

## PHYSICAL ACTIVITY OF THE BIAŁA PODLASKA PRISON STAFF AND ITS CONDITIONING FACTORS

## AKTYWNOŚĆ FIZYCZNA I CZYNNIKI JĄ WARUNKUJĄCE WŚRÓD FUNKCJONARIUSZY ZAKŁADU KARNEGO W BIAŁEJ PODLASKIEJ

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B. Data collection/entry  
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C. Data analysis/statistics  
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### Summary

**Background.** Physical activity of the prison staff is an important condition of their proper functioning.

**Material and methods.** The research was conducted in April 2015 among 100 of 119 prison staff members from the Biała Podlaska Prison. A diagnostic survey method with the use of the International Physical Activity Questionnaire (IPAQ) extended with questions about the free time and self-evaluation of the physical fitness has been used.

**Results.** A satisfactory level of physical activity among the researched staff members was noted. A factor which visibly diversified higher physical activity level was the higher index of self-evaluation of the physical fitness. The amount of leisure time, age, education, or the BMI indicator were not noted to have any influence on this dependency.

**Conclusions.** It should be assumed that the main factor conditioning physical activity of prison staff is their awareness of the role of physical activity as a means to keep a good health.

**Keywords:** Prison staff, physical activity (IPAQ), conditioning factors

### Streszczenie

**Wprowadzenie.** Aktywność fizyczna funkcjonariuszy Służby Więziennej jest ważnym warunkiem ich prawidłowego funkcjonowania.

**Materiał i metody.** Badania przeprowadzono w kwietniu 2015 roku wśród 100 funkcjonariuszy Zakładu Karnego w Białej Podlaskiej spośród 119 zatrudnionych. Zastosowano metodę sondażu diagnostycznego z wykorzystaniem Międzynarodowego Kwestionariusza Aktywności Fizycznej (IPAQ) z dodaniem pytań o posiadany czas wolny i samooceny sprawności fizycznej.

**Wyniki.** Wykazano zadowalający poziom aktywności fizycznej badanych funkcjonariuszy. Czynnikiem istotnie różnicującym wyższą aktywność fizyczną był wyższy wskaźnik samooceny sprawności fizycznej. Nie wykazano istotności takiego związku z ilością czasu wolnego, wieku, wykształcenia oraz wskaźnika BMI.

**Wnioski.** Przyjąć należy, że głównym czynnikiem warunkującym aktywność fizyczną funkcjonariuszy jest ich świadomość o roli aktywności fizycznej w trosce o zdrowie.

**Słowa kluczowe:** funkcjonariusze Służby Więziennej, aktywność fizyczna (IPAQ), czynniki warunkujące

Tables: 6  
Figures: 6  
References: 22  
Submitted: 19.05.2016  
Accepted: 22.06.2016

### Introduction

According to the results of the 2012 CBOS survey [1], more than 80% of respondents in Poland claim they care for their health, however their declarations are not confirmed by the actual activities they undertake to keep a good health. As many as 61% of the researched admit they have never or hardly ever undertaken such physical activities as gymnastics, aerobic or gym exercises. On the other hand, almost a half of the researched avoids such activities like running, swimming, cycling, or team games. Many researches have been conducted proving the beneficial influence of physical activity on health; and a good health is, among other things, one of the key factors deciding on the suitability of a candidate for any job in uniformed services sector, including job in the Prison Service (SW). The physical fitness of both new staff members, and the working staff members is being tested. Appropriate health attitude of the prison staff is important not only from the perspective of requirements of the service to work in this highly overburdened profession, but also preventive measures involving the reduction of the negative effects of stress and job burnout, which are undoubtedly an inseparable aspect of work in penitentiary units. As many as 50% of prison staff members claimed the wish to change their job only due to

Wojciechowski L, Bergier M. Physical activity of the Biała Podlaska prison staff and its conditioning factors. Health Problems of Civilization 2016; 10(3): 47-56. doi: 10.5114/hpc.2016.61366.

