

Inmates' physical activity as part of the health ecology

Research Article

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Abstract: To evaluate the possibilities of physical activity in developing inmates' healthy lifestyle and social skills. The research, which was conducted in 2009 in Pravienskės First and Second Correction Houses, was local and cross-sectional using a written questionnaire. The questionnaire consisted of four groups of questions/statements: I – demographic questions; II – questions/statements about inmates' physical (sports) activities (was created for this study) and III – assessment of inmates' social skills. And IV – assessment of inmates' self esteem. Sufficiently physically active inmates (n=185) comprised 57.8 percent of the total number of respondents. Inmates' physical activity statistically significantly ($p < 0.05$) correlates with their younger age. Secondary education is prevailing in the group of physically active inmates, while primary - lower secondary education predominates in the group of physically inactive inmates (n=135). Only less than 6 percent of inmates have higher education. The average age of physically active inmates is statistically significantly lower than that of physically inactive inmates, 26 and 31.6 years respectively ($p = 0.01$). The analysis of inmates' contentment with their psychological state and satisfaction with health care services, food quality, and conditions for sports activities showed that physically active inmates are more critical about these factors than physically inactive inmates. Only the contentment with psychological state in physically active inmates is statistically significantly higher than in inactive inmates. Out of eleven social skills assessed in the study, only two skills (ability to initiate conversation with a stranger and sense of responsibility) are statistically significant ($p < 0.05$). The probability that the convicts who have a strong sense of responsibility tend to be more physically active than the inmates who do not consider themselves responsible is 7.4 times higher. The study results showed that self-esteem in physically active inmates is statistically significantly higher than in physically inactive inmates ($p = 0.033$). Low self-esteem was not determined in any inmates.

Keywords: Social skills • Self-esteem • Physical activity • Inmates

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1. Introduction

Throughout the history of human existence, human social behaviour and instruments used to regulate human behaviour and attitudes have been constantly evolving and transforming. When one type of such regulatory instruments cannot guarantee social harmony, fail to maintain the balance between the "right" and the "wrong" or cause other negative and undesirable consequences, new instruments emerge to secure social harmony. Lithuania is not an exemption from these developments as the country has become a part of the main advanced

international and continental structures (the NATO and the EU). With the changes in political situation, there have been changes in the public perception of the state, society, law, justice, and other fundamental categories. The ability of society to socialise human relations through the establishment of instruments for securing human rights and, simultaneously, to use them effectively show a high level of society's legal culture. Legal culture in Lithuania has been slowly but gradually changing with the emergence of new ideas, a new outlook on punishment and the relation between the state and the law. There is a shift from the concept of punishment as

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a penalty for crime toward the harmonisation of a range of objectives, including punishment, education and rehabilitation (Vaišvila, 2000).

The scientists and experts of penitentiary system from different European countries proved that the degree of crime depends on a person's criminal experience, interaction between criminals and acquisition of criminal knowledge, and skills rather than the intensity and duration of punishment [1,2] notes other circumstances influencing recurrent commitment of crimes, stating that resocialisation process of released inmates suffers from serious shortages such as inconsistency and breakdowns of this process, absence of favourable conditions to re-enter into labour market, a passive role of NGOs, a lack of competence in professional practice, etc. [2].

Physical activity, different sports, and recreation activities have become the main type of activity that have a significant impact on inmates' physical, mental, and social health in modern imprisonment institutions. This type of activity is also beneficial to the organisation of work in large and overcrowded prisons which operate in an atmosphere of constant tension. This helps to reduce tension and creates opportunities for healthy and positive releases of tension when other means are unavailable. This area of regime, together with work and education, has become the basis for diverse prison regimes and inmates' daily life. From the moment when the objective was introduced to allocate at least the minimum time for exercise, contemporary regimes reached such level when impressive programs of physical education, sport, and recreation that require from inmates to exercise at least one time daily have become an anachronism. In the course of time these programmes are becoming more professional and specialised.

The hypothesis: 1. There are statistically significant differences in the level of social skills in physically active and inactive inmates. 2. Self-esteem in physically active inmates is significantly higher than in inactive inmates.

2. Material and Methods

A written questionnaire was used in the study, consisting of four groups of questions/statements: I – demographic questions (age, number of convictions, sentence length, education); II – questions/statements about inmates' sports activities (frequency of exercise, motives, sports equipment used, exercise influence on health and behaviour, conditions for exercise and physical activity, etc.); III – assessment of inmates' social skills according to Eileen Gambrell (1995) [16]. Were the items adapted special for inmates' from this questionnaire, (ability to reject, to react to remarks, to contradict, to apologise, to

acknowledge personal mistakes, to initiate conversation, to ask for help, etc.); IV – assessment of inmates' self-esteem using the Rosenberg self-esteem scale (www.yorku.ca/rokada/psyctest/rosenbrg.pdf). Subjects of the study were selected by the convenience sample method.

