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Original investigation

# Socio-demographic patterning of objectively measured physical activity and sedentary behaviours in eight Latin American countries: findings from the ELANS study

Running Head: Physical activity and sedentary behaviours

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## Highlights

- Worldwide studies of physical activity (PA) and sedentary behaviours (SB) have historically under-represented Latin American countries due to the lack of surveillance data.
- Across eight Latin American countries, the ELANS study collected data on PA and SB using an objective method (accelerometers) which we have analyzed to quantify and characterize socio-demographic patterns.
- Over four-in-ten participants were physically inactive (40.6%); with a gender gap (47.7% women; 33.0% men); and striking differences between countries (47% Costa Rica and Venezuela; 26.9% Chile).
- In all countries, levels of moderate-to-vigorous physical activity (MVPA) were lowest, and levels of SB were highest, among participants in the higher education groups.
- Our findings on the unequal distribution of PA and SB increases the evidence base and can help to inform future intervention strategies in Latin America.


## Abstract

Physical activity (PA) and sedentary behaviours (SB) are two independent risk factors for non-communicable diseases. However, there is a lack of objectively measured information on PA and SB in low- and middle-income countries. The aim of this study was to use objective data to characterise socio-demographic patterns of PA and SB in eight Latin American countries. 2,732 participants (aged 15-65 years) from the Latin American Study of Nutrition and Health (ELANS) were included. PA and SB data were collected using accelerometers. Overall and country-specific average levels of time spent in PA and SB were compared by sex, age, socioeconomic and education level. Overall, the mean time spent in SB was 571.6 min/day, ranging from 553.8 min/day in Chile to 596.7 min/day in Peru. Average levels of light, moderate-to-vigorous physical activity (MVPA) and total PA were 311.1 min/day (95% CI: 307.7; 314.5), 34.9 min/day (95% CI: 34.0; 35.9) and 7531.2 MET-min/week (95% CI: 7450.4; 7611.9), respectively. MVPA and total PA were higher in men than women. The prevalence of physical inactivity was 40.6%, ranging from 26.9% (Chile) to 47%

(Costa Rica and Venezuela). Women were more physically inactive than men (47.7% versus 33.0%). SB levels were highest among those with higher education; PA graded positively with socioeconomic level. Our findings can inform the planning of health policies and programmes designed to reduce levels of physical inactivity, as well as inform the local and cultural adaptation of these policies and programmes for implementation in Latin America.

**Keywords:** epidemiology, physical activity, sedentary behaviours, accelerometer, public health.

**Introduction**

Insufficient moderate-to-vigorous physical activity (MVPA) and excessive time spent in sedentary behaviours (SB) have emerged as key risk factors for cardiovascular disease worldwide, affecting not only high-income nations, but also low- and middle-income countries (LMICs) (Lee et al., 2012). More than three-in-four deaths due to chronic disease occur in LMICs (Lee et al., 2012). Therefore, in order to increase levels of physical activity (PA) and decrease the time spent in SB, researchers are joining efforts through a global call for action (Kohl et al., 2012; Sallis et al., 2016). However, regions such as Latin America continue to have scarce monitoring data on PA and SB.

Latin America countries has a unique structural, political, cultural and social environment (Salvo et al., 2014). It is the most urbanized region worldwide (United Nations, 2012), with rising prevalence of obesity and chronic diseases (Rivera et al., 2014). Latin America countries are characterized by high population density, pollution, and pronounced income inequality (United Nations, 2012). This makes Latin America a challenging but important region to gain knowledge about PA and SB to better inform intervention strategies.

Physical inactivity prevalence in Latin America is the highest reported worldwide (Guthold et al., 2018) and ranked fifth as a risk factor for mortality (GBD 2017 Risk Factors Collaborators, 2018) according to the current global recommendations (World Health Organization, 2010) and US guidelines on PA for health (Physical Activity Guidelines Advisory Committee, 2018). The majority of population-based Latin American studies, conducted mainly in Brazil and Colombia, have used self-report methods to assess PA and SB, which have

well-known limitations including problems of recall and reporting bias (Guthold et al., 2019; Silva et al., 2016).

Therefore, current population levels of PA and SB may be under- or over-estimated (Celis-Morales et al., 2012). Objective measures (e.g. accelerometry) can overcome some of these limitations and provide a more accurate estimate of the true levels of PA and SB (Hallal et al., 2012).

Use of accelerometers has increased in high-income countries (Kim et al., 2017; Compernolle et al., 2017). In contrast, relatively few studies have used accelerometers in LMICs, including Latin American countries, and few have implemented the same processing procedures to maximize comparability (Salvo et al., 2014). Only a few studies, the majority of which were completed in high-income countries, have used objectively measured PA data. Additionally, standard analysis protocols and cutoffs are uncommon for objective activity data (Guthold et al., 2019). Thus, the aim of this study was to use comparable accelerometer data to quantify and characterise socio-demographic patterns of PA and SB in Latin American countries.

## Methods

### *Study design*

The Latin American Study of Nutrition and Health (*Estudio Latinoamericano de Nutrición y Salud;* ELANS) is a cross-sectional, multi-national study conducted in eight countries (Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Peru and Venezuela) and aimed at investigating food and nutrient intake as well as nutritional and PA statuses of nationally representative samples from urban populations. The ELANS protocol was approved by the Institutional Review Board (#20140605) and registered at ClinicalTrials.gov (#NCT02226627). All participants provided informed consent/assent for participation in the ELANS study. Data were collected from September 2014 through February 2015. All the study sites followed the common protocol with all study personnel undergoing training and certification in the data collection. More information on the ELANS is available elsewhere (Fisberg et al., 2016).

### *Participants*

The recruitment of participants was conducted using a random complex, multistage sample design, stratified by conglomerates, with all regions of each country represented, and random selection of main cities within each region according to probability proportional to size method. The balanced sample was stratified by city, sex, age group and socioeconomic level for each country (Fisberg et al., 2016) (Supplementary Table A1). For the range of households within each secondary sampling unit, they were determined through systematic randomization. The selection of the participants belonging to the domicile was made using 50% of the sample next birthday, and 50% last birthday. Thus, a total sample of 9,218 (4809 [52.2%] women) participants (aged 15.0–65.0 years) was included in ELANS study. In total, 92 cities were selected that participated in the study and the sampling size required for sufficient precision was calculated with a 95% confidence level and a maximum error of 3.5% and a survey design effect of 1.75 based on guidance from the National Center for Health Statistics (1996), and calculations of the minimum sample sizes required per sex, age group and socioeconomic level were performed for each country.

