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Regional Pattern of Physical Inactivity in Croatia

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A B S T R A C T

The aim of this paper was to analyze the regional pattern of physical inactivity in Croatia based on the Croatian Adult Health Survey 2003 data. A total of 9,070 adult respondents were included in this study. In men, the highest prevalence of physical inactivity was recorded in the City of Zagreb (39.6%), and it was significantly higher than in Central (25.6%), Coastal (25.6%) and Mountainous region (14.1%). Mountainous region had significantly lower prevalence of physical inactivity compared to any other region, except the Central region. The highest prevalence of physical inactivity in women was also recorded in the City of Zagreb (43.6%), and it was also significantly higher than in all other regions. The lowest prevalence of physical inactivity was recorded in Eastern Region (24.7%) The highest levels of physical inactivity in both in both genders were recorded in urban regions, suggesting that intervention measures in terms of health promotion should be undertaken, with strong emphasis on the people living in urban settings.

Key words: *physical inactivity, regional pattern, Croatian Adult Health Survey, Croatia*

Introduction

Regular physical activity has long been regarded as an important component of a healthy lifestyle. It has been and remains an essential biological stimulus that is needed to maintain the structures and functions of organs and organ systems to serve their purpose[1]. Physical activity is defined as any bodily movement produced by skeletal muscles that results in energy expenditure and includes activities of all intensities[2]. Therefore, things such as housework, gardening, and occupational activity may all be considered types of physical activity. The link between the physical inactivity, all-cause mortality and chronic diseases such as cardiovascular disease, non-insulin-dependent diabetes, obesity, colon cancer, mental diseases, and osteoporosis is supported by strong evidence in the adult population[3]. While it is good for the healthy, physical activity also has a beneficial effect on a number of chronic diseases, when it is carried out at a moderate intensity. Even relatively minor modifications, such as encouragement of active forms of transportation, have potential benefits against obesity[4]. The lack of understanding on the knowledge and attitudes associated with taking up and maintaining physical activity has altered efforts to develop programs which are lasting and effective[5]. The World Health Organization's global strategy on diet, physical activity, and health recommends greater attention be given to increasing physical activity at the population level[6]. A specific component of the global strategy suggests that greater focus should be on national monitoring and surveillance within and among countries. Patterns of physical inactivity vary with demographic, regional and socioeconomic characteristics. Male gender, younger age, higher levels of education, Caucasian race and rural area are positively correlated with physical activity[7–10]. Whereas in developed countries population-based studies on physical inactivity and associated variables have already been conducted[11], in many developing and transitional countries and regions, like Croatia, such data are generally lacking in the appropriate extent. Recent evidence suggests that adult participation in regular physical activity in Croatian shows a strong regional pattern[10]. Factors related to these findings might include different socioeconomic features and access to environmental supports for physical activity. Due to importance of this problem, information about regional distribution of physical inactivity may help to develop more focused and specific intervention programs tailored to the needs of the population of interest, as well as helping in the success of maintaining such programs.

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Subjects and Methods

For the purpose of this study, we used Croatian Adult Health Survey 2003 (CAHS). This was a large public health survey, targeting representative sample of the adult population of the Republic of Croatia. A total of 9,070 respondents were included in the study, which is considered to be representative at the level of regions, and informative at the county levels. A detailed description of questionnaire, participants and regional division was addressed in the first two articles of this issue of Collegium Antropologicum[12,13]. The survey provided the data on the representative sample of Croatian adult population, and it has since often been used for various risk factors prevalence estimates[14].

Within the 2003 CAHS questionnaire, five questions concerning physical (in)activity were investigated and analyzed in this study (pha_01: Physical activity regarding getting to work; pha_02: How much is work physically strenuous; pha_03: Frequencies of at least 30 minutes leisure time physical exercises; pha_04a and pha_04b: Physicians' and other health care personnel's advice to increase physical activity). Subjects were considered to be physically active if they have satisfied at least two of fallowing conditions[14]: a) at least 15 minutes of regular physical activity on their way to work; b) at least moderately strenuous job; c) at least 2–3 times a week leisure time physical activity; d) without any further objections by physicians and other health care professionals on insufficient physical activity. All statistical procedures were performed using SAS ver. 8.02.

Results

Data obtained from the 2003 CAHS showed that, overall, 30.5% of Croatian population was considered physical inactive (28.9% of men and 31.9% of women). The highest prevalence in physical inactivity in both genders was in the City of Zagreb (39.5% of men and 43.6% of women). Among men, this prevalence was significantly higher in comparison with Central (25.6%), Coastal (25.6%) and Mountainous region (14.1%). Mountainous region had significantly lower physical inactivity prevalence compared to any other region except Central Region (Table 1, Figure 1). Among women, physical inactivity prevalence in City of Zagreb was significantly higher compared to all other regions ($P<0.05$). The lowest prevalence was found in Eastern region (24.7%) (Table 2, Figure 2). In both genders, the highest prevalence of physical inactivity was recorded in the City of Zagreb (Figure 3, 4).