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the job stress factor [2], and 13.9% of Prison staff occupational health psychologist's interventions in case of high stress (e.g. suicide of a convict) were performed at the request of the prison staff member, in accordance with the prison procedures as agreed earlier [3]. During the research conducted while preparing the questionnaire of stress level of the Prison staff it was observed that every fourth prison staff member feels significant health decline from the beginning of work in the SW, and every tenth decides to exploit a medical sick leave in a situation when being healthy [2]. Repeating negative situations in the workplace rife with stressful incidents are the origin of many psychosomatic illnesses [4]. The analysis of the prison staff health conducted from 2009 by the team of Occupational Medicine and HSE Services indicates the increase of the number of diseases and illnesses diagnosed, in particular: lipid disorders and obesity (53,1%), cardiovascular diseases (26.4%), and behavioural disorders and mental illnesses (23,9%). Patients between 41 and 50, and many workers with 11-20 years of experience are the most often diagnosed with these diseases [5].

Overview of the research conducted by Kajtn and others [6] indicates that people practicing sport regularly distinguish themselves with higher level of assiduity and emotional stability towards prisoners, which is proved by research [7]. Possibly high level of physical activity of workers of penitentiary centres is good, or even an essential model for prisoners.

Konopczyński [8] indicates that physical activity is important in creative resocialization. Doing physical activities serves not only the needs of stimulation of preventing aggression, but is also a form of creative activity. He also underlines that among the most important benefits of raising through sport one may note: organic dynamic increase, possibility of aesthetic and intellectual expression, increase of the sense of security, or increase of resourcefulness.

Despite many benefits of undertaking any physical activity, awareness of the prison staff on the ground of its beneficial effect on health seems to be too limited. Every fifth prison staff member does not feel any need for the increased physical activity, and every second exercises sporadically [9]. Additionally, over 20% of prison staff members do not observe any connection between the necessity of having a certain level of physical fitness and its usefulness for the occupied position.

The research concerning the character of work of the prison staff member has been conducted since years in foreign studies. Bourbonnais and others [10] point out the problem of higher work-related stress risk of workers of this profession compared to other professions. Most of the researches apply to the requirements of the high physical fitness of workers and the needs of special programmes for this kind of activity [11,12,13,14,15]. The special role and tasks of prison guards in case of ill health of prisoners is underlined [16]. Other works raise the subject of unfavourable conditions of work of prison staff members, which expose them to higher levels of stress [17].

Summarizing, it must be stated that regarding the foregoing reasoning conducting a research on physical activity on the third most numerous uniformed services group, after the army and police, of – at the end of 2014 – 27.542 members [18], seems to be fully justified and needed. The collection of publications covering this subject concerning prison staff members is really limited, especially due to the fact that numerous researches on the physical activity of different social and professional groups are conducted on policemen [19], soldiers [20] and border guards [21].

### **Aim of the study**

The aim of this study is to learn the declared level of physical activity and its conditioning factors: age, education, self-assessment of fitness, the amount of leisure time, the BMI indicator among prison staff members working in the prison in Biała Podlaska, with use of the long International Physical Activity Questionnaire (IPAQ) form, in which the elementary requirement for the acknowledgement of the physical activity exercises is its duration (without interruptions) of no shorter than 10 minutes [22,23]. It should be emphasized that the essence of the measure of physical activity by means of the IPAQ questionnaire is maintaining the objectivity of evaluation and comparing the researches in various countries [24]

### **Material and method**

Research was conducted in April 2015, among 100 of 119 employed at that day prison staff members from the prison in Biała Podlaska. Nineteen staff members could not participate in the try due to an excused absence: medical sick leave, annual leave, or being on a delegation.

Among the researched there were 7 women aged 30-43, with the average of life expectancy being 37.7, and 93 men aged 23-52, with the average of 37.2 years. All the women researched had higher education and were

employed on non-security positions and occupying with the office activities. 22 of men were employed on non-security positions (departments of: manager, commissary, account books, finance, therapy, penitentiary and health service) and in most cases had higher (84%) and secondary (16%) education. This group was characterized by a great diversity of the employment activities undertaken, from the typically office activities, activities connected with education and therapy and driving, through conducting sporting activities, cultural and educational activities, and activities related to realisation of social affairs, maintenance and renovation, and storage works.

Realisation of the research objective was achieved thanks to the questionnaire consisting of two parts including: the level of physical activity, and additional questions about the amount of leisure time and self-evaluation of the physical fitness. Research on the basis of the questionnaire was conducted with survey method, with anonymity observed. For the assessment of the level of physical activity the long, Polish version of the IPAQ questionnaire was used which is available on the website [www.ipaq.ki.se](http://www.ipaq.ki.se). The total of physical activity per week was calculated through addition of the value of MET level in minutes/week, regarding activities of vigorous, moderate, or low intensity (walking) levels, performed per week. MET levels for different kinds of physical activity (physical effort) were applied as follows [23].

