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Socio-demographic and lifestyle correlates of commuting activity in Poland

M. Kwaśniewska [a,*], K. Kaczmarczyk-Chałas [a], M. Pikala [a], Broda [b], K. Kozakiewicz [c], A. Pająk [d], A. Tykarski [e], T. Zdrojewski [f], W. Drygas [a,b]

[a] Department of Preventive Medicine, Medical University of Łódź, Poland
[b] Department of Epidemiology, Cardiovascular Prevention and Health Promotion, Institute of Cardiology, Warsaw, Poland
[c] Department of Cardiology, Medical University, Katowice, Poland
[d] Department of Epidemiology and Population Studies, Institute of Public Health, Jagiellonian University Medical College, Kraków, Poland
[e] Department of Hypertension, Vascular and Internal Diseases, Institute of Cardiology, Medical University, Poznań, Poland
[f] Department of Hypertension and Diabetes, Medical University, Gdańsk, Poland

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ABSTRACT

Objectives. The aim of this study is to analyse the epidemiology of active transportation and to investigate the relationship between commuting physical activity (PA) and socio-demographic and lifestyle characteristics in Poland.

Methods. A cross sectional analysis was conducted among 7280 randomly selected individuals (3747 men and 3533 women) aged 20–74 years participating in the National Multicentre Health Survey WOBASZ (2002–2005). Socio-demographic, smoking and physical activity details were assessed by an interviewer-administered questionnaire.

Results. Only 36% of the participants (30% men and 42% of women) are active commuters. Moreover, 55.4% of them spend less than 15 min/day on walking or cycling. The highest risk of commuting inactivity was noticed among residents of large urban settings, with university education, the highest income and low occupational PA in both genders. Smoking and leisure-time PA were not significantly associated with commuting activity.

Conclusions. Active commuting is not common in Poland. There are several differences in commuting patterns as compared with the US or Western European populations. Due to important differences between various socio-demographic groups, future interventions should be specific for the targeted subpopulations.

Introduction

Recently, expert groups and governments have shifted their emphasis from promoting solely intentional exercises in leisure time to the advocacy of "active living". There is, therefore, a rising interest in other domains of physical activity (PA) in the context of promoting and maintaining health. Active transportation (e.g. walking or cycling to and from work/school) seems to be a potentially effective method of incorporation of the needed PA into normal daily life. Several recent studies suggest that this kind of activity provides significant health benefits in decreasing risk of noncommunicable diseases and all-cause mortality (Barengo et al., 2006; Gordon-Larsen et al., 2009; von Huth Smith et al., 2007; Hamer and Chida, 2008a,b; Hu et al., 2003, 2007; Matthews et al., 2005; Andersen et al., 2000; Wennberg et al., 2006). Most of the studies in this area were conducted in Scandinavian or North American samples. Detailed nationwide data on the prevalence and determinants of commuting PA in the countries of Central and Eastern Europe are scarce.

Poland, a 39 million inhabitant country in Central Europe, has been among disgraceful leaders of unhealthy lifestyle and mortality rates in the eighties and early nineties. Since 1989, Poland has experienced dynamic political and socio-economic changes resulting in profound lifestyle transition (Pardell et al., 2001; Laaksonen et al., 2001; Zdrojewski et al., 2006). Despite several nationwide health promotion initiatives implemented in response to unfavourable statistics, insufficient physical activity level still remains a key issue in noncommunicable disease prevention and control. Unfortunately, interventions focused on enhancing active lifestyle were scarce and mostly not supported by adequate financial resources (Ruszkowska-Majzel and Drygas, 2005).

The aim of the present paper is to investigate the potential relationship between commuting PA and socio-demographic characteristics and other physical activity domains in a representative sample of adult commuters participating in the National Multicentre Health Survey WOBASZ.

* Corresponding author. Department of Preventive Medicine, Medical University of Łódź, Ul. Żeligowskiego 7/9 90-752 Łódź, Poland. Fax: +48 42 639 32 18.
E-mail address: magdalena.kwasniewska@umed.lodz.pl (M. Kwaśniewska).

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Methods

Subjects

The National Multicentre Health Survey (WOBASZ Project) conducted in the years 2002–2005 covered the whole territory of Poland represented by 16 voivodeships. A sample of 19200 subjects was randomly selected out of 26360 adults of both sexes aged 20–74 years. The individuals were drawn using Polish Resident Identification Number. The sampling scheme included double stratification. First, 6 areas in each voivodeship were selected (2 rural areas i.e. ≤8000 inhabitants; 2 small urban areas i.e. 8000–40000 inhabitants; and 2 large urban areas i.e. >40000 inhabitants) and second, selecting samples of 100 women and 100 men aged 20–74 years in each area. Additional samples of 100 women and 100 men were selected from the residents of the capital towns of the voivodeships not chosen in the national sampling.

