



# Cardiovascular-related health behavior changes: lessons from the COVID-19 pandemic and post-pandemic challenges

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Cardiovascular disease (CVD) is the leading cause of death worldwide, and its substantial healthcare costs are a global public health concern [1]. Hypertension, diabetes, dyslipidemia, cigarette smoking, physical inactivity, obesity, and unhealthy diets are well-known modifiable risk factors for CVD [2]. Considering that nearly a quarter of CVD-related deaths can be avoided through effective behavioral interventions [3], evidence-based guidelines propose behavioral counseling as the initial treatment approach to encourage cardiovascular-related health behaviors, including regular exercise and a balanced diet [4,5].

COVID-19, which emerged in September 2019 in Wuhan, China, quickly escalated into a global pandemic [6]. After the World Health Organization (WHO) declared COVID-19 a public health emergency on January 30, 2020, it had a profound impact on public health and prompted significant changes in health behaviors, particularly among individuals with chronic health conditions such as diabetes and obesity [7-9]. Throughout the pandemic, many countries and territories imposed mandatory lockdown restrictions to curb the rapid spread of the virus. The temporary closure of public venues, including restaurants and

fitness facilities, led to changes in health-related behaviors, such as regular exercise and maintaining a balanced, healthy diet [8,10]. A study investigating behavioral changes in Japanese patients with diabetes during the COVID-19 pandemic [11] found that decreased physical activity levels adversely affected glycemic control and contributed to weight gain. Furthermore, studies have shown that the social isolation resulting from stay-at-home orders had detrimental effects on mental health and eating habits [12]. A study conducted in Spain [13] noted an increase in emotional eating in response to boredom or anxiety during the pandemic, leading to weight gain.

The observed changes in health-related behaviors during the COVID-19 pandemic may vary based on ethnicity, race, or country. Therefore, it is essential to understand the sociodemographic factors that influence individuals' health-related behaviors in order to develop effective public health policies. In a previous issue of *Cardiovascular Prevention and Pharmacotherapy*, Kim et al. [14] conducted a study investigating the changes in CVD-related health behaviors during the COVID-19 pandemic and associated sociodemographic factors among the Korean population.

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Interestingly, the study noted positive changes in smoking habits, alcohol consumption, and healthcare service utilization. However, negative changes were observed in diet, exercise, and stress levels. This contrasts with other studies that reported an increase in alcohol consumption and tobacco use [15,16]. Unlike previous research demonstrating a correlation between higher income and engagement in health-protective behaviors during the COVID-19 pandemic [17], the authors did not find any significant associations between negative changes in health behaviors and household income, with the exception of smoking.

The study highlights that patients with cardiometabolic diseases, including coronary heart disease, cerebrovascular disease, hypertension, diabetes, and dyslipidemia, are more likely to exhibit aggravated health behaviors, except for smoking and alcohol consumption [14]. The study, therefore, provides valuable insights. Numerous studies have shown that the COVID-19 pandemic has brought about substantial changes in health-related behaviors, with several unfavorable shifts that could potentially contribute to elevated rates of CVD. Even as quarantine policies change and the prevalence of COVID-19 decreases, the negative changes in cardiovascular-related health behaviors established during the pandemic may persist, potentially leading to an increased CVD prevalence.

Long-term, large-scale studies with longitudinal designs are required to evaluate the impact of unhealthy health-related behaviors during the COVID-19 era on the development of CVD. Furthermore, a more robust approach to public education and targeted promotional campaigns is crucial for populations at high risk. The goal of these efforts is to promote the re-establishment of healthy lifestyle habits and the maintenance of beneficial health adjustments after the pandemic.

## ARTICLE INFORMATION

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Not applicable.

### Conflicts of interest

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