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CHANGES IN THE POSITION OF KAUNAS CITY MIDDLE-AGED POPULATION REGARDING THEIR LEISURE TIME PHYSICAL ACTIVITY

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TABLE OF CONTENTS

INTRODUCTION 6

1. LEISURE TIME PHYSICAL ACTIVITY OF THE POPULATION AND ITS PROMOTION: THEORETICAL INSIGHTS 12

1.1. Personal physical activity as the expression of health and the quality of life 12

1.2. Links between personal leisure time activity and health indicators 13

1.3. Discussion of research on the assumptions and possibilities of promoting physical activity among middle-aged population 15

2. RESEARCH METHODOLOGY 17

2.1. Research participants 17

2.2. Research methods 18

2.3. Research procedures 21

3. RESEARCH RESULTS 23

3.1. Evaluation of the promotion of leisure time physical activity in the form of indirect enforcement for middle-aged population 23

3.2. Discussion of Research Results 26

CONCLUSIONS 29

REZIUMĖ 32

IŠVADOS 36

PUBLICATIONS 39

ABOUT THE AUTHOR 42

INTRODUCTION

In European countries, people, whatever the socio-economic group or nationality they belong to, men or women, the young or the elderly without distinction, should be guaranteed the right to health as well as its promotion and support measures (Javtokas, 2009). Personal health promotion reflects the general idea stating that in order to enhance health it is necessary to change the way of life (Tones, Tilford, 1994; Donev et al., 2007).

In this era of radical modernity related to the increased personal anxiety and uncertainty, there appear new alternative ways to enhance a person's health: taking a variety of medications, trying different diets, engaging in traditional and non-traditional forms and ways of physical education (Cavill et al., 2006). In turn, physical education specialists and health educators bring out the importance of exercise encouraging a person to understand the social value and significance of their health promotion and physical development (Schneider and Becker, 2005; Netz et al., 2005). It is widely recognized that a major health risk factor associated with a person's lifestyle, is low physical activity, the importance of which for human health has been shown in numerous scientific studies. They have emphasized the positive interface between active leisure time physical activity and a range of health indicators (Kalėdienė et al., 1999; Domarkienė, 2000; Borodulin, 2006; Kallings, 2008; Klumbienė, 2008, Gill et al., 2010; Weiler et al., 2010). The importance of physical activity for personal lifestyle and disease prevention conditions the fact that physical activity research is relevant and developed by a number of investigators. They research not only physical self-development in general, but also attempt to identify the links between total physical activity and physical activity in occupation and leisure activities (Allender et al., 2008; Wolin, Bennett, 2008). Other researchers focus attention only to leisure physical activity (Burton, Turrell, 2000; Kardelienė et al., 2010), or are interested in the physical activity of specialists of individual disciplines in their working life, household chores, mobility and leisure (Reichert et al., 2007). However, due to a different treatment of physical activity and different testing methods, the authors' research data are not always the same, especially when physically active actions are compared with such sociodemographic indicators as the subjects' education, social status, age and gender. The data are not always the same in the countries of different cultural traditions. So, research on our country's population

physical activity remain relevant, especially since there is very little research, especially at the population level, where the activities are analyzed using the principle of triangulation, i. e. leisure time physical activity is measured by the frequency and duration of exercise according to different types physical activity linking them with other factors characterizing physical activity.

Beyond doubt is the fact that the often declared idea of health promotion is directly related to lifestyle characteristics which are affected both by the individual approach to one's health, and various external factors, in particular the conditions of life. Of course, focusing on enhancing people's health should be imposed on various health promotion (wellness) programmes. The main aim of these programmes should be to change the person's behaviour by using the impact of the media and the individual measures (Van der Bij et al., 2002; Rise, 2004; Roux et al., 2008). Some authors believe that public awareness of an active lifestyle principles promoting and encouraging the continuous realization of it and developing physical fitness, can improve people's quality of life (Ахвердова, Магин, 2002; Taylor et al., 2002; Netz et al., 2005; Kallings, 2008; Miller and Miller, 2010).

On the other hand, when it comes to leisure time physical activity as a factor of personal comprehensive wellbeing and prevention of diseases, more emphasis is laid on its importance in childhood and adolescence. Much less physical activity issues are addressed for adults.

Thus, the relevance of the chosen topic is associated with the problem of low physical activity among adult population, which is widely discussed in the scientific literature. It is addressed attempting to develop national preventive programmes (Domarkienė, 2000), but the lack of their effectiveness is influenced by many factors, and their ignorance or scientific groundlessness undermine the development of educational programmes and their implementation. It should be noted that there are only few works in which the educational effect would be applied to an individual aiming at changing his/her approach to leisure time physical activity and healthy lifestyle. The importance of such research is revealed in the scientific literature (Janz et al., 2002; McKenna, Vernon, 2004; Harrison, 2005; Vaisvalavičius, 2006; Biddle, Mutran, 2007). It would allow evaluating the factors that may influence the effectiveness of their impact. The establishment of such factors and the assessment of their interaction with physical activity is an important scientific problem which is solved in the study addressing two key problem questions: 1) *What is the position of Kaunas city middle aged*

population regarding leisure time physical activity? and 2) *How does the position of Kaunas city middle aged population regarding leisure time physical activity change when they are provided with information in the form of indirect enforcement why they need to increase their physical activity?*

In response to these problematic research questions, the work raises the following descriptive and explanatory inductive and deductive predictions (**research hypotheses**):

H1: Most of Kaunas middle-aged population are hardly physically active during their leisure time. Persons demonstrating high physical activity more often than persons with low physical activity are characterised by health risk factors in compliance with specific regulatory characteristics. Population of higher social status and education are more physically active in their leisure.

This descriptive inductive hypothesis is formulated on the basis of the *Structuration Theory* (Giddens, 1984), due to social and physical activity restrictions, a person can access only a certain capacity realization choice set. This means that a person's physical activity is defined by both the country's socio-economic changes and his/her personal approach. The inductive hypothesis will be tested after the analysis of the research data, obtained through the written survey method

H2: Based on one's own understanding of the vulnerability posed by *Faith in Health Model* (Becker et al., 1974), and an assumption (incorrect thinking) typical of middle-aged people (35–44 years), about the peculiarities of personal development at this age (Gould, 1978), it is likely that providing the information to the middle-aged population about their health indicators and health recommendations in a form of indirect enforcement, their position on physical activity during their leisure time would change in a more favourable to health direction.

This interpretative targeted deductive hypothesis is based on the already mentioned *Faith in Health Model* as a preventive health behaviour factor which can encourage a person to change their position on physical activity because of the perceived benefits of physical activity reducing health risks. This scientific prediction reinforces the *Concept of Health Education* (Harrison, 2005), in which health education as an educational activity focuses on health improvement through the development of knowledge and attitudes. It responds to an *Individual Concept of Healthy Behaviour Developing Health Education Model* (Pezza, 1993), in which health education is related to providing

information and facts about the disease and its prevention measures for the purpose of encouraging self-learning as one of the targeted lifelong learning categories (Longworth, 2007).

The hypothesis will be tested by providing people with information about their health indicators and health improvement recommendations in a form of indirect enforcement, the effectiveness of which will be assessed repeating the study with the same study participants.

Formulation of research questions and related hypotheses allowed defining **the object of the research** – position of Kaunas city middle-aged population regarding their leisure time physical activity.

The research problem is solved by focusing on the disclosure of the links between physical activity and socio-demographic as well as medical risk factors and changes of a person's position regarding physical activity.

For the analysis of the research object, the position of the population regarding their leisure time physical activity was chosen as the *dependent variable*. For the assessment of the links of this position with health risk factors we selected anthropometric (a person's height, weight and waist circumference), physiological (arterial blood pressure) and biochemical (total cholesterol and concentration of its variables in blood serum) indicators. Socio-demographic characteristics of the subjects and means of informational impact were *independent variables*.

After selecting the research variables for the verification of research hypothesis, the **research aim** was set – to assess the changes in the position of Kaunas city middle-aged population regarding their leisure time physical activity.

