The Impact of Removing the 10-Minute Bout Requirement and of Different Survey Administration Methods on National Physical Activity Estimates in Austria

Sylvia Titze, Tessa Strain, Philipp Wagner, Anna Schuster, Jasmin Karner, and Thomas E. Dorner

Background: Monitoring survey methods, as well as movement recommendations, evolves over time. These changes can make trend observations over time difficult. The aim of this study was to examine the differences between 2 computer-assisted survey administration methods and the effect of the omission of the 10-minute minimum bout requirement in physical activity (PA) questions on PA outcomes. Methods: We used data from the second Austrian PA Surveillance System for 2998 adults (18–64 y), applying computer-assisted personal interviewing and computer-assisted web interviewing. Within the computer-assisted web interviewing sample only, we added PA questions without the 10-minute requirement. Quantile and logistic regressions were applied. Results: Between computer-assisted web interviewing and computer-assisted personal interviewing, within the computer-assisted personal interviewing sample, we found lower PA estimates in the leisure domain and work and household domain, but not in the travel domain, and no significant difference in the proportion of people meeting the PA recommendations. In all 3 PA domains, the median minutes did not differ when assessed with or without the 10-minute requirement. However, the percentage participation in the travel domain and work and household domain performing >0 minutes per week PA was higher when there was no 10-minute requirement. The proportion of people meeting the Austrian aerobic recommendation for adults when computed with or without the 10-minute requirement did not differ. Conclusion: Our findings suggest that the omission of the 10-minute requirement does not seem to result in marked differences in PA estimates or the proportion of adults meeting the recommendations.

Keywords: monitoring, adults, Global Physical Activity Questionnaire (GPAQ), physical activity guidelines, computer-assisted interviewing

Regular physical activity (PA) provides major risk reduction in noncommunicable diseases and has many physiological, psychological, social, and cognitive benefits. One of the 4 key areas or “cornerstones” of a successful national policy framework for PA promotion is surveillance or health monitoring systems. It is therefore strongly recommended to monitor levels of PA on a regular basis, so as to identify at-risk subgroups and track trends over time. Depending on the available resources, political decision-makers have to decide on the surveillance instruments, that is, self-reporting and/or device-based methods. Within self-reporting, computer-assisted techniques have evolved, including computer-assisted telephone interviewing (CATI), computer-assisted personal interviewing (CAPI), and computer-assisted web interviewing (CAWI). For CATI and CAPI, an interviewer is needed. Using CAWI, the interviewee receives a link and completes a questionnaire provided on a website. To the best of our knowledge, little is known about the comparability of the volume of PA reported using the different computer-assisted interviewing techniques.

National recommendations on PA are another of the above-mentioned key areas. National PA recommendations provide consensus on the amount, intensity, frequency, and type of PA needed to improve health and reduce the risk of noncommunicable diseases. Since 1995, when the first US health-related recommendations were issued, the content of the PA recommendations for adults has changed slightly over the years. The national guidelines on Physical Activity and Public Health published in 1995 by the American College of Sports Medicine and the Centers for Disease Control and Prevention emphasized daily or almost daily moderate-intensity PA. More recent recommendations for adults have emphasized the total weekly PA. The 2008 US recommendations, as well as the 2010 World Health Organization recommendations for adults, stated that the volume of PA should be performed in episodes of at least 10 minutes. In the latest guidelines, Austria included, the 10-minute bout requirement has been removed. This was based on the 2018 Physical Activity Guidelines Advisory Committee Scientific Report, where it was stated that: “Moderate evidence indicates that bouts of any length of moderate-to-vigorous physical activity contribute to the health benefits associated with accumulated volume of physical activity.”

Stable surveillance questions are important for trend analyses, and even small changes to survey questions or methods can result in substantial changes to PA estimates. For example, Stamatakis et al showed with the Health Survey for England data that estimates for walking and heavy domestic activity changed abruptly in those years when the relevant questions were modified. Because of the recent change in the PA recommendations, many countries (including Austria) have had to decide whether to change existing surveillance instruments to deal with the removal of the 10-minute bout requirement. The removal risks disrupting the data trends that are so vital for informing policy. To date, there is little evidence to indicate the impact of the removal of this requirement on self-reported PA levels.