For data analysis, the respondents were divided into two groups: physically active and inactive. Physically active were those respondents who exercised not less than one hour in a day and not less than three days in a week.

The level of self-esteem was divided into high (1-18 points), moderate (19–30 points) and low (31–40 points).

The scale is a ten item scale with items answered on a four point scale - from strongly agree to strongly disagree.

Below is a list of statements dealing with your general feelings about yourself. If you strongly agree, circle **SA**. If you agree with the statement, circle **A**. If you disagree, circle **D**. If you strongly disagree, circle **SD**.

1. On the whole, I am satisfied with myself.
 - 2.* At times, I think I am no good at all.
 3. I feel that I have a number of good qualities.
 4. I am able to do things as well as most other
 - 5.* people.
 - 6.* I feel I do not have much to be proud of.
 7. I certainly feel useless at times.
 - 8.* I feel that I'm a person of worth, at least on an
 - 9.* equal plane with others.
 10. I wish I could have more respect for myself.
- All in all, I am inclined to feel that I am a failure.
I take a positive attitude toward myself.

Scoring: SA=4, A=3, D=2, SD=1. *Items with an asterisk are reverse scored, that is, SA=1, A=2, D=3, SD=4. Sum the scores for the 10 items. The higher the score, the higher the self esteem.

Research object: physical activity of inmates from Lithuanian correction houses.

2.1. Statistical methods and experimental procedures

Two software programs were used in processing the collected data: SPSS and Excel. The data was processed by calculating absolute values and percentages. For the analysis of correlation between variables, associative analysis of nonparametric statistics χ^2 (chi-square) was used. The Student's t-test was used to determine the difference between two mean values of attributes. The difference was considered to be statistically significant, when the deviation was not more than 5 percent ($p < 0.05$). In addition, binary logistic regression was used in the study.

Table 1. Distribution of physically active and inactive inmates according to their age, number of convictions, sentence length and education (analyses performed on all respondents).

Indicators	Classification	Physically active N (%)	Physically inactive N (%)	p
Inmate age (years)	18-25	108 (61,4)	55 (43,0)	0,011
	26-35	56 (31,8)	36 (28,1)	
	35 +	12 (6,8)	37 (28,9)	
Number of convictions (times)	1	70 (40,9)	72 (57,6)	0,008
	2-4	70 (40,9)	46 (36,8)	
	5-10	31 (18,1)	7 (5,6)	
Sentence length (months)	1-24	87 (52,4)	57 (47,9)	0,18
	25-48	51 (30,7)	33 (27,7)	
	49 +	28 (16,9)	29 (24,4)	
Education	Primary – lower secondary	66 (37,9)	51 (39,8)	0,137
	Secondary	76 (43,7)	43 (33,6)	
	Higher	6 (3,4)	10 (7,8)	
	Other	26 (14,9)	24 (18,8)	

Comments: $\chi^2=27,441$, $df=2$ (inmate age), $\chi^2=13,325$, $df=2$, (number of convictions), $\chi^2=2,440$, $df=2$ (sentence length), $\chi^2=5,270$, $df=3$, (education) comparing physically active and inactive inmates.

3. Results

According to the survey results, sufficiently physically active inmates (n=185) comprised 57.8 percent of the total number of respondents.

The study showed that inmates’ physical activity statistically significantly correlates ($p<0.05$) with their younger age (Table 1). The number of physically active inmates aged 18–25 was two times bigger in comparison with the number of inmates aged 26–35 and 9 times bigger than the number of inmates aged 35 and above (Table 1).

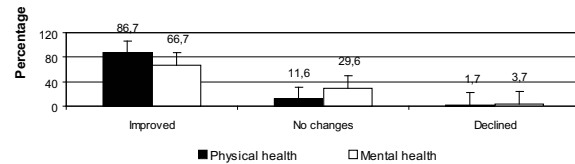
According the study, there was a comparatively higher number of physically active inmates who had short-term imprisonment; however, the differences are not statistically significant (Table 1).

Comparing the number of convictions of physically active and physically inactive inmates (n = 135), it was determined that there are more physically active inmates who had been convicted for more than one time (from 2 to 4 times and from 5 to 10 times) than those inmates who had been convicted for the first time (Table 1).

Secondary education dominates among physically active inmates, while lower-secondary education prevails among physically inactive inmates. Only less than 6 percent of inmates have acquired higher education. Statistical analysis showed that the difference between the two groups of inmates according to their acquired education is not statistically significant (Table 1).