Aiming at achieving the research aims, the main **research objectives** were as follows:

1. Applying the normative provision for the assessment of the variables of the research object, to identify the population's position regarding their leisure time physical activity.
2. To evaluate the subjects' health risk factors aiming at achieving changes in their personal position regarding their leisure time physical activity.
3. To reveal the links of the subjects' leisure time physical activity and health risk factors, highlighting the relations between those variables and socio-demographic factors.
4. To assess the changes in the position of Kaunas city middle-aged population regarding their leisure time physical activity

providing them with information in the form of indirect enforcement.

When solving this objective, population will be provided with the facts about their health indicators and health-promoting recommendations.

For carrying out the objectives, the chosen research methods were interview survey and impact method providing the information in the form of indirect enforcement.

The novelty of the research is proved by the fact that this is the first work of this kind in Lithuania, which attempts to assess the position of Kaunas city middle-aged population regarding their leisure time physical activity associated with exercise performance, and the links of this position with socio-demographic and health risk factors. The originality of the study is proved by the fact that a person's position regarding their physical activity was identified, directly dealing with the subject in his/her home providing information as an impact tool about his/her health indicators and health improvement recommendations in the form of indirect enforcement. This allowed the assessment of the effectiveness of the impact means imposed by trying to change the position of Kaunas city middle-aged population regarding their leisure time physical activity. The study showed the perception of the value of preventive actions changing the person's position regarding their leisure time physical activity as a logical consequence of the benefits of preventive actions in the evaluation of the barriers for those actions.

The study showed a close relationship between the person's position regarding their leisure time physical activity with their overweight, obesity, waist circumference, total cholesterol levels and subjective health assessment (worse self-assessed health can be predicted by low physical activity). It became evident that the links of this position and health risk factors were also related to subjects' education level, social status, age, and gender.

The *practical significance* of the study and perspective of the application of its findings are proved by the disclosed links the position of the middle-aged population regarding their leisure time physical activity, indicating that the person's position about this activity is determined not only by the awareness of the benefits of physical activity, but also by the socio-economic status of the person, limiting some persons their access to the services of a variety of health and sports clubs. This may have an impact on the design and implementation of a variety of population health promotion programmes because, as the

results of the study show, the higher the education level and social status, the more effective is the impact of the information about health indicators and health-enhancing recommendations provided in the form of indirect enforcement in changing a person's position regarding their leisure time physical activity. The results of research open up the possibility of purposefully organizing adult education on the issues of physical activity as a key factor in enhancing health.

1. LEISURE TIME PHYSICAL ACTIVITY OF THE POPULATION AND ITS PROMOTION: THEORETICAL INSIGHTS

1.1. Personal physical activity as the expression of health and the quality of life

Since the beginning of human history, philosophers and health professionals have found that regular physical activity is an essential part of a healthy lifestyle (Howley, Franks, 1997). The World Health Organization (WHO), distinguishing the basic public health principles in the European region, also emphasized the importance of physical activity *(Health 21: The Health for All Policy Frameworks for the WHO European Region, 2000*). Physical activity of adults as a component of a healthy lifestyle has been researched by a number of Lithuanian and foreign scientists (Stepaitienė, 1999; Domarkienė, 2000; Domarkienė et al., 2003; Muliarčikas, 2001; Javtokas et al., 2002; Tamošiūnas et al., 2003; Grabauskas et al., 2005; Borodulin, 2006; Jankauskienė, 2008; Stessman et al., 2009; Kallings, 2008; Haskell et al., 2009; Renaud et al., 2010). It should be noted that such forms of physical activity as exercise and sports in the leisure time are associated with lower mortality, thus the desire to live longer may lead to the need for exercise (Žulonienė, 1999; Breckenkamp et al., 2004; Friedenreich et al., 2010).

Positive changes in mood while exercising can have a significant impact on each person's welfare state (Shepherd, 1996) and the reduced risk of developing health problems, alienation of health problems in the early development and longer life option are undeniable benefits of physical activity (Howley, Franks, 1997; Netz et al., 2005; Strohle, 2009; Bussel et al., 2009). A person of any age or gender, who feels the psychological and social satisfaction seeking to be physically active, must continually develop their physical fitness and preserve it because later the available distances are not reduced and obstacles become difficult to overcome. As a result, people's physical possibilities, which are not stimulated by the habit of maintaining "good form", disappear when they start aging rapidly (Poderys, 2000; Faff, 2004).

Regular physical activity can have a positive impact on health because it can even affect other areas of people's lives, their behaviour and lifestyle. Studies have shown that regular physical activity is associated with a healthier lifestyle (Shephard, 1996, Fontaine et al., 2004).

Some scientists maintain that the general prevalence of low physical activity with accompanying other health risk factors is a natural response to the changing physical and social conditions of our lives, which eliminates the need for physical activity for reasons such as employment, increasing time spent at the steering wheel, loss of safe places for physical activity due to the urban expansion and the "screen" time increases, i.e. the time spent at the TV, computer, video, and so on. (Langer, 2005, quoted above from: Petersmarck, 2008).

1.2. Links between personal leisure time activity and health indicators

Over the last 30–40 years there have been a lot of different studies demonstrating the undoubted benefits of physical activity to health. All studies showed that low levels of physical activity and lack of exercise were associated with a higher incidence of hypertension, hypercholesterolemia, ischemic heart disease, with an increased mortality risk of various cancers (*Gatorade Sports Science Institute*, 1992; Howley, Franks, 1997; Sammann, 1998; Martinez-Gonzalez et al., 2001; Katzmarzyk et al., 2001; Hardman, 2001; Borodulin, 2006; Katzmarzyk, Craig, 2006).

Many studies have shown that vigorous physical activity favorably affects carbohydrate metabolism, improves glucose tolerance, stimulates glucose utilization in muscle and glycogen breakdown, it also increases insulin sensitivity and positively affects type II diabetes (Dregval, 1998; Vuorio et al., 2004; Borodulin, 2006; Ekelund et al., 2007). It has also been observed that certain physical exercises and their complexes prevent bone loss with age, thus it is proposed to associate physical activity with the prevention of osteoporosis (Nelson et al., 2007; Hafeez et al., 2009). This is especially important for women because they more often than men suffer from osteoporosis. Epidemiological studies have shown that hip fractures among the little physically active individuals are on average two times more frequent than among physically active ones because bone loss can be eased by appropriate physical activity and diet (Gaigalienė, 1999 b).

Research literature indicates that even low-intensity exercise programme, for example, walking, swimming, etc. reduces pain and joint stiffness and enhances excitability (*Physical Activity and Health*, 1996). Correlation analysis demonstrated a positive correlation between physically active persons and their cognitive abilities. Physically active

people are more successful than less physically active persons coping with cognitive tasks and they have a higher level of cognitive functioning. There is also evidence suggesting that physically active people are less likely to suffer from depression, and in case of it, physical activity produces positive results (Gaigalienė, 1998; Valtonen et al., 2009).

Regular and gradually increasing physical exertion causes huge morphological, physiological and biochemical changes in the body that improve the person's well-being, sleep, memory, the body's overall performance and its resistance to oxygen deficiency, various infectious diseases, toxic effects and malignant tumor formation, and slows down the aging process (Naužemys, 2001; Matsouka et al., 2008; Garriga, 2010). Other studies (Kardelienė et al., 2010) revealed the relationship between physical activity and such health indicators as subjective assessment of their own health, sickness with cold (or the flu), so that they would have to stay in bed for longer time than one day, the frequency of visiting a doctor (except for a dentist), psychosomatic, and somatic ailments under stress, which is caused by a variety of factors. In all these cases, the health indicators characterizing more physically active individuals were less negative.

Physical activity is important for weight control programme. In particular, their high efficiency is observed when physical activity is combined with a balanced diet (Bouchard, 2000; *Global Recommendations on Physical Activity for Health*, 2010). Other studies revealed positive effects of regular physical exercise on adult brain function (Kravitz, 2010).

