle Determinants in my Family* and an adaptation of the *Health Behaviour Inventory* (Z. Juczyński's).

The majority of male respondents (55,6%) identified with the holistic health model, whereas the majority of female respondents (57,9%) identified with the biomedical model. Interestingly, 44.1 % of respondents presented a low value of the general health behaviour indicator; (42.3% was the average) and only 13.54% of the respondents presented a high value of the indicator. This implies that the respondents' associations suggested that the holistic, socio-ecological approach to health did not involve a higher pro-health behaviour level in this case.

Because of the low level of health behaviours and the trend towards biomedical approaches in participants' perceptions of good health, it would be worthwhile to examine exposure to and quality of health education in schools. The promotion of holistic approaches to health is also warranted.

Keywords: Health behaviors; health model; health promotion; pupils.

1. INTRODUCTION

Increasing healthcare costs have placed more focus the potential of preventive medicine. It is widely acknowledged that the future of this developing branch of medicine lies the recognition of the intersection of multiple health behaviours as constituting health status [1]. The adoption of positive health behaviours can lead to the adoption of more thus enhancing the healthy lifestyle of an individual. The evidence in the literature establishes that lifestyle is the main factor determining human health [2,3]. A healthy lifestyle includes, among others, positive health behaviours habitually practiced either by an individual or group of individuals. These behaviours are varied and multiple, therefore, it is beneficial to research complex health behaviours rather than single ones. A comprehensive, broad approach to health behaviours allows for greater efficiency and success in health behavioural change [4]. For the purposes of this study the definition of health behaviours as any actions taken to prevent or detect a disease, or to improve health and well-being [5] was employed.

Everyday actions and decisions in health matters depend on an individual's interpretation of health and its determinants. The most popular approaches while diametrically different are: The biomedical model and the holistic model. The biomedical model is a pathogenic-oriented approach in which health is regarded as the absence of a disease. This approach to health tends to create dependency on hierarchy, on the expertise of the medical practitioner, on medical technology development, enforcing the belief that the status of restorative medicine completely determines the state of human health. The holistic model presents a more complex

approach to health, indicating that many factors (including environmental ones) shape ones health condition. This approach is also called the socio-ecological health approach model. The development of health, from a broad socio-ecological perspective is the main focus of this approach, in contrast to more limited interventionist biomedical model. A holistic model, has a focus on individual capacity to decide prioritise health and modify it via lifestyle changes, with the result that the responsibility for health, biological as well as psychosocial, rests with the individual, not with the healthcare system *per se*. In this model, the individual is treated subjectively and is encouraged to actively participate in the healing process as well as in health promotion and prevention [6].

Both models presented in this study have advantages and disadvantages. However, a holistic approach offers more potential from a public health perspective, precisely because it encourages active participation in creating quality of life [7]. Changing behaviour and the adoption of pro-health behaviours in the long term is not the simplest of tasks and requires specific skills as well as effort. Research into health behaviours of adolescents is an important element for a nations health gain. Young people are particularly susceptible to educational interventions and health promotion interventions aimed at adolescents can have long-term impact for the adoption of healthy lifestyle behaviours for the future. In particular health promotion with this population must be cognizant of cultural influences and family experience [8]. Popular culture is also a significant influence for this particular population. Pervasive commercialism and constant consumption stimulated by mass media is typical in the lives of adolescents today and plays a large role in the everyday decisions,

choices and health behaviours of adolescents. Cohen et al. [9] identify four major factors influencing health behaviours and these include a) Availability of health harming products, b) Physical characteristics of products c) Social structure and politics, d) Mass media. A comprehensive approach to the promotion of health takes cognizance of the range of these factors. Over the years multiple ways of changing health behaviours have emerged; nonetheless it remains essential to search for new and more effective solutions [10,11]. Care and attention must be placed during the initial step of diagnosing current of health behaviours, understanding the health diagnosis and determining its position in the hierarchy of personal values of an individual.

2. AIM OF THE STUDY

The main aim of this study was to determine potential differences in health behaviours between two groups of post-secondary students: One group that identified with the holistic approach to good health and another with the biomedical approach. To achieve this aim, the following questions were explored: *How do post-secondary students understand good health; what kind of connotations does this term have for them? What is the level of their health behaviours? Does gender play a role?* An underpinning hypothesis included the assumption that that people who closely identify with a holistic model of health, should show a higher daily level of health behaviour.