The BMI (*body mass index*) was counted on the basis of anthropometric measurements and weight of prison staff members, as well as the assessment of the measure mass accuracy. The classification of the researched was established in accordance with World Health Organisation (WHO 2010) guidelines, depending on the MET level:

1. underweight <math><18.5 \text{ kg/m}^2</math>
2. normal (healthy weight) <math>18.5\text{-}24.9 \text{ kg/m}^2</math>
3. overweight <math>25.0\text{-}29.9 \text{ kg/m}^2</math>
4. obese class I <math>30.0\text{-}34.9 \text{ kg/m}^2</math>
5. obese class II <math>35.0\text{-}39.9 \text{ kg/m}^2</math>
6. obese class III <math>\geq 40.0 \text{ kg/m}^2</math>

## Results of the research

### Characteristics of the level of physical activity

The average amount of physical activity among prison staff members is 3,528.7 MET-minutes/week with the highest percentage of the moderate intensity activities – 1,605.6 MET-minutes/week (45.6%) and vigorous intensity – 1,487.4 MET-minutes/week (42.1%) and much smaller percentage of walking 435.7 MET-minutes/week (12.3%). Women claimed to be physically active between 837.6 and 3,877.5 MET-minutes/week level, with the average value for the group of 2,335.6 MET-minutes/week. Activity of men amounted from 0 to 8,489.1 MET-minutes/week, with the average of 3,618.5 MET-minutes/week<sup>1</sup> (Table 1)

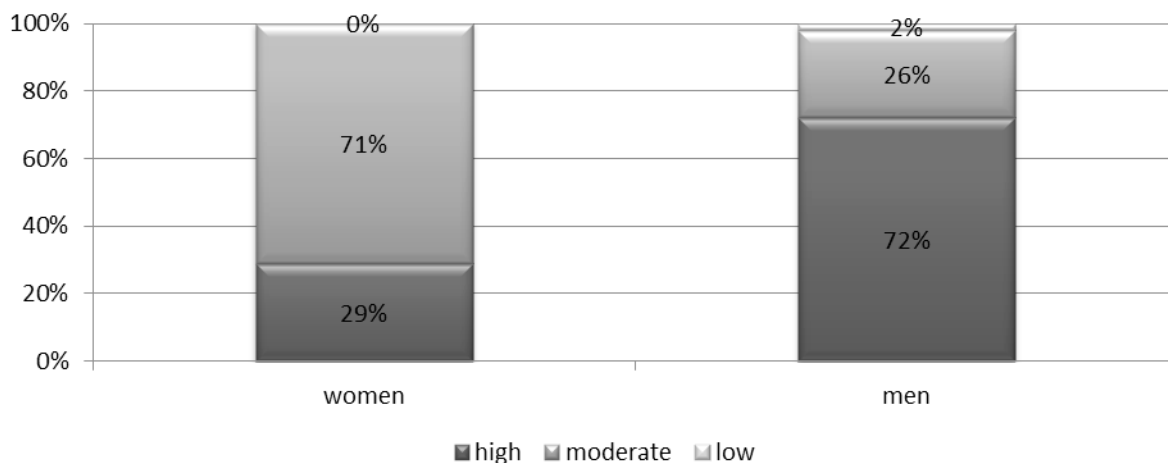
**Table 1.** Physical activity and its kinds among prison staff members (in MET – minutes/week)

Statistical data	Total physical activity [MET-minutes/week]	Types of physical activity [MET-minutes/week]		
		vigorous intensity	moderate intensity	walking
Women and men				
Average	3,528.7	1,487.4	1,605.6	435.7
%	100	42.1	45.6	12.3
SD	1,388.0	980.6	780.9	270.9
Women				
Average	2,335.6	582.9	1,605.6	341.9
%	100	25.0	68.7	6.3
SD	1,170.9	746.3	772.4	277.9
Men				
Average	3,618.5	1,555.5	1,620.3	442.7
%	100	43.0	44.8	12.2
SD	1,399.7	994.3	784.5	271.6

<sup>1</sup> hereinafter referred to as „MET”.