Literature provides a range of guidance data, what should be the leisure physical activity to reduce the expression of health risk factors. For instance, walking is one of the more popular forms of exercise because it is a very comfortable, suitable, cheap and safe way to reduce weight and improve well-being (Di Pietro, 1995), but other authors maintain (Haskell et al., 2007; Buman et al., 2010) that walking should take place on a regular basis (at least 20–30 minutes per day).

In summary, it can be said that there is a definite relationship between physical activity and health. There is no doubt that a physically active life and dose physical activity regarding the age reduces health risks, has a positive impact on the aging of the human body (Gaigalienė, 1999 b; Haskell et al., 2007; *Global Recommendations on Physical Activity for Health*, 2010), thus, it is particularly important to encourage people of all ages to change the attitude towards physical activity, increasing the frequency and duration of exercising in the week.

1.3. Discussion of research on the assumptions and possibilities of promoting physical activity among middle-aged population

In the aging society, life quality is important for an individual because of its direct effect on their working capacity and productivity, since most of working days are lost due to chronic non-communicable diseases (Jankauskienė, 2008). This suggests that in order for people to be physically active and physically independent, it is necessary to take care of their health promotion through various measures (Weiler et al., 2010).

On the basis of an idea of health promotion as a concept, proposed by the World Health Organization, its enhancement is a process that provides people with more opportunities to take care of their health and improve it (Jakušovaitė, Luneckaitė, 2011). One of the health promotion principles set out in the "Ottawa Charter" is the principle to improve individual health promotion knowledge and skills (*Ottawa Charter for Health Promotion, 1986*). This means that regularly provided information and health education help to understand healthy lifestyles and health promotion, learn to control their health and the environment and prevent diseases. It is also emphasized that the responsibility for the promotion of health care services has to be shared by individuals, social groups, medical staff, managers, and the government. On this basis, they began to create integrated health promotion programmes in many countries (*Ljubljana Charter on Reforming Health Care in Europe, 1996*). However, health education is much more important in the context of our study, the aim of which as of a new public health promotion field is changing and improving people's living habits (Bunton, Macdonald, 1993; Downie, Tannahill, 1997). Health education can be based on the component of health promotion model (Tannahill, 1985, cit. from: Jakušovaitė, Luneckaitė, 2011) – teaching positive health, one objective of which is to affect human behaviour (such as leisure sports).

There are many scientific publications about sports and exercise for public health education. They specify that the physical exercises and the promotion of the latest measures can not only improve a person's health, but also enhance their social connections (Sael et al., 2003; Coogan et al., 2007; Handy et al., 2008). Therefore it is suggested that physically active lifestyle, which is determined by an internal constant need for self-development, its implementation in the society is one of

the more important objects of strategic management of the social systems and the system is expected to reach higher reliability, efficiency, and productivity levels (Аристова, 1999; Кузин, 2000; *White Paper of Lithuanian Science and Technology*, 2001).

Some researchers believe that misconception can have a negative effect, it is enough to give that or any other information, and the right decisions of people regarding health promotion and sustainable use will be made naturally. However, there is a need for more information about ways to improve health, including physical activity.

Therefore, for the purposefully oriented society, special health education and information programmes are developed aiming at influencing the society so that it would change the environment and a healthy lifestyle became a necessity for citizens. Particular attention should be given to those groups that do not choose a healthy lifestyle. However, besides the ability of most individuals to make decisions that alter the way of life, it is important to have public support that can effectively stimulate changes because they focus on leisure facilities, bicycle paths increasing the opportunities for an active lifestyle (*Health 21: WHO Basic Public Health Principles of the European Region,* 2000; Lee et al., 2009; MacDonald et al., 2010).

The statements above regarding the need to strengthen health at the public level suggest that developing and implementing national population health programmes should produce positive results (Jankauskienė, 2008).

Literature analysis leads to the conclusion that there is a presumption indicating that physical activity can be encouraged through individual health education access model forming healthy behaviour, in where health education is related to information and facts about the disease and its prevention measures for the purpose of stimulating informal learning as one of purposeful lifelong learning categories (Galuska et al., 1999; McKenna, Vernon, 2004).

The Subsection literature analysis carried out showed that there are many different forms of health education and measures to encourage the middle-aged population's physical activity associated with exercising and sorts activities.

2. RESEARCH METHODOLOGY

The theoretical basis of research methodology is based on nomothetic (normative) social science paradigm, relying on the quantitative approach to the study, the scientific value of which in this case is determined by quantitative indicators, namely attempt to evaluate the city of Kaunas middle-aged population's position regarding their physical activity in leisure time, revealing its links with health risks, and subjective health assessment. This research approach, dealing with the challenges, requires adequate research methods for understanding the phenomenon under study more deeply, to get more reliable data and reveal various interfaces of the study variables, enabling to predict and empirically test the causal relation, and as a result to provide practical recommendations. In addition, these studies provide both the internal and the external validity because of the greater volume of data which disclose the essential features of the phenomenon under study in detail and fully (internal validity), and the external validity is determined by more objective generalization of the results (Calfee, 1999) as well as the possibility to extrapolate them to the whole investigated population (Kardelis, 2002).

2.1. Research participants

Two research samples – independent and dependent – were composed to address research problems associated with the interpretation and assessment of quantitative indicators of the research object. The first (random) sample, which was based on the study participants' position regarding their physical activity, subjective assessment of their health and health risk factors, included 916 Kaunas city inhabitants aged 35–64 years (394 men and 522 women), who were selected at random in 2001–2003 during the health assessment of the population conducted by the team of the Cardiology Institute for the realization of the protocol of the international programme MONICA.

The fact that the research sample represented the entire population of that age population in Kaunas was proved by the calculations carried out to assess the representativeness of the sample. We referred to the data of the distribution of leisure time physical activity frequency and duration between the two gender groups. The percentage distribution rate of answers to the questions and its standard deviation showed that at the allowable 5 per cent accuracy of data and

95 per cent of their reliability, the highest estimated male sample could be 384, and for women – 349 cases. (The sample size for the percentage data is calculated for each question separately and determined by the maximum value of it (Kardelis, 2002).

All in all, 1000 inhabitants were invited to participate in the study, but 84 of them refused.

All the research participants, whose socio-demographic data in the scale were filled in correctly, were divided into three age groups. The first group (n = 245), 151 females and 94 males, included persons ranging in age from 35 to 44 years. The second group (n = 328) of subjects ranged in age from 45 to 54 years (188 women and 140 men), and the third group consisted of the study participants (n = 343), aged between 55 and 64 years (183 women and 160 men).

The dependent sample consisted of 100 survey participants from 35 to 44 years of age who participated in the impact programme focused on physical activity promotion and who were observed during the investigation period, i.e. they were re-tested. The selection of research participants for the dependent sample was determined by the Age periodization of adult individuals suggested by R. Gould (1978) (aged form 16 years till 22, from 22 till 28 years, from 28 till 34 years, from 35 till 45 years and over 50 years of age), which contains specific tasks for a specific age group.

2.2. Research methods

Research design requires a triangulation of methods because it is important to assess not only the population's position regarding their physical activity, but also their objective health indicators as an indirect required factor in changing the person's position on their leisure time physical activity.

2.2.1. Research tasks (1–3) for the statement part of the work

An interview in writing answering the questions in the questionnaire made up by ourselves was planned in for the research. The questionnaire consisted of 16 questions divided into separate blocks. Making up the questionnaire, the focus was not only on its content but also on the composition and design. The questionnaire was intended to be easy to be completed because at higher volumes of a questionnaire, there is a possibility for a superficial filling option.

Issues related to population's gender, age, level of education and social status were included into the socio-demographic question block. It allowed revealing the links of those variables with the dependent variables of the research and predicting the dispersion of physical activity and health indicators.