3. MATERIALS AND METHODS

The research examined the level of health behaviors of two groups of pupils (in post-secondary schools), who interpreted their conditions of good health according to different models. The research was conducted with a group of two hundred twenty nine post-secondary students from one of the largest high schools in Opole (a Polish city with 121.5 thousand inhabitants). The selection of the research sample was purposive and included a comparable number of people of both genders who were chosen for this study. The gender breakdown of the studied group was as follows: 108 males (47%) and 121 females (53%) and the mean age was 18 years. Standardized research tools were used. To determine the approach to health that the adolescents identified with, the study used questions from the survey Krawański's Pro-health lifestyle determinants in

my family [12]. In the questionnaire students are invited to choose a maximum three states (situations) from a list (see Table 1) which they associated with good health, and to arrange them in order of importance (from 1 to 3). Only the states chosen as the first in order of importance were used for further analysis of the 14 states (situations) studied, seven can be categorised as positive health measures, the other seven – biomedical health measures. The former corresponds to the holistic health approach, with individual life style playing a key role in improving health, while the latter represents the biomedical approach where healthcare intervention plays the key part.

The second part of the study was prepared using the Z. Juczyński's adaptation of the Health Behaviour Inventory - HBI [13]. This self-report instrument consists of 24 statements describing various health behaviours; the statements were then assigned values ranged from 1 to 5, depending on their incidence. Upon summing up of all the values, the indicator of the general increase of health behaviours was received. The test results obtained are in the range of 24 to 120 points, where a high indicator value is interpreted as a higher representation of pro-health behaviours. The following indicators were calculated in four categories of behaviour, according to the test procedure: Proper Nutrition Habits, Prophylactic Behaviours, Positive Psychological Attitudes and Health Practices. The overall rate of health behaviours were converted to sten scores. The results were interpreted as follows: 1-4 sten score as low, 5-6 sten score as average, and 7-10 sten score as high. Internal compatibility of the tool (HBI) was established on the basis on Cronbach's alpha score 0,80.

An anonymous auditorium survey was conducted in accordance with the standards applicable in this type of research. The material obtained was statistically analysed using the MS Office Excel 2010 spreadsheet and statistica 10. For testing the significance between means, the Student's t-test was used. For the purpose of the analysis, the results were deemed as relevant in those cases for which the probability value was less than the accepted level of significance of 0.05 ($p < 0.05$).

4. RESULTS

The data indicate that gender was a factor differentiating good health associations, see Table 1. The following statements were most

commonly chosen by male respondents: Physical fitness, good appetite and inner calm - all of them indicative of the holistic approach to health; whereas female respondents most often chose the following statements: Good heart condition, normal laboratory tests results and ideal healthy weight - statements specifically associated more with the traditional, biomedical health approach. The most commonly chosen health associations (at the bottom of the list) were proper cholesterol level and a happy family life. The majority of male respondents (55,6%) chose the holistic health model as a result of their choices, whereas the majority of female respondents (57,9%) chose the biomedical model.

The mean of the overall health behaviour severity indicator among respondents was 75.88; this value is lower than the normalized mean for Polish adult population calculated by the author of the research tool, which is 81.82. There was no statistically significant difference between the compared male and female groups - both in the case of a general indicator of health behaviour as well as in the case of four behavioural indicators of each category of behaviour: Proper Nutrition Habits, Prophylactic Behaviours, Positive Psychological Attitude, Health Practices, see Table 2.

4.1 The Procedure

Raw results were transformed into standard sten scale units. 44.1 % out of 229 respondents presented a low value of the general health behaviour indicator, 42.3% was an average; only

13.54% of the respondents presented a high value of the indicator. Among all behaviour categories, Health Practices and Positive Psychological Attitudes were given the highest scores, with the category Prophylactic Behaviours receiving the lowest score.

