



## The Effect of Physical Activity on Adolescent Mental Health

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### ORIGINAL ARTICLE

#### ABSTRACT

Adolescence is one of the human phases where maximum growth and development occurs in daily life so that it is possible to cause uncontrolled emotional problems, including anxiety, fear, insecurity, trauma which ultimately affects the mental health of teenagers. Various factors that cause mental imbalance responses are external factors originating from the environment or pressure resulting from life choices chosen by adolescents. This research aims to determine the description of physical activity and mental health in adolescents who are entering a period of adjustment in a new environment at a university in the Batam city. This research uses a cross sectional approach with quantitative methods. The sampling technique is random sampling by distributing questionnaires to respondents containing personal data and physical activity using GPAQ and mental health using the DASS-21 questionnaire which has been tested for validity first. The respondents in this research were 121 first semester students from several universities in Batam City. The research results showed that there was no relationship between physical activity and anxiety, namely 0.714 (P Value > 0.05). Based on the results of this study, it was concluded that physical activity has no correlation between anxiety.

Keywords: Physical Activity, Health, Mental, Adolescence

#### ABSTRAK

Remaja merupakan salah satu fase manusia dimana difase tersebut terjadi pertumbuhan dan perkembangan secara maksimal dalam kehidupan sehari-hari sehingga kemungkinan dapat menimbulkan masalah emosional yang tak terkontrol, diantaranya terjadi kecemasan, ketakutan, *insecure*, trauma yang pada akhirnya mempengaruhi kesehatan mental pada remaja. Berbagai faktor penyebab munculnya respon ketidakseimbangan mental adalah faktor eksternal yang berasal dari lingkungan atau tekanan dari hasil pilihan hidup yang dipilih oleh remaja. Penelitian ini bertujuan untuk mengetahui gambaran aktivitas fisik dan Kesehatan mental pada remaja yang memasuki masa penyesuaian di lingkungan Baru di Universitas yang ada di Kota Batam. Penelitian ini menggunakan pendekatan cross sectional dengan metode kuantitatif. Teknik pengambilan sampel adalah random sampling dengan menyebarkan kuisioner kepada responden yang berisi data personal dan aktifitas fisik menggunakan GPAQ serta Kesehatan mental menggunakan kuisioner DASS-21 yang telah diuji validitas terlebih dahulu. Responden dalam penelitian ini sebanyak 121 mahasiswa semester satu yang berasal dari beberapa perguruan tinggi di Kota Batam. Hasil penelitian didapatkan tidak ada hubungan antara aktivitas fisik dengan kecemasan adalah 0.714 (P Value > 0.05). Berdasarkan hasil dari penelitian ini disimpulkan bahwa aktivitas fisik tidak memiliki korelasi antara kecemasan.

**Kata Kunci:** Aktivitas Fisik, Kesehatan, Mental, Remaja

## INTRODUCTION

Adolescence is a transition period marked by physical, emotional and psychological changes. According to the World Health Organization (WHO), adolescence, namely between the ages of 10-19 years, is a period of maturation of human reproductive organs, and is often called puberty. The World Health Organization (WHO) states that the age range for adolescents is 10-19 years (WHO, 2021). RI Minister of Health Regulation No. 25 of 2014 states that teenagers are in the age range of 10-18 years (Kementerian Kesehatan Republik Indonesia, 2014).

The physiological functions of adolescents are influenced by the environmental conditions of adolescents. Environmental factors can have a strong influence to accelerate change. Changes are influenced by two important organs, namely: the hypothalamus and the pituitary. When these two organs work, there are three glands that are stimulated, namely: the thyroid gland, the kidney glands, and the reproductive organ glands. These three glands will work together and interact with genetic and environmental factors. Aspects of adolescent development talk about the concept of nature which reveals that adolescence is a time of storm and pressure. In this period of development, individuals experience a lot of turmoil and pressure due to the changes that occur in them. The concept of nurturing states that not all teenagers experience these stormy and stressful times. This depends on parenting patterns and the environment where the teenager lives (Deviliawati & Sayati, 2023)

The phenomenon that occurs in teenagers is about the use of coping mechanisms that affect emotional mental conditions, because there are many behavioral deviations that occur in teenagers, such as speaking harshly towards teachers and even hitting teachers and brawls between groups which are one of the emotional mental disorders. Mental health is a condition where an individual has well-being that is visible from him being able to realize his own potential, having the ability to overcome normal life pressures in various situations in life, being able to work productively and productively, and being able to contribute to his community. Quoting from the jargon used by WHO, "there is no health without mental health" indicates that mental health needs to be seen as something as important as physical health (Rachmah & Rahmawati, 2019)

**Early Indications That Lead to Mental Health Disorders** Although mental health problems are now often found to be bothering adults, such as depression, anxiety, eating disorders and psychosis, many of these mental health problems already cause symptoms or problems when they are children and teenagers (Cuellar, 2015; Bor, et al., 2014).