Figure 1 illustrates the respondents’ answers to the question: “How has your physical and mental health changed after you started to exercise regularly?”

Figure 1. Changes in physical and mental health of physically active inmates after starting regular exercise $\chi^2=19,026$, $dfs=2$, $p<0,001$.



According to the majority of respondents, their physical health has improved significantly more than their mental health, 86.7% and 66.7% respectively.

The analysis of inmates’ contentment with their psychological state and satisfaction with health care services, food quality, and conditions for sports activities showed that physically active inmates are more critical about these factors than the inmates who are physically inactive (Table 2). Only the contentment with psychological state in physically active inmates is statistically significantly higher than in inactive inmates.

The binary logistic regression applied in the analysis how physical activity depends on social skills, where categorical dependent variables were divided into physically active subjects and physically passive subjects, showed that:

1. The regression model is statistically significant since the significance level was $p<0.05$ using the omnibus test (Table 1);
2. General accuracy of classification is 63.5% (Table 2);
3. Two social factors (ability to initiate conversation with a stranger and sense of responsibility) have statistically significant impact on classification (Table 3).

Table 2. Distribution of physically active and inactive respondents according to the future perspectives.

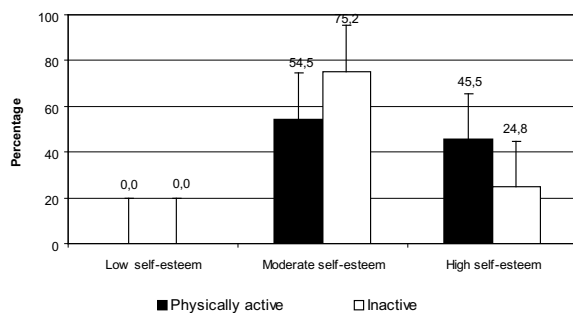
Indicators		Physically active N (%)	Inactive N (%)	p
Are you content with your psychological state?	Yes	128 (75,3)	76 (65,0)	0,058
	No	42 (24,7)	41 (35,0)	
Are you satisfied with health care services at the correction house?	Yes	53 (30,5)	58 (47,5)	0,003
	No	121 (69,5)	64 (52,5)	
Are you satisfied with the quality of food at the correction house?	Yes	29 (16,6)	32 (26,7)	0,035
	No	146 (83,4)	88 (73,3)	
Are you satisfied with the conditions for sports activities?	Yes	98 (57,0)	61 (59,2)	0,715
	No	74 (43,0)	42 (40,8)	

Comments: $\chi^2=3.602$, $df=1$ (Are you satisfied with your psychological state?), $\chi^2=8.928$, $df=1$, (Are you satisfied with health care services at the correction house?), $\chi^2=4.423$, $df=1$ (Are you satisfied with the quality of food at the correction house?), $\chi^2=0.133$, $df=1$, (Are you satisfied with the conditions for sports activities?), comparing physically active and inactive inmates.

Table 3. Causality between inmates' physical activity and their social skills

Indicators	Classification	Possibility ratio	95 % PI	p value
Do you easily acknowledge your mistakes?	Extremely difficult to acknowledge (n=13)	1		0.046
	Relatively difficult to acknowledge (n=59)	2.976	1.178-7.521	0.021
	Easy to acknowledge (n=113)	1.742	0.741-4.093	0.203
Do you consider yourself a responsible person for your actions?	I don't feel sense of responsibility (n=2)	1		0.002
	I am moderately responsible (n=59)	3.421	0.669-17.495	0.140
	I am a responsible person (n=124)	7.388	1.458-37.431	0.016

Figure 2. Respondents' self-esteem $\chi^2=35.605$, $Ils=21$, $p=0.033$.



According to the study results presented in Table 3, it can be stated that the inmates who find it relatively difficult to acknowledge their mistakes are three times more likely to become physically active than those inmates who find it extremely difficult to acknowledge making mistakes.

The probability that the convicts who have a strong sense of responsibility tend to be more physically active than the inmates who do not consider themselves responsible is 7.4 times higher.

The Rosenberg self-esteem scale was used in the study to assess inmates' self-esteem [17]. The level of self-esteem was divided into high, moderate and low. Low self-esteem was not determined in any inmates. (Figure 2). Statistical analysis showed that self-esteem

in physically active inmates is statistically significantly higher than in physically inactive inmates.

4. Discussion

The study results indicate that physical (sports) activities are a decisive factor capable to cause significant influence on inmates' self-esteem and social skills. However, for more conclusive results on the issue a longitudinal design is needed.