Discussion

Our study showed that the level of physical inactivity varied among regions of Croatia, with similar trends for both men and women. Overall, women tended to be less physically active than men in all regions except in Northern and Eastern Croatia. The lowest proportion of physically inactive people lived in Mountainous region (14.12% of men and 27.38% of women). In contrast, the City of Zagreb was the region that had the highest proportion of physically inactive inhabitants, with striking figures of almost 40 % of men and over 43 % of women. Results

Fig. 1: Regional distribution of physical inactivity in men, based on the Croatian Adult Health Survey 2003 data; grey color denotes the gradient of physical inactivity, from the least inactive (lightest grey) to the most inactive region (darkest grey).

TABLE 1
PHYSICAL INACTIVITY PREVALENCE IN SIX REGIONS OF CROATIA: MEN

Region	Projected population fraction	Prevalence (%)	CIL95	CIU95
Eastern	331548	28.6	21.6	35.7
Northern	133956	37.7	24.7	50.7
Central	323153	25.6	18.2	33.1
City of Zagreb	279533	39.6	33.4	45.7
Mountainous	103570	14.1	8.7	19.6
Coastal	468665	25.6	20.1	31.1

TABLE 2
PHYSICAL INACTIVITY PREVALENCE IN SIX REGIONS OF CROATIA: WOMEN

Region	Projected population fraction	Prevalence (%)	CIL95	CIU95
Eastern	367199	24.7	18.8	30.7
Northern	176366	28.6	23.7	33.4
Central	331938	34.5	28.9	40.0
City of Zagreb	337389	43.6	40.1	47.1
Mountainous	87569	27.4	17.0	37.7
Coastal	538701	29.7	25.1	34.3

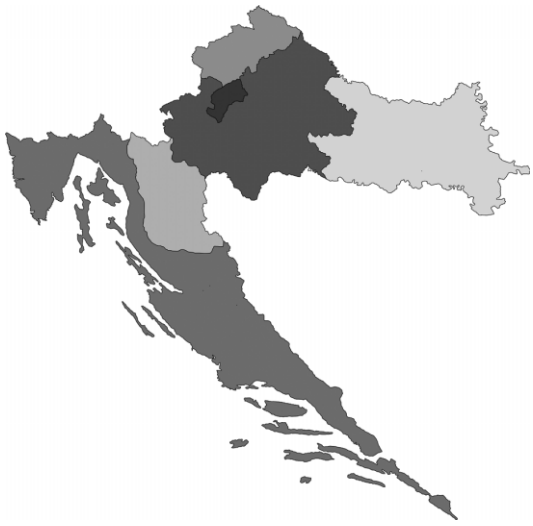

Fig. 2: Regional distribution of physical inactivity in women, based on the Croatian Adult Health Survey 2003 data; grey color denotes the gradient of physical inactivity, from the least inactive (lightest grey) to the most inactive region (darkest grey).

shown here are generally comparable with those from other European countries [15]. In contrast, the most recent study on the prevalence of physical inactivity in 51 countries indicated that 8.9% of men and 6.9% of women in Croatia were physically inactive[16]. The finding that residents of Zagreb are more inactive that rural inhabitants confirm patterns in other data, but there are wide discrepancies in the absolute prevalence (Misigoj-Duraković et al. reported that 85.6% of men and 45.2% of women in Zagreb were inactive[10]). The discrepancies in the results of this study and our study may emerge from different definitions of physical activity, different sample size of the above mentioned study and potential problems in providing estimates that are truly representative for the adult population of Croatia, possible inappropriate wording of questions or different concepts of time in these settings. Major limitation of this study was its cross-sectional design which does not allow drawing any causative conclusions as to relation between physical inactivity and poor health. Substantially higher proportion of physically inactive people in the City of Zagreb can be explained by increasing urbanization with effective changes in lifestyles pertaining to sedentary activities[17,18]. Furthermore, research of physical activity is very complex and requires different approaches. Epidemiologic studies mostly use questionnaires addressing characteristics of the activity (frequency, duration, type and intensity). Questions could comprise only specific periods of life, present or lifelong activity. Literature suggests a wide array of reasons for being physically inactive. Recent studies pointed out a lack of time as commonly cited barrier to participation in physical activity, while an injury was frequent reason for cessation of regular activity[4]. Cigarette smoking is only weakly inversely related to participation in physical activity, but smokers are more likely than non-smokers to drop out of exercise programmes[19]. Body composition (percentage of body fat) is not a powerful predictor of physical activity habits; however, persons who are obese are usually more inactive[20]. An intention to exercise and awareness of the benefits of exercise are weakly related to participation in physical activity[21]. Other authors claim that confidence in the ability to be physically active, perceived barriers to activity, and enjoyment of activity are strongly related to participation. A number of physical and social environmental factors can affect physical activity behavior, such as family and friends who can be role models, provide encouragement, or be companions during physical activity. The environment often presents important barriers to participation in physical activity, including a lack of bicycle trails and walking paths away from traffic, inclement weather, and unsafe neighbourhoods[22].

