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Original Article

Motivation to engage in physical activity among health sciences students

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Abstract
Introduction. Engaging in regular exercise is essential because it improves the efficiency of body, delays the ageing process, and makes it easier for us to perform basic everyday activities. It is important to remember that it is never too late to start health training. It has been noted that health training affects both our physical and mental health.**Objectives.** The aim of this study was to assess the motivation to exercise in both physically active women and men.**Material and methods.**The study involved 1590 health sciencesstudents who had a moderate level of physical activity.The survey used the EMI-2 questionnaire. To assess differences in motivation for physical activity measured using the EMI-2 questionnaire, in gender groups, the Mann–Whitney U test without continuity correction (p_1) and with correction (p_2) was conducted.**Results and conclusions.**The most important motivators for undertaking physical activity are pleasure, mental regeneration, and maintaining health. The least important motivation to exercise are health pressure, social recognition, and the desire to belong to a group.For men, the most important motivation to engage in physical activity is the pleasure of doing it.Women engage in physical activity primarily owing to the desire to maintain an appropriate state of health.
Key words: motivation, physical activity, public health, health promotion

Introduction

Engaging in regular exercise is essential because it improves the efficiency of body, delays the ageing process, and makes it easier for us to perform basic everyday activities. It is important to remember that it is never too late to start health training. It has been noted that health training affects both our physical and mental health. Physical and mental health is the driving force behind human behaviour; it is essential and one of the most important factors in increasing the effectiveness of selected activities (*Brunet et al. 2011, Grajek et al. 2020*).

Sports are associated with beneficial effects on physical and mental health as well as on sociological aspects. The process of growing up is a time when psychological and physical changes (e.g., perception of one's own body image) can affect barriers and motivation to engage in physical activity. Lack of physical activity can have various consequences in the form of overweightness, obesity, and other illnesses, e.g., in terms of cardiology and performance (*Deihl et al. 2018*). Engagement in physical activity is based on various motives and depends on age, life goals, values, health conditions, as well as the choice of activity or adjustment of its duration. An example is physical appearance, which (among young adults) is associated with strong pressure from society. This may be a more important motivational factor than among older people who place greater emphasis on physical benefits or health aspects of physical activity (*Gębka & Kędziora-Kornatowska 2012, Grajek et al. 2020*). The type of motivation and quality of results depend primarily on three components such as targeted motivation (i.e., what physical activity is directed at), perseverance (i.e., determination of an individual), and intensity (i.e., how much energy is devoted to pursuing a particular goal). Motivation can be divided into external and internal motivation. The former is characterised by external factors (e.g., a reward in the form of recognition among peers), while the latter is the desire for self-perfection (e.g., better well-being). In addition, personality traits (e.g., conscientiousness or openness to experience), which are relatively durable characteristics, can help trigger the motivational processes associated with achieving a goal (*Kuński 2003*). Therefore, the aim of this study was to assess the motivation to exercise in both physically active women and men.

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Material and methods

The study involved 1590 health sciencesstudents who had a moderate level of physical activity. The criterion for including people in the survey was the fact of studying at one of the faculties defined as the science of health (public health, dietetics, health promotion, and physical education) and passing a positive test for physical activity. Before the questionnaire was provided, the intensity of physical activity of the respondents was assessed by Yamax Inc. The following standards were adopted according to Oliveir et al. (*2019*): <5000 steps/day – no physical activity; 5000–7499 steps/day – low physical activity; 7500–9999 steps/day – moderate physical activity; >10000 steps/day – high physical activity. People with at least moderate physical activity were admitted to the next stage of the study. A questionnaire was used as a research tool and consisted of closed- and open-ended questions. Some questions required the respondents to write their own answers (e.g., a different type of physical activity than those mentioned above). At the beginning of the survey, there was a tag, in which the respondents had to provide information such as gender, age, basic anthropometric data (body weight and height), and field of study. The respondents were also asked about the type of physical activity they undertake, frequency of exercise, and average time they spend on physical activity during one training day in minutes.