The sample with accelerometer data included 2372 participants aged 15-65 years, which represented 29.6% of the total ELANS cohort (N=9218) (Supplemental Table 1). Exclusion criteria included pregnant and lactating women, individuals with major physical or mental impairments, adolescents without assent and consent of a parent or legal guardian, individuals living in residential settings other than a household, and individuals unable to read (Fisberg et al., 2016). Considering puberty as a period in which occurs many biological and physiological changes, the inclusion of participants below 15 years of age would have required the determination of pubertal stage, which is performed through the evaluation of the breasts, genitals and pubic hair (Keshteli et al., 2014). This was considered unfeasible in the current epidemiological study model. Thus, in order to ensure that puberty has been reached, only adolescents 15 years old and older were eligible to participate in the study.

*Accelerometry assessment*

The Actigraph GT3X accelerometer (Actigraph, Ft. Walton Beach, United States) was used to objectively monitor PA and SB. The accelerometer was

worn on an elasticized belt at hip level on the right mid-axillary line for 7 days. Participants were asked to wear the device while awake and to remove it when sleeping, showering or swimming. Participants were encouraged to wear the accelerometer at least 12 hours/day for at least 7 days. The minimal amount of accelerometer data we considered acceptable for analytical purposes was 5 days (including at least 1 weekend day) with at least 10 hours/day of wear time following the removal of sleep time (Colley et al., 2010; Trost et al., 2011). After exclusion of the nocturnal sleep period time, waking nonwear time was defined as any sequence of at least 60 consecutive minutes of zero activity counts.

Data were processed using ActiLife software (V6.0; ActiGraph, Pensacola, FL). Data were collected at a sampling rate of 30 Hz and downloaded in epochs of 60 seconds (Brønd and Arvidsson, 2016).

SB was defined as time accumulated at ≤100 activity counts/min (1.5 METs), ≥101–1951 activity counts/min for light PA (LPA; 1.6–2.9 METs), ≥1952–5724 activity counts/min for moderate PA (MPA; 3.0–6.0 METs), ≥5725 activity counts/min for vigorous PA (VPA; >6.0 METs), and ≥1952 activity counts/min for MVPA (≥3.0 METs) (Tremblay et al., 2017; Freedson et al., 1998; Dyrstad et al., 2014; Troiano et al., 2008). Reliability and validity of accelerometers have been documented extensively (Fisberg et al., 2016; Freedson et al., 2011). Participants were categorized as “meeting” or “not meeting” MVPA guidelines (World Health Organization, 2010).

*Socio-demographic variables*

Information about demographics including age, sex, years of education, race/ethnicity, and marital status was collected using standard questionnaires. Due to different classification systems across countries, we used three levels of classification based on the national statistics used in each country and included equivalent characteristics for all countries. Socioeconomic level data was divided into three strata (low, medium, high) based on the national indexes used in each country. Individuals self-reported their sex, age (15-29, 30-59, and ≥60 years), and education level (basic or lower [low], high school [middle], and university degree [high]). Detailed information can be found in a previous publication (Fisberg et al., 2016).

*Statistical analysis*

Descriptive statistics included mean and 95% confidence intervals (95% CI). Overall and country-specific levels of PA and SB are presented by sex, age group, socioeconomic level, and educational level. Similar analyses were conducted for the prevalence of physical inactivity. Data analyses were performed with IBM SPSS, V.22. Analyses were weighted, with the weights calculated according to the socio-demographic characteristics, sex, socioeconomic level and region of each country (Fisberg et al., 2016). All tests of statistical significance were based on two-sided probability ($p<0.05$).

## Results

There were no significant differences between the participants wearing accelerometers and those who did not by sex ($p$=0.937), socioeconomic level ($p$=0.501) or educational level ($p$=0.235). Participants wearing accelerometers were slightly older ($p$=0.018). Accelerometers were worn on average for 15.3 hours/day (Supplemental Table 2).

The proportion of women slightly exceeded that for men; 39.0% of participants were aged <30 years, 53.9% aged 30-59 years, and 7.1% aged ≥60 years. About half (51.2%) were classed as having a low socioeconomic level; 60.1% had a basic or lower educational level (Supplemental Table 3).

Overall, the mean SB and LPA were 571.6 min/day (95% CI: 567.1, 576.2) and 311.1 min/day (95% CI: 307.7, 314.5) respectively. Chile and Brazil had the lowest SB averages (Chile: 553.8 min/day; 95% CI: 540.1, 567.4; Brazil: 559.9 min/day; 95% CI: 550.0, 569.8) and the highest LPA (Chile: 324.4 min/day; 95% CI: 314.1, 334.7; Brazil: 321.2 min/day; 95% CI: 313.7, 328.7) (Supplemental Figure 1).

Overall, the mean MVPA was 34.9 min/day (95% CI: 34.0, 35.9); the average being highest in Chile (40.3 min/day; 95% CI: 37.4, 43.1) and lowest in Venezuela (31.2 min/day; 95% CI: 28.6, 33.7). In relation to total PA, the overall mean was 7531.2 MET-min/week (95% CI: 7450.4, 7611.9); the average being highest in Chile (7967.3 MET-min/week; 95% CI: 7723.8, 8210.8) and lowest in Costa Rica (7062.3 MET-min/week; 95% CI: 6808.3, 7316.2) (Supplemental Figure 1).

Overall, average levels of SB were higher in men than in women (582.7 min/day; 95% CI: 576.2, 589.2 versus 561.6 min/day; 95% CI: 555.3, 567.8). In relation to PA, women had higher values than men only in LPA (316.0 min/day; 95% CI: 311.3, 320.7 versus 305.7 min/day; 95% CI: 300.8, 310.7). MVPA was higher in men (42.1 min/day; 95% CI: 40.8, 43.4) than in women (28.3 min/day; 95% CI: 27.1, 29.6) overall and in each country. Average levels of total PA were slightly higher in men than in women (7631.9 MET-min/week; 95% CI: 7515.1, 7748.1 versus 7439.2 MET-min/week; 95% CI: 7327.6, 7550.7) (Figure 1).

Average levels of SB varied by age. SB in persons aged <30 years was higher than in those aged 30-59 and ≥60 years in the total sample (591.5 min/day; 95% CI: 584.2, 598.9; 558.2 min/day; 95% CI: 552.2, 564.2; and 574.0 min/day; 95% CI: 557.2, 590.9 respectively) and in five of the eight countries (Argentina, Chile, Colombia, Costa Rica and Venezuela) (Figure 2).