Questions about physical activity were the basic in the questionnaire and they were in line with the study idea. In order to assess the physical activity of the population, we applied the principle of triangulation. Through the application of this principle, physical activity was assessed in three ways: according to the frequency, duration, and different forms of vigorous leisure time physically activity. According to the frequency and duration of physical activity of all study subjects were divided into two groups: high physical activity and low physical activity. Classifying by the frequency of exercising, we took into account how many times a week a person was physically active (physically active group consisted of those participants of the survey who indicated that in their daily leisure time they were engaged 4–6, or 2–3 times per week in physical activity for at least 30 minutes so that they sweated and breathing become more frequent, and the low physical activity group consisted of those subjects who did that one time in a week, a month or even more seldom). Classifying by the duration of exercising, the participants had to indicate how many hours per week they were physically active (physically active group consisted of individuals that were engaged in exercising or sports from 2–3 to 7 hours or more per week, while the low activity group included those individuals who exercised one or fewer hours per week). In the assessment of physical activity, we also took into account, what forms of physical activity were used and how often (daily, once a week, several times a week, once a month, several times a year, never) they were engaged in leisure time physical activity.

The subjects who were in sports or exercised at least 2–3 times a week were asked where they did it (e. g., in the gym, at home). In specially constructed statements in the scales, the survey participants were asked to identify the motivation for active physical activity and causes for the lack of physical activity.

Other questions were meant for the establishment of the population's attitudes towards leisure time physical education and sports. The subjects were also asked to indicate whether the statements about the value and benefits of physical education and exercise for the population's health coincided with their beliefs, if they were interested

in the relevant literature about the physical activity, or if they would like to learn more about the benefits of exercise.

A separate question was given for the subjective health assessment of the middle-aged people who participated in the study attempting to link this assessment with physically active leisure time occupations. The inhabitants were asked how they rated their current health by providing a brief response options: very good, good, average, bad, very bad.

Studying the health risk factors we assessed in total cholesterol concentrations in serum, arterial blood pressure (ABP), waist circumference, height, weight, and we calculated body mass index (BMI). All objective health indicators were taken together with Population research laboratory personnel in Kaunas University of Medicine (now – Lithuanian University of Health Sciences), Institute of Cardiology.

2.2.2. Applied impact (research objective 4)

Aiming at changing the position of the population tested regarding their physical activity we provided them with facts about their health indicators and health recommendations for improvement in the form of indirect enforcement. Indirect enforcement form means the encouragement of the research participant for not a very pleasant activity using certain stimulus. These requirements encouraged voluntary, demanding certain efforts (in our case – some physically active leisure occupation) positive behaviour through positive stimulation (in our case actual knowledge of the health and health-promoting recommendations).

Planning this one alternative experimental study we followed the provision that the encouragement of a person to strengthen their health is an interdisciplinary field that is on behaviour studies, sociology, education and biology, thus the intrapersonal theories focus on individual factors such as knowledge, attitudes, desires, self-image, spirituality, past experiences, skills and behaviour. In this paper, the approach was chosen because a person is made to act in this approach by the identified variables: perception of disease risk and perception of the prevention efficacy. When such approach in health education is applied for each individual, health improvement is identified as a probability that a person will act in the favourable direction for health. So, each person finds themselves in option to act in a continuum. One of the best-known theoretical models dealing with health education at the individual level elucidating the importance of beliefs on health behaviour and identifying such approach as a continuum is Faith in Health Model.

2.3. Research procedures

The study was conducted in 2001–2008. In 2001–2003 a pilot study was conducted with the participation of 35–44 year-old inhabitants of Kaunas city. Statistical analysis of the research data provided a verification of the reliability of a questionnaire prepared by us. During the next stage of the planned research (2003–2005.) a Population study was conducted in collaboration with the LUHS Institute of Cardiology researchers with) to establish Kaunas city middle-aged inhabitants' (35–64 years) position regarding their leisure time physical activity and objective health indicators. Physical activity survey was conducted dealing with each research participant in person.

In the survey we followed good-will, ethical and legal research principles.All research participants were introduced to the instructions for filling in the questionnaire. The population survey was carried out during visits to their homes, after the agreement upon the time of visits. Upon arrival, each person participating in the study received data on the levels of total cholesterol, low-and high-density lipoprotein cholesterol levels in blood serum test results from the researcher and they discussed the test results together (the other results of the study were known to the research participant during health examination). The researcher explained the examination results and the importance and risk of them to health, while providing them with health promoting recommendations. Other participants were also informed about the importance of physical activity to the prevention of diseases in order to maintain normal cholesterol levels in the blood, and recommendations to improve health were presented to them.

The survey subjects were asked questions verbally, and the researcher noted down their answers. In this way, all completed questionnaires were left with the investigator. In completing the questionnaire the researcher was able to answer the questions raised in additional by the subjects. The study participants agreed to talk openly only when they were convinced that the researcher would ensure their anonymity and the confidentiality of the survey data. The oral interview was started explaining the objective of the study and the subjects' role in this study. It was emphasized that participation in the survey was optional (the principle of respect for personal dignity).

The completion of questionnaires lasted 35–40 minutes, but no fatigue was observed among the subjects. Most of them expressed

support for the interest in middle-aged people's leisure time physical activity.

In 2007–2008 a repeated study (n = 100) was carried out about the changes in Kaunas middle-aged population's position regarding their physical activity aiming at determining whether their health indicators and health recommendations provided in the form of indirect enforcement were an effective argument for changing their position. Selected individuals for re-testing were divided into three groups according to the initial survey results: one – those whose total cholesterol serum levels did not exceed the limits or were lower than the limit (n = 22), two – the participants whose serum cholesterol levels were significantly elevated at the baseline (n = 48), three – people whose total cholesterol levels were high and very high (n = 30). This study was conducted in only one age group – with 35–44-year-old subjects.

3. RESEARCH RESULTS

3.1. Evaluation of the promotion of leisure time physical activity in the form of indirect enforcement for middle-aged population

Research results showed that the monitoring physical activity of the second survey target population we determined significant changes: more people in the second study were physically active ($z = 3.742$, $p < 0.01$). Changes in leisure time physical activity frequency are presented in Figure 1.

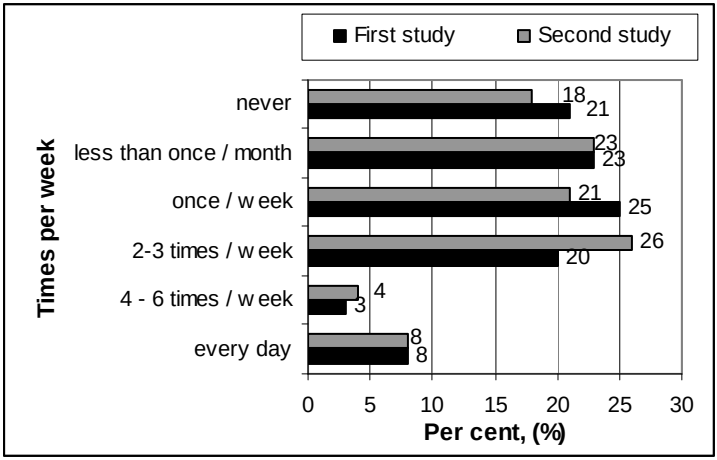

Figure 1. Changes in leisure time physical activity

We analysed not only the percentage distribution of the frequency of total physical activity, but also observed the frequency of each person's physical activity separately. Most Significant changes were observed in the group of survey participants exercising 2–3 times a week (Fig. 1).

Comparing physical activity frequency changes in the aspect of gender, a tendency was observed that more men than women became more physically active (respectively, 15.4 per cent and 12.8 per cent). Repeated study revealed that there were more physically active men compared with their initial data ($z = 2.828$, $p < 0.01$) and also more physically active women ($z = 2.449$, $p < 0.05$). Re-examination of physical activity indicated positive shifts in its duration, i.e. the number

of people involved in leisure time physical activity from one to two hours per week significantly increased ($z = 2.271$, $p < 0.05$), but no statistically significant differences were found according to gender.