**Levels of physical activity**

The responses from IPAQ questionnaires enable to estimate the declared physical activity of the prison staff members in Biała Podlaska as satisfactory or of very high level. For 29% of women the level of physical activity is high, for 71% – moderate, without women claiming low level of activity. For men, the proportions are more beneficial, the level of activity for as many as 72% of men – is high, for 26% – moderate and for 2% – insufficient (2 people: 0 and 560 MET·minutes/week) (Fig.1).



**Figure 1.** Levels of physical activity of Prison staffmembers

**Conditioning factors of physical activity**

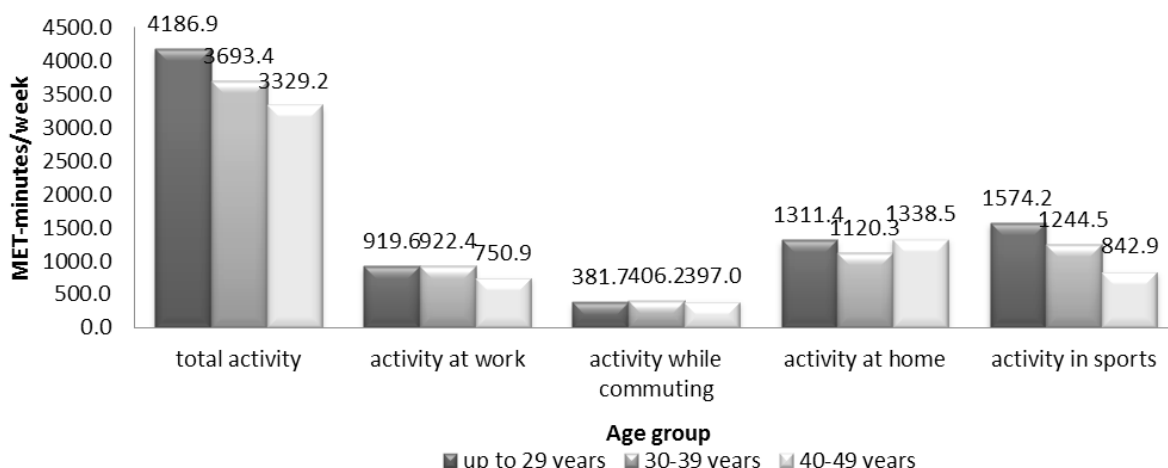
Among the conditioning factors of physical activity of prison staff members the following were considered: age, education, self-evaluation of physical fitness, amount of leisure time and the BMI index. For the analysis of conditioning factors of physical activity only the information from 93 men was applied, as the total of women researched was only 7.

**Physical activity and age**

Level of the total amount of physical activity declines with age and equals in subsequent groups: up to 29 years of age – 4,186.9 MET, 30-39 years of age – 3,693.4 MET, 40-49 years of age – 3,329.2 MET. However, it should be noted that the differences between the three groups are not statistically significant. The main area of physical activity involves domestic and leisure time, and sport activities (Tab. 2, Fig. 2).

**Table 2.** Diversity of areas of physical activity of prison staff members with age taken into account

The Kruskal-Wallis test			
Physical activity level	H	p	Diversity
Total physical activity	2.70	0.2589	-
Work-related physical activity	1.07	0.5844	-
Transport-related physical activity	0.03	0.9847	-
Domestic and gardening activities	0.97	0.6151	-
Sports activities	4.78	0.0918	-



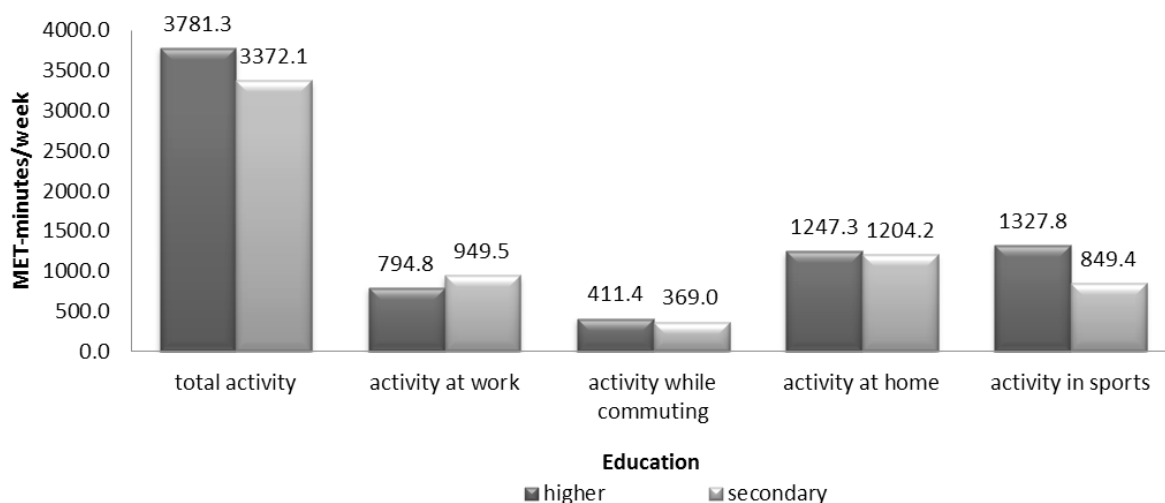
**Figure 2.** The areas of physical activity of prison staff members with age taken into account Min/tyg-minutes/week

