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Human development, occupational structure and physical inactivity among 47 low and middle income countries

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ABSTRACT

This study aimed to (a) assess the relationship between a person's occupational category and their physical inactivity, and (b) analyze the association among country-level variables and physical inactivity. The World Health Survey (WHS) was administered in 2002–2003 among 47 low- and middle-income countries ($n = 196{,}742$). The International Physical Activity Questionnaire (IPAQ) was used to collect verbal reports of physical activity and convert responses into measures of physical inactivity. Economic development (GDP/c), degree of urbanization, and the Human Development Index (HDI) were used to measure country-level variables and physical inactivity. Multilevel logistic regression analysis was used to examine the association among country-level factors, individual occupational status, and physical inactivity. Overall, the worldwide prevalence of physical inactivity in 2002–2003 was 23.7%. Individuals working in the white-collar industry compared to agriculture were 84% more likely to be physically inactive (OR: 1.84, CI: 1.73–1.95). Among low- and middle-income countries increased HDI values were associated with decreased levels of physical inactivity (OR: 0.98, CI: 0.97–0.99). This study is one of the first to adjust for within-country differences, specifically occupation while analyzing physical inactivity. As countries experience economic development, changes are also seen in their occupational structure, which result in increased countrywide physical inactivity levels.

Introduction

The World Health Organization (2012a) identifies physical inactivity as the fourth leading risk factor for mortality throughout the world and estimates that physical inactivity has resulted in 3.2 million deaths globally (World Health Organization, 2012a). Individuals not participating in the recommended amount of physical activity have a higher risk of chronic diseases such as diabetes, obesity, and cardiovascular disease (World Health Organization, 2012a). The Physical Activity Transition is a theoretical model that suggests the prevalence of physical inactivity increases with the level of a country's economic and social development largely as a result of occupational changes from labor-intensive to sedentary service oriented professions (Katzmarzyk and Mason, 2009; Dumith et al., 2011; Khol et al., 2012).

Development is characterized by a shift from agrarian- to industrial-based economies, including changes in the occupational structure, levels of urbanization, and lower levels of work- and domestic-related physical activity (Katzmarzyk and Mason, 2009). Katzmarzyk and Mason (2009) argues that changes in daily routine, social climate, and nature of work in- and outside the home result in increased sedentary behaviors and a shift in disease patterns from communicable toward chronic diseases (Katzmarzyk and Mason, 2009). Besides changes in the economy and occupational structure, urbanization itself may lead to lower levels of physical activity. Guthold et al. (2008) assessed country-level physical activity results of 22 African countries, with results showing a linear relationship between a country's level of urbanization and physical inactivity levels, i.e., increasing urbanization led to decreasing physical activity. Research also suggests a change in the socioeconomic groupings, which tend to be physically active. Higher income groups may increase leisure-time physical activity in the face of work-related reductions (Finger et al., 2012). Lower-income groups may however confront reductions in physical activity since they often lack the financial resources to participate in leisure-time physical activity (Beenackers et al., 2012). Even so, lower income groups facing economic vulnerability still maintain higher total leisure and work/transport physical activity levels when compared to higher income groups (Beenackers et al., 2012). Knowledge of global patterns associated with the Physical Activity Transition may contribute to the development of policies and programs that will potentially buffer the potential impact of economic development and transition on more vulnerable socioeconomic groups, particularly with regard to shifts in the agricultural labor force into white collar jobs and the service industry.

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While recent research is conceptually rich, there are a number of gaps in current knowledge concerning between-country differences in the physical activity transition. These gaps are due to unavailable data and measurements. First, between-country studies often lack a global, standardized tool for measuring physical activity. Discrepancies in measuring physical activity reduce between-country comparability and result in potentially inconsistent findings. Second, no research as far as we are aware has adjusted for within-country compositional factors, particularly occupational structure, when it comes to examining the importance of development and urbanization for physical inactivity. Adjusting for within-country differences concerning the percentage of individuals in certain types of occupations or at certain levels of income is important for assessing precisely whether economic or social development characteristics are associated with physical inactivity.