Average levels of LPA (min/day) showed a positive gradient with age in all countries, with the exception of Colombia. Average levels of MVPA (min/day), with the exception of Colombia, showed a negative gradient with age (Figure 2).

A positive gradient between SB (min/day) and socioeconomic level was found in the full sample (Figure 3). The average levels of SB were 590.3 min/day (95% CI: 574.2, 606.5); 574.8 min/day (95% CI: 567.0, 582.7); and 562.7 min/day (95% CI: 556.3, 569.2) in the low, medium and high groups respectively. Average levels of LPA, MVPA and total PA were lower in the higher socioeconomic groups.

In the full sample, individuals with a higher education level spent more time in SB (594.2 min/day; 95% CI: 580.1, 608.3) than those in the middle (582.7 min/day; 95% CI: 574.4, 590.9) and low (562.3 min/day; 95% CI: 556.5, 568.1) education groups. Regarding the intensity of PA (MPA, VPA, MVPA and total), clear trends were not observed in all countries (Figure 4).

Overall, the prevalence of physical inactivity (<150 min/week in MVPA) was 40.6% (95% CI: 38.8, 42.5); ranging from 26.9% (Chile) to 47% (Costa Rica and Venezuela). Physical inactivity (>40%) was prevalent in Argentina (43.7%; 95% CI: 38.1, 49.5), Brazil (43.5%; 95% CI: 39.4, 47.7), Costa Rica (48.0%; 95% CI: 42.1, 53.9) and Venezuela (47.1%; 95% CI: 42.1, 52.3). For all countries, women (47.7%; 95% CI: 45.1, 50.3) were more likely to be inactive than men (33.0%; 95% CI: 30.4, 35.6) (Supplemental Figure 2).

Overall, physical inactivity prevalence was lower among those aged 30-59 years (36.7%; 95% CI: 34.2, 38.1) compared to those aged <30 years (45.3%; 95% CI: 42.2; 48.4) and those aged ≥60 years (47.4%; 95% CI: 40.4; 54.5). Results show a slightly higher percentage of physically inactive people among the participants with low socioeconomic level and education level. However, these trends were not observed in all countries. Those with a university degree (35.8% [95% CI: 30.4; 41.6]) had a lower prevalence of physically inactivity overall compared with those having a primary degree (44.7% [95% CI: 42.3; 47.1]) (Supplemental Figure 2).

## Discussion

The aim of this study was to quantify and characterise socio-demographic patterns of PA and SB in eight Latin American countries. On average, participants spent 571.6 min/day in SB and 34.9 min/day in MVPA. MVPA was higher in men; and showed, with the exception of Colombia, a negative gradient with age. SB levels were highest among those with higher education. PA graded positively with socioeconomic level. Overall, just over four-in-ten participants were physically inactive.

This multicountry study quantified levels and characterised patterns of PA and SB in a diverse set of Latin American countries, using a comparable, reliable and validated instrument (Sasaki et al., 2011). Accelerometers were administered to 2,732 participants, using a standard protocol. As such, this is the first study to report average levels of PA and SB – and the prevalence of physical inactivity - using nationally-representative samples from urban populations from Latin American countries based on objective measures. The only possible comparison was against previous reports describing PA at regional level. Using accelerometers, some authors (Trost et al., 2011; Marsaux et al., 2016) have found different prevalence estimates of inactivity.

Guthold et al. (2018) compiled self-reported data from 358 surveys across 168 countries (1.9 million participants). Compared with the rest of the world, Latin American countries had high prevalence of insufficient PA (i.e. not achieving at least 150 min/week of MVPA). The highest levels were in Latin America and the Caribbean (39.1%), high-income Western countries (36.8%),

high-income Asia Pacific (35.7%), south Asia (33.0%), central and eastern Europe (23.4%), east and southeast Asia (17.3%) and Oceania (16.3%).

Our own analyses based on accelerometer data show that the prevalence of insufficient PA varies greatly across the eight Latin American countries (Supplemental Figure 2); inactivity was about twice as high in Venezuela and Costa Rica compared to Chile. In high-income countries such as the United States and England, the transition towards more sedentary occupations and personal motorised transportation would explain, at least partially, the higher levels of inactivity (Ng and Popkin, 2012). In Latin American countries, levels of PA have been decreasing in both absolute and relative terms - reflecting large declines in occupational and domestic activity and a small decline in active travel - while levels of SB have been increasing (Ng and Popkin, 2012). Therefore, it is necessary to implement municipal, regional and national policies to encourage active transportation, such as walking and cycling due to the rapid urban growth of some Latin American countries (United Nations, 2017), which has contributed to the high prevalence of physical inactivity in the region. Interventions should include better infrastructure for cycling and walking, improving safety and creating more opportunities for PA (World Health Organization, 2018). For example, México, Quito (Ecuador), Santiago (Chile), and Bogotá (Colombia) have Ciclovias, where roads are closed to motor vehicles on Sunday mornings and public holidays to permit people to contribute in PA (O´Donovan., 2019) and studies of such initiatives in Bogotá have shown that users of Ciclovia programmes are more likely to comply with PA guidelines and have a higher quality of life (Montes et al., 2012).

Our study confirms findings (Global Observatory for Physical Activity, 2018; Althoff et al., 2017) of lower PA in women. Comparing sex differences in PA across countries is challenging, because patterns are strongly influenced by participation in different domains (which cannot be captured by accelerometers) and at different intensities of activity, which reflect the cultural and developmental contexts of each country. Mielke et al. (2018) shows that women spend less time in leisure activity than men. Offering more opportunities for safe and accessible leisure-time activity to women in order to increase their overall

levels of activity would therefore help close the sex gap and achieve the 2025 global PA target of a 10% reduction in physical inactivity (Mielke et al., 2018).