Changes in physical activity during the observed period were accompanied by a significant changes in the data on the subjective assessment of their health – the number of persons who subjectively evaluated their health as good or very good increased ($z = 2.646$, $p < 0.05$). More significant changes were determined in the group of men: the number of males who evaluated their health as good increased significantly ($z = 2.24$, $p < 0.05$), while in the group of women no statistically significant changes were observed.

Comparing physical activity changes in the analyzed groups by education, we found a positive change in the frequency of physical activity in the group of subjects with higher education ($z = 3.00$, $p < 0.01$). This group of subjects also highlighted positive changes in their subjective assessment of health ($z = 2.00$, $p < 0.05$).

In the aspect of social background, we observed that the civil servants / businessmen and blue-collar workers were more physically active compared with the first survey ($z = 2.24$, $p < 0.05$), while in the group of the unemployed and disabled people, no statistically significant changes were observed over the same period of time.

The evaluation of changes in physical activity according to its frequency in the groups of subjects who had different levels of total cholesterol in serum showed positive changes in physical activity in all the cholesterol groups (Fig. 2).

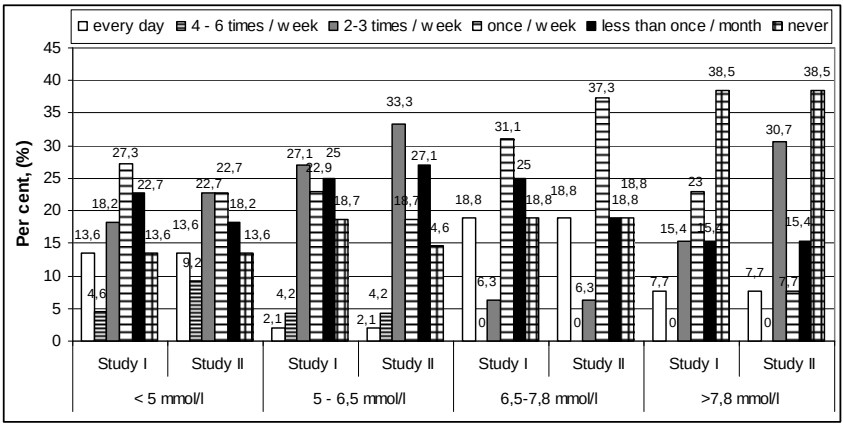

Figure 2. Changes in the frequency of physical activity in total cholesterol groups

The analysis of the responses of the subjects (Fig. 1) showed statistically significant changes in the frequency of physical activity in the groups of the lowest (< 5 mmol / l) ($z = 2.00$, $p < 0.05$) and increased blood cholesterol levels (5–6.5 mmol / l) ($z = 2.45$, $p < 0.05$), but no statistically significant changes were found in the groups of persons with high and very high cholesterol levels.

The analysis of changes in individual physical activity in the groups of high-density lipoprotein cholesterol levels revealed statistically significant shift in the frequency of physical activity ($z = 3.16$, $p < 0.01$) among the population corresponding to the norm (≥ 1 mmol / l). There was a statistically significant change in the frequency of physical activity ($z = 2.64$, $p < 0.01$) in the population with the excess in the norm of low-density lipoprotein cholesterol levels in the blood (> 3 mmol / l).

Observing the duration of physical activity for the population with total cholesterol in the blood, we found a positive change in six people (6.1 per cent) with total cholesterol levels which complied with the norm. An increase in physical activity was also observed in the group of subjects with high-density lipoprotein levels (5 people, 6 per cent) and low-density lipoprotein levels (5 people, 6 per cent), but the overall analysis of changes between the cholesterol groups revealed no statistically significant changes. The data of physical activity duration were analyzed separately for each study in the groups of total cholesterol levels in the blood.

Comparing the data in the first and the second surveys we analyzed the changes in the subjective health assessment in the groups with different cholesterol levels in the blood. We observed that 14 study participants who took part in the re-test, subjectively assessed their health better, but statistically significant changes in different total cholesterol groups were not recorded. The analysis of each person's subjective assessment of their own health revealed a statistically significant change in the subjective health assessment ($z = 2.00$, $p < 0.05$) in the group of people with high-density lipoprotein cholesterol levels in the blood (≥ 1 mmol / l) corresponding to the norm.

3.2. Discussion of Research Results

The study aimed at evaluating the position of Kaunas population aged 35–64 years regarding their physical activity and its development by providing them with information about their health indicators and recommendations for improving health in the form of indirect enforcement. The introductory part of the paper maintains two hypotheses, one of which states that the majority of Kaunas middle-aged population is insufficiently physically active in their free time, and insufficiently active population is less often characterised by by health risk factors in compliance with specific regulatory characteristics, and the higher social status and education of the population means that such persons are more physically active in their leisure time. Another hypothesis states that middle-aged persons provided with information about their health indicators and recommendations for improving health in the form of indirect enforcement would change their position regarding their leisure time physical activity in a more favorable direction concerning their health.

The obtained results confirmed the first hypothesis as it was found that according to the frequency and duration of leisure time physical activity of the population, there was less than one-third of physically active subjects. It was also observed that according to the chosen physical activity indicators, women were less physically active, and the least physically active persons were the study participants aged 35–44 years. These data are confirmed by other authors' studies, which indicate that the prevalence of low physical activity is more characteristic of women than men (Kuh, Cooper, 1992; Tamošiūnas, 1997; Klumbienė, 2008; Kaupužs, 2012). The adult population has insufficient physical activity, is unable to ensure good personal well-being and health, and this is shown by other authors studies (*Physical Activity and Health*, 1996; Grabauskas et al., 2005, *The European Health Report*, 2005; Klumbienė, 2008).

The statement about the interface between education and physical activity in the first research hypothesis was confirmed only partially. According to the survey data, no statistically significant relationship was found between education and physical activity. We observed only a tendency that the higher the level of education predicted more physical activity. Meanwhile, the results of the study revealed the relationship of physical activity with the subjects' professional activities. It was found that blue-collar workers were more physically active according to the

frequency and duration of exercising than civil servants and businessmen. These interfaces were explored by other investigators, who often produced conflicting data. For example, there is evidence that white-collar workers are more physically active than managers or blue-collar workers (Takao et al., 2003). Moreover, the authors, as well as in our study, did not find any marked differences of physical activity in different education groups. Another study reported that, among persons demonstrating low leisure time physical activity, 65 per cent were business people and 58 per cent of other specialists and white-collar workers (Гуревич, Радиловская, 2003).

In the context of our study, more important is the relationship between the health risk factors and physical activity. Our study showed that physically active study participants less than insufficiently physically active ones had overweight, a rate in excess waist circumference exceeding the normal one, very high total cholesterol levels, and they were less obese. In case of arterial blood pressure, no significant differences were found. The revealed interface between physical activity and health risk factors was confirmed by other authors in their studies as well (Hupkens et al., 2000; *Global Recommendations on Physical Activity for Health*, 2010; Deckelbaum et al., 2008).

A comparison of the subjective health assessment data with leisure physical activity and other health risk factors of the population examined showed that in all cases there was a positive relationship between health status and physical activity. Logistic regression analysis showed that subjectively worse one's own health assessment could be predicted not only by low physical activity, but also by a lower social status and lower educational level. Other authors also believe that subjective self-assessment of health is one of the most informative indicators of health (Burstom, Fredlund, 2001; Klumbienė, 2008; Jakušovaitė, Luneckaitė, 2011). Therefore, subjective health assessment is included into the list of health indicators of European Union population.

The obtained results confirmed the second hypothesis, however, prior to the latter's impact on the results for the discussion, it is important to analyze what the research maintains about adult education. In the andragogical approach, adult education (learning) is based on the desire to know why people have to learn and what will change from that, i. e. they are ready to learn those things which are necessary for solving their life problems (Gaigalaitė, 2008).