Using data from the 2002–2003 World Health Survey (WHS), the following study examines the association of development and urbanization factors with physical inactivity. The WHS applied the International Physical Activity Questionnaire (IPAQ) in 47 middle- and low-income countries. Using the WHS data provides a significant improvement over previous research in several ways. The IPAQ has been tested in 12 developing and developed countries for reliability and validity (Craig et al., 2003). The IPAQ's reliability and validity is better documented in developed countries, but there has been research on its utility in measuring physical activity levels in developing countries. For example, Dumith et al. (2011) conducted a pooled analysis of three studies, which utilized the IPAQ in undeveloped, developing and developed countries, finding when countries had the prevalence of physical inactivity included twice or three times, the prevalence estimates were similar, indicating the IPAQ's reliability. The validity had more variability as Dumith et al. (2011) found that the varying physical activity levels may have been due to the varying validity of the IPAQ

Research objectives

Using data from the 2002–2003 WHS, this study has two objectives. First, the study assesses the relationship between a person's occupational category and their physical inactivity, hypothesizing that being employed in agriculture reduces the likelihood of physical inactivity, while being in white and blue-collar occupations increase the chances of physical inactivity. Secondly, the study examines the association among three country-level variables: urbanization, economic development, and human development and physical inactivity. To the best of our knowledge this will be the first study to analyze the relationship of these three factors while adjusting for occupation. Following previous literature, the hypothesis is that all country-level variables are positively associated with physical inactivity.

Methods

WHS study sample

Between 2002–2003, the WHO launched a large cross-sectional health surveillance information study in 70 low-, middle- and high-income countries (World Health Organization, 2012b). Each country selected based on their own health surveillance needs into certain health and behavioral modules, including risk factors, health systems and health services, and health care expenditures (World Health Organization, n.d.). The lifestyle module included questions pertaining to physical activity from the IPAQ, short form (World Health Organization, 2012a, 2012b). Fifty-one countries, mostly low and middle income, participated in modules containing the IPAQ questionnaire ($n = 259{,}526$) (World Health Organization, 2012a, 2012b). More information concerning the World Health Survey is available on the website (http://www.who.int/healthinfo/survey/en/).

Outcome: physical inactivity

The IPAQ short-form was used to assess the frequency (days) and duration (minutes/hours) of a person's activity over the preceding seven days, and group activity levels into vigorous-, moderate-, and low-intensity levels (IPAQ, 2005). The IPAQ asked participants whether they had engaged in the vigorous, moderate, or walking activities in the past 7 days and if so, how long (hours and minutes) (World Health Organization, 2002). Show cards were used to explain what types of activities were considered to be vigorous or moderate (IPAQ, 2005). Each type of activity was assigned a metabolic equivalent of task (MET) score: walking has a value of 3.3 METs; moderate activities are 4.0 METs; and vigorous activities are 8.0 METs (IPAQ, 2005). These values are then used to calculate a person's overall METs for a week. The IPAQ (2005) defines a person as physically inactive if they did not meet any of the following three criteria:

1. Three or more days of vigorous-intensity activity of at least 20 min per day (IPAQ, 2005).
2. Five or more days of moderate-intensity activity and/or walking of at least 30 min per day (IPAQ, 2005).
3. Five or more days of any combination of walking, moderate-intensity or vigorous intensity activities achieving a minimum total physical activity of at least 600 MET-minutes/week (IPAQ, 2005).

Country-level variables

Three country-level variables were analyzed: the human development index (HDI), economic development, and urbanization. HDI data was extracted from the 2002 United Nations Development Programme (UNDP) Human Development Report. HDI is an index composed of four country variables: life expectancy, adult literacy, combined primary, secondary and tertiary gross enrollment, and GDP per capita (UNDP, 2002). Economic development was defined as gross domestic product (GDP) per capita. Economic development data was extracted from the WHS 2002–2003. Urbanization consists of the percentage of a country's population who resided in urban areas.

Individual level variables

To account for within-country compositional characteristics, analyses were adjusted for educational attainment, household income, gender, age, and occupation and rural/urban residence. Educational attainment was categorized into five groups: less than primary schooling, primary schooling, secondary schooling, high school, and college education. Household income was split into income quintiles. Age category was based on groupings of 18–29, 30–39, 40–49, 50–59, and 60–69 years old adults. Adults over 69 were excluded from the analysis since the IPAQ—short form has only been tested for validity and reliability in adults between 18–69 years old. Employment status was binary, defined as either being employed or unemployed at the time of the survey. If participants reported being employed, they were asked to select their occupation from the following options: legislator, professional, technician, clerk, service sales worker, agriculture, craft trades, plant/machine worker, elementary worker, or armed forces. For analysis, these occupations were grouped into five categories: (1) white collar (legislator, professional, clerk, and technician), (2) blue collar (sales worker, craft trades, plant/machine worker, elementary worker, and armed forces), (3) agriculture, (4) homemaker and (5) other (unemployed). Agricultural occupation was used as the referent category.