Each country in our study had a mean level of SB higher than 9 hours/day. Also in Latin America, Dyck et al. (2015) used accelerometers to evaluate SB in the International Physical Activity and the Environment Network study, showing means of 7.9 and 7.8 SB hours/day in Brazil and Colombia respectively. Objectively assessed SB from populations in Europe and the United States (National Health and Nutrition Examination Survey: NHANES) reported 7-8 hours/day of SB (Kim et al., 2017; Compernolle et al., 2017). Most countries in the current study showed a socioeconomic and educational gradient in SB, with higher levels among the most educated. Further, SB was somewhat associated with socioeconomic level. The reasons for higher average levels of SB in some countries cannot be determined from these descriptive data. Speculative reasons seem to point to adults with higher education and from high income countries having more sedentary jobs, being more likely to use cars than active travel as a means of transport, and having more electronic entertainment and labor-saving devices at home (Bauman et al., 2009). Active transport is increasingly seen as an important opportunity to counteract the incidence of sedentary lifestyle diseases and is related to facilities and safety (Fishman et al., 2015).

Some limitations of the present study are acknowledged. ELANS employed a cross-sectional design, precluding inferences about causality. The validity of cross-country comparisons may have been reduced to some extent by country-level variation in the questionnaire items on socioeconomic level (due to the legislative requirements or established local standard layouts). The cut-off point of counts/min for classifying the intensity of physical activity was the same for adolescents and adults and the accelerometers do not capture common activities such as cycling, resistance and static exercise, and carrying loads. Additionally, non-waterproof accelerometers cannot be used to assess water activities. Validation studies have compared accelerometry with questionnaires and found correlations of 0.33-0.40 between self-report and accelerometer (Scholes et al., 2014; Drystad et al., 2014). Questionnaires remain the most feasible method to assess PA levels at the population level owing in part to the expensive costs and high respondent burden associated

with device-based methods in large-scale health examination surveys (Scholes et al., 2016). Several questionnaires have been developed and standardised internationally for cross-study comparisons. Unfortunately, such standardised and validated questionnaires are often modified or translated without providing data on measurement properties and comparability of the altered version. By comparison, given their invariance to language and cultural differences, if standardised procedures existed, accelerometers would have greater potential for valid international comparisons. In view of the poor availability and representativeness of objectively measured PA data at present, Guthold et al. (2019) believe that national and global estimates of physical inactivity must be based on self-report data.

On the other hand, the strengths of this study include the large sample size, comparable data collection protocols, and the use of objective methods to assess PA and SB – use of these are rare in Latin America countries where most previous research has relied on self-reported instruments (de Sá et al., 2017). These types of objective assessments for PA and SB are rare for population health surveys and the best available evidence must be used to support and guide action to increase PA levels (Guthold et al., 2019). Our study is the first to evaluate PA and SB patterns in Latin America using a standardized methodology across a consortium of several participating countries. This study thus provides a unique Latin American dataset that will enable wider cross-country comparisons and expand the existing literature.

## Conclusion

The results from our cross-national study that objectively assessed PA and SB showed high prevalence of physical inactivity and SB. Furthermore, we showed extensive variation of PA and SB levels across sociodemographic characteristics (sex, age, socioeconomic level and educational level). Our findings should help to inform the planning of health policies and programmes that are designed to reduce levels of physical inactivity, as well as the local and cultural adaptation of these policies and programmes for implementation in Latin America.

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**Conflict of interest**

None declared.

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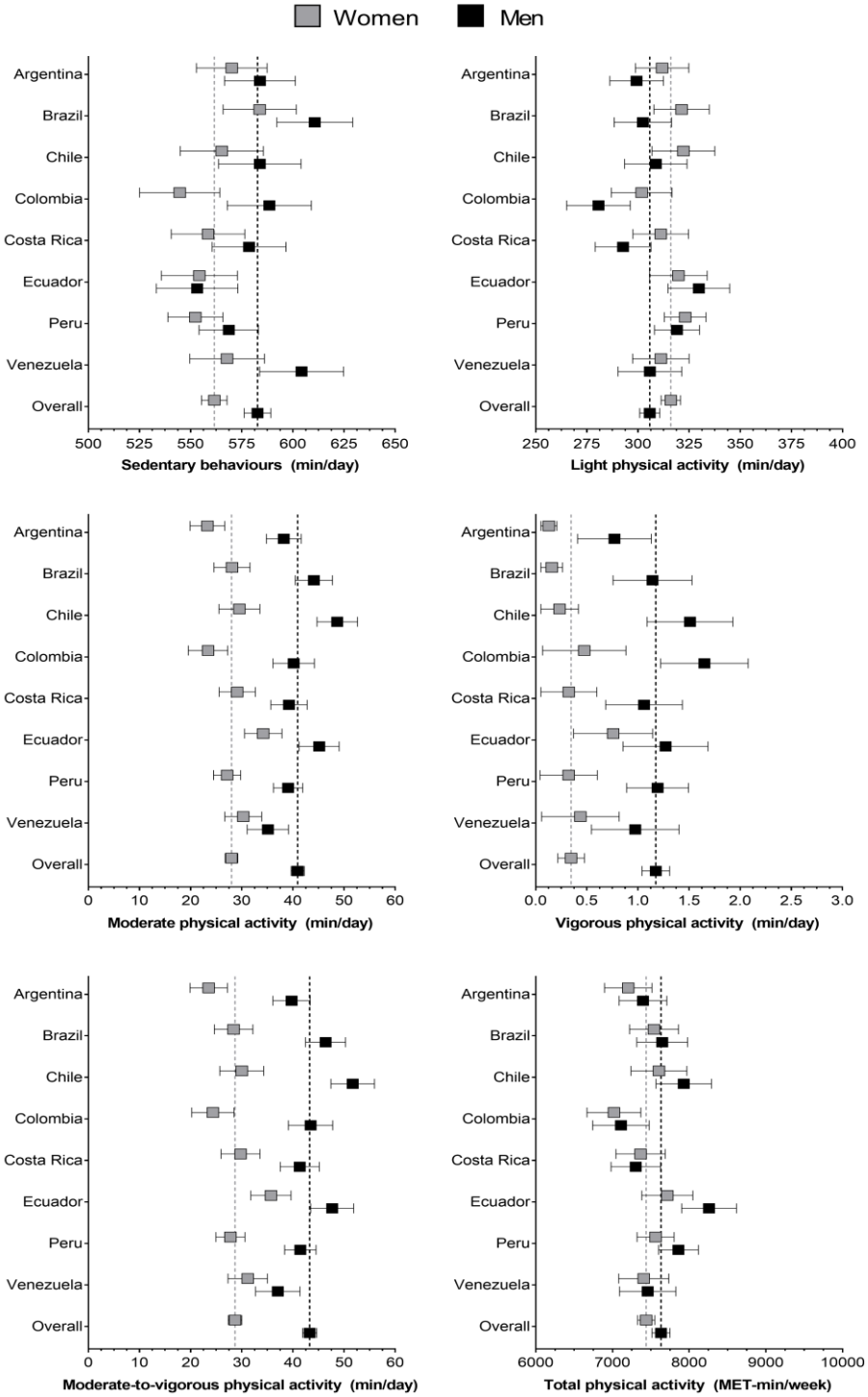


Figure 1. Descriptive analysis (mean and 95% confidence interval) of sedentary behaviours, light, moderate, vigorous, moderate-to-vigorous physical activity (min/day) and total physical activity (MET-min/sem) of participants by sex from eight Latin America countries.