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The aim of the study was, therefore, to examine the differences in computer-assisted survey administration methods and the effect of the omission of the 10-minute bout requirement in PA questions on PA outcomes, overall, and stratified by sex and age groups.

The specific research questions were:

Comparing the CAPI and CAWI outcomes: (1) What is the difference in the median minutes of moderate-equivalent minutes of domain-specific PA? (2) What is the difference in percentage participation in domain-specific activities? (3) What is the difference in the proportion of adults meeting the current Austrian PA recommendations?

Comparing the outcomes with and without the 10-minute bout requirement: (1) What is the difference in the median minutes of moderate-equivalent minutes of domain-specific PA? (2) What is the difference in percentage participation in domain-specific activities? (3) What is the difference in the proportion of adults meeting the current aerobic Austrian PA recommendation?

Methods

Sample

The second Austrian PA Surveillance System data collection (Bewegungsmonitoring Österreich 2022) took place between July and October 2022. This was a cross-sectional study, funded by the Federal Ministry for Arts, Culture, Civil Service and Sports of Austria, conducted by Ipsos. The sample consisted of adults of 15 years and older. Based on age, sex, place of residence, and education, an automatic invitation mechanism drew a random sample from the Austrian population. Four thousand participants were the targeted and achieved sample size. For the present analyses, we included all adults from 18 to 64 years of age ($N_{\text{weighted}} = 2998$), to match the adult Austrian and World Health Organization PA recommendations’ age range.

Sample Selection

The CAPI and CAWI samples were selected using different methods. For CAPI, sample points (postal codes) were randomly drawn at the district level, whereby the size of the district was taken into account when determining the number of sample points. There was at least one sample point per district, and depending on the size of the district, up to 6 additional random sample points were drawn. This resulted in a total of 280 sample points. At these sample points, all private addresses were identified from an address database and were randomly selected for the survey. A maximum of 1 person per household was interviewed. The target person in multiperson households was then selected using the “last-birthday method.” The CAWI sample consisted of participants who had agreed to be repeatedly available for online surveys concerning very different topics. Persons in this database were recruited via advertisements placed on social media or websites, and difficult target groups were additionally sought via telephone recruitment. To reach representativeness in both CAPI and CAWI, participants were selected according to quota specifications, that is, a representative distribution according to age, sex, federal state, and education, based on the Austrian microcensus for 2021.\(^{20}\) In addition, the data set was weighted based on age, sex, federal state, and education, matching the distribution of the Austrian population aged 15 years and over. All participants consented to participate voluntarily in the study.

Statistical Analysis

As PA duration variables are typically highly skewed (a high number of 0 with a long right tail), we present the median minutes and percentage reporting any activity. The research questions were assessed using quantile and logistic regressions to investigate the differences if you were allowed to also count activity bouts of less than 10 minutes duration at a time? If the participant answered “Yes,” we then asked, “How many minutes would then be added in a typical week?”

If a participant did not report bouted activity for a subdomain, we added the question, “Would your answer be different if you were allowed to also count activity bouts of less than 10 minutes duration at a time?” If the answer was “Yes,” we asked, “How many minutes would be added in a typical week?”

The CAPI subsample completed the original GPAQ with no additional questions on the 10-minute minimum bout duration. Furthermore, in both the CAWI and CAPI samples, the GPAQ was complemented with the question, “Do you engage in strength training at least once a week to build or maintain your muscles? For example, exercises with weights or with a Thera-Band, squats or push-ups in a gym, at home or in nature.” If “Yes,” the answering scheme was then the same as for the other GPAQ questions (number of days and duration). However, there was no reference to a 10-minute minimum bout length as this has never been featured in the muscle strengthening recommendation. In summary, for the CAPI participants, the aerobic PA questions always included the 10-minute bout requirement. CAWI participants first answered the PA questions with the 10-minute bout requirement and afterward had the opportunity to “add” minutes if the bouts were <10 minutes.