The survey used the EMI-2 questionnaire (Exercise Motivations Inventory – 2) to assess the motivation of study participants to undertake physical activity. The questionnaire contained 51 statements, which were subject to the assessment of respondents. The respondents assessed them using a five-point Likert scale from 0 to 5 (0 – true statement, 5 – false statement). Those statements were divided into 14 subscales, which were calculated using the average based on the scoring key created by the authors of the questionnaire. The subscales related to group membership, appearance, competition, stress management, mental regeneration, pleasure, social recognition, health pressure, avoiding ill health, maintaining health, weight control, strength and endurance, and agility and flexibility. The Statistica 13.3 software was used to analyse data from the EMI-2 questionnaire. To assess differences in motivation for physical activity measured using the EMI-2 questionnaire, in gender groups, the Mann–Whitney U test without continuity correction (p_1) and with correction (p_2) was conducted.

Results

The study included 875 women (55%) and 715 men (45%). The respondents were 18–25 years old; the mean age was 21.2 ± 1.8 years; the median age was 23 years. The study assessed body weight, which among the respondents ranged from 35 kg to 101 kg. The mean body weight was 66.5 ± 12.9 kg; the median body weight was 65 kg. The body height of the respondents ranged from 150 cm to 195 cm. The average body height was 170.8 ± 8.7 cm; the median body height was 170 cm. Based on the BMI index (kg/m2), the following results were obtained: underweightness in 130 people (8.2%), normal body weight in 1090 people (68.6%), and overweightness in 325 people (24.2%). The mean value of BMI of all subjects was 22.7 ± 3.2; the median value of BMI was 22.3 kg/m^2. The mean time of physical activity was 74.9 ± 35 min; the median time of physical activity was 60 min. A total of 60.3% of the respondents were characterized by moderate activity, and 39.7% were characterized by high activity. The most frequently chosen physical activities in the studied group were strength training (46.0%), endurance training (running, swimming, and cycling) (38.0%), dancing (27.0%), and combat sports (14.0%).

Respondents' answers to the EMI-2 questionnaire (Exercise Motivation Inventory – 2) regarding motivation for physical activity were divided into subscales. The results are shown in Table I.

Table IResults in each subscale of the EMI-2 questionnaire

Subscale	M*	SD
Stress management	2.00	1.72
Mental recovery	1.81	1.73
Pleasure	1.79	1.78
Challenges	2.05	1.82
Social recognition	2.62	1.93
Membership of a group	2.37	2.02
Competition	2.34	2.05
Health pressure	2.77	2.22
Avoiding ill health	1.99	1.71
Maintenance of health	1.91	1.82
Weight control	2.06	1.92
Appearance	1.96	1.86
Strength and endurance	1.93	1.81
Agile, flexible	2.09	1.71

*the lower the average grade, the higher the motivation to exercise

In the study group, the pleasure of physical activity was the most important motivation to undertake it (M = 1.79, SD = 1.78). Strong motivating factors included mental regeneration (M = 1.81, SD = 1.73), maintaining health (M = 1.91, SD = 1.82), building strength and endurance (M = 1.93, SD = 1.81), taking care of

appearance (M = 1.96, SD = 1.86), and avoiding ill health (M = 1.99, SD = 1.71). The final important motivation to exercise was health pressure (M = 2.77, SD = 2.22), followed by social recognition (M = 2.62, SD = 1.93), and willingness to belong to a group (M = 2.37, SD = 2.02). Table II compares motivation to exercise by gender. The results are systematised for all 14 subclasses, with the most important motivation marked '1' and the least important marked '14'.

