A Viral Challenge to Health: COVID-19's Influence on Obesity Trends.

BIOMATH 2024

Nyabadza F.¹, Modise K., ², Visaya, V.³

¹Department of Math and Applied Math, University of Johannesburg, South Africa, fnyabadza@uj.ac.za

²Department of Math and Applied Math, University of Johannesburg, South Africa, keamogecoem@uj.ac.za

³Department of Math and Applied Math, University of Johannesburg, South Africa, mvvisaya@uj.ac.za

Although all population groups are affected by excess weight, the BAME (Black, Asian and Minority Ethnic) groups are usually more affected compared to the general population and it has been established that the health risk of excess weight for some BAME groups occur at a lower BMI than for the White populations. Deprived areas have higher levels of overweight and obesity compared with more affluent areas and in 2014 South Africa had recorded a poverty rate of more than 56%. The risk of obesity increases with poverty and with the current state of the economy, we are fighting yet another battle in these current times. With obesity being a 21st century epidemic and its rates constantly increasing, it is crucial that the world and SA be aware of some of the health risks that this epidemic possesses. Excess weight becomes a risk factor for a quite a number of chronic diseases, such as Type II Diabetes, cardiovascular disease a number of cancer, liver and respiratory diseases [2], and is known to reduce life expectancy significantly. The advent of Covid-19 resulted in increased deaths for the obese globally. We asses a dual-infection SEIR model with hospitalization and no cross-immunity. The results presented are key to understanding how the emergence of Covid-19 impacted already existing epidemics. The potential of such findings in quantifying the impact of future pandemics on existing epidemics is immense.

Obesity trends; COVID-19; Model

References

- [1] H. Ritchie, M. Roser, Obesity, Our World in DataHttps://ourworldindata.org/obesity
- [2] Cai, Qingxian and Chen, Fengjuan and Wang, Tao and Luo, Fang and Liu, Xiaohui and Wu, Qikai and He, Qing and Wang, Zhaoqin and Liu, Yingxia and Liu, Lei and Chen, Jun and Xu, Lin Obesity and COVID-19 Severity in a Designated Hospital in Shenzhen, China