The results of this study suggest the presence of regional physical inactivity pattern. The baseline information on the magnitude of the problem of physical inactivity provided by this study can help health policymakers to set up interventions addressing the global chronic disease epidemic. As the highest levels of inactivity among men and women were recorded in urban regions, intervention measures should be taken in terms of health promotion in urban settings. The successful promotion of physical activity to reduce rates of cardiovascular disease, stroke, and other diseases is promising, and suggests that similar benefits will emerge in other regions that implement the right interventions. Combinations of different actions and programs are likely to be needed in different settings to reach and target populations.

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REFERENCES

1. HAGSTRÖMER M, OJA P, SJÖSTRÖM M, Med Sci Sports Exerc, 39 (2007) 1502. — 2. VOURI I, Kinesiology, 36 (2004) 123. — 3. CASPERSEN CJ, POWELL KE, CHRISTENSON GM, Public Health Rep, 100 (1985) 126. — 4. PATE RR, PRATT M, BLAIR SN, JAMA 273 (1995) 402. — 5. BLAIR SN, MORTON E, LEON AS, Med Sci Sports Exerc, 28 (1996) 335. — 6. WORLD HEALTH ASSEMBLY, Global Strategy on Diet, Physical Activity and Health. In: World Health Assembly, 2004. — 7. CASPERSEN CJ, MERRITT RK, Med Sci Sports Exerc, S24 (1992) 1. — 8. DIPIETRO L, CASPERSEN C, Med Sci Sports Exerc, 23 (1991) 105. — 9. MARSHALL S, JONES DA, AINSWORTH BE, REIS JP, LEVY, SUSAN SS, MACERA CA, Med Sci Sports Exerc, 39 (2007) 44. — 10. MISIGOJ-DURAKOVIC M, HEIMER S, GREDELJ M, HEIMER Z, SORIC M, Acta Med Croatica, 61 (2007) 253. — 11. BURTON, NW, TURRELL G, Prev Med, 31 (2000) 673. — 12. VULETIC S, POLASEK O, KERN J,

STRNAD M, BAKLAIC Z, Coll Antropol, 33 Suppl 1 (2009) 3. — 13. VULETIC S, KERN J, Hrvatski casopis za javno zdravstvo, 5 (2005) 1.. — 14. KERN J, STRNAD M, CORIC T, VULETIC S, BMJ. 23 (2005) 208. — 15. KEARNEY JM, DE GRAAF C, DAMKJAER S, ENGSTROM LM, Public Health Nutr, 21 (1999) 115. — 16. GUTHOLD R,. Am J Prev Med, 34 (2008) 486. — 17. WHO Geneva, Switzerland: WHO (2007). — 18. DAS M, PAL S, GHOSH A, Am J Hum Biol 17 (2008) 440. — 19. REIS JP, BOWLES HR, AINSWORTH BE, DUBOSE KD, SMITH S, LADITKA JN, Med Sci Sports Exerc. 36 (2004) 2093. — 20. BOUCHARD C, DEPRES JP, TREMBLAY A, Obesity Res, 1 (1993) 133. — 21. GODIN G, VALOIS P, SHEPHARD RJ, DESHARNAIS R, J Behav Med, 0 (1987) 145. — 22. SALLIS JF, HOVELL MF, HOFSTETTER CR, Prev Med, 18 (1989) 20.

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REGIONALIZAM FIZIČKE NEAKTIVNOSTI U HRVATSKOJ

S A Ž E T A K

Cilj ovog rada bio je analizirati regionalni obrazac fizičke neaktivnosti u Hrvatskoj temeljem podataka dobivenih iz Hrvatske zdravstvene ankete (HZA) 2003. Među muškarcima, najveća prevalencija fizičke neaktivnosti bila je zabilježena u Gradu Zagrebu (39,6%), što je bilo statistički značajno više nego u središnjoj (25,6%), priobalnoj (25,6%) i planinskoj Hrvatskoj (14,1%), P<0,05. Planinska je Hrvatska imala statitički značajno manju prevalenciju fizičke neaktivnosti u usporedbi s drugim regijama, osim središnje Hrvatske. Najveća prevalencija fizičke neaktivnosti kod žena također je bila zabilježena u Gradu Zagrebu (43,6%), što je također bilo statistički značajno više nego u ostalim regijama (P<0,05). S druge strane, najniža prevalencija fizičke neaktivnosti nađena je u istočnoj Hrvatskoj (24,7%). Obzirom da najveću prevalenciju fizičke neaktivnosti u gradskim sredinama kod muškaraca i žena, potrebno je kreirati sustav mjera promocije zdravlja u tim područjima.