Health educators, developing individual healthy behaviors through the formative health education model (Pezza, 1993), aim at

providing various persons with information relating to a healthy lifestyle, the content of which includes health care expertise to develop health-related behavior at the individual level. It is important to emphasize that there is a transition from the information to knowledge that takes place as the educator-learner interactions and can be both direct and indirect. In turn, the information can be communicated via books, written recommendations, and other information sources. However, this is a long process because the attitude is formed (can be developed) as an outcome of a socio-cultural process.

These statements about adult education while conveying informative materials allow expecting some positive results if we apply planned appropriate effective measures. Obtained research findings show that during the period of the observation there was an increase in the number of physically active population, and of those who subjectively assessed their health as good or very good. Hence, one can think that this could be related to their better health. The links established between the middle-aged population's position regarding their physical activity for leisure and their education as well as social status were confirmed because physical activity and subjective health evaluation outcomes were observed among the research participants with higher education and social status.

Adherence to knowledge about the disease and its prevention may influence individuals' behaviors and attitudes towards health. It has been noted that health care professionals and educators should apply the health education model that forms healthy behaviours with the purpose of affecting individual behaviors while providing information about the disease prevention benefits (Janz et al., 2002; Pezza, 1993). This confirms our strategy of adapting the chosen Faith in Health Model to promote leisure time physical activity among middle-aged population. So there is reason to argue that the objective knowledge about a person's health and health-improving recommendations strengthened the cognitive and emotional components of the position regarding physical activity for leisure and creating preconditions for behavioral changes. It is important to emphasize that the effectiveness of the measures associated with the person's motivation to change their attitudes depends on the person's social status and education. Other researchers who used this model also noted the positive results of prevention of various diseases after the assessment of the relationship between faith in health and positive changes in health behavior (Simon Das, 1984; David, 1992; Kartal, Özsoy, 2007).

CONCLUSIONS

1. The analysis the position of Kaunas city middle-aged population regarding their leisure time physical activity showed that:
   - Judging from the frequency and duration of exercising in their leisure time, 26.5 per cent of subjects were physically active. Men compared to women were more physically active, in the age groups the lowest levels of physical activity was observed among 35–44-year-old research participants.
   - According to the research participants, the main reason for low physical activity was the lack of time (it was more common among women and 35–44-year-old persons). The other indicated reasons were lack of money (more common among women) and laziness (more common among 35–44-year-old persons). Such reasons as the lack of determination and incentives were more pronounced among 55–64-year-old research participants.
   - More often research participants exercised at home (especially 55 – 64-year-old persons), only 7.1 per cent of men and the same number of women went to sports clubs. The most popular forms of leisure time physical activity for elderly people were morning exercises, jogging and walking, swimming and exercises with weights. Those forms of physical activity were less popular among 35–44-year-old research participants, nut they were more preferred by men, and women indicated gardening and house working.
   - Research participants agreed on the benefits of physical exercises for health, but they less frequently approved of the statement that participation in the activities of physical education and sports was a good possibility for communication (this statement was true for 44-year-old and older research participants) and that good physical fitness was necessary for professional activities. Only 7.9 per cent of research participants carefully read literature on physical education and sport, though the majority (58.3 per cent) would like to acquire more knowledge about the benefits of exercising not in the form of lectures.
2. The study of health risk factors showed that:
   - For the majority (69 per cent) of the population tested, total cholesterol levels exceeded the norm. The same number of subjects (70.9 per cent) had elevated low-density lipoprotein cholesterol.

- Overweight was typical of 38 per cent of subjects, obesity – 33 per cent.
- Higher than normal waist circumference was found in one-third of the research participants.
- More than one-third of the research participants (35.2 per cent) had higher systolic blood pressure and a little fewer of them (31.9 per cent) – diastolic.
- Even 61.7 per cent of the research participants subjectively evaluated their health as moderate, and 25.1 per cent – as good or very good.
- Comparison by gender showed that more women had very high total cholesterol levels, increased waist circumference, were obese and overweight, and men were overweight and more often assessed their health as good or very good. With increasing age, the number of research participants, who had very high total cholesterol levels, elevated blood pressure, were more often obese and their health was likely to be seen as bad and very bad, increased.

3. The comparison of interrelations between research variables showed that:
   - Physically active research participants were less overweight, had less excess in waist circumference or very high total cholesterol levels, and were less obese. Among physically active and less active participants in the study, differences in arterial blood pressure were not found.
   - According to the frequency and duration of physical activity, white-collar workers and business people were more active compared to pensioners, the unemployed and people with disabilities, and blue-collar workers were the most active. According to the acquired education, statistically significant differences were not found, but according to a separate type of physical activity, persons with higher education more often were engaged in doing morning exercises, jogging and swimming. Sports club services were more often used by higher-educated persons and white-collar workers as well as entrepreneurs.
   - Subjective evaluations of health as good and very good were more often given by physically active persons and those research participants, whose BMI, blood pressure and waist circumference met the norms, and the evaluations of health as poor and very poor value were often given by little physically active, obese

persons, those with increased blood pressure and increased waist circumference. More often the health was evaluated as good or very good by persons with higher education and white-collar workers, business people and blue-collar workers, but bad and very bad evaluations were given by pensioners, the unemployed and people with disabilities and with lower levels of education.

- Logistic regression analysis showed that subjectively worse self-assessed health could be predicted by physical inactivity, lower social status and lower educational level and being a female.

4. After applying *Faith in Health Model* as a factor of preventive health behaviour, it was found that during the period of observation:
   - There was an increase in the number of physically active (according to frequency and duration) individuals and the number of people who subjectively evaluated their health as good and very good.
   - More pronounced changes in physical activity and health evaluation were observed among the subjects with the higher education and social status.
   - The comparison of the changes in physical activity in the normative groups of cholesterol levels in the blood showed that physical activity increased for those persons whose cholesterol levels complied with the norm or were elevated. In the group of subjects with high and very high cholesterol levels in the blood, we observed only a tendency to increase physical activity. More significant changes in physical activity (the ascending direction) were identified for those research participants who had the health hazards of low-density lipoprotein cholesterol levels in the blood.

REZIUMĖ

Visuotinai pripažįstama, kad esminis sveikatos rizikos veiksnys, susijęs su asmens gyvensena, yra mažas fizinis aktyvumas, kurio svarba žmogaus sveikatai yra įrodyta daugelyje mokslinių studijų. Jose pabrėžiama pozityvi aktyvios fizinės veiklos laisvalaikiu sąsaja su įvairiais sveikatos rodikliais (Kalėdienė ir kt., 1999; Domarkienė, 2000; Borodulin, 2006; Kallings, 2008; Klumbienė, 2008; Gill et al., 2010; Weiler et al., 2010). Nekelia abejonių faktas, kad dažnai deklaruojama sveikatos stiprinimo idėja yra tiesiogiai susijusi su gyvensenos ypatumais, kuriuos lemia tiek atskiro individo požiūris į savo sveikatą, tiek įvairūs išoriniai veiksniai, visų pirma gyvenimo sąlygos. Savaime suprantama, daugiausia dėmesio stiprinant žmonių sveikatą turėtų būti skiriama įvairiose sveikatos ugdymo (sveikatinimo) programose. Šių programų pagrindinis tikslas turėtų būti asmens elgesio keitimas panaudojant žiniasklaidos ir individualaus poveikio priemones (Van der Bij et al., 2002; Rise, 2004; Roux et al., 2008). Reiškiama nuomonė, kad supažindinus gyventojus su aktyvaus gyvenimo būdo principais, propaguojant ir skatinant pastovų jų realizavimą, tobulinant fizinę parengtį, pagerėtų ir žmonių gyvenimo kokybė (Ахвердова, Магин, 2002; Taylor et al., 2002; Netz et al., 2005; Kallings, 2008; Miller, Miller, 2010). Kita vertus, kada kalbama apie fizinį aktyvumą laisvalaikiu kaip apie asmens visapusiškos gerovės sąlygą bei ligų profilaktikos veiksnį labiau akcentuojama jo reikšmė vaikystės ir paauglystės metais. Kur kas rečiau nagrinėjami suaugusių žmonių fizinio aktyvumo klausimai.

