Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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LETTER TO THE EDITOR

Obesity: A pandemic hidden in the Covid-19 pandemic

Keywords Covid-19; Health; Obesity; Pandemic

Dear editor,

Multiple psychosocial changes have been instigated by the ongoing SARS-CoV-2 pandemic, with a significant impact on daily life. Forced to become attuned to a new lifestyle, people have adapted their routine by adopting new habits and abandoning old ones. While the prioritization of public health has ameliorated individual thought patterns and improved the perception of well-being, an ever-present health issue that rampages as a pandemic well hidden behind the Covid-19 pandemic has yet to be mitigated: obesity.

A literature search on PubMed/Medline and Scopus reveals that more than 27% of published manuscripts regarding obesity have been published from 2019 onwards. Previously, from 1865 to 2018, a total of 326,050 papers has been published, while for just three years (2019—2021) PubMed generates 88,277 results upon search (Fig. 1). According to a 2019 study conducted by researchers at Harvard and George Washington Universities, and published in the *New England Journal of Medicine*, nearly 50% of all Americans are estimated to be obese by 2030 [1]. These two findings raise the alarm about an ongoing danger that needs to be analysed.

Popkin et al. (2020) highlighted that governmental responses to the Covid-19 pandemic have led to movement restriction, physical activity limitation and remote domestic teleworking. Fresh fruit and vegetable access has been impeded in high and middle-income countries due to local supply chain breakdowns; ultra-processed, energy-, saturated fat-, sodium-, and sugar-rich food consumption and demand have contrarily risen [2]. Societal interventions implemented (lockdowns, physical distancing, isolation) that increased socioeconomic hardship have deteriorated psychosocial health and augmented chronic stress, that not only impacts on exercise and eating patterns, but also prompts visceral fat storage [3].

According to Bil and Możeńska (2021), the relationship between obesity and Covid-19 represents the perfect vicious cycle [4]. A large 2022 meta-analysis of 208 studies involving more than 3,550,000 participants demonstrated that obese subjects are susceptible to threatening Covid-associated complications; obesity is associated with a 72% (95% CI 1.62—1.84) higher risk of hospitalization and 25% (95% CI 1.19—1.32) higher risk of mortality due to Covid-19; severe obesity is associated with a 2.53 (95% CI 1.67—3.84)-fold higher risk of hospitalization and 2.06 (95% CI 1.76—3.00)-fold higher risk of mortality due to Covid-19 [5]. Interestingly, mortality risk and severity of Covid-19 due to obesity are accentuated in younger subjects (age $\leq$ 50 years old). The subclinical chronic inflammation that characterizes obesity intersects with and exacerbates underlying pathogenetic mechanisms in Covid-19 via a plethora of factors reviewed elsewhere [6].

To overcome this modern health issue, a range of measures are recommended. Firstly, dietary interventions are crucial; communities should increase affordable healthier and restrict unhealthier food and beverage availability in public service venues, promote local food production and distribution, limit sugar-sweetened and fat-rich food media advertising, and institute portion control in public service venues, one of the most cost-effective interventions for obesity prevention and management [7]. At schools, food standards must be set, and appropriate health-related education provided; food producers can limit unhealthy ingredients through product reformulations; retailers can increase shelf space devoted to healthier food, mandate nutrition labelling and even tax convenience food/beverages.

Additionally, the importance of physical activity is indisputable; physicians should highlight the importance of meeting pre-set exercise goals and encourage patients to be physically active, especially with the help of governmental organizations, that can launch mobile apps that count calorie intake and track physical activity levels. Students and employees should participate in physical education and/or activity programs. Areas for walking, running, cycling, playing, and exercising should be established as safe, sociable environments and green spaces. It is crucial for small increments to be incorporated in a daily routine: social media and televisual commercial campaigns should encourage the interruption of sedentary lifestyle at school, work, or home by active breaks, walking or cycling to school or work, taking the stairs, stretching frequently and making shared use of recreational facilities.

Moreover, healthcare providers and physicians are advised to determine their patients' body-mass index and measure their waist and hip circumference, inform them about the cardiometabolic implications of obesity such as diabetes type 2, metabolic syndrome, cardiovascular disease as well as Covid-19 severity risk; and develop individualized weight loss programs.

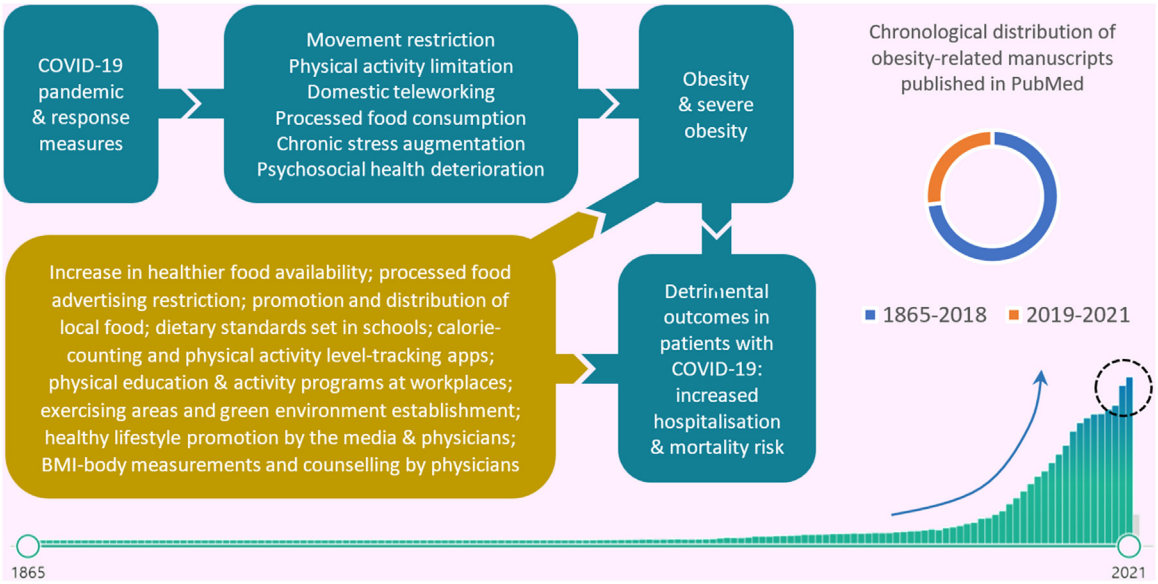

Figure 1. Chronological distribution of obesity-related manuscripts published in PubMed.

Recent data on the sharp proliferation in obesity incidence are extremely worrying and alarming, as they are necessitating radical and innovative changes. Coronavirus spread and the pandemic's rampant progression will probably not come to an end soon. The Covid-obesity cycle needs to be set at the epicenter of the Public Health policies. The efficient tackling of obesity could have a beneficial effect on the battle against Covid and reduce the burden of the SARS-CoV-2-overwhelmed healthcare systems in this polypandemic era.

Human and animal rights

The authors declare that the work described has not involved experimentation on humans or animals.

Informed consent and patient details

The authors declare that the work described does not involve patients or volunteers.

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