Physical Activity and Sedentary Behavior

Subjects: Others

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People's lifestyles have changed significantly in recent years, with an increasing number of people living a sedentary lifestyle, mainly in developed countries. According to Tremblay et al., sedentary behavior can be defined as any waking behavior characterized by an energy expenditure ≤ 1.5 metabolic equivalents (METs), put simply as any time people are sitting or lying down. Due to the significant increase in SB levels in most developed countries over the past century, occupational SB has appeared as a substantial public health issue.

Keywords: physical activity ; sedentary behavior ; workers ; COVID-19 ; working from home

1. Introduction

People's lifestyles have changed significantly in recent years, with an increasing number of people living a sedentary lifestyle, mainly in developed countries. According to Tremblay et al. [1], sedentary behavior can be defined as any waking behavior characterized by an energy expenditure ≤ 1.5 metabolic equivalents (METs), put simply as any time people are sitting or lying down. Due to the significant increase in SB levels in most developed countries over the past century, occupational SB has appeared as a substantial public health issue. The main contributor to the daily sedentary time for workers is the substantial sitting time at the workplace [2]. People may spend three-quarters of the workday in SB [3], and according to Kazi et al., if people spend more time sitting during the workday, they will spend more time sitting during their leisure time [4]. SB should separate from the lack of physical activity because people can be sufficiently active according to the PA guidelines while sitting too much [5][6]. High sedentary times (for example, during work time) have been associated with harmful health effects independent of PA [7], including premature all-cause mortality [8], overweight, obesity, cancer and chronic illnesses such as cardiovascular diseases, metabolic syndrome, type 2 diabetes and low back pain [9][10][11].

Insufficient PA is also a key risk factor for the above-mentioned non-communicable diseases (NCDs) and is currently one of the leading risk factors for mortality worldwide [12][13][14]. According to Lee et al., the inactive lifestyle contribution to global premature deaths is approximately 9% [12]. Therefore, it is indisputable that being regularly physically active is an important determinant of health and plays a crucial role in people's health and quality of life; consequently, it is an essential issue in public health recommendations. The World Health Organization (WHO) recommends 150 min of moderate-intensity or at least 75 min of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity activity, throughout the week for substantial health benefits [15]. However, worldwide, approximately 27.5% of adults and 81% of adolescents do not meet the recommendations for aerobic exercise, and therefore, there is an urgent need to increase physical activity and reduce sedentary time [16].

Due to the rapid technological development nowadays, more and more jobs have become sedentary, and more adults are employed in low activity occupations where they could accumulate the time of SB, which may contribute to the risk of NCDs [17][18][19][20].

Furthermore, the COVID-19 pandemic has changed the world and strongly affected the health of the people and the quality of their life (more than 190 million people with COVID-19, causing more than 4.1 million deaths worldwide) [21]. As suggested by the WHO, national containment strategies (e.g., social distancing) were implemented worldwide by national authorities to mitigate the spread of the COVID-19 virus. These national restrictions have interrupted normal daily activities such as PA. This new virus has significantly altered employment as well: businesses had to close for a while or constantly, and many workers (especially office workers) were required to shift to a remote working environment (working for home—WFH) to stay safe [22]. The conventional concept of WFH has been reconsidered by the COVID-19, and WFH has become a policy priority for most governments and presumably, after the pandemic, it will become more common among businesses [23]. The increase in WFH during the pandemic may have negative impacts on working conditions, and workers may have adapted unhealthy lifestyles. This may result in an increase in SB and a decrease in PA [24].

2. Development and Findings

The present review provides an overview of studies examining the changes in the employment's PA and SB during the COVID-19 pandemic. We identified 39 studies including different types of employments from several countries. Regardless of the applied methodology, a greater part of the investigated studies found that SB level increased and PA level decreased among the employees during the lockdown period.

A potential reason for the decline in PA level among working adults might be that, on the one hand, during COVID-19, national governments prohibited several activities such as the majority of outdoor and social activities and most gyms, leisure and sporting facilities closed, therefore, people found it difficult to be active. On the other hand, additional responsibilities (e.g., school-aged children at home) for working adults and especially home-working employees also decreased opportunities to be active.

In contrast with the studies that showed a decline in PA levels among working adults, in two studies from Sweden and two studies from Switzerland, no changes in PA level were reported during the COVID-19 pandemic. These results can be explained by the less strict lockdown measures in the two countries: the stricter the confinement measures, the more likely that PA patterns are affected.

Although this is a review, the study has some limitations. First of all, the still ongoing pandemic and the novelty of the topic is one of the main limitations of the manuscript. Reviewers made great efforts in the searching process to find all relevant manuscripts; however, some articles may have been overlooked due to the examined databases and the selected searching terms. The majority of the studies applied self-reported subjective questionnaires, which were often based on participants' retrospective answers where accuracy and objectivity may be questionable. In several studies, the selected sample did not represent the population at a national level. The different occupations and workplaces included in the selected studies also can be a bias. Different methods of assessing SB and PA in the studies also affect the comparison of the results. Finally, our inclusion criteria could be another bias since the present study investigated only the adult working populations and excluded other parts of the population such as adults with physical disabilities and/or chronic diseases or adolescents and children.

3. Conclusions

Despite the variety of measurement types and study methodologies of the selected studies, the majority of them reported that PA levels have significantly decreased and, at the same time, that SB levels have significantly increased in the adult working population during the COVID-19 pandemic. The stricter the confinement measures, the more likely that PA and SB patterns are affected. People working from home were less active during the COVID-19 lockdown. In contrast, those who continued to work in a normal routine usually did not observe such a high level of changes in their PA level. On the other hand, being unemployed is even worse than WFH, or working from the office, because unemployed people have a lower level of PA and increased level of SB. The lack of PA and accumulated SB is a known major health risk factor for poor overall health, premature mortality and NCDs. The findings of the present review and the well-known health risk factors of the inactive lifestyle illustrate the urgent need to support people, especially sitting-based workers, to increase PA and decrease sedentary time during the pandemic. The workplace is an outstanding opportunity for promoting PA and reducing sedentary time in the working population. Considering that the COVID-19 is an ongoing pandemic, the adult working population should be continuously surveyed, and interventions and strategies should be developed by organizations, governments and health professionals to increase the level of PA and decrease sedentary time among workers, with a special focus on people working from home.

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