The respondents were divided into groups according to their view on good health (either the biomedical or holistic model), in order to attempt to identify the differences in specific health behaviour indicators. The mean score of the general health behaviour indicator was higher where respondents believed that the intensive use of professional medical services is the only way to ensure good health. The results were the same for both women and men. However, this difference was not statistically significant, see Tables 3 and 4. This suggests that the respondents' associations suggesting the holistic, socio-ecological approach to health does not involve a higher pro-health behaviour level. It should be noted, however, upon analysis of health behaviours in the context of the models referred above, that a statistically significant difference was detected between respondents thinking of health in accordance to the biomedical or holistic model only in the case of the Proper Nutrition Habits indicator in the female group. Women who scored a higher value of this indicator identified with the traditional, biomedical health model. No statistically significant differences were detected in all analysed behaviour indicators among male respondents presenting both contrary approaches to health presented above (see Table 4).

Table 1. Situations (states) which were selected in the first place in the hierarchy because of their association with good health

Situations (states) associated with good health	Men		Situations (states) associated with good health	Women	
	n	%		n	%
Physical fitness *	18	16.8%	Good heart condition **	21	17.5%
Good appetite *	15	14.0%	Ideal healthy weight **	16	13.3%
Tranquillity *	13	12.1%	Normal laboratory tests results **	15	12.5%
Good heart condition **	12	11.2%	Good humour *	15	12.5%
No physical complaints **	11	10.3%	No physical complaints **	12	10.0%
Ideal healthy weight **	10	9.3%	Physical fitness *	11	9.2%
Good night's sleep *	6	5.6%	Tranquillity *	8	6.7%
Normal blood pressure	6	5.6%	Good appetite *	7	5.8%
Normal laboratory tests results **	5	4.7%	Good night's sleep *	7	5.8%
Good humour *	4	3.7%	Normal blood pressure	3	2.5%
No sense of fatigue *	3	2.8%	No sense of fatigue *	2	1.7%
Healthy spine **	2	1.9%	Healthy spine **	2	1.7%
Normal cholesterol level **	2	1.9%	Happy family life *	1	0.8%
Happy family life *	1	0.9%	Normal cholesterol level **	1	0.8%
	107	100.0%		120	100.0%

* Holistic approach to health statements, ** Biomedical approach to health statements

Table 2. Comparison of the analysed indicators of health behaviours in surveyed students

Indicators of health behaviours	women	men	t	df	p
	\bar{x}	\bar{x}			
General indicator of behaviour	76.10	75.63	0.2853	227	0.7756
Proper nutrition habits	3.20	3.06	1.5523	227	0.1219
Prophylactic behaviours	2.94	2.87	0.6696	227	0.5038
Positive psychological attitudes	3.24	3.24	0.0016	227	0.9987
Health practices	3.28	3.42	-1.5137	227	0.1314

Table 3. Comparison of the analysed health behaviours indicators in women defining the health status in accordance with the holistic and biomedical model

Indicators of health behaviours	Holistic understanding of health	Biomedical understanding of health	t	df	p
	\bar{x}	\bar{x}			
General indicator of behaviour	74.80	77.05	-0.9540	119	0.3419
Proper nutrition habits	3.03	3.33	-2.1568	119	0.0330
Prophylactic behaviours	2.97	2.92	0.3739	119	0.7091
Positive psychological attitudes	3.26	3.22	0.3328	119	0.7398
Health practices	3.18	3.35	-1.3352	119	0.1843

Table 4. Comparison of the analysed health behaviours indicators in men defining the health status in accordance with the holistic and biomedical model

Indicators of health behaviours	Holistic understanding of health	Biomedical understanding of health	t	df	p
	\bar{x}	\bar{x}			
General indicator of behaviour	74.30	77.31	-1.3094	106	0.1932
Proper nutrition habits	3.06	3.06	0.0111	106	0.9911
Prophylactic behaviours	2.83	2.93	-0.6302	106	0.5299
Positive psychological attitudes	3.15	3.35	-1.7507	106	0.0828
Health practices	3.33	3.53	-1.5612	106	0.1214

5. DISCUSSION

Interest in healthy lifestyle has become fashionable in recent years and has a common topic in mass media. Currently, mass media act as a main source in social health education [14,15]. Mass media are effectively used in various campaigns promoting health and healthy lifestyle together with advocacy for adoption of health behaviours [16]. The internet is regarded a highly effective tool with its potential for promoting health through specific actions targeted at young people [17]. It is worth noting that mass media help create pro-health awareness not only through intentional actions like education and information programmes, but also through marketing campaigns of various products or services. However, anti-health and risky behaviours also enjoy enduring popularity, especially among young adolescents, despite

many opposition educational actions and programmes [18]. Experimenting behaviours and testing of boundaries are common actions among adolescence, which if unchecked can transfer into adulthood [19,20,21]. It is of concern that Polish post-secondary students present higher anti-health behaviour indicators than their UE peers [22].