Taigi pasirinktos temos aktualumas yra siejamas su mažo suaugusių gyventojų fizinio aktyvumo laisvalaikiu problema, kuri mokslinėje literatūroje plačiai diskutuojama. Jai spręsti bandoma kurti nacionalines profilaktinio poveikio programas (Domarkienė, 2000), tačiau nepakankamą jų veiksmingumą sąlygoja daugelis veiksnių, kurių nežinojimas arba mokslinis nepagrįstumas menkina edukacinių programų rengimą ir jų diegimą. Pažymėtina, kad mažai atlikta darbų, kuriuose edukacinis poveikis būtų taikomas individualiam asmeniui tikslu keisti jo požiūrį į fizinį aktyvumą laisvalaikiu bei sveiką gyvenseną. Apie tokių tyrimų svarbą pasisakoma mokslinėje literatūroje (Janz et al., 2002; McKenna, Vernon, 2004; Harrison, 2005; Vaisvalavičius, 2006; Biddle, Mutrie, 2007). Jų atlikimas leistų įvertinti veiksnius, galinčius daryti įtaką poveikio veiksmingumui. Tokių veiksnių išskyrimas ir jų sąveikos su fiziniu aktyvumu įvertinimas –

svarbi mokslinė problema, kuriai spręsti tyrime buvo keliami du pagrindiniai klausimai: 1) *Kokia Kauno m. vidutinio amžiaus gyventojų pozicija dėl fizinio aktyvumo laisvalaikiu?* ir 2) *Kaip keičiasi Kauno m. vidutinio amžiaus gyventojų pozicija dėl fizinio aktyvumo laisvalaikiu suteikus jiems informacijos netiesioginio reikalavimo forma dėl ko reikia didinti fizinį aktyvumą?*

Atsakant į šiuos probleminius tyrimo klausimus, darbe keliami šie aprašomojo ir aiškinamojo pobūdžio indukciniai ir dedukciniai numatymai (**tyrimo hipotezės**):

H1: Dauguma Kauno m. vidutinio amžiau gyventojų laisvalaikiu yra mažai fiziškai aktyvūs. Fiziškai aktyviems dažniau nei mažai aktyviems būdingi normines charakteristikas atitinkantys sveikatos rizikos veiksniai. Aukštesnio socialinio statuso bei išsimokslinimo gyventojai yra fiziškai aktyvesni laisvalaikiu.

H2: Remiantis savo pažeidžiamumo suvokimu, kurį iškelia *Tikėjimo sveikata modelis* (Becker et al., 1974), bei vidutinio amžiaus tarpsnio (35–44 m.) žmonėms būdinga prielaida (klaidingu manymu) apie šio amžiaus asmens raidos ypatumus (Gould, 1978), tikėtina, kad suteikus vidutinio amžiaus gyventojams informacijos apie jų sveikatos rodiklius ir sveikatą gerinančias rekomendacijas netiesioginio reikalavimo forma, pasikeis jų pozicija dėl fizinio aktyvumo laisvalaikiu sveikatai palankesne kryptimi.

Probleminių klausimų ir su jais susijusių hipotezių formulavimas leido apibrėžti **tyrimo objektą** – Kauno m. vidutinio amžiaus gyventojų pozicija dėl fizinio aktyvumo laisvalaikiu.

Mokslinio tyrimo problema sprendžiama orientuojantis į fizinio aktyvumo sąsajų su socialiniais demografiniais bei sveikatos rizikos veiksniais atskleidimą bei į asmens pozicijos kaitą dėl fizinio aktyvumo laisvalaikiu.

Mokslinei tyrimo objekto analizei *priklausomais jo kintamaisiais* pasirinkta gyventojų poziciją dėl fizinio aktyvumo laisvalaikiu. Vertinant šios pozicijos sąsajas su sveikatos rizikos veiksniais, pastaraisiais pasirinkome antropometrinius (asmens ūgį, svorį ir juosmens apimtį), fiziologinius (arterinį kraujo spaudimą) ir biocheminius (bendrojo cholesterolio ir jo kintamųjų koncentraciją kraujo serume) rodiklius. Socialinės demografinės tirtųjų charakteristikos bei informacinio poveikio priemonės tyrime vadinamos *nepriklausomais kintamaisiais*.

Pasirinkus šiuos kintamuosius iškeltoms tyrimo hipotezėms patikrinti, buvo siekiama **tikslo** – įvertinti Kauno m. vidutinio amžiaus gyventojų pozicijos kaitą dėl fizinio aktyvumo laisvalaikiu.

Siekiant užsibrėžto tikslo darbe buvo keliami šie pagrindiniai tyrimo **uždaviniai:**

1. Taikant normatyvinę nuostatą dėl tyrimo objekto kintamųjų vertinimo, nustatyti gyventojų poziciją dėl fizinio aktyvumo laisvalaikiu.
2. Įvertinti gyventojų sveikatos rizikos veiksnius siekiant asmens pozicijos kaitos dėl fizinio aktyvumo laisvalaikiu.
3. Atskleisti gyventojų pozicijos dėl fizinio aktyvumo laisvalaikiu sąsajas su sveikatos rizikos veiksniais, parodant ryšius tarp šių kintamųjų ir socialinių demografinių veiksnių.
4. Įvertinti gyventojų pozicijos kaitą dėl fizinio aktyvumo laisvalaikiu suteikiant jiems informacijos netiesioginio reikalavimo forma.

Minėtiems tyrimo uždaviniams spręsti pasirinkta apklausa žodžiu bei poveikio metodas teikiant informaciją netiesioginio reikalavimo forma.

Tyrimo mokslinį naujumą rodo tai, kad tai pirmas tokio pobūdžio darbas Lietuvoje, kuriame bandyta įvertinti vidutinio amžiaus gyventojų poziciją dėl fizinio aktyvumo laisvalaikiu, susijusią su fizinių pratimų atlikimu, bei šios pozocijos sąsajas su socialiniais demografiniais ir sveikatos rizikos veiksniais. Tyrimo originalumą apibūdina ta aplinkybė, kad asmens pozicija dėl fizinio aktyvumo laisvalaikiu buvo nustatyta tiesiogiai bendraujant su tiriamuoju jo namuose, kaip poveikio priemonę teikiant informaciją apie jo sveikatos rodiklius ir sveikatą gerinančias rekomendacijas netiesioginio reikalavimo forma. Tai leido įvertinti taikytų poveikio priemonių veiksmingumą bandant pakeisti vidutinio amžiaus gyventojų poziciją dėl fizinio aktyvumo laisvalaikiu. Tyrime išryškėjo prevencinių veiksmų keičiant asmens poziciją dėl fizinio aktyvumo laisvalaikiu vertės suvokimas kaip loginė prevencinių veiksmų naudos pasekmė įvertinant šių veiksmų klūtis.

Tyrimo metu atskleistas tamprus vidutinio amžiaus gyventojų pozicijos dėl fizinio aktyvumo laisvalaikiu ryšys su antsvoriu, nutukimu, juosmens apimtimi, bendrojo cholesterolio koncentracija kraujyje bei subjektyviu savo sveikatos vertinimu (blogesnį savo sveikatos vertinimą prognozuioja mažas fizinis aktyvumas). Išryškėjo ir šios pozicijos bei sveikatos rizikos veiksnių sąsajos su tirtų asmenų išsimokslinimu, socialine padėtimi, amžiumi bei lytimi.