Statistical analyses

Multilevel logistic regression allowed examination of country-level variables while adjusting for compositional differences between countries. This study designed five different models. For each model, each variable was tested individually for statistical significance followed by model testing for significance. The first model included only individual-level factors including education, income, gender, age, occupation and rural/urban living conditions. The second model included only country-level variables including HDI, economic development and urbanization. The third model included all individual-level factors from model 1 as well as the country-level variable, economic development. The fourth model included all individual-level factors from model 1 and the country-level variable, urbanization. Finally, the fifth model included all individual-level factors from model 1 and the country-level variable, HDI. Data analysis was conducted using multilevel logistic regression in STATA version 12.1.

Results

In total, 47 countries from the 2002–2003 WHS had complete physical activity and occupational structure information, resulting in a final sample size of 196,742 individuals. Overall, the prevalence of physical inactivity of all countries measured was 23.7%. Country-level descriptive statistics are shown in Table 1.

Table 2 reports the results from the hierarchical logistic models estimating the association among physical inactivity and individual- and country-level variables. In model 1, income and rural/urban were statistically associated with physical inactivity. Females were 26% more likely than males to be physically inactive (OR: 0.74, CI: 0.72–0.76). Individuals living in urban areas were 27% more likely to be physically inactive than individuals living in rural areas (OR: 1.27, CI: 1.23–1.32). Individuals with an income of Quintile 1 were 17% less likely to be physically inactive compared with individuals with an income of Quintile 5 (OR: 0.83, CI: 0.79–0.87). (see Table 3 provides the correlations shown among the main study variables.)

In models 2, 3 and 4, we assessed the association between each country-level variable separately, while adjusting for individual factors. Neither economic development nor urbanization was statistically significant. A country's level of human development was shown significant such that as a country's human development increased, physical inactivity decreased (OR: 0.98, CI: 0.97–0.99).

Model 5 results showed occupational category associated with physical inactivity. Individuals working in white-collar occupations were 84% more likely to be physically inactive compared to those in agriculture (OR: 1.84, CI: 1.73–1.95). Unemployed individuals were

Table 1
Descriptive statistics, physical inactivity sample, WHS 2002–2003 nc = 47; ni = 196,742.