Other study results on health behaviour among adolescents using the same research tools as employed in this study, present no substantial differences. Walentukiewicz et al. [23] in her research on post-secondary students in Gdańsk, received a 75.94 point of overall behaviour severity indicator. Low level of health behaviours was presented by 53% respondents, in contrast to own studies, showed above, with 37% presenting the average level and only 10% the high level. *Proper nutrition habits* scored the

highest, and *Health practices* - the lowest. Zadworna-Cieślak and Ogińska-Bulik [24] in their research on high school students in Łódź revealed an unsatisfactory level of health behaviours, with mean results within 4 sten and the overall health behaviour severity indicator scoring 72,96 pt. The results showed gender as a statistically significant differentiating factor. A higher score of overall health behaviour indicators were presented by girls – 74.94, whereas boys scored 70.96. This was also true in the prophylactic behaviour category: The girls' score was 3.03, as opposed to 2.73 in boys. However, this present research study, did not establish gender to be the differentiating factor. However, other studies, found it be an important determinant of health behaviours differentiation [25].

Practising specific health behaviours is significantly related to an individuals' approach to health. Individuals understanding of ones state of health varies, and is often applied rather narrowly to the body's physical state. Clear understandings of ones personal definition of health, albeit colloquial, is an important factor of highly effective individual health behaviours from the viewpoint of creating welfare. Once one can conceptualize ones understanding of health and is able to subjectively define its state then one is enabled to explain, anticipate and adopt more conducive health behaviours [26]. He et al. [27] consider that how young people define and understand a healthy lifestyle is very important because a holistic understanding influences lifestyle and more broadly success in school, parent care and indeed stress levels. The pivotal role of lifestyle, is unfortunately, is commonly underestimated. The biomedical approach to health is still too common; this is particularly true for countries undergoing a socio-economic transformation. It is exacerbated by poorly funded healthcare systems along with underfunding of activities in promoting health, and by the fact that health education is de facto being marginalised at schools. In spite of the existence of ample evidence as to the importance of life style and socio ecological models of health, there remains a notable lack of belief that prophylactic actions may actually be a cheaper and more effective health problem solving strategy comparing to medical interventions for diseases.

The re-orientation of the healthcare system from the biomedical to the holistic model is not only an enormous undertaking. It is both a political as well as social education issue. It is social

education that changes awareness in order to help people understand the necessity to take individual responsibility for their own health. This task requires long-term, systemic, cross-sector work [28]. Individualism, freedom of choice, responsibility for ones own life and health are far better established and promoted in democratic societies. It is important promote the belief that making health-related choices is possible in practice, and that pro-health behaviours are conducive to daily life [29]. This is a significant challenge for health education, which can be addressed both in school, but also more broadly in adolescent life.

The research has been conducted without sponsors or grants, collected and analyzed by the authors.

6. LIMITATIONS OF THE STUDY

Health is a multidimensional, abstract conceptual construct, difficult to give precise and explicit definition. It is extremely difficult to specify how it is understood by young people, who usually are not conversant with health problems. It is difficult to determine what kind of health understandings dominate the daily behaviour of adolescents, because they may relate across a range of lifestyle areas. However, for this study health is perceived as a dynamic process, modified by a variety of information, that a person receives each day from different sources, also is based on many life experiences. In addition this study utilized a short research tool that can provide a brief snapshot rather than a comprehensive analysis of the problem. The authors advocate that research should be conducted with a larger population (with a comprehensive sampling strategy).

7. CONCLUSIONS AND PRACTICAL IMPLICATIONS

Because of the prevalence of low level of health behaviour and the dominance of the biomedical approach, it seems reasonable to draw attention to the centrality of health education in schools. It is important to promote the holistic approach to health whenever possible. Schools should be healthy environments where health behaviours are promoted. Schools should foster skills related to the promotion of health and to promote health lifestyle and individual health responsibility. Therefore holistic models of health and positive health behaviours should be promoted in all educational environments but in order to do this

the education of health promotion leaders is also essential.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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