This condition comes with various difficulties which are usually present from very early childhood and affect the child's development in certain ways. Physical activity in adolescents is said to be the cause of a teenager's vulnerability to experiencing anxiety, this is because adolescence is one of the phases in this phase, maximum growth and development occurs in daily life so that it is possible to cause uncontrolled emotional problems, including anxiety, fear, insecurity, trauma which ultimately affects the mental health of teenagers. Active, routine and consistent physical activity Being a problem solver that influences the vulnerability of teenagers to mental health disorders, intense physical activity can trigger the brain to release the hormones endorphin, adrenaline, serotonin and dopamine which dampen and manage the stimulation of responses in the body.

Physical activity is believed to be one of the crucial factors related to health and improving the quality of life of students. Physical activity is important for improving cardiorespiratory fitness. Several studies have also shown that people who are more active have better cardiorespiratory fitness than people who are not too active. Several research results also show that a lack of physical activity and having an irregular eating pattern are also factors that can cause diseases related to lifestyle.

Physical activity is all activity that causes an increase or expenditure of energy which is important for physical and mental maintenance and can maintain the quality of life so that you can be healthy and fit throughout the day. Physical activity is any body movement that increases energy expenditure or energy burning. Physical activity is said to be sufficient if someone does physical exercise or sports for 30 minutes every day or at least 3-5 days a week. The benefits of regular physical activity can reduce symptoms of anxiety and depression,

sustainable reduction in blood pressure and various other benefits from physical activity (Desyanti & Kuntjoro, 2021; Guthold et al., 2020)

In general, physical activity can be divided into two categories: active and inactive. Individuals who meet the "active" requirement do a series of vigorous or moderate physical exercise, or even both, while those who meet the "inactive" criterion do neither moderate nor vigorous physical activity. Regarding the grouping of physical activities, they are divided into three groups which are explained as follows, namely: Light Activities, Medium Activities and Heavy Activities. Apart from that, there are several factors that influence physical activity, including biological factors, psychological factors, social environmental factors and physical factors (Guthold et al., 2020). This research aims to determine the description of physical activity and mental health in adolescents who are entering a period of adjustment in a new environment at a university in the Batam city.

## RESEARCH METHODS

This research is quantitative research using a cross-sectional study design, the researcher collected research data through questionnaires filled in by research respondents by distributing them to respondents who were first year or first semester students who were undertaking initial lectures on campuses in Batam City. The research results are presented in tabular form. Researchers distributed research questionnaires online to first semester students in Batam City. This study measured teenagers' physical activity using GPAQ (Global Physical Activity Questionnaire) Measuring Mental Health using the DASS 21 scale. The sample in the study was 121 people using random sampling method.

## RESULTS

The characteristics of respondents in this study consist of characteristics based on age and gender which can be seen in the table below:

**Table 1.** Frequency distribution

Age	Frequency (f)	Percentage (%)
15 – 17 years	35	29%
18 – 21 years	86	71 %
Total	121	100 %
Sex	Frequency (f)	Percentage (%)
Man	20	17%
Women	101	83 %
Total	121	100 %

The table above shows that the majority of respondents are aged 18 to 21 years, namely 71%, while respondents aged 15-17 years are 35 people or around 29%. For the characteristics of respondents based on gender, it was found that the majority of respondents were female, namely 101 people or around 80%, while 17% were male. The respondent data based on mental condition shows that 36% of teenagers are in the normal category. The borderline category was 27% and the abnormal category was 37% of the total number of respondents in this study.

**Table 2.** Bivariate test of adolescent physical activity and anxiety

Variable	Asymp Sig. (2-Tailed)
Anxiety	0.617
Physical Activity	

Based on table 2, it can be seen that mental health which was measured using the DASS-21 and QPAL Wellness Scale in adolescents found a p-value of 0.617 which shows that there is no influence of physical activity on the mental health of adolescents.

