

**Letter to editor:**

**Lockdown leading obesity and its possible impacts on the second wave of COVID-19**

*Shafayet Ahmed Siddiqui<sup>1</sup>, Md. Jakaria<sup>2\*</sup>*

*Bangladesh Journal of Medical Science, Special Issue on Covid19, 2020. Page : S 101-S 102  
DOI: <https://doi.org/10.3329/bjms.v19i0.48172>*

Dear Editor,

The WHO has officially promulgated the outbreak of highly contagious COVID-19 causing by SARS-COV-2 as global pandemic on March 11, 2020; about 13,042,340 cases were confirmed with the fatality of 571,689 affecting 215 countries by July 13, 2020. The mortality rate is varied from one country to another in this pandemic situation, and many countries are applied emergency lockdown to prevent the spreading of COVID-19, which leads to an increased risk of obesity worldwide.

Obesity, along with the overweight problem, has considered a burning issue. Around 500 million adult people globally are obese whose BMI is 30<sup>1</sup>, and it has been projected that 1 billion and even more people might suffer from obesity by 2030<sup>2</sup>. Although obesity is considered a problem of modern and high-income countries, strike badly many low and middle-income countries from Asian and African continent<sup>3</sup>. COVID-19 pandemic forced people to confine at home and staying prolonged periods at home can pose low levels of physical exercise and sedentary behaviour which might harm people's health. This sudden plummet in physical inactivity might cause metabolic diseases which are critical regulators of overweight and obesity. In contrast, a sedentary lifestyle may cause many chronic diseases; ultimately, a massive rise in healthcare cost<sup>4</sup>. Various health markers like blood volume and muscle strength fade away for six weeks due to two weeks of inactivity<sup>5</sup>. For lockdown and self-quarantine practice

the whole global population at risk of overweight and being obese.

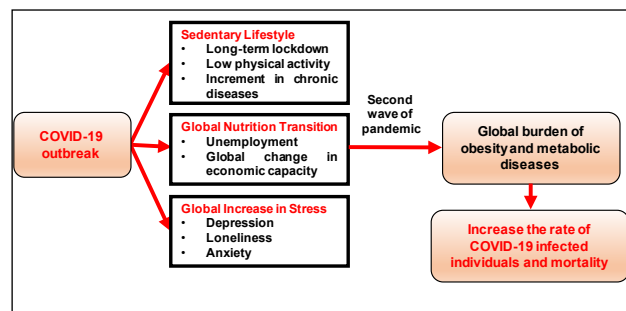
Almost all countries have been suffered due to this pandemic, and individuals with COVID-19 infection admitted to hospital 42% were obese which was the second-highest comorbid condition among hospitalized patients<sup>6</sup>, indicating obesity itself may exacerbate the COVID-19 situation. Adipose tissue can act as a virus reservoir resulting in increased virus shedding, and immune activation and this hyperactivated immune system might damage the lungs and other organs<sup>7</sup>. There might be a possible increase in depression, anxiety, and loneliness due to the consequences like economic depression, unemployment, and domestic violence, and these psychologically stressful conditions are highly associated with obesity<sup>8</sup>. The global increase in unemployment might lead people to nutrition transition, observed in developing and underdeveloped countries might hit the developed world also. Consequently, obesity among general people might be prevalent. Global mount in obesity risk among individuals might be life-threatening for a possible second wave of COVID-19 infection, as there is established evidence for obese individuals with COVID-19 infection could be deadly<sup>6</sup> because fat-dwelling immune cells auto-activate while coronavirus infection causing swelling and inflammation<sup>7</sup>. A vast population might be obesity-prone due to the first blow of lockdown but pandemic second wave could be impacted on these obese

1. Shafayet Ahmed Siddiqui, Department of Pharmacy, Noakhali Science and Technology University, Noakhali-3814, Bangladesh
2. Md. Jakaria, The Florey Institute of Neuroscience and Mental Health, The University of Melbourne, Parkville, VIC 3052, Australia. Email: [md.jakaria@florey.edu.au](mailto:md.jakaria@florey.edu.au)

**Correspondence to:** Md. Jakaria, The Florey Institute of Neuroscience and Mental Health, University of Melbourne, Parkville, VIC 3052, Australia. Email: [md.jakaria@florey.edu.au](mailto:md.jakaria@florey.edu.au)

populations as they might have an unbalanced or inflamed immune system that can overreact to COVID-19 infection and might take a massive toll of life.

We need to ferret out a wise solution for this problem because obesity itself is devastating for COVID-19 patients and global consequences of COVID-19 for obesity might be catastrophic. Exercise, lifestyle management, nutritional balance and implementation of functional foods must be needed to face this possible second wave of the COVID-19 pandemic.



**Figure 1:** Possible associative effects of COVID-19 and obesity on the second wave of infection

### Competing Interests

The authors declare no competing interests.

### Acknowledgement

We do not receive any fund

**Authors Contribution:** Both authors contributed equally in thinking and preparing this manuscript.

### References:

- 1 Finucane MM, Stevens GA, Cowan MJ, *et al.* National, regional, and global trends in body-mass index since 1980: systematic analysis of health examination surveys and epidemiological studies with 960 country-years and 9· 1 million participants. *Lancet* 2011; **377**: 557–67.
- 2 Kelly T, Yang W, Chen C-S, Reynolds K, He J. Global burden of obesity in 2005 and projections to 2030. *Int J Obes* 2008; **32**: 1431–7.
- 3 Obesity and overweight. <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>.
- 4 Booth FW, Roberts CK, Thyfault JP, Rueggsegger GN, Toedebusch RG. Role of inactivity in chronic diseases: evolutionary insight and pathophysiological mechanisms. *Physiol Rev* 2017; **97**: 1351–402.
- 5 Vigelsø A, Gram M, Wiuff C, Andersen JL, Helge JW, Dela F. Six weeks' aerobic retraining after two weeks' immobilization restores leg lean mass and aerobic capacity but does not fully rehabilitate leg strength in young and older men. *J Rehabil Med* 2015; **47**: 552–60.
- 6 Richardson S, Hirsch JS, Narasimhan M, *et al.* Presenting characteristics, comorbidities, and outcomes among 5700 patients hospitalized with COVID-19 in the New York City area. *Jama* 2020.
- 7 Ryan PM, Caplice NM. Is Adipose Tissue a Reservoir for Viral Spread, Immune Activation and Cytokine Amplification in COVID-19. *Obesity* 2020.
- 8 Hamer M, Stamatakis E. Inflammation as an intermediate pathway in the association between psychosocial stress and obesity. *Physiol Behav* 2008; **94**: 536–9.