Country	Study sample size	% female	% urban	HDI (2002)	GDP per capita	% agricultural occupation	% physical inactive	% urbanization
Bangladesh	5942	53	34	0.445	1607	14.8	14.4	24
Brazil	5000	56	82	0.757	7394	6.8	22	82
Burkina Faso	4948	53	41	0.325	1037	34.7	8.2	17
Chad	4875	53	25	0.365	925	33.1	17.6	25
China	3994	51	40	0.726	4668	23.2	9.1	38
Congo	3077	53	30	0.431	948	9.4	4.8	31
Comoros	1836	55	79	0.511	1785	19.7	27.7	34
Croatia	993	59	66	0.809	10,364	1.8	9.1	59
Czech Republic	949	55	71	0.849	16,533	0.9	8.6	74
Cote d'Ivoire	3251	43	61	0.428	1485	29.2	13.8	44
Dominican Republic	5027	54	55	0.727	6754	15.1	30.4	59
Ecuador	5677	56	67	0.732	3431	13.3	22.9	61
Estonia	1021	64	66	0.826	11,341	2.1	5	69
Ethiopia	5090	52	16	0.327	670	45.4	13	15
Georgia	2950	58	45	0.748	2183	9.9	8.2	52
Ghana	4165	55	39	0.548	1955	46.6	11.9	45
Guatemala	4890	61	42	0.631	3976	23.8	4.3	46
Hungary	1419	58	61	0.835	14,131	1.8	6.6	65
India	10,692	51	28	0.577	2553	25.3	9.3	28
Kazakhstan	4499	66	60	0.75	5612	2.3	10.4	56
Kenya	4640	58	32	0.513	1022	30	11.4	38
Laos	4989	53	26	0.485	1670	57.6	8.9	20
Malawi	5551	58	16	0.4	548	27.3	9.4	16
Malaysia	6145	55	60	0.782	8821	9.9	17.2	63
Mali	5209	43	25	0.386	913	27.8	11.5	32
Mauritania	3907	61	43	0.438	1569	9.3	41.9	60
Mauritius	3968	52	45	0.772	10,451	1.9	13	43
Mexico	38,746	58	76	0.796	8787	9.2	11.9	75
Namibia	4379	59	47	0.61	6388	6.5	30	32
Nepal	8822	57	15	0.49	1335	51.5	6.4	15
Pakistan	6502	44	43	0.499	1941	14.6	12	34
Paraguay	5288	54	47	0.74	4358	21	19	57
Philippines	10,083	54	59	0.754	4023	15.7	6.4	60
Russia	4427	64	92	0.781	7810	1.3	8	73
Senegal	3465	48	54	0.431	1450	10.7	19.1	49
Slovakia	2535	61	92	0.835	12,312	8.9	8	57
South Africa	2629	53	60	0.695	9830	4.3	35.2	56
Spain	6373	59	71	0.913	22,495	2.4	20	76
Sri Lanka	6805	53	15	0.741	3588	15.4	8.7	21
Swaziland	3121	54	25	0.577	4950	1.2	33	23
Tunisia	5203	54	62	0.722	6507	8.1	14.3	63
Ukraine	2860	65	77	0.748	4736	1.7	92.8	67
United Arab Emirates	1183	48	77	0.812	20,878	0.8	62.2	85
Uruguay	2996	51	83	0.831	7408	2.9	83.7	92
Viet Nam	4174	55	25	0.688	2244	58.3	93.5	25
Zambia	4166	55	41	0.433	803	38.5	90.2	36
Zimbabwe	4292	64	36	0.551	2218	8.6	83.8	35

Table 2
Adjusted OR and 95% CI of multilevel logistic regression models.

	Model 1, OR (95% CIs)	Model 2, OR (95% CIs)	Model 3, OR (95% CIs)	Model 4, OR (95% CIs)	Model 5, OR (95% CIs)
Individual-level variables:					
Age:					
Age 20s	0.47 (0.45–0.49)	0.52 (0.49–0.54)	0.52 (0.49–0.54)	0.51 (0.50–0.54)	0.51 (0.49–0.53)
Age 30s	0.45 (0.43–0.47)	0.53 (0.50–0.55)	0.53 (0.50–0.55)	0.53 (0.51–0.56)	0.52 (0.50–0.54)
Age 40s	0.44 (0.42–0.46)	0.52 (0.49–0.55)	0.52 (0.50–0.55)	0.52 (0.50–0.55)	0.52 (0.49–0.54)
Age 50s	0.56 (0.53–0.59)	0.64 (0.61–0.67)	0.64 (0.61–0.67)	0.64 (0.61–0.67)	0.63 (0.60–0.67)
Age 60s (referent)	1.00	1.00	1.00	1.00	1.00
Income:					
Quintile 1	0.83 (0.79–0.87)	0.74 (0.70–0.80)	0.75 (0.69–0.80)	0.74 (0.69–0.80)	0.86 (0.82–0.91)
Quintile 2	0.83 (0.79–0.86)	0.76 (0.70–0.82)	0.77 (0.71–0.82)	0.76 (0.71–0.82)	0.85 (0.81–0.89)
Quintile 3	0.89 (0.85–0.93)	0.84 (0.79–0.89)	0.84 (0.79–0.90)	0.84 (0.79–0.89)	0.92 (0.88–0.96)
Quintile 4	0.90 (0.87–0.94)	0.93 (0.90–0.99)	0.95 (0.90–0.99)	0.95 (0.91–0.99)	0.92 (0.88–0.96)
Quintile 5 (referent)	1.00	1.00	1.00	1.00	1.00
Education:					
Less primary	0.92 (0.87–0.99)	1.04 (0.98–1.12)	1.04 (0.98–1.12)	1.04 (0.98–1.11)	1.04 (0.97–1.11)
Primary	0.87 (0.82–0.93)	0.94 (0.88–1.00)	0.94 (0.88–1.00)	0.94 (0.88–1.00)	0.94 (0.88–1.00)
Secondary school	0.85 (0.80–0.90)	0.88 (0.83–0.94)	0.89 (0.83–0.94)	0.88 (0.83–0.94)	0.90 (0.84–0.95)
High school	0.95 (0.90–1.01)	0.95 (0.89–1.01)	0.95 (0.89–1.01)	0.95 (0.89–1.01)	0.96 (0.90–1.01)
College (referent)	1.00	1.00	1.00	1.00	1.00
Male	0.74 (0.72–0.76)	0.79 (0.77–0.82)	0.80 (0.77–0.82)	0.80 (0.77–0.82)	0.79 (0.77–0.82)
Female	1.00	1.00	1.00	1.00	1.00
Urban	1.27 (1.23–1.32)	1.17 (1.13–1.21)	1.17 (1.13–1.21)	1.17 (1.13–1.21)	1.18 (0.99–1.01)
Rural	1.00	1.00	1.00	1.00	1.00
Occupation:					
Agriculture (referent)	…	1.00	1.00	1.00	1.00
White-collar	…	1.83 (1.72–1.94)	1.83 (1.72–1.94)	1.82 (1.71–1.93)	1.84 (1.73–1.95)
Blue-collar	…	1.43 (1.35–1.51)	1.43 (1.34–1.51)	1.43 (1.35–1.51)	1.45 (1.36–1.53)
Homemaker	…	1.63 (1.54–1.73)	1.63 (1.55–1.73)	1.63 (1.54–1.72)	1.64 (1.55–1.74)
Unemployed	…	2.20 (2.08–2.33)	2.20 (2.08–2.33)	2.19 (2.07–2.31)	2.21 (2.09–2.34)
Country-level variables:					
HDI	…	0.98 (0.97–0.99)	…	…	0.96 (0.93–0.98)
GDP per capita	…	…	…	0.99 (0.99–1.00)	1.0 (0.99–1.0)
Urbanization	…	…	0.99 (0.99–1.00)	…	1.01 (0.99–1.03)

