



PHYSICAL ACTIVITY AND SLEEP QUALITY IN RELATION TO MENTAL HEALTH AMONG INDONESIA MIGRANT CHILDREN IN SELANGOR MALAYSIA

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Abstract. Physical inactivity is one of the public health issues for the young generation. Indonesian migrant workers in Malaysia are taking first place of the magnitude of total Indonesian migrants around the world. Putting aside the legal effects, there are many migrants who have had children in various regions in Malaysia which has an impact on various aspects. One of which is the lack of access to proper education for Indonesian migrant children. This study aims to capture mental health in relation to physical activity and sleep quality among Indonesian migrant children in Selangor Malaysia. The sociodemographic data and body mass index were obtained from a convenience sample of 49 children, age range from 11 to 17 years. The results show 41% of children experience depression and anxiety. Out of total children, 27% reported having obesity type 1 and above. Furthermore, 14% of children indicated hypertension based on their blood pressure. Poor sleep quality was significantly associated with experienced depression and anxiety, $p < 0.05$. The students who have poor sleep quality have a 1.7 higher risk of having depression anxiety symptoms (OR = 1.7; 95% CI, 1.1–2.3), however there was no significant correlation between the physical activities and depression anxiety symptoms (OR = 1.1; 95% CI, 0.9–1.5). The findings suggest that children need support systems to improve mental status and coping skills. Further studies are needed to extend the causal relationships between physical activity levels, sleep quality, and mental health.

Keywords: Physical Activity, Mental Health, Sleep Quality, Migrant Children

1. INTRODUCTION

Indonesian migrant workers in Malaysia rank first among the total number of Indonesian migrant workers worldwide. Labour migration in ASEAN will continue to increase due to the structural factors

embedded to the social, political and economic sectors[1]. In the case of Indonesia, as a major labour-supplying country in ASEAN, however most of Indonesia's migrant workers who work overseas are low-skilled workers, lower educational background, reported be more likely to suffer abuse and receive lower wages compared with their counterpart[2], [3]. These conditions are important issues to consider, considering the significant number of Indonesian workers in the country.

Studies show that Indonesian immigrants in Malaysia often experience health problems such as respiratory disorders, infections, and mental health problems due to the social and economic pressures[4], [5]. In addition, their inability to access adequate health services often worsens their health conditions, making them a vulnerable group in Malaysian society[6], [7]. Further, these conditions extend for immigrants and their families including their children. In fact, most Indonesian labours in Malaysia choose to continue working and living with their families because they feel it brings more benefit, making them prosperous compared to their life in Indonesia. As a result, it will cause many illegal Indonesian migrant workers in this country [6].

This illegal status not only impacts the worker, but also their children who have been born and raised in Malaysia. Due to their illegal status, they do not have complete documents, which has an impact on their children, making them cannot attend official schools in Malaysian public schools or in the Sekolah Indonesia Kuala Lumpur (SIKL) (Indonesian School in Kuala Lumpur, managed by the Indonesian Embassy) [8]. As a result, their children can only access the informal school, namely Sanggar Bimbingan. Sanggar Bimbingan is a learning activity place that has existed since 2019 and was initiated by the Education Attaché of the Indonesian Embassy in Malaysia as a program to strengthen the Community Learning Center.

Pondok Pesantren (Islamic Boarding School) is one of the community learning centers that facilitates children of Indonesian Migrant Workers in Malaysia by providing education at the primary and junior high school level [9]. On average, students who attend the school are children of migrant workers in the plantation sector and informal sectors who have incomplete documents. There are several problems that occur at Pondok Pesantren, such as lack of teachers to supervise students, limited access to sports facilities, and less

supportive living environments. These limitations also make it possible for them to experience mental disorders due to their existing vulnerabilities (Romadlona et al., 2024) [9], [10].

Children who engage in lack physical activities are more susceptible to various health problems, including obesity, heart disease, and mental disorders [11], [12], [13]. Physical activity plays a crucial role in adolescent development, both physically and mentally [14]. During adolescence, the body experiences rapid growth and significant hormonal changes. Physical activity helps optimize these processes by improving cardiovascular health, strengthening muscles and bones, and maintaining a healthy weight balance. In addition to physical benefits, physical activity also has a positive impact on adolescent mental health, such as reducing symptoms of depression and anxiety, and increasing self-confidence and sleep quality [15], [16], [17], [18].

