

## ABSTRACT

**Background:** The COVID-19 pandemic has forced countries worldwide to take preventive measures to help stop the spread of the virus such as lockdown or home confinement policies and recommendations to practice safe physical distancing. During the pandemic, Indonesia implemented some policies to restrict social activities, such as *Pembatasan Sosial Berskala Besar* (Large-Scale Social Restrictions) and *Pemberlakuan Pembatasan Kegiatan Masyarakat* (Implementation of Community Activity Restrictions). While these preventive measures are beneficial to containing the infection rate, they also come with potential consequences such as increased physical inactivity and sedentary behavior. These consequences might further risk the growing number of people with Non-Communicable Diseases (NCDs) as adequate physical activity has the benefit of preventing NCDs in terms of morbidity and mortality. Therefore, evidence is needed to understand the level of change in physical activity and factors influencing physical activity in the community.

**Purpose:** To measure the change in physical activity (PA) due to the impact of the COVID-19 pandemic in Sleman Regency, and to determine factors associated with changes in physical activity during the COVID-19 pandemic using the socioecological model.

**Methods:** This research is a panel study using secondary data from the Health and Demography Surveillance System (HDSS) survey in Sleman Regency that was carried out from 2017 to 2020. After implementing inclusion and exclusion criteria, 1069 samples were selected and analyzed for correlation between factors such as age, sex, education, occupation, Social Economy Status (SES), marital status, number of household members, housing area, abdominal obesity status, smoking status and presence of comorbidities with the outcome of physical activity change. Multinomial logistic regression was performed for bivariate and multivariate analyses.

**Results:** Most respondents (60%) remained active, and 94.7% were non-sedentary during the COVID-19 pandemic. Individuals with high education are 1.80 times more likely to experience an increase in PA level (95% CI= 1.01 – 3.15). High SES and having two or more comorbidities are more likely to experience decreased but still active PA level with RR values of 3.97 (95% CI= 1.52 – 10.36) and 2.33 (95% CI= 1.08 – 5.03), respectively. Meanwhile, women are 0.25 less likely to have a “Decrease to Inactive or Remain Inactive” (DIRI) PA level (95% CI= 0.11 – 0.55) and having two or more comorbidities increase the risk of DIRI by 4.24 folds (95% CI= 1.30 – 13.79).



**Conclusion:** Individual and interpersonal factors correlate with physical activity change during the COVID-19 pandemic in Sleman Regency. Considering the importance of physical activity to improve outcome and quality of life for people living with Non-Communicable Diseases (NCDs), a comprehensive public health strategy involving multimorbid individuals to perform the recommended PA level should be implemented.

**Keywords:** COVID-19, physical activity, sedentary behavior, change in physical activity, physical activity factors, sedentary behavior