Tyrimo praktinį reikšmingumą ir jo rezultatų taikymo perspektyvas nusako atskleistos vidutinio amžiaus gyventojų pozicijos dėl fizinio aktyvumo laisvalaikiu sąsajos, rodančios, kad asmens

poziciją dėl šios veiklos apsprendžia ne tik fizinio aktyvumo naudos suvokimas, bet ir socioekonominis asmens statusas, ribojantis dalies gyventojų galimybę naudotis įvairių sveikatingumo bei sporto klubų paslaugomis. Tai gali turėti įtakos kuriant bei diegiant įvairias gyventojų sveikatinimo programas, nes, kaip parodė tyrimo rezultatai, kuo aukštesnis asmens išsimokslinimas bei socialinis statusas, tuo informacijos apie jo sveikatos rodiklius ir sveikatą gerinančių rekomendacijų, pateiktų netiesioginio reikalavimo forma, poveikis keičiant asmens poziciją dėl fizinio aktyvumo laisvalaikiu yra veiksmingesnis. Gauti tyrimo rezultatai atveria galimybę kryptingai organizuoti suaugusių žmonių švietimą fizinio aktyvumo kaip esminio sveikatą stiprinančio veiksnio klausimais.

IŠVADOS

1. Tiriant vidutinio amžiaus Kauno m. gyventojų poziciją dėl fizinio aktyvumo laisvalaikiu nustatyta:
   - pagal mankštinimosi ir sportavimo laisvalaikiu dažnį ir trukmę fiziškai aktyvūs buvo 26,5 proc. gyventojų. Vyrai lyginant su moterimis buvo aktyvesni, o lyginant pagal amžių mažiausiai aktyvūs buvo 35–44 metų tyrimo dalyviai;
   - pagrindinė mažo fizinio aktyvumo priežastis, tirtų gyventojų nuomone, – laiko trūkumas (labiau būdinga moterims ir 35–44 m. asmenims). Kitos dažniau paminėtos priežastys – pinigų trūkumas (būdingesnis moterims) bei tingėjimas (charakteringas 35–44 m. tiriamiesiems). Tokia priežastis kaip ryžto ir paskatos stoka labiau ryški tarp 55–64 m. tyrimo dalyvių;
   - dažniau tirti gyventojai mankštinasi namie (ypač 55–64 m. asmenys), o sporto klubų paslaugomis naudojasi tik 7,1 proc. vyrų ir tiek pat moterų. Iš laisvalaikio fizinio aktyvumo formų vyresnio amžiaus gyventojai dažniau renkasi rytinę mankštą, bėgimą ir ėjimą, plaukimą ir pratimus su svarmenimis. Šios aktyvios fizinės veiklos formos rečiau populiarios tarp 35–44 m. tyrimo dalyvių, tačiau labiau mėgstamos vyrų, o moterys dažniau nurodė darbą sode, namų ruošą;
   - tirti gyventojai sutaria dėl fizinių pratimų naudos asmens sveikatai, tačiau rečiau pritaria teiginiui, kad dalyvaujant kūno kultūros ir sporto veikloje yra bendravimo galimybė (šiam teiginiui dažniau pritaria vyresni kaip 44 m. tiriamieji) ir kad geras fizinis pasirengimas reikalingas profesinei veiklai. Tik 7,9 proc. tiriamųjų dėmesingai skaito literatūrą apie kūno kultūrą ir sportą, nors dauguma (58,3 proc.) norėtų įgyti daugiau žinių apie fizinių pratimų naudą ne paskaitine forma.

2. Sveikatos rizikos veiksnių tyrimas atskleidė, kad:
   - didesnės dalies (69 proc.) tirtų gyventojų bendrojo cholesterolio koncentracija kraujyje viršijo normą. Tiek pat tiriamųjų (70,9 proc.) turėjo padidėjusią mažo tankio lipoproteinų cholesterolio koncentraciją;
   - antsvorį turėjo 38 proc. tiriamųjų, o nutukusių buvo 33 proc.;
   - didesnė už normą juosmens apimtis nustatyta trečdaliui tyrimo dalyvių;

- daugiau kaip trečdalis tyrimo dalyvių (35,2 proc.) turėjo padidėjusį sistolinį kraujo spaudimą ir kiek mažiau jų (31,9 proc.) – diastolinį;
- kaip vidutinę subjektyviai savo sveikatą vertino 61,7 proc. tiriamųjų, o kaip gerą ir labai gerą – 25,1 proc.;
- lyginant pagal lytį, daugiau moterų turėjo labai didelę bendrojo cholesterolio koncentraciją kraujyje, didesnę juosmens apimtį, buvo nutukusios, o vyrai išsiskyrė antsvoriu bei dažniau savo sveikatą vertino kaip gerą ir labai gerą. Su amžiumi didėjo skaičius tyrimo dalyvių, kurie turėjo labai didelę bendrojo cholesterolio koncentraciją kraujyje, padidėjusį kraujo spaudimą, buvo nutukę ir dažniau savo sveikatą buvo linkę vertinti kaip blogą ir labai blogą.

3. Pagal tyrimo kintamųjų tarpusavio palyginimo duomenis nustatyta, kad:
   - fiziškai aktyvūs tyrimo dalyviai rečiau turėjo antsvorį, normą viršijančią liemens apimtį, labai didelę bendrojo cholesterolio koncentraciją kraujyje bei rečiau buvo nutukę. Tarp fiziškai aktyvių ir mažai aktyvių tyrimo dalyvių arterinio kraujo spaudimo skirtumų nenustatyta;
   - pagal fizinio aktyvumo laisvalaikiu dažnį ir trukmę tarnautojai ir verslininkai buvo aktyvesni lyginant su pensininkais, bedarbiais ir negalią turinčiais asmenimis, o darbininkai buvo aktyviausi. Išsimokslinimo grupėse statistiškai reikšmingų skirtumų nenustatyta, o pagal atskiras fizinio aktyvumo laisvalaikiu rūšis aukštesnio išsimokslinimo asmenys dažniau darė rytinę mankštą, bėgiojo ir plaukė. Sporto klubų teikiamomis paslaugomis taip pat dažniau naudojosi aukštesnio išsimokslinimo asmenys bei tarnautojai ir verslininkai;
   - subjektyviai savo sveikatą kaip gerą ir labai gerą dažniau vertino fiziškai aktyvūs asmenys bei tie tyrimo dalyviai, kurių KMI, arterinis kraujo spaudimas ir juosmens apimtis atitiko normą, o savo sveikatą kaip blogą ir labai blogą dažniau vertino mažai fiziškai aktyvūs, nutukę, turintys padidintą kraujo spaudimą bei didesnę liemens apimtį tyrimo dalyviai. Dažniau savo sveikatą kaip gerą ir labai gerą vertino ir aukštesnio išsimokslinimo asmenys bei tarnautojai, verslininkai ir darbininkai, o kaip blogą ir labai blogą – pensininkai, bedarbiai ir asmenys su negalia bei žemesniu išsimokslinimu;

- logistinės regresinės analizės duomenimis, subjektyviai blogesnį savo sveikatos vertinimą prognozuoja mažas fizinis aktyvumas, žemesnė socialinė padėtis ir žemesnis išsimokslinimo lygmuo bei priklausymas moteriškai lyčiai.

4. Pritaikius Tikėjimo sveikata modelį kaip profilaktinio sveikatos elgesio veiksnį, nustatyta, kad per stebėtą laikotarpį:
   - padidėjo fiziškai aktyvių (pagal dažnį ir trukmę) asmenų ir asmenų, subjektyviai savo sveikatą vertinusių kaip gerą ir labai gerą, skaičius;
   - ryškesni fizinio aktyvumo ir sveikatos vertinimo pokyčiai stebėti tarp aukštesnio išsimokslinimo ir socialinio statuso tiriamųjų;
   - lyginant fizinio aktyvumo pokyčius cholesterolio koncentracijos kraujyje norminėse grupėse pastebėta, kad fizinis aktyvumas didėjo tų asmenų, kurių cholesterolio koncentracija kraujyje atitiko normą arba buvo padidėjusi. Didelį ir labai didelį cholesterolio kiekį kraujyje turinčioje tiriamųjų grupėje stebėta tik fizinio aktyvumo didėjimo tendencija. Reikšmingesni fizinio aktyvumo pokyčiai (jo didėjimo linkme) nustatyti tyrimo dalyviams, turėjusiems sveikatai pavojingo mažo tankio lipoproteinų cholesterolio koncentraciją kraujyje.

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