ORIGINAL ARTICLE

Physical Fitness and Mental Health in Urban and Rural Areas

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ABSTRACT

Introduction: The young generation today is experiencing many problems in dealing with life problems, especially those related to mental health as well as physical fitness. Moderate to strenuous physical activity will provide benefits for the body, especially to overcome physical and mental fitness problems. This study aims to determine the various levels of physical fitness and mental health in various areas of residence (city and village). **Methods:** This type of research is a causal-comparative research. A total of 160 adolescents aged 16-19 years in West Sumatra in Indonesia were sampled in this study with details (City area 80 adolescents consisting of 40 boys and 40 girls, in the village consisting of 40 boys and 40 girls), samples were taken by means of random sampling. To reveal the level of physical fitness, the Indonesian Physical Fitness Test (TKJI) and Mental Health were carried out by filling out a questionnaire. The data were analyzed using a analisis univariat using Statistical Product and Service Solutions (SPSS) version 21. **Results:** The results showed that the physical fitness of rural adolescents was higher than that of urban adolescents with an average proving result of 99.65:61.35 while the mental health of adolescents was urban youth is higher than rural adolescents with an average ratio of 86.93. : 74.08. **Conclusion:** There are significant differences in physical fitness and mental health between rural and urban adolescents. So for further research, it is necessary to connect with other variables that are more relevant.

Keywords: Adolescent, Physical fitness, Mental health

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INTRODUCTION

One of the challenges that teachers must find solutions for for teenagers when teaching in schools today is how to create a supportive learning environment for the smooth implementation of the Teaching and Learning Process (PBM) so that students can achieve learning goals in accordance with educational goals (1). At this time, young people tend to experience mental health problems such as anxiety dealing with life problems, depression, stress and decreased self-esteem. This is in line with the results of research showing that there are around 450 million people suffering from mental and behavioral disorders throughout the world (2). Further research results show that physical activity