We implemented the Austrian PA guidelines as at least 150 moderate-equivalent minutes of leisure-time PA (ie, the minutes of vigorous intensity have been doubled and added to the minutes of moderate-intensity leisure-time PA) and at least 2 times strength training per week. This matches previously published monitoring statistics, although the official Austrian recommendations do include travel and work and household activity. The rationale for not taking travel into account was because walking and cycling are combined in this domain, and the walking pace does not always reach the moderate-intensity level. The minutes for the work and household domain were also not included in this calculation because there is a growing body of literature that has failed to demonstrate the health effects of PA at work and at home.\(^{23-26}\)

Data Collection Instrument

The survey included the Global Physical Activity Questionnaire (GPAQ),\(^{21,22}\) questions about demographic and socioeconomic characteristics, and variables taking the ecological perspective into account, which are not part of this paper.

The GPAQ consists of 5 subdomains (work and household vigorous-intensity activity, work and household moderate-intensity activity, travel to and from places, leisure-time vigorous-intensity activity, and leisure-time moderate-intensity activity). Within each subdomain, participants were asked whether they participated in a typical week. If yes, they then reported the number of days and duration per day of relevant activity that was undertaken in bouts of at least 10 minutes (bouted activity).

Within the CAWI subsample only, we added further questions about the 10-minute bout requirement after each subdomain. The additional questions were as follows: If a person reported bouted activity in the subdomain, they were asked, “Would your answer be different if you were allowed to also count activity bouts of less than 10 minutes duration at a time?” If the participant answered “Yes,” we then asked, “How many minutes would then be added in a typical week?”

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The CAPI subsample completed the original GPAQ with no additional questions on the 10-minute minimum bout duration. Furthermore, in both the CAWI and CAPI samples, the GPAQ was complemented with the question, “Do you engage in strength training at least once a week to build or maintain your muscles? For example, exercises with weights or with a Thera-Band, squats or push-ups in a gym, at home or in nature.” If “Yes,” the answering scheme was then the same as for the other GPAQ questions (number of days and duration). However, there was no reference to a 10-minute minimum bout length as this has never been featured in the muscle strengthening recommendation. In summary, for the CAPI participants, the aerobic PA questions always included the 10-minute bout requirement. CAWI participants first answered the PA questions with the 10-minute bout requirement and afterward had the opportunity to “add” minutes if the bouts were <10 minutes.

We implemented the Austrian PA guidelines as at least 150 moderate-equivalent minutes of leisure-time PA (ie, the minutes of vigorous intensity have been doubled and added to the minutes of moderate-intensity leisure-time PA) and at least 2 times strength training per week. This matches previously published monitoring statistics, although the official Austrian recommendations do include travel and work and household activity. The rationale for not taking travel into account was because walking and cycling are combined in this domain, and the walking pace does not always reach the moderate-intensity level. The minutes for the work and household domain were also not included in this calculation because there is a growing body of literature that has failed to demonstrate the health effects of PA at work and at home.\(^{23-26}\)
differences between the survey administration methods and the inclusion or removal of the 10-minute bout requirement. Quantile regression was not performed when the median values were both 0. No adjustments for multiple comparisons were made, but assessments of significant and meaningful differences were made based on the combination of the magnitude of difference, the width of the confidence interval, and the P value. All analyses were undertaken in Stata (version 16.0) and used the survey weights.

Results

Response Rate and Demographic Characteristics

Taking all survey participants into account (15 y of age and older), for CAPI, 3834 occupied private addresses were identified. Of these, 1220 (32%) completed the interview. Most rejections happened at the house door when the person was asked to participate. Only 35 participants quit after the survey had started. For CAWI, 36,000 participants were invited to participate in the survey. Of those, 3107 opened the invitation link and 10% of those did not complete the survey.

In Table 1, the demographic characteristics of the 2998 respondents aged 18–64 years of age are shown in total and by survey administration method.