over twice as likely than those in agriculture to be physically inactive (OR: 2.21, CI: 2.09–2.34). In addition, individuals in blue-collar occupations were 45% more likely to be physically inactive than those in agriculture (OR: 1.45, CI: 1.36–1.53). HDI had an inverse association with physical inactivity, meaning the higher the HDI the lower the odds of physical inactivity (OR: 0.96, CI: 0.93–0.98). Economic development and urbanization were non-significant.

Discussion

Three key findings emerged from this study. First, individuals in all occupations other than agriculture (white, blue, and unemployed) were more likely to be physically inactive. Second, HDI was associated with physical inactivity, indicating that as human development increased physical inactivity decreased. Third, individual-level variables: gender, income and urban/rural were positively associated with physical inactivity. Other than HDI, these findings align with the physical activity transition indicating as a country's level of economic development increases and individual occupational status shifts from agrarian to industrial-based, physical inactivity simultaneously increases.

Country-level variables

Research has suggested that as human development increases there may be simultaneous changes to occupational structure leading to corresponding advances in technology and decreased physical/manual labor (Katzmarzyk and Mason, 2009; Gidlow et al., 2006). Gidlow et al. (2006) suggested that as a country's development increased there are concurrent changes in physical activity levels and daily energy expenditure. When examining the relationship between physical inactivity and human development, this study found an inverse relationship between human development and physical inactivity, which differed from previous studies. Dumith et al. (2011) found countries' physical inactivity increased in tandem with an increasing HDI. However, compositional differences between Dumith et al.'s sample and this current study should be considered. Dumith et al. (2011) studied high-, middle- and low-

Table 3
Correlation measurements among human development, economic development (GDP/c), urbanization, agriculture, blue collar, and white collar (N = 47).

	HDI	GDP/c	Urbanization	Agriculture	Blue collar	White collar
HDI	1					
GDP/c	0.7761*	1				
Urbanization	0.7641*	0.6933*	1			
Agriculture	−0.6034*	−0.5980*	−0.6624*	1		
Blue Collar	0.3807*	0.2517**	0.3652*	−0.2870***	1	
White Collar	0.6704*	0.5740*	0.6709	−0.5599*	0.1966	1

* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

income countries, compared to this study that included mainly low- and middle-income countries. These conflicting results highlight an area for future research to be conducted to better understand the factors affecting the relationship between physical inactivity and human development.