Table IIRanking of subscale motivational exercises according to gender

Subscale	Male	Female
Stress management	6	9
Mental recovery	2	3
Pleasure	1	5
Challenges	7	10
Social recognition	13	13
Membership of a group	10	12
Competition	9	11
Health pressure	14	14
Avoiding ill health	5	8
Maintenance of health	4	1
Weight control	12	2
Appearance	8	4
Strength and endurance	3	6
Agile, flexible	11	7

Taking into account the top 5 motivational factors for physical activity, the results showed that among men, the following are important motivators: pleasure from exercising (M_1 = 1.77, SD_1 = 1.82), mental regeneration (M_1 = 1.83, SD_1 = 1.75), strength and endurance (M_1 = 2.01, SD_1 = 1.82), maintaining health (M_1 = 2.04, SD_1 = 1.83), and willingness to avoid ill health (M_1 = 2.06, SD_1 = 1.73). In women, the best motivators are: maintaining health (M_2 = 1.74, SD_2 = 1.79), weight control (M_2 = 1.75, SD_2 = 1.89), mental regeneration (M_2 = 1.77, SD_2 = 1.70), appearance (M_2 = 1.81, SD_2 = 1.84), pleasure from exercising (M_2 = 1.82, SD_2 = 1.72). In both groups, health pressure (M_1 = 2.66, SD_1 = 2.18; M_2 = 2.90, SD_2 = 2.27) and social recognition (M_1 = 2.51, SD_1 = 1.90; M_2 = 2.76, SD_2 = 1.98) were the least important motivation factors. Mann–Whitney's U test was conducted to assess differences in motivation for physical activity measured using the EMI-2 questionnaire in gender groups. The statistical differences are shown in Table III.

TableIIIDifferences in motivation to exercise according to gender

Subscale	M		Mann-Whitney U	Z	p_1	correction	p_2
	Male	**Famele**					
Stress management	325.5	309.4	47166.0	1.09	0.27	1.12	0.26
Mental recovery	239.5	238.4	27821.0	0.08	0.93	0.08	0.93
Pleasure	313.1	325.6	47727.0	-0.85	0.40	-0.87	0.38
Challenges	318.3	318.8	49596.0	-0.04	0.97	-0.04	0.97
Social recognition	308.7	331.3	46148.5	-1.54	0.12	-1.57	0.12
Membership of a group	300.4	342.1	43163.0	-2.84	0.00**	-2.91	0.00**
Competition	302.8	339.0	44017.0	-2.47	0.01*	-2.54	0.01*
Health pressure	232.7	247.2	26252.0	-1.13	0.26	-1.20	0.23
Avoiding ill health	244.7	231.6	26407.5	1.03	0.30	1.05	0.29
Maintenance of health	248.6	226.5	25365.0	1.73	0.08	1.77	0.08
Weight control	341.8	288.2	41304.5	3.65	0.00***	3.74	0.00***
Appearance	329.7	303.9	45660.0	1.75	0.08	1.79	0.07
Strength and endurance	326.1	308.6	46959.5	1.18	0.24	1.21	0.23
Agile, flexible	252.8	221.0	24219.5	2.50	0.01*	2.54	0.01*

*p<0.05, **p<0.01, ***p<0.001

Based on the assumed level of significance α = 0.05 and statistics from the Mann–Whitney U test without continuity correction (p_1) and with this correction (p_2), it is assumed that there are statistically significant differences in motivation, at individual subscale, between the group of men and women. The differences are visible in subscale of motivations: group membership, competition, weight control and agility, and flexibility.

The average rank in the subscale 'group membership' and 'competition' for men is 300.4 (Me = 2) and 302.8 (Me = 2), respectively, and it is significantly lower than the average rank for women, which is 342.1 (Me = 3) and 339.0 (Me = 3), respectively. This means that 'belonging to a group' and 'competing' are stronger incentives for physical activity among younger people. In the subclasses "weight control" and "agility, flexibility", the average rank for the first group is 341.8 (Me = 2) and 252.8 (Me = 2), respectively, and it is higher than the average rank for the second group, which is 288.2 (Me = 1) and 221.0 (Me = 1), respectively. Therefore, "weight control" and "agility, flexibility" are a more important motivation to exercise in the group of women.