Comparison Between CAWI and CAPI

In this comparison, only the answers with the 10-minute bout requirement were taken into account. Within the leisure, and work, and household domains, there was a statistically significant difference in the median moderate-equivalent minutes between CAWI and CAPI in the whole sample, with CAPI participants reporting lower estimates of PA. In the work and household domain, the difference was evident in most subgroups (women and 2 age groups; upper part of Table 2). The percentage participation in the work and household domain was also lower in the CAPI participants, in the whole sample, and in the subgroups of women and 2 age groups, compared with the CAWI participants. In contrast, the percentage of people performing strength training at least once a week was higher in the CAPI subgroup of 50 to 64 years of age, compared with the same CAWI subgroup (lower part of Table 2). All the other PA estimates and percentage participation in the leisure and travel domains and for the strength training did not differ between CAWI and CAPI participants.

Comparison of the Proportions Meeting the PA Recommendations Between CAWI and CAPI (With the 10-min Requirement)

The CAWI and CAPI samples did not differ regarding the proportion meeting the Austrian PA recommendations (aerobic, strength, and combined aerobic and strength; Table 3). Because of the low proportion of people meeting the strength recommendation, the proportion meeting the Austrian PA recommendations is also low.

Comparison of the Activity Estimates and Percentage Participation With and Without the 10-Minute Bout Requirement

Within the 3 PA domains, the median moderate-equivalent minutes did not differ when comparing the answers with and without the 10-minute bout requirement. Not surprisingly, the proportion of people participating in travel PA and work and household PA was higher when the 10-minute bout requirement was not part of the question, compared to when it was part of the question (Table 4).

Taking CAWI participants only, Figure 1 shows the percentage participation in domain-specific PA by intensity. The proportion of people performing both vigorous- and moderate-intensity domain-specific PA is always higher, compared to the proportion of people performing only one intensity level.

Comparison of the Proportions Meeting the PA Recommendations With and Without the 10-Minute Bout Requirement

When the minutes from the leisure domain with a duration <10 minutes were also taken into account, the proportion meeting the Austrian aerobic recommendation did not differ significantly (Table 5).

Discussion

Between the 2 survey administration methods (CAWI and CAPI), we found statistically significant differences for PA estimates in the leisure domain and work and household domain, but not in the travel domain. In the work and household domain, the differences are pronounced in women, as well as in the younger and older age groups, always with lower PA estimates and percentage participation among the CAPI sample. There are no significant differences in the proportion of people meeting the aerobic PA recommendation, recommendation for strength training, and both recommendations combined, between the CAWI and the CAPI samples. Furthermore, in all 3 PA domains, the median minutes do not differ when assessed with or without the 10-minute bout requirement. However, the percentage participating in transport- and work- and household-related PA of >0 minute per week is between 5.6 and 8.5 percentage points higher when there is no 10-minute bout requirement. Finally, there is no significant difference in the proportion of people meeting the Austrian aerobic recommendation for adults when computed with or without the 10-minute requirement.

There are numerous administration methods for questionnaire-based surveys for PA and other lifestyle behaviors, the most common being computer-assisted personal, telephone, or web interviewing (CAWI, CATI, and CAPI), and there have been long debates about the advantages and disadvantages of these
## Table 2  Median Moderate-Equivalent Minutes of, and Participation in, Domain-Specific Activity by Survey Administration Method, Age, and Sex