Several studies have shown that adolescents who are physically active have a better quality of life and a lower risk of experiencing various health problems later in life. Therefore, it is important to encourage and facilitate adolescent participation in regular physical activity as part of a healthy lifestyle. Lack of physical activity can disrupt the sleep cycle, causing problems such as insomnia and restless sleep. When a person does not move enough throughout the day, the body may not feel physically tired enough to sleep well at night. This can worsen the sleep cycle, which in turn can lead to various health problems, including decreased immunity, an increased risk of chronic disease, and mental health disorders such as anxiety and depression [15], [16], [17], [18]. Based on the description of the limited conditions of Indonesian, this study aims to determine mental health in relation to physical activity and sleep quality in Indonesian migrant children in Selangor, Malaysia.

2. METHOD

This study employed a cross-sectional approach with convenience sampling. The sample comprised all 49 students within the age range of 11 to 17 years. The inclusion criteria of respondents were Indonesian students and children of migrant workers who study at one of Pondok Pesantren (Islamic Boarding School) in Malaysia. Data collection was conducted using a questionnaire administered. The study took place in July 2024 in Selangor, Malaysia. Data was collected to assess mental health status, sleep quality, and physical activity levels. The process of

obtaining consent and completing the questionnaires took approximately 10–15 minutes.

Questionnaire of Patient Health Questionnaire-9 (PHQ-9) was used to assess mental health status. Sleep quality was defined as an individual's self-satisfaction including the average of total hours of sleeping, assessed using standardized sleep quality scale (SQS) questionnaire. Physical activities were assessed using direct questions, asking their average time in a week engaging in several activities such as jogging, walking, and doing sports. The data analyzed using descriptive statistics and cross-tabulation reporting the odds ratio to show the risk factor level.

3. RESULT and DISCUSSION

3.1 Result

The results of the sociodemographic characteristics, anthropometric measurements, and questionnaire responses are summarized in Table 1. There are various sources of information relating to the role of Indonesian migrant's children. The children are currently studying in junior high school with an average age of 14.49 years. Most of the parents' educational level is lower or upper secondary education (57%) which means being at junior or senior high school. Furthermore, most of the parent's occupation is contractor and plantation worker (43%) because the school is located around the oil palm plantation area and new development area.

Table 1. Sociodemographic and Anthropometrics Characteristics of the Study Population

| Characteristics | | Mean ± SD frequency (%) |
|----------------------------|------------------------------------|----------------------------|
| Age (years) | | 14.49 ± 1.58 |
| Gender | Male | 26 (53%) |
| | Female | 23 (47%) |
| Parents' educational level | No schooling or primary school | 16 (33%) |
| | Lower or upper secondary education | 28 (57%) |
| | Bachelor's or equivalent level | 5 (10%) |
| Parents' occupation | Domestic worker | 12 (24%) |
| | Contractor worker | 21 (43%) |
| | Service worker | 10 (20%) |
| | Other | 6 (13%) |

| Characteristics | | Mean \pm SD frequency (%) |
|-------------------------|------------------------------------|--------------------------------|
| Blood pressure | Normal | 42 (86%) |
| | Prehypertension | 7 (14%) |
| Height | | 156.4 \pm 10 |
| Weight | | 57.9 \pm 18 |
| BMI for age | Normal | 27 (55%) |
| | Overweight | 9 (18%) |
| | Obesity | 13 (27%) |
| Mental health status | Normal | 29 (59%) |
| | Experienced depression and anxiety | 20 (41%) |
| Sleep quality | Good | 21 (43%) |
| | Poor | 28 (57%) |
| Physical activity level | Good | 35 (71%) |
| | Poor | 14 (29%) |

The children have problems related to nutritional status. Almost half the children are overweight (18%) or even obese (27%). Moreover, the number of poor sleep quality (57%) and experienced depression and anxiety (41%) also takes a large portion. About physical activity, for the most part children are in the good category. The association between mental health status, sleep quality, and physical activity level are presented in Table 2.

Table 2. Associated Between Mental Health, Sleep Quality, and Physical Activity

| Experienced depression and anxiety | OR | 95% CI | |
|------------------------------------|-------|--------|-----|
| Sleep quality | 1.733 | 1.1 | 2.3 |
| Physical Activity | 1.125 | 0.9 | 1.5 |

Table 2. shows associations between mental health status with sleep quality and physical activity level. Poor sleep quality was significantly associated with experienced depression and anxiety, $p < 0.05$. The students who have poor sleep quality have a 1.7 higher risk of having depression anxiety symptoms compared to students who have good sleep quality (OR = 1.7; 95% CI, 1.1–2.3). However, poor physical activity was not significantly associated with depression and anxiety. The odds ration of poor physical activity to have depression anxiety symptoms was (OR = 1.1; 95% CI, 0.9–1.5).