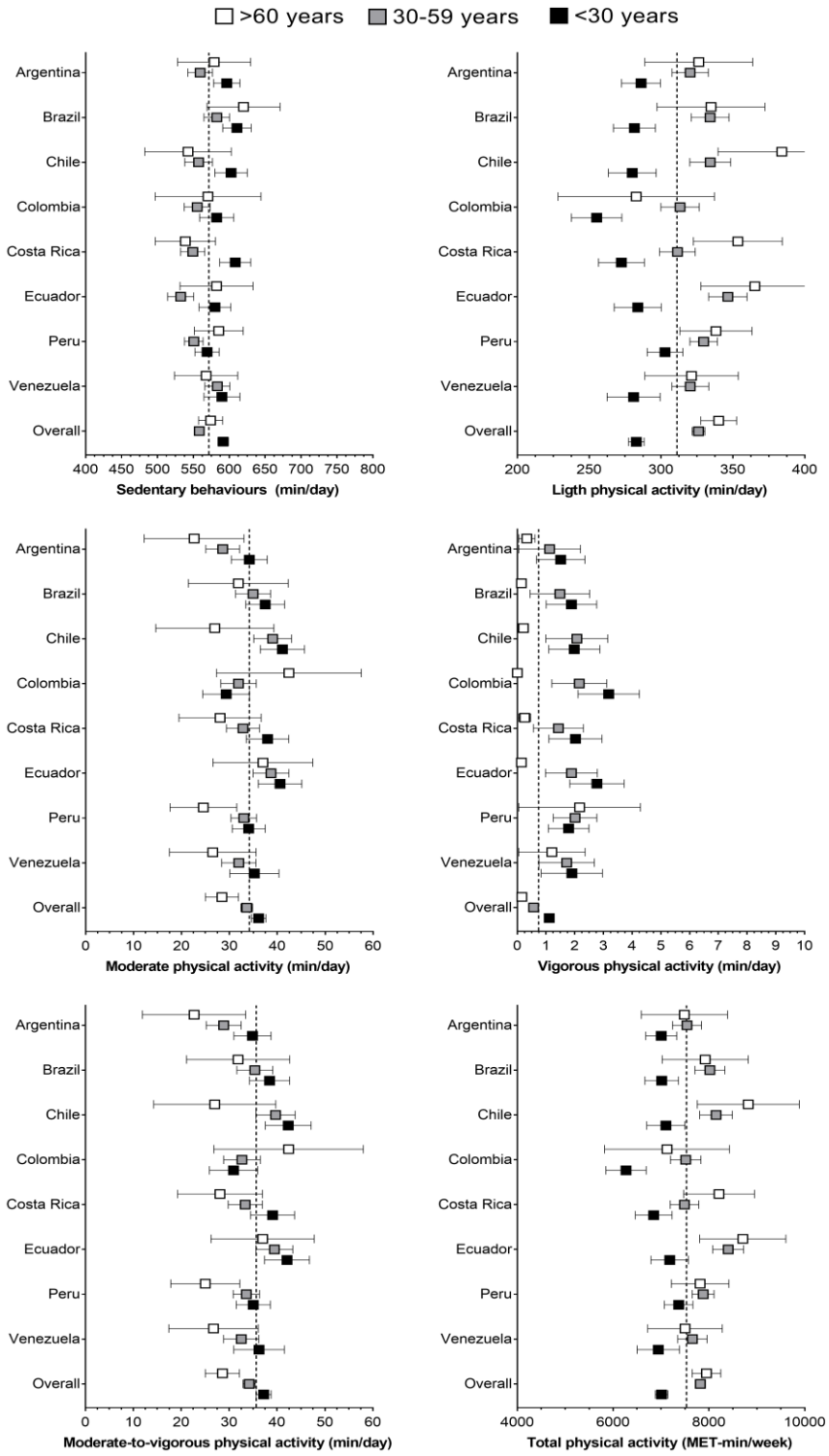



Figure 2. Descriptive analysis (mean and 95% confidence interval) of sedentary behaviours, light, moderate, vigorous, moderate-to-vigorous physical activity (min/day) and total physical activity (MET-min/sem) of participants by age group from eight Latin America countries.