<table>
<thead>
<tr>
<th></th>
<th>Leisure domain</th>
<th>Travel domain</th>
<th>Work and household domain</th>
<th>Strength training</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>CAWI</td>
<td>CAPI</td>
<td>P</td>
</tr>
<tr>
<td><strong>n</strong></td>
<td>2998</td>
<td>2115</td>
<td>883</td>
<td></td>
</tr>
<tr>
<td><strong>Median (interquartile range)/wk</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>210 (0–600)</td>
<td>240 (0–620)</td>
<td>180 (0–500)</td>
<td>.008</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>240 (0–660)</td>
<td>240 (0–660)</td>
<td>240 (0–600)</td>
<td>1.00</td>
</tr>
<tr>
<td>Women</td>
<td>180 (0–540)</td>
<td>210 (0–600)</td>
<td>180 (0–420)</td>
<td>.203</td>
</tr>
<tr>
<td>Age group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18–34</td>
<td>240 (0–640)</td>
<td>240 (0–720)</td>
<td>220 (0–540)</td>
<td>.565</td>
</tr>
<tr>
<td>35–49</td>
<td>210 (0–540)</td>
<td>240 (0–540)</td>
<td>0.50 (0–450)</td>
<td>.05</td>
</tr>
<tr>
<td>50–64</td>
<td>180 (0–594)</td>
<td>180 (0–600)</td>
<td>180 (0–540)</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Percentage participation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>70.4%</td>
<td>70.1%</td>
<td>71.2%</td>
<td>.548</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>69.2%</td>
<td>68.6%</td>
<td>70.7%</td>
<td>.455</td>
</tr>
<tr>
<td>Women</td>
<td>71.5%</td>
<td>71.5%</td>
<td>71.7%</td>
<td>.940</td>
</tr>
<tr>
<td>Age group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18–34</td>
<td>73.6%</td>
<td>74.5%</td>
<td>71.3%</td>
<td>.332</td>
</tr>
<tr>
<td>35–49</td>
<td>69.8%</td>
<td>69.4%</td>
<td>70.7%</td>
<td>.702</td>
</tr>
<tr>
<td>50–64</td>
<td>67.9%</td>
<td>66.3%</td>
<td>71.7%</td>
<td>.102</td>
</tr>
</tbody>
</table>

Abbreviations: CAPI, computer-assisted personal interviewing; CAWI, computer-assisted web interviewing; N/A, not applicable; PA, physical activity. Note: *P* value: numbers in bold indicate a statistically significant difference in PA estimates between the CAWI and CAPI assessment methods at a significance level of <.05 or lower.
whereas web-based surveys are the least examined method. There have only been a few studies where the findings regarding these different methods are directly comparable. For example, Creamer et al compared the self-reported data from CAWI and CATI survey administration methods against accelerometer results, but not between the self-reported data collected from the 2 methods. In a study conducted in Bavaria by Meyer et al, which is the German federal state next to Austria, the validity of a population-based CATI survey was compared with the German National Health Examination Survey, which is a face-to-face survey. In this study, there were only small differences in health behaviors such as smoking or reported doctor visits between

Table 3 Percentage Meeting the Guidelines With the 10-Minute Minimum Requirement in the CAWI and CAPI Samples by Age and Sex

<table>
<thead>
<tr>
<th>Age group</th>
<th>CAWI sample</th>
<th>CAPI sample</th>
<th>P</th>
<th>CAWI sample</th>
<th>CAPI sample</th>
<th>P</th>
<th>CAWI sample</th>
<th>CAPI sample</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>56.6%</td>
<td>57.1%</td>
<td>.361</td>
<td>29.6%</td>
<td>29.9%</td>
<td>.575</td>
<td>23.5%</td>
<td>23.7%</td>
<td>.765</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>57.8%</td>
<td>57.3%</td>
<td>.496</td>
<td>30.4%</td>
<td>30.8%</td>
<td>.599</td>
<td>24.0%</td>
<td>23.9%</td>
<td>.885</td>
</tr>
<tr>
<td>Women</td>
<td>55.4%</td>
<td>57.0%</td>
<td>.060</td>
<td>29.0%</td>
<td>29.1%</td>
<td>.860</td>
<td>23.2%</td>
<td>23.5%</td>
<td>.631</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Abbreviations: CAPI, computer-assisted personal interviewing; CAWI, computer-assisted web interviewing; PA, physical activity. *Only the minutes of leisure-time PA were taken into account. **Strength guidelines are defined as strength training at least twice a week.

Table 4 Median Moderate-Equivalent Minutes of, and Participation in, Domain-Specific Activity, With and Without the 10-Minute Bout Requirement by Age and Sex (CAWI Sample Only)

<table>
<thead>
<tr>
<th>Domain</th>
<th>Leisure domain</th>
<th>Travel domain</th>
<th>Work and household domain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>With bout requirement</td>
<td>No bout requirement</td>
<td>P</td>
</tr>
<tr>
<td>Total</td>
<td>240 (0–620)</td>
<td>240 (0–660)</td>
<td>1.00</td>
</tr>
<tr>
<td>Sex</td>
<td>240 (0–660)</td>
<td>240 (0–670)</td>
<td>1.00</td>
</tr>
<tr>
<td>Men</td>
<td>210 (0–600)</td>
<td>240 (0–630)</td>
<td>.195</td>
</tr>
<tr>
<td>Women</td>
<td>180 (0–600)</td>
<td>190 (0–600)</td>
<td>.722</td>
</tr>
<tr>
<td>Other</td>
<td>2115</td>
<td>2115</td>
<td></td>
</tr>
</tbody>
</table>

