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Adolescents’ smartphone use at night, sleep disturbance and depressive symptoms

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Abstract:
Nowadays smartphones are used anywhere and at any time, day or night, by adolescents. Smartphone use, especially at night, is a risk factor for sleep disturbance and depression in adolescents. The purpose of this study was to analyse the correlation between smartphone use at night, sleep disturbance and depression symptoms in adolescents. This cross-sectional study analysed the data from 714 students in Surabaya, who were selected by using a simple random sampling technique. The independent variable was smartphone usage at night while the dependent variable was sleep disturbance and depressive symptoms. The data was collected using three questionnaires: the smartphone usage at night questionnaire, the Insomnia Severity Index questionnaire and the Kutcher Adolescent Depression Scale questionnaire. The data was then analysed using Spearman’s rho analysis ($\alpha < 0.05$). The results indicated that there was a relationship between the use of smartphones at night and sleep disturbance in adolescents with a positive correlation ($r = 0.374$), and that there was a relationship between the use of smartphones at night and depression symptoms in adolescents with a positive correlation ($r = 0.360$). This study highlights that the excessive use of smartphones during the night may play a significant role in sleep problems and depressive symptoms among teenagers. Adolescents with sleep disturbance and depressive symptoms should be carefully monitored for signs of smartphone addiction. Nurses should improve health education for adolescents to inform them about the positive use of smartphones to prevent sleep disturbance and to minimise depressive symptoms.

Keywords: adolescents, depressive symptoms, sleep disturbance, smartphone

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Introduction
Presently, smartphones have been integrated into various aspects of human life, especially by adolescents [1]. With a variety of complete and easy features, smartphones are very helpful when used in daily activities, whether to perform tasks or to communicate with friends. However, the excessive use of smartphones, especially at night, can constitute a risk factor for health, such as sleep disorders and depression in adolescents [2], [3].

Sleep is one of the basic human needs [4]. For adolescents, the quality of sleep is important for health, development and school achievement [5]. Therefore, when the quality of sleep is disrupted, the risk of mental disorders will increase [6]. Furthermore, depression is a mental health disorder caused by sleep problems with symptoms of prolonged sadness, loss of interest and a lack of ability to be motivated to do both daily activities and work [7].

According to the research of the Ministry of Information and UNICEF in 2014 on the behaviour of children and adolescents when using the Internet, it was found that 80% of the respondents, or at least 30 million children and adolescents in Indonesia, are Internet users. Based on that percentage, 50% of adolescents are alleged to be phone addicted and who are experiencing adverse symptoms [8]. Moreover, the data in the United States from the National Sleep Foundation in 2011 showed that 77% of young people 13–18 years of age experience a sleep disorder. A similar study also showed that there was a significant correlation between sleep disorders and excessive cell phone use [2], [3], [9]. The high-risk behaviour of adolescents needs to be addressed by policies with a multi-dimensional approach [10].

Several studies confirmed that the use of smartphones in a manner that leads to depression is excessive use [11]. For adolescents, there is an increase of susceptibility to severe mental health disorders such as depression. Because the recurrence rates during adulthood are high, the prevention of depression during adolescence is