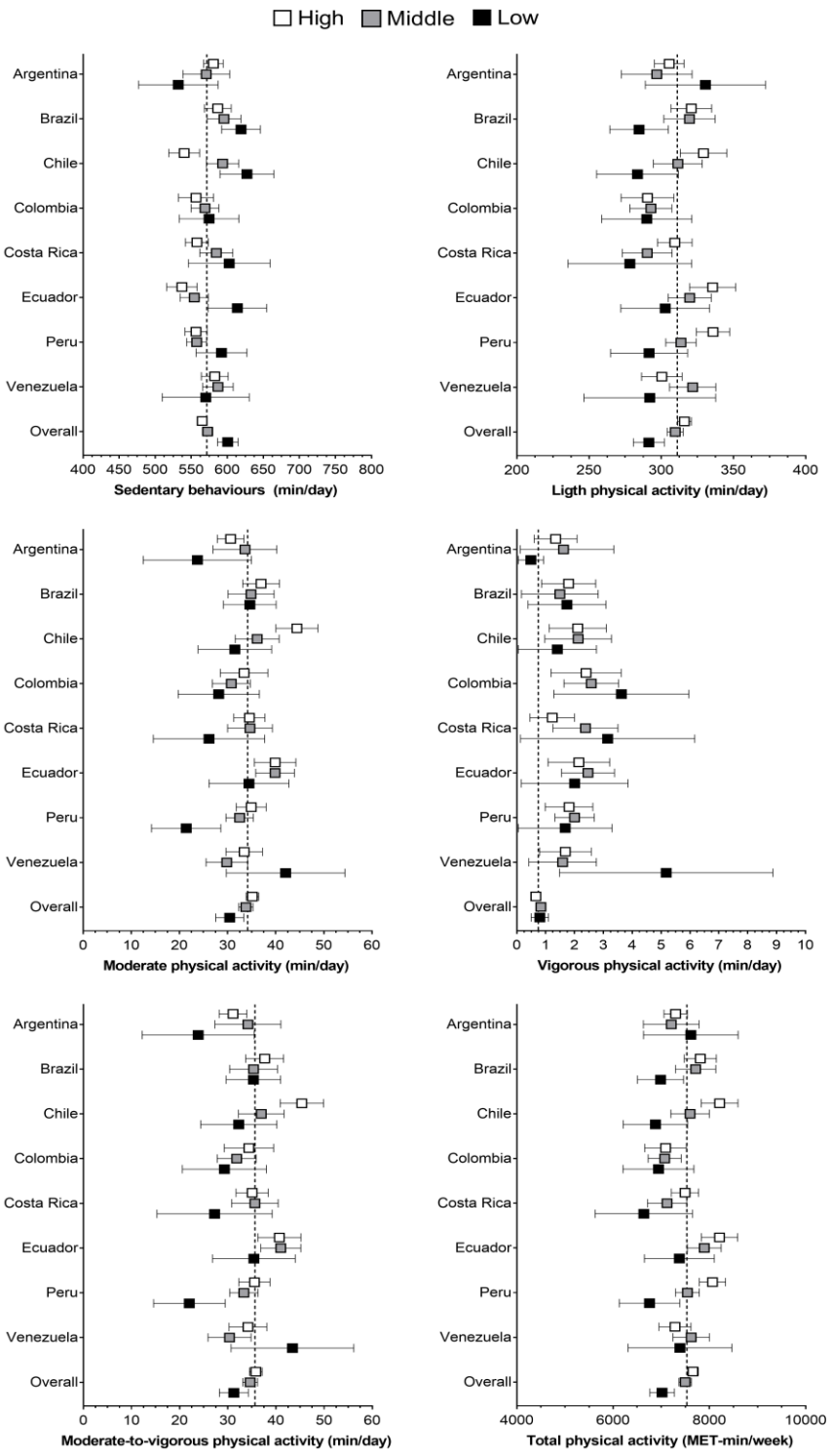



Figure 3. Descriptive analysis (mean and 95% confidence interval) of sedentary behaviours, light, moderate, vigorous, moderate-to-vigorous physical activity (min/day) and total physical activity (MET-min/sem) of participants by socioeconomic level from eight Latin America countries.