Percentage participation

| Total               | 70.1%       | 72.6%       | .081 | 64.0%       | 71.5%       | <.001 | 67.9%       | 73.7%       | <.001 |
| Sex                 |             |             |     |             |             |     |             |             |     |
| Men                 | 68.6%       | 71.3%       | .189 | 63.4%       | 70.5%       | .001 | 67.2%       | 73.1%       | .004 |
| Women               | 71.5%       | 73.7%       | .249 | 64.6%       | 72.5%       | <.001 | 68.6%       | 74.2%       | .004 |
| Other               |             |             |     |             |             |     |             |             |     |

Abbreviation: CAWI, computer-assisted web interviewing. Note: P value: numbers in bold indicate a statistically significant difference in PA estimates between with and without the 10-minute bout requirement at a significance level of <.05 or lower.
These methods. Similarly, in a Norwegian study, there was almost no difference in dietary intake obtained with either CATI or CAPI.32

We did find some lower PA estimates in the sample interviewed personally versus the sample self-reporting their PA via website (Table 2). The differences were especially pronounced, and statistically different, in the PA domain of work and household, and within this domain among women and among the youngest and the oldest analyzed age groups. The 2 used methods were applied with different samples, and the difference in these samples might explain the difference in PA behavior findings. There are several hypotheses that might be responsible for the observed differences: (1) people who can be reached at home (CAPI) differ from those who are more likely to be reached via CAWI. At home, it is easier to reach people who work at home (eg, because they are self-employed or they work from a home office). It is plausible that individuals who do not work from home have different PA behaviors, particularly in the work and household and travel domains, to those who typically work from home. This would also explain why the difference between CAPI and CAWI in our study was particularly evident in the domain of work and household. In fact, an Austrian study showed that PA behavior, in general, and in all PA domains, not only work-related PA, but also transport-related PA and PA in leisure time, was significantly different between 4 distinct professional groups.33 (2) Individuals participating in a web-based interview may be more selective in the sense that they are more interested in the subject of PA. The greater interest in PA could actually reflect and therefore explain the higher PA behavior in the CAWI sample. The response rate in our CAPI sample was 32%, whereas only 8.6% of all people who received an invitation to the CAWI assessment actually took part, which could be seen as an indicator for stronger selection in the CAWI sample. (3) Individuals who are not interviewed in person may tend to provide more socially desirable responses, while individuals interviewed face-to-face may be more likely to provide responses that are more realistic in relation to their habitus (such as smoking and fitness). This effect and other reasons, such as the complexity of the question or the application of abstract concepts, have been discussed as possible reasons for differences in health behavior between CAPI and other nonpersonal contact techniques.34–36 (4) It may also be that sampling differences in this specific analysis between CAWI and
(conducted with supplementation from hard-to-reach groups to achieve desired quotas) and CAPI (randomly selected households) can explain some of the PA differences.

We also found a significantly higher percentage participating in PA in the travel domain and work and household domain, depending on whether 10 minutes of PA at a time were a prerequisite for being counted as health-relevant activity, or not (Table 4). In relation to these 2 domains, the difference is easily explainable, as distances traveled in a physically active manner are often short, and it typically takes <10 minutes to cover these distances. Similarly, PAs at work and in the household are often shorter than 10 minutes, while exercise in leisure time, for example, sport activities, usually lasts significantly longer than 10 minutes.