## DISCUSSION

In this study, researchers obtained a p-value for the relationship between anxiety and physical activity of 0.617, which means there is no relationship between anxiety and physical

activity in adolescents. The relationship between physical activity and anxiety in Middle school teenagers obtained a p-value of 0.64, this is because at adolescence the level of physical activity is very high and is almost always done regardless of the level of anxiety when doing physical activity (Wewengkang et al., 2023)

Physical activity has been studied to cause various positive physiological adaptations, one of which is the release of neurotransmitters such as serotonin in the brain which appears as a response to anxiety or stress. Physical activity that is not carried out in a structured and planned manner has less significant effects compared to regular physical activity such as exercising. When doing regular physical exercise, the body will release neurotransmitters and the hormones endorphin, dopamine, and serotonin to trigger positive feelings.

Daily physical activity is influenced by age and gender factors as in research conducted by Lontoh, Kumala and Novendy, (2020) who conducted research related to the description of physical activity in society and found that subjects who had light physical activity were vulnerable aged 30-40 years, namely 59%. compared to teenagers who are maximally active at the age of 25 years. In this study, in line with research which examined the relationship between gender and physical activity and it was found that physical activity in teenage girls and boys was different after puberty because boys have higher physical strength. compared to women (Lontoh, Kumala, & Novendy, 2020).

## CONCLUSION

In this study, no significant influence was found on physical activity and anxiety in adolescents. Researchers recommend conducting qualitative research on respondents to objectively assess the relationship between physical activity and anxiety that is actually experienced by teenagers.

## REFERENCES

- Bor, W., Dean, A. J., Najman, J., & Hayatbakhsh, R. (2014). Are child and adolescent mental health problems increasing in the 21st century? A systematic review. *Australian & New Zealand journal of psychiatry*, 48(7), 606-616.
- Cuellar, A. (2015). Preventing and treating child mental health problems. *The Future of Children*, 111-134.
- Desyanti, K. D., & Kuntjoro, B. F. T. (2021). Analisis Aktivitas Fisik Mahasiswa Terhadap Kebugaran Jasmani Di Era Pandemi. *Jurnal Pendidikan Olahraga dan Kesehatan*, 9(3), 281-286.
- Deviliawati, A., & Sayati, D. (2023). Aktifitas Fisik dan Paparan Audio Visual Terhadap Usia Menarche di SMP Puja Handayani Tahun 2022. *Jurnal Kesehatan Tambusai*, 4(2), 719-725. Retrieved from <https://journal.universitaspahlawan.ac.id/index.php/jkt/article/view/14639>
- Guthold, R., Stevens, G. A., Riley, L. M., & Bull, F. C. (2020). Global trends in insufficient physical activity among adolescents: a pooled analysis of 298 population-based surveys with 1.6 million participants. *The Lancet Child and Adolescent Health*, 4(1), 23-35. [https://doi.org/10.1016/S2352-4642\(19\)30323-2](https://doi.org/10.1016/S2352-4642(19)30323-2)
- Kementerian Kesehatan Republik Indonesia. (2014). *Peraturan Menteri Kesehatan Nomor 25 Tahun 2014 tentang Upaya Kesehatan Anak*. Jakarta: Kementerian Kesehatan Republik Indonesia.
- Lontoh, S. O., Kumala, M., & Novendy, N. (2020). Gambaran tingkat aktifitas fisik pada masyarakat Kelurahan Tomang Jakarta Barat. *Jurnal Muara Sains, Teknologi, Kedokteran Dan Ilmu Kesehatan*, 4(2), 453-462.
- Rachmah, E., & Rahmawati, T. (2019). Hubungan Pengetahuan Stress Dengan Mekanisme Koping Remaja. *Dinamika Kesehatan Jurnal Kebidanan Dan Keperawatan*, 10(2), 595-608. <https://doi.org/10.33859/dksm.v10i2.517>
- Wewengkang, R. B. E., Kairupan, B. H. R., & Munayang, H. (2023). Hubungan antara Aktivitas Fisik dan Kecemasan pada Remaja di SMP Katolik Santa Theresia Malalayang. *E-CliniC*, 12(1), 35-39. <https://doi.org/10.35790/ecl.v12i1.45226>
- WHO. (2021). *Mental health of adolescents*. World Health Organization.