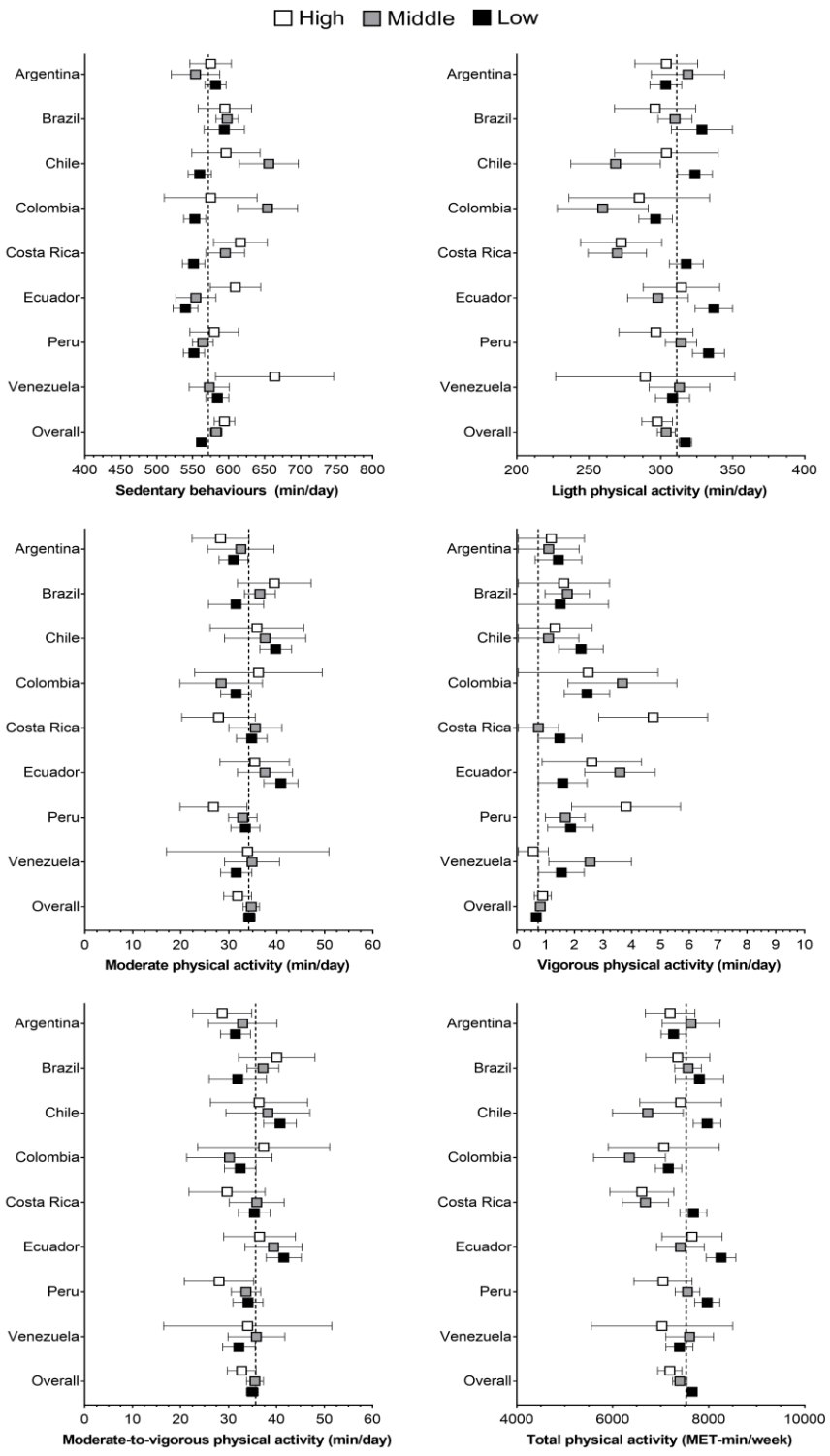
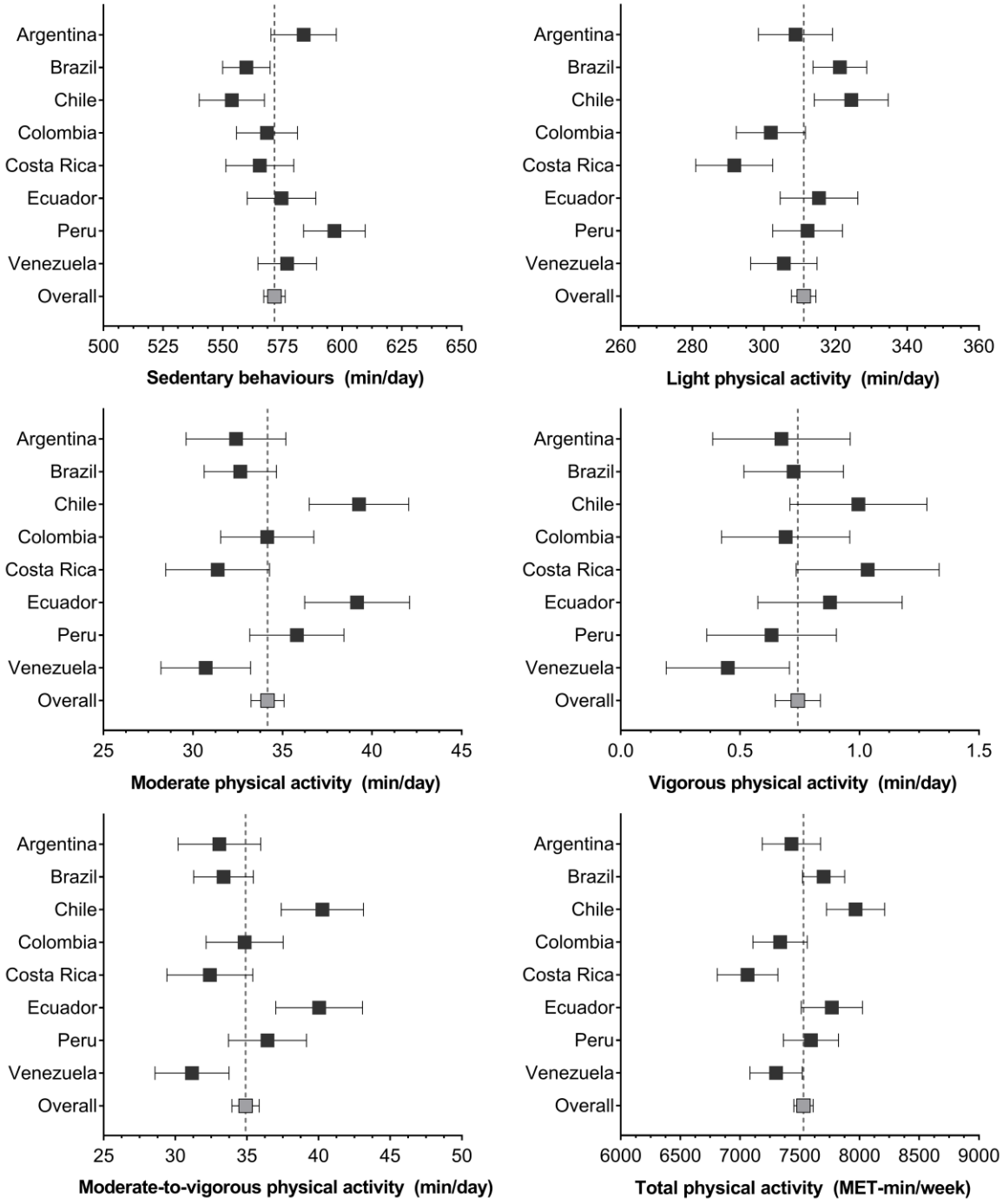
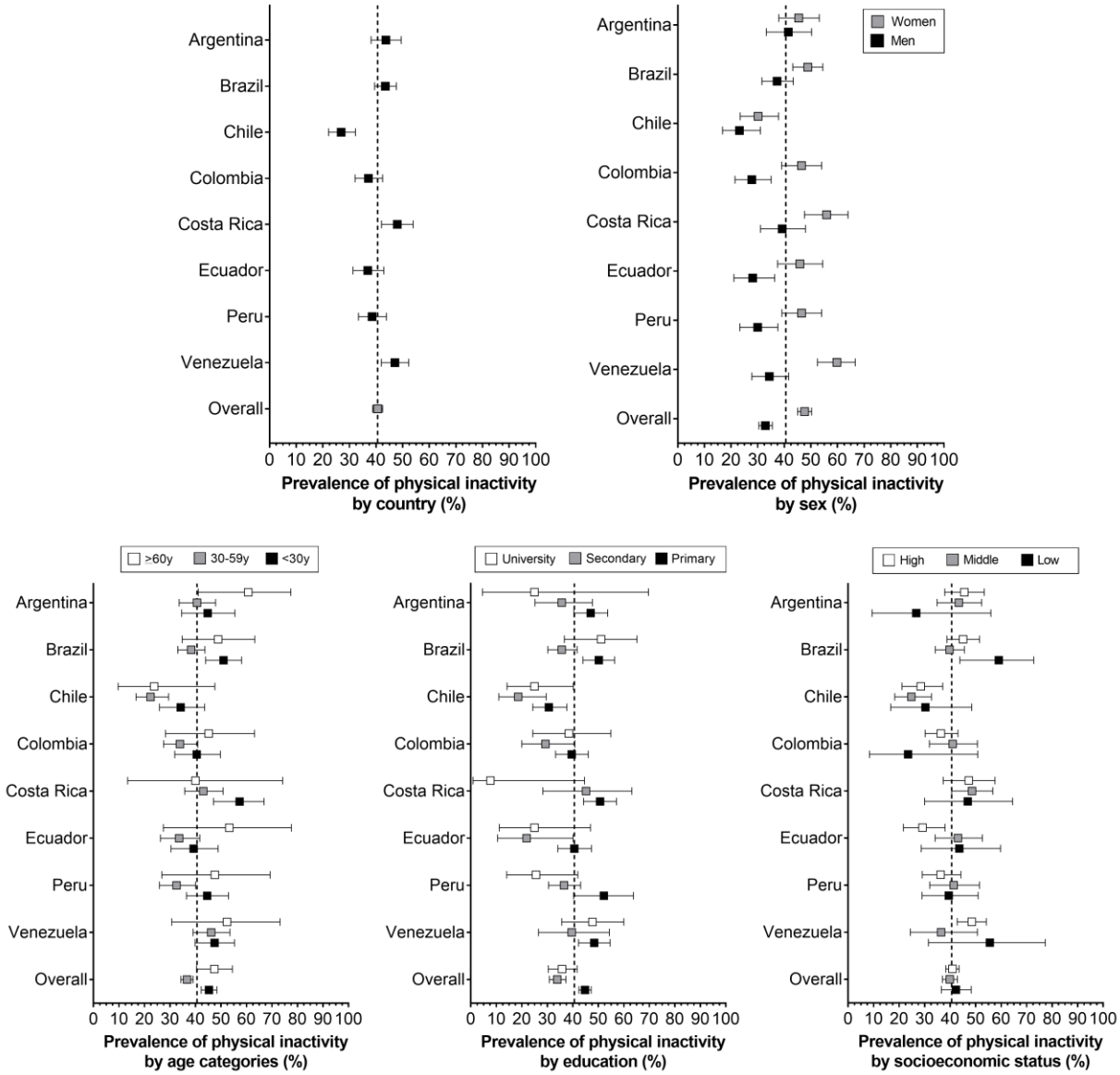