We did not find significant differences in the proportion fulfilling the aerobic-based PA guidelines, either in the comparison between those interviewed with CAPI and CAWI or when comparing the calculations with or without the 10-minute bout requirement (Tables 3 and 5). This result is supported by the data from the 2017 US Behavioral Risk Factor Surveillance system.37 Removal of the 10-minute bout requirement did not markedly influence national estimates of PA obtained from the US Behavioral Risk Factor Surveillance system. However, it must be taken into account that, in the US Behavioral Risk Factor Surveillance system, the volume of only 2 nonoccupational PAs was considered for calculating “meeting the aerobic guidelines.” Our analysis aligns with previously published Austrian surveillance statistics, focusing on the leisure domain, and not including the minutes of PA for the travel domain and work and household domain. The work and household domain was not included, because the health effects of PA during work (especially walking) or in the household are not entirely proven.25–26 Transport-related PA, however, has similar effects on health as leisure-time PA, for example, on body mass index38 or on mental health.39 We did not add this domain to calculate the proportion of people fulfilling the PA recommendations because walking is often performed with an intensity that does not meet the minimum criterion in the guidelines of “moderate-intensity PA,”40 although most PA guidelines actively promote physically active transportation.14–16

When considering the 2 intensities (vigorous and moderate) in the domain-specific PA, it is interesting to note that many people actually combined both intensities in a typical week (Figure 1). Regarding leisure-time PA, there was no clear difference in this, whether calculated with or without the 10-minute bout requirement. However, when looking at work and household-related PA, the proportion of people performing both vigorous- and moderate-intensity PA in this domain was higher without the 10-minute bout requirement, compared with the calculation with the 10-minute requirement. This can, again, be interpreted in the way that there are many work- and household-related PA tasks which last <10 minutes, especially when performed at a vigorous intensity (Supplementary Table S1 [available online]).

The strengths of the study are that we used a population sample and a frequently used questionnaire, that is, the GPAQ. The response rate in CAPI (32%) is rather satisfying, with a low dropout rate after the interview had started. The response rate in CAWI can be considered as usual and not particularly out of range. Furthermore, the questions about strength training were added and asked in the same way as the aerobic questions were structured. All PA questions were first asked in the original manner. The only difference was that, afterward, the CAWI sample was asked whether the answer would have been different if the 10-minute bout requirement did not exist. One limitation is that in the comparison of CAPI and CAWI, not only the PA assessment method but also the method of sample selection was different. Another limitation is that our data cannot be used to answer whether the participants’ responses were influenced by the follow-up questions regarding PA without 10-minute requirement. A further limitation of the study is that, in the Austrian Surveillance System, leisure-time PA only is used to compute the proportion of people fulfilling the aerobic PA recommendation. This means that a lower proportion of adults meet the aerobic recommendation than if all the domains had been included. It is possible that guideline compliance including all the domains would be more affected by the 10-minute bout requirement, given that we have shown the domains of travel and work and household to be more affected. However, we found differences in terms of percentage participation rather than median minutes. This suggests that the differences were the greatest among individuals who had previously reported 0 minute now reporting <10 minutes. For this to impact guideline compliance, these individuals would need to be reporting higher durations in other domains but not sufficiently high so that they would have previously met the recommendations. This profile of PA behavior is unlikely to be widely prevalent, and so it can be assumed, based on our results, that the proportion meeting the recommendations including all domains would also not differ significantly when the 10-minute bout requirement is removed.

The GPAQ has been designed for PA monitoring purposes, and the omission of the 10-minute requirement, as well as the assessment methods, seems not to have caused major changes in the results with respect to the proportion of adults meeting the PA recommendations. Adding strength training to the recommendations had a much bigger impact on the proportion of adults meeting the PA recommendations than the assessment technique or the 10-minute bout requirement in Austria.

Conclusions

Consistent measurement of PA is needed in order to compare population PA levels over time. However, changes in the PA guidelines can challenge this precondition. When using the GPAQ for PA monitoring purposes and other similar surveys, our findings suggest that the omission of the 10-minute bout requirement seems not to result in marked differences in the estimates (median moderate-equivalent minutes) of PA within the PA domains and the proportion of adults meeting the recommendations. The omission of the 10-minute requirement affects, however, the percentage performing some activities. If we have an interest in “any move counts,” the removal of the 10-minute bout requirement would lead to an increase of people being at least insufficiently active.

Further studies are needed to investigate why the PA estimates of the CAPI sample were markedly lower in the work and household domain, compared with the CATI sample.

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