**Physical activity and education**

The research participants with higher level of education are more physically active (3,781.3 MET), but the difference is not statistically significant. A dominant type of physical activity among people with higher education is sport activity, and among people with secondary education – domestic activities, but in both cases the differences are not statistically significant (Tab. 3, Fig. 3).

**Table 3.** Diversification of areas of physical activity of prison staff members with education taken into account

The Mann-Whitney U test				
Physical activity level	Sum of ranks		Z	p
	Education			
	higher	secondary		
Total physical activity	2765	1606	1.04	0.2983
Work-related physical activity	2521	1850	-0.87	0.3857
Transport-related physical activity	2597	1775	-0.28	0.7805
Domestic and gardening activities	2694	1678	0.48	0.6319
Sports activities	2844	1527	1.67	0.0943



**Figure 3.** Areas of physical activity of prison staff members with education taken into account

**Physical activity and self-evaluation of physical fitness**

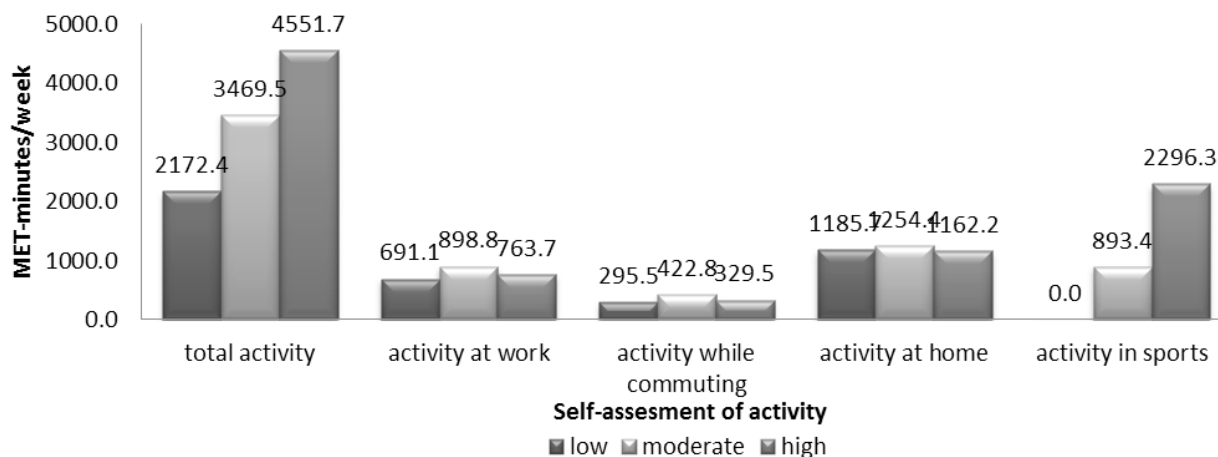
Division of the self-evaluation of physical fitness proved its highest level among workers with high self-evaluated level of their activity (4,551.7 MET), and the lowest among workers with the lowest self-evaluation level (2,172.4 MET) It should be highlighted that the total level of physical activity was significantly higher among workers of higher and moderate own physical fitness self-evaluation level, comparing to the group of low self-evaluation level. The significant difference was proved in the area of physical activity in sports, where the highest values were reached by people of the high level of the evaluation of physical fitness (2,296.3 MET) and it was a significant difference (Tab. 4, Fig. 4).