Occupation and physical inactivity

The Physical Activity Transition provides a theoretical framework to explain the shift seen in physical inactivity patterns due to different occupational categories. As economic development increases within a country, the occupational structure undergoes a shift from agricultural to industrial occupations, increasing the number of white and blue-collar occupations (Katzmarzyk and Mason, 2009). This change involves higher mechanization, technology and urbanization (Katzmarzyk and Mason, 2009; Finger et al., 2012). These changes result in blue-collar occupations maintaining work and transport physical activity and white-collar occupations reducing work/transport, but increasing leisure-time physical activity (Finger et al., 2012). Individuals in white-collar occupations typically may have higher monetary resources to participate in leisure-time activities compared to blue-collar occupations who typically facing an economic burden (Finger et al., 2012). Nevertheless, the total amount of leisure-time activity may not reach the recommended levels of activity. Unemployed individuals had the highest likelihood to be physically inactive. Similar, to white-collar occupations, their activity levels did not reach total recommended amount of physical activity, possibly due to disability, traditional household roles, or lack of self-efficacy (Colman and Dave, 2013; Ali and Lindstrom, 2006). Alves et al. (2011) stated that individuals in low-income countries often reached recommended levels of physical activity through household chores, transportation and work activities. With that said, it is possible unemployed individuals may be physically inactive since they are not engaging in work activities or walking to and from work. Additionally, a study found that unemployment was associated with increased susceptibility to upper respiratory infections (Brown et al., 2012). It is possible that individuals who are unemployed and have negative health conditions are physically inactive due negative health conditions. Therefore, individuals in white-collar occupations or who are unemployed may be more likely to be physically inactive compared to blue-collar occupations.

Socio-demographic variables

In this study, females were more likely than men to be physically inactive. These findings are consistent with previous studies, which had similar results (Guthold et al., 2008; Dumith et al., 2011; Sjostrom et al., 2006). Males may have higher physical activity levels due to occupational structure and daily physical demands when compared to women, whose traditional roles include child-care, cleaning and cooking (Katzmarzyk and Mason, 2009).

When compared to the highest income quintile, individuals in lower income quintiles were less likely to be physically inactive. In the context of this particular sample, which is composed of mainly low- and middle-income countries, this finding reflects the economic and occupational shifts that come about as part of economic transition. Individuals living in urban areas were also shown to be more likely to be physically inactive compared to those living in rural areas. Dumith et al. (2011) & Guthold et al. (2008) found similar results in their studies, linking urban areas with wealthier, higher income countries. Using the Physical Activity Transition as a theoretical framework it can be proposed as countries experience economic development there is simultaneous shift in urbanization and technological advances which negatively impact physical activity levels, as people spend more time being sedentary at work, at home and during their leisure time (Katzmarzyk and Mason, 2009).

Limitations

There are four limitations in this study worth noting. The first limitation was the use of self-reported physical activity measures. Self-reported physical activity has been shown to underestimate the prevalence of physical inactivity due to recall difficulty and varied interpretations of questions. Secondly, the IPAQ short-form cannot be used to calculate domain specific activity; therefore, it may be a limitation when investigating the relationship between occupation and physical inactivity. Thirdly, occupation was also self-reported, leading to potential misinterpretations of the question and placing one's self into the wrong occupation category. Finally, the range of different HDI countries was limited in this study focusing mainly on low and middle level countries. This would have limited the variability in assessing the association between HDI and physical inactivity.

Conclusion

This study examines the association between both country and individual-level indicators of physical inactivity between 47 low and middle-income countries. This is one of the first studies to adjust for within-country compositional differences, particularly occupation, to examine the role of country-level variables. As countries experience economic development and modernization, occupational structure shifts from agricultural to industrial practices, resulting in decreased total physical activity levels. This information is integral when developing future health initiatives and planning in countries currently experiencing economic transitions. The results from this study in addition to the physical activity transition can be useful for the development of new policies for countries experiencing modernization to reduce barriers on vulnerable socioeconomic groups in their transition from agrarian occupation into white-collar occupations and the service industry.

Conflicts of interest

The authors declare that there are no conflicts of interests.

Transparency document

The Transparency document associated with this article can be found, in the online version.

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