Discussion

Both internal and external motivation can significantly affect the level of physical activity among people. Previous studies have shown many correlations and confirmed that health and aesthetic motivations are the main motivational factors for undertaking physical activity. Many researchers confirmed this observation in their studies. Previous research results from other centres are presented below. Researchers, who investigated motivation to engage in physical activity among students from medical and non-medical faculties, determined that the study group indicated that cycling (40.5%), team games (27.1%), walking with a pet (27.1%) and other group exercises (21.2%) and swimming (20.8%) were an active form of spending time. Women chose to cycle and walk with their dogs more often than men. Men preferred team games and wrestling. The motivators for choosing a given form of physical activity by students were primarily mental and physical well-being (51.1%), taking care of health, and fitness. Some of the respondents considered maintaining their current body weight, losing weight, and having a dream silhouette as motives for physical activity. Unfortunately, only 12.4% of the students practised daily; 41.6% of the respondents practised several times a week. Lack of time was the main factor limiting physical activity, while the rest of the respondents identified lack of motivation and ordinary laziness (*Sochocka & Wojtyłko 2013*). These results are the same as those obtained in our study.

Similar conclusions were reached by Dróżdż and Olszewski-Strzyżowski, who conducted a survey among the inhabitants of Elbląg. The abovementioned study used the method of a diagnostic survey in which 60 respondents participated. In task 1, the respondents had to determine the motives of physical activity on a scale of 5 (where 5 meant the highest and 1 meant the lowest weight). The respondents indicated well-being as the main motive for engaging in activity; other motives included physical fitness, fitness, and health. The other motives indicated by the respondents were pleasure of undertaking physical activity, promotion of a healthy lifestyle, trend and self-esteem. The results of the research concerning the motives of practising physical activity were also analysed in terms of gender. For women, their mood and their dream figure were most important. Men most often indicated their physical condition and fitness as important. The motives for exercising are not the same for both sexes; however, there is one commonality, i.e., health motive. The respondents were divided into two groups. The first group included people with secondary education, and the second group included people with higher education. This type of division showed a positive correlation between the level of education and frequency of physical activity (*Dróżdż & Olszewski-Strzyżowski 2012*).

In another study among people engaged in crossfit, it was observed that the most frequently given motives were improved endurance (68%), loss of adipose tissue (65%), improved health (55%), good fun (53%), and form of stress relief (52%). It was determined that more than half of the respondents engaged in other forms of activity; the most frequently mentioned activities were football, swimming, cycling and team games. A previous study has shown that this type of training is most often performed by men (*Figaj & Poczta 2016*).

Baranowska et al. conducted a study to determine the motivation for physical activity of the fitness club members. A group of 58 people was gathered for this purpose. The age of the respondents ranged from 18 to 75 years old. The respondents were asked about the time they performed their training. A total of 78% of the respondents spend more than 1 h training, and only 3% of them spent approximately 30 min. In addition, the survey showed that the best time for training was in the afternoon and evening hours between 2 p.m. and 5 p.m. The smallest number of people exercised between 7 a.m. and 10 a.m. The motives for undertaking training varied; however, both women and men were most interested in being fit for as long as possible. The next most important reason was the desire to be attractive. Some of the respondents considered upcoming holidays as a motive. The least popular answers were doctor's recommendation and fashion for being active. Approximately 62% of the respondents chose combined classes, i.e., aerobics and gym. Only 7% of the respondents (women) chose aerobics (*Baranowska et al. 2014*).

Conclusions

The following conclusions can be made based on the obtained results and cited sources:

The most important motivators for undertaking physical activity are pleasure, mental regeneration, and maintaining health. The least important motivation to exercise are health pressure, social recognition, and the desire to belong to a group. For men, the most important motivation to engage in physical activity is the pleasure of doing it. Women engage in physical activity primarily owing to the desire to maintain an appropriate state of health.

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