**Table 4.** Diversification of physical activity areas of prison staff members with self-evaluation of their activity taken into account

The Kruskal-Wallis test			
Physical activity level	H	p	Diversity
Total physical activity	14.21	0.0008*	A-C; B-C**
Work-related physical activity	0.67	0.7137	-
Transport-related physical activity	1.56	0.4584	-
Domestic and gardening activities	0.06	0.9713	-
Sports activities	26.82	0.0001*	A-B,C; B-C**

\*- significant diversification with p<0.05

\*\*-self-evaluation of physical activity level, between which there is a statistically significant dependency within the area given (p<0.05). Self-estimation of physical activity level: A-low, B-moderate, C-high



**Figure 4.** Areas of physical activity of prison staff members with self-estimation of its level taken into account

**Physical activity and the amount of leisure time**

Physical activity is on the higher level among people with higher amount of leisure time. Among different groups it amounted to: sufficient amount of time – 3,674.1 MET, too little amount – 3,627.5 MET, lack of time – 3,092.5 MET, but the differences are not statistically significant. A similar dependency of higher physical activity level and the amount of leisure time was proved within the area of sports activities, but without significant differences (Tab. 5, Fig. 5).

**Table 5.** Diversification of physical activity areas of prison staff members with the amount of leisure time taken into account

The Kruskal-Wallis test			
Physical activity level	H	p	Diversity
Total physical activity	1.45	0.4846	-
Work-related physical activity	0.26	0.8766	-

Transport-related physical activity	0.25	0.8817	-
Domestic and gardening activities	2.18	0.3362	-
Sports activities	5.57	0.0619	-

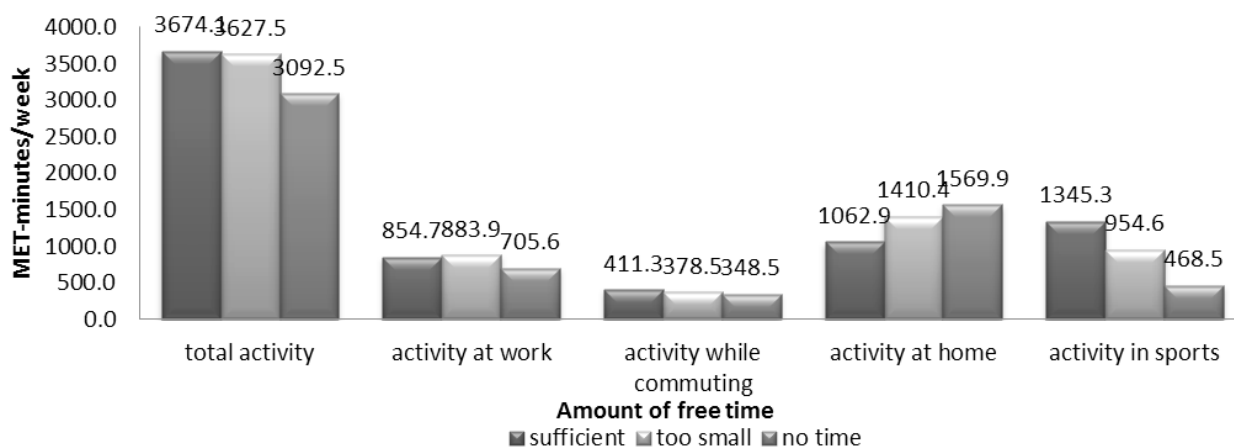


Figure 5. Areas of physical activity of Prison staff members with the amount of leisure time taken into account

**Physical activity and the BMI**

Level of total physical activity declines along with less beneficial indications of the BMI index and amount in particular areas to: normal – 3,974.5 MET, overweight – 3,714.0 MET, obese – 3,121.0 MET, but the differences are not statistically significant. People with normal BMI value had the highest level of physical activity in leisure time – in sports, but the differences were not statistically significant as well (Tab. 6, Fig. 6).