3.2. Discussion

The relationship between physical activity, sleep quality, and mental health is particularly relevant in the context of students, a group often facing significant academic pressures, social challenges, and lifestyle changes. This discussion explores how physical activity and sleep quality interact to influence mental health among students, drawing on recent research to highlight key findings and implications.

3.1 The Role of Physical Activity in Student Mental Health

Physical activity is an essential factor in promoting mental health, particularly among adolescents who are undergoing significant physical, emotional, and psychological development. Regular physical activity has been shown to reduce symptoms of depression and anxiety, improve mood, and enhance overall well-being [19], [20]. Otherwise, poor physical activity showed increased risk of mental health problems [21], [22], [23]. For Indonesian migrant children in boarding schools, physical activity provides not only a means of maintaining physical health but also a crucial outlet for managing stress and emotional challenges [24].

In the context of a Pesantren, where students have structured schedules and limited opportunities for free movement, integrating physical activity into daily routines can be particularly beneficial [25]. Studies have shown that engaging in regular exercise, such as team sports, martial arts, or even daily physical education classes, can significantly reduce stress levels and improve mood. Moreover, physical activity can foster a sense of community and belonging, which is especially important for migrant children who may experience feelings of isolation or homesickness.

3.2 Sleep Quality and Its Impact on Student Mental Health

Sleep quality is another critical factor influencing mental health among Indonesian migrant children in Selangor. Adolescents require adequate sleep to support their cognitive function, emotional regulation, and overall physical health. However, the structured environment of a boarding school, combined with the stress of academic and religious studies, can contribute to irregular sleep patterns and poor sleep quality.

Poor sleep quality has been linked to a range of mental health issues, including depression, anxiety, and behavioral problems [26]. In a boarding school setting, the lack of adequate sleep can exacerbate these issues, leading to increased stress, irritability, and difficulty

concentrating [27], [28], [29]. Moreover, the disruption of circadian rhythms, common among adolescents who stay up late to study or engage in social activities, can further impair mental health.

Interventions aimed at improving sleep hygiene, such as establishing consistent sleep schedules, reducing screen time before bed, and creating a conducive sleep environment, are crucial for this population. Improved sleep quality can enhance emotional resilience, reduce the risk of mental health disorders, and improve overall academic performance [30], [31].

3.3 Interaction Between Physical Activity, Sleep Quality, and Mental Health

The interplay between physical activity, sleep quality, and mental health is complex but particularly relevant for Indonesian migrant children in a boarding school setting [32]. Regular physical activity has been shown to improve sleep quality by reducing sleep onset latency and increasing the duration of deep sleep stages [16]. This, in turn, contributes to better mental health outcomes, creating a synergistic effect where physical activity and sleep reinforce each other's benefits.

Conversely, poor sleep quality can reduce the motivation and energy levels needed to engage in physical activity, leading to a sedentary lifestyle that may further impair mental health. Addressing both physical activity and sleep quality simultaneously is therefore essential for promoting mental health in this population.

3.4 Implications for Practice and Future Research

Given the unique challenges faced by Indonesian migrant children in Selangor, Malaysia, it is crucial to develop tailored interventions that address both physical activity and sleep quality. Boarding schools should consider implementing structured physical activity programs that are integrated into the daily schedule, as well as educational initiatives that promote good sleep hygiene. The school have to arrange a schedule that the children have adequate sleep time

Future research should focus on longitudinal studies to explore the causal relationships between physical activity, sleep quality, and mental health in this population. Additionally, studies should investigate the specific cultural and environmental factors that influence these relationships, providing insights that can inform culturally sensitive interventions. In conclusion, physical activity and sleep quality are critical determinants of mental health among Indonesian migrant children in Selangor, Malaysia. By addressing both factors in a

comprehensive manner, it is possible to significantly improve the mental health and overall well-being of this vulnerable population.

4. CONCLUSION

The health and well-being of Indonesian migrant workers and their children in Malaysia are significantly compromised due to limited educational opportunities that can affect a lack of physical activity and quality of health, which collectively contribute to various mental health issues. The results of this study can provide information and knowledge about mental health status among Indonesian Migrant Worker Children. There was a significant association between sleep quality and mental health. Students who have poor quality of sleep are more likely to have 1.7 higher risk to have symptoms of depression and anxiety compared to those who have better sleep. The schools should consider implementing structured schedules so that the children have adequate sleep time, as well as physical activity programs that are integrated into the daily schedule.

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