A total of 19200 personal invitations to the study were sent by mail. With the mean response rate of 74.3% in men and 79.3% in women, the whole original study enrolled 14769 individuals. For the purpose of this analysis we excluded housewives ($n=493$) and persons who were unemployed ($n=2311$) or retired ($n=4656$) and included only individuals working/studying outside of their home. After eliminating records that had missing information on any domain of physical activity ($n=29$), the final sample comprised of 7280 persons, 3747 men and 3533 women aged 20–74 years. The investigation procedures were carried out by nurses and trained interviewers (from experienced professional interviewing agencies) in selected out-patient clinics and consisted of the following parts: a comprehensive questionnaire interview, a physical examination, anthropometric measurements and a blood sample collection. Data collection period was from October 2004 till March 2005. The questionnaire designed for WOBASZ included questions on medical history, socio-demographic and economic factors, lifestyle (physical activity, smoking, nutrition habits), social support and depression. All employed interviewers were trained in the application, completion and codification of the questionnaire, and they were blinded to the objectives and hypotheses of the investigation. Fieldwork supervisors conducted repeat control in the selected samples of interviewers.

The Ethical Committee of the Institute of Cardiology in Warsaw approved the study protocol. Informed consent was obtained from each subject. Data were made anonymous before analysis. Detailed aim and methods of the WOBASZ Project has already been published elsewhere (Broda and Rywik, 2005).

Measurements

Physical activity was assessed by a interviewer-administered questionnaire based on questions which have already been used in previous studies on Polish samples (Drygas et al, 2001; Rywik et al., 2003). The participants were asked about their activities in three domains: commuting PA, leisure-time PA, and occupational (work-related) PA. The subjects were asked whether they walked, rode a bicycle, or used motorized transportation to and from work (school/university) as well as daily duration of this activity. The daily commuting return journey was categorized into four possibilities: (1) using motorized transportation (0 min of walking or cycling); (2) walking or bicycling 1 to 14 min; (3) walking or bicycling 15 to 29 min; and (4) walking or bicycling 30 and more minutes.

In the assessment of leisure-time PA the subjects were asked whether they regularly practiced any physical activity (e.g. walking, jogging, cycling, swimming, gymnastics, gardening, but excluding active commuting) accumulating at least 30 min/day. Those who did were asked to recall the frequency of such activities. Individuals who did not declare doing any physical exercises in their leisure time were defined as "physically inactive" and asked about possible reasons of inactivity.

The subjects reported their occupational physical activity according to the following three categories: (1) "low" was very light, physically easy, sitting office work, (2) "moderate" was light or medium physical work including sitting and standing, walking, lifting, carrying light loads, and (3) "high" was heavy manual work.

Statistical analyses

Statistical analyses were performed with STATISTICA Windows XP version 8.0.

To compare the frequency and assess statistical significance of the given categories of quantitative characteristics in the analysed groups the chi-square test was implemented. Given that the relative importance of the correlates might differ between genders, all the analyses were performed separately for men and women.

In order to identify factors that can contribute to commuting PA, the logistic regression analysis was performed. In this model, individuals reporting not active commuters were compared to active commuters. The results were shown as odds ratios (OR) with 95% confidence intervals (CI) for being inactive while commuting. Individuals aged 20–24 years, residents of rural areas, married/co-habiting, and with the lowest education, household income, occupational and leisure-time PA level were used as a reference, being assigned an OR value of 1.00. The multivariable logistic regression analyses were adjusted for age, education, place of residence, income, smoking and other domains of physical activity. All p values were two-sided and $p<0.05$ was set as statistically significant.

Results

Socio-demographic and lifestyle characteristics of the whole survey sample ($n=7280$) and according to gender are presented in Table 1. No differences were found in sample distribution by gender and across age, place of residence and income.

Of the 7280 persons who worked or studied outside of the home, 64.2% of all commuters (men, 69.9%; women, 58.2%) used a motorized transportation on their journey to and from work/school. Among active commuters 55.4%, 35% and 9.6% spend less than 15, 15–29 and at least 30 min/day on walking or cycling, respectively. No important differences were found in time spent on commuting between genders. Prevalence of active commuters increased with age in the whole

Table 1
Characteristics of 7280 daily commuters aged 20–74 years, by gender.

	Men		Women	
	$n=3747$	(%)	$n=3533$	(%)
Age (years)				
20–24	537	14.3	615	17.4
25–34	924	24.7	863	24.4
35–44	965	25.7	934	26.4
45–54	1033	27.6	971	27.5
55–74	288	7.7	150	4.3
Place of residence				
Rural	1175	31.4	1109	31.4
Small urban	1171	31.2	1111	31.5
Large urban	1401	37.4	1313	37.1
Education level				
Elementary	395	10.5	304	8.6
Secondary	2645	70.6	2173	61.5
University	707	18.9	1056	29.9
Income (Euro/month)				
No answer	496	13.2	449	12.7
<130	1445	38.6	1475	41.8
130–260	1299	34.7	1223	34.6
>260	507	13.5	386	10.9
Marital status				
Married/co-habiting	2672	71.3	2428	68.7
Single	965	25.8	858	24.3
Other	110	2.9	247	7.0
Smoking				
Yes	1378	36.8	869	24.6
No	2369	63.2	2664	75.4
Leisure-time physical activity				
None	1181	31.5	1276	36.1
Occasionally	814	21.7	811	22.9
2–3/week	534	14.3	480	13.6
4–7 days/week	1218	32.5	966	27.4
Occupational physical activity				
Low	1164	31.1	1672	47.3
Moderate	896	24.9	903	25.6
High	1687	45.0	958	27.1
Commuting activity (min/day)				
0	2619	69.9	2056	58.2
1–14	616	16.4	827	23.4
15–29	407	10.9	505	14.3
≥30	105	2.8	145	4.1

Data of the National Multicentre Health Survey WOBASZ, Poland, 2005.