Table 6. Diversification of the areas of physical activity of the prison staff members with the BMI index taken into account

Kruskal-Wallis Test			
Physical activity level	H	p	Diversity
Total physical activity	5.11	0.0776	-
Work-related physical activity	0.09	0.9557	-
Transport-related physical activity	2.00	0.3680	-
Domestic and gardening activities	1.54	0.4641	-
Sports activities	3.83	0.1474	-

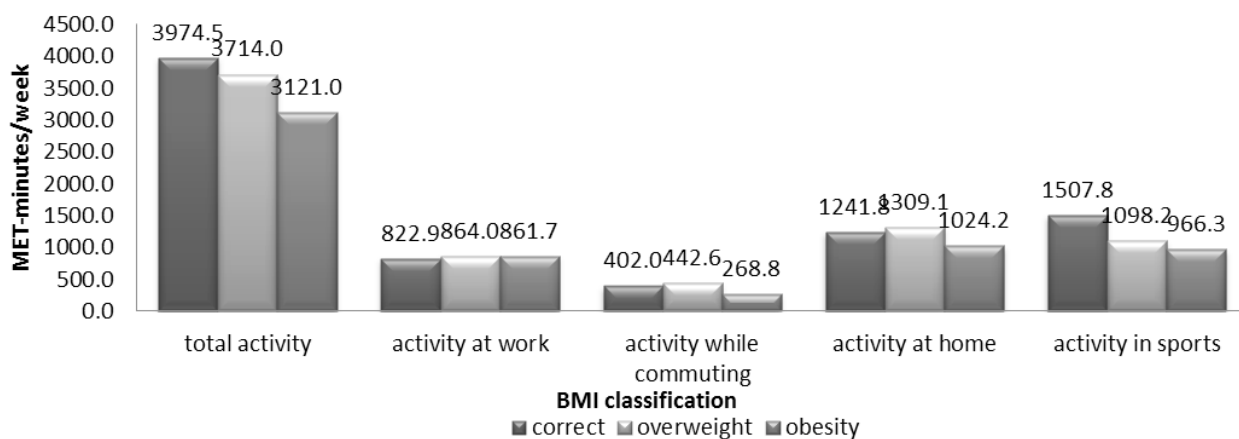


Figure 6. Areas of physical activity of prison staff members with the BMI index classification taken into account

## Discussion

The personnel of prison is not a homogeneous social category. It comprises persons of different levels of education, different professions-of both genders. The differences determine the positions they hold and the positions they hold within the organizational structure [25]. Officers of the prison or of detention centre perform their duties on two layers: protective and non-protective (service and administration) [26].

The results of research were conducted by means of IPAQ questionnaire of the Prison Officers employed in the Prison Facility of Biała Podlaska confirm their high physical activity. Only 7% of the officers assessed their level of physical activity as low, while the remaining officers (72%) assessed is as medium and 21%-as high. In the entire researched group the medium total value of physical activity amounted to 3,528.7 MET and was similar to ie. France – 3.828 MET), and even higher than the results of research in other countries such as: Spain – 2.358 MET, Great Britain - 1.656 MET and Italy – 1.176 MET [27], or Poland - 2.642 MET [28].

Within the tested group women declared smaller average total physical activity (2.335,6 MET) than men (3.618,5 MET), especially in the scope of intense effort. This correctness is confirmed also by the authors of other research. [29,30,31].

A significantly unbeneficial phenomenon is the indication of low level of total physical activity in case of two men which requires a thorough analysis by their superiors.

Values of BMI indicator among the officers in comparison to the data from GUS [32], showing that at the end of 2009 in Poland over 61% of men weighted too much (45% were overweight, 17% with obesity) and almost 45% of women (30% were overweight and 15% had obesity) obtained during researches are alarming. The BMI analysis indicated that only 17% of the researched men are characterized by the recommended value of this indicator (by half less than in all-Poland population). Among the entire researched group of women and men only 20% had the correct BMI value, while 1% were underweight, 57% were overweight, 18% had 1st degree obesity and 4% had the second degree obesity.

Lack of key relations with physical activity such as the following factors: age, education, amount of free time and BMI index suggest that the only factor in the care for one's health is one's own awareness of the role of physical activity as an important component of a lifestyle. The confirmation of this theses is the fact that the only factor which indicated a key relation with a larger physical activity was higher self-assessment of physical fitness.

## Conclusions

1. Level of physical fitness among the officers of prison service should be assessed as positive.
2. Out of the five analysed factors (age, education, self-assessment, physical skills, amount of free time and BMI index) which differentiate physical fitness key relations were noted only in case of self-assessment of physical fitness. Among the research participants assessing their physical fitness as higher, significantly higher values of physical fitness were noted. One must point out that the level of physical fitness is not determined by such factors as education, age, BMI index or amount of free time, but a higher awareness of the role of physical fitness in care for one's health.

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