Accuracy of the Rapid Test Kit Antigen for SARS-CoV-2 Infection during the COVID-19 Pandemic in Sibu, Sarawak

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ABSTRACT

Introduction: Sarawak (particularly Sibu) currently suffers from a third wave of SAR-Co-2 infection since January 2021 with average daily cases of about 100; rapid test kit antigen (RTK-Ag) was used to provide a faster turn-around-time result. However, there are concerns regarding its accuracy. This study aimed to determine the accuracy of the RTK-Ag in a high-prevalent community setting. **Methods:** We identified patients who had RTK-Ag from Sibu Division Health Office and Sibu Hospital between January and May 2021 and compared them with the formal reverse transcriptase polymerase chain reaction (rt-PCR) results done within 24 hours. We calculated and analysed the accuracy parameters of the RTK-Ag against rt-PCR. **Results:** There were 758 patients with RTK-Ag tests, and 629 patients had rt-PCR within 24 hours of the former. The sensitivity, specificity, negative predictive value, and positive predictive value of RTK-Ag were 83.78%, 99.32%, 93.63% and 98.10%, respectively. The agreeability was near perfect (Kappa coefficient 0.868, p <0.001). Among the true positives, the cyclic threshold (Ct) value for E and RdRp genes were significantly higher (p<0.001) in the RTK-Ag negative group (34.80 (IQR: 13.490) and 36.46 (IQR: 15.920) respectively). **Conclusion:** RTK-Ag has good sensitivity and specificity for mass screening during a high prevalent community setting, particularly in detecting patients with low Ct value. Based on our results, we suggest the RTK-Ag positive results be accepted to detect those infected with SARS-CoV-2 infection. In contrast, those with RTK-Ag negative results should undergo rt-PCR if they remained as high-risk cases.

The Association between Tobacco and Body Mass Index (BMI) among School-going Adolescent in Malaysia: Results from National Health Morbidity Survey (NHMS) 2017

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ABSTRACT

Introduction: Tobacco use and obesity, are both among the leading causes that contribute to many public health issues. Due to the availability of diversity of tobacco product and used today, the study was conducted to examine the association between tobacco and BMI. **Methods:** This study used data from the NHMS 2017, a nationwide cross-sectional survey that implemented a two-stage stratified random sampling design. In total, 13135 adolescents were studied. Complex sample logistic regression analyses were used to examine the odds of past 30-day tobacco-product use according to BMI stratified by gender. BMI was analyzed categorically using the World Health Organization Growth Reference 2007 (WHO 2007). BMI-for-Age z-score weight status was categorized as underweight/normal weight, overweight and obese. **Results:** Adolescents classified as obese were found to have significant association to use any tobacco products but not for the overweight group. Univariate analyses revealed that male adolescents who smoked any tobacco products were significantly less likely to be obese, whereas female adolescent smokers were found to be more likely at risk. However, after controlling for several potential confounding factors, only female adolescents who use any tobacco, e-cigarette, smokeless and other tobacco are more likely to be obese with Adjusted Odds Ratio (AOR) 1.59 (95%Confidence Interval (CI):1.25, 2.02), AOR=1.86 (95%CI:1.36, 2.56), AOR=1.66 (95%CI:1.14, 2.43) AOR=1.62 (95%CI:1.05, 2.52) respectively. **Conclusion:** Female adolescent smokers had a higher chance of being obese. There is a need for further research to identify genetic, metabolic and hormonal changes which affects BMI.