Comparing the results from the current study with a similar study carried out in 2007 in Alytus Correction [6], it was determined that the number of physically active inmates in Pravieniškės, First and Second Correction House,s is 15 percent higher than in Alytus Correction House, 57.8 and 42.8 percent respectively. However, this difference should not lead to an assumption that conditions for physical activities are more unfavourable in Alytus Correction House or that its administration pays less attention in comparison to Pravieniškės Correction Houses. Comparing the number of convicts who started to exercise after their imprisonment, there were three times less inmates in Alytus Correction House than in Pravieniškės Correction Houses, 18.4 and 49.7 respectively.

According to several sources, physically active inmates are less likely to return to crime [7]; however, our study showed just the opposite results. The average number of convictions of physically active inmates is statistically significantly ($p < 0.05$) higher (2.6 times) than physically inactive inmates (2 times).

On the other hand, the study leads to an assumption that probably physically active inmates had committed lighter crimes since the term of their imprisonment is shorter (31.1 ± 22.9 months) than physically inactive inmates (34.3 ± 27.5 months), though the differences of sentence terms are not statistically significant ($p = 0.18$).

One of the problematic issues in correction houses is insufficient physical activity in older inmates who have fewer opportunities to participate in sports activities due to younger inmates monopolizing sports equipment [8]. This was partly confirmed in our current study since the mean age of physically inactive inmates (31.6 years) is statistically significantly higher ($p < 0.05$) than the age of physically active inmates (26 years).

According to one of the inmates: „*The conditions are not favourable for every sport, for instance, there are conditions only for weight lifting, but not for martial arts since the administration [of the correction house] holds an opinion that those who practice martial arts can use these skills against the society and the officers...*“.

This statement is not groundless as there are a number of references where it is feared that: “Inmates may use their improved size and strength as a weapon against correctional officers” [7].

Physically active inmates are less satisfied not only with the conditions for sports activities but also with health care services and the quality of food at the correction house. In our opinion, it is logical because physical activity can be considered a risk factor directly linked with health care, nutrition, and conditions for sports activities because physically active inmates are at higher risk to get injured and consume more calories than physically inactive inmates.

The study showed that physical activity does not necessarily have a positive effect on the development of social skills. Out of eleven social skills assessed in the study, only two skills were determined to be statistically significant comparing physically active and inactive inmates. Different authors disagree on this matter. Part of them state that sport and physical activity can also develop antisocial behaviour and negative personal qualities (e.g. dominion, hostility, selfishness, disobedience to rules and disruptive behaviour) [5,9]. Sport can affect harmful habits, for instance, alcohol consumption; athletes may also have a narrower circle of interests, be unable to communicate with their peers and have an exaggerated self-confidence [10].

The studies carried out by other authors suggest that there are very few reasons to make a conclusion that time spent in prison does not have a noticeable negative effect or a noticeable positive impact on inmates' social skills since prison as an organisation has its intensive social environment [11]. Inmates must rely on their social skills in their attempt to assimilate prison culture as well as in their communication with the prison officers and other convicts as they seek to get material and non-material benefits. Perhaps both statements should be considered reasonable since physical activity is not a single exclusive factor but only a part of the overall process that determines the development of social skills.

During the study, it was determined that a sense of responsibility in physically active inmates is developed substantially higher than in physically inactive inmates ($p < 0.001$). It shows that sports activities shape a certain routine that gradually becomes a norm for inmates and, as the result, a sense of responsibility develops within them.

As the study showed, the ability to ask for help is one of the worst developed social skills. In our opinion, its main reason is that due to distrust the inmates do not have anyone to ask for help.

The absence of low self-esteem determined in the study, does not prove that this problem does not exist. On the contrary, according to some authors, personal perception that does not correspond to reality (inadequately higher or lower) can become the reason for different conflicts and experiences, especially facing different difficulties, failures, challenges or competition. Inadequate self-esteem deforms the personality, creates favourable conditions for developing negative personal traits (e.g. lack of self-confidence, uncritical thinking, conflicting personality, etc.) and at the same time hinders healthy mental development [12,13].

According to Butkienė (1993)[14], one of the main factors determining person's self-esteem is school or education. As the current study showed lower-secondary and secondary education dominates among the inmates (38% in each category). This data corresponds almost identically to the data presented in the reports of the Prison Department of Lithuania (2008).

The level of self-esteem developed in inmates depends on person's reflective self-evaluation and awareness how other people evaluate them [15].

In summary the hypothesis that there is a statistically significant difference in the level of social skills in physically active and inactive inmates was not confirmed by the study. Another hypothesis is adopted that self-esteem in physically active inmates is significantly higher than in inactive inmates.

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