Figure 4. Descriptive analysis (mean and 95% confidence interval) of sedentary behaviours, light, moderate, vigorous, moderate-to-vigorous physical activity (min/day) and total physical activity (MET-min/sem) of participants by education level from eight Latin America countries.




Supplemental Figure 1. Descriptive analysis (mean and 95% confidence interval) of sedentary behaviours, light, moderate, vigorous, moderate-to-vigorous physical activity (min/day) and total physical activity (MET-min/sem) of participants from eight Latin America countries.




Supplemental Figure 2. Prevalence (%) of physical inactivity by sex, age group, socioeconomic level and education level from eight Latin America countries.

**Supplemental Table 1.** Descriptive analysis (%) of the total sample and the sample with accelerometer of participants from eight Latin America countries.

| | Accelerometer sample | | Total sample | | % accelerometer |
|---|---|---|---|---|---|
| **Country** | **n** | **%** | **n** | **%** | **/total** |
| Argentina | 293 | 10.7 | 1266 | 13.7 | 23.1 |
| Brazil | 563 | 20.6 | 2000 | 21.7 | 28.2 |
| Chile | 297 | 10.9 | 879 | 9.5 | 33.8 |
| Colombia | 339 | 12.4 | 1230 | 13.3 | 27.6 |
| Costa Rica | 273 | 10.0 | 798 | 8.7 | 34.2 |
| Ecuador | 268 | 9.8 | 800 | 8.7 | 33.5 |
| Peru | 332 | 12.2 | 1113 | 12.1 | 29.8 |
| Venezuela | 367 | 13.4 | 1132 | 12.3 | 32.4 |
| **Overall** | **2732** | **100.0%** | **9218** | **100.0%** | **29.6%** |

**Supplemental Table 2.** Descriptive analysis (Mean and SD) of time (minutes) of accelerometer-derived data of participants from eight Latin America countries (n = 2732).
M: mean; SD: standard deviation.

**Supplemental Table 3.** Sample profile concerning sex, age group, socioeconomic level, and educational level from eight Latin America countries (n = 2732).

| | **Sex** (%) | | **Age group** (%) | | | **Socioeconomic level** (%) | | | **Educational level** (%) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Country** | **N** | **Men** | **Women** | **<30** | **30-59** | **≥60** | **Low** | **Medium** | **High** | **Low** | **Medium** | **High** |
| Argentina | 293 | 44.4 | 55.6 | 31.8 | 58.7 | 9.5 | 53.9 | 41.3 | 4.8 | 73.7 | 23.9 | 2.4 |
| Brazil | 563 | 46.2 | 53.8 | 36.0 | 55.7 | 8.3 | 41.7 | 50.5 | 7.8 | 44.9 | 46.7 | 8.4 |
| Chile | 297 | 46.5 | 53.5 | 39.1 | 53.8 | 7.1 | 41.4 | 47.5 | 11.1 | 61.6 | 23.6 | 14.8 |
| Colombia | 339 | 49.9 | 50.1 | 36.3 | 54.6 | 9.1 | 64.0 | 31.0 | 5.0 | 66.4 | 22.1 | 11.5 |
| Costa Rica | 273 | 47.6 | 52.4 | 37.4 | 59.0 | 3.6 | 34.1 | 54.2 | 11.7 | 83.9 | 11.4 | 4.7 |
| Ecuador | 268 | 50.4 | 49.6 | 42.2 | 52.2 | 5.6 | 44.8 | 40.6 | 14.6 | 79.1 | 11.9 | 9.0 |
| Peru | 332 | 48.2 | 51.8 | 44.4 | 49.2 | 6.4 | 47.3 | 29.8 | 22.9 | 20.8 | 67.5 | 11.7 |
| Venezuela | 367 | 49.9 | 50.1 | 46.0 | 48.3 | 5.7 | 80.9 | 14.2 | 4.9 | 69.2 | 13.1 | 17.7 |
| **Overall** | **2732** | **47.8** | **52.2** | **39.0** | **53.9** | **7.1** | **51.2** | **38.8** | **10.0** | **60.1** | **29.7** | **10.2** |

| **Country** | **Days/week** M (SD) | **Total time (hours)** M (SD) | **Average time/day (hours)** M (SD) |
|---|---|---|---|
| Argentina | 6.6 (0.6) | 102.2 (18.5) | 15.4 (2.1) |
| Brazil | 6.4 (0.7) | 97.7 (17.5) | 15.2 (2.0) |
| Chile | 6.7 (0.6) | 102.2 (16.4) | 15.3 (1.8) |
| Colombia | 6.6 (0.5) | 100.3 (15.1) | 15.1 (1.7) |
| Costa Rica | 6.7 (0.6) | 99.4 (17.0) | 14.8 (1.9) |
| Ecuador | 6.8 (0.5) | 104.9 (14.1) | 15.5 (1.7) |
| Peru | 6.5 (0.6) | 103.0 (15.9) | 15.8 (1.8) |
| Venezuela | 6.5 (0.6) | 98.8 (16.3) | 15.2 (1.8) |
| **Overall** | **6.6 (0.6)** | **100.7 (16.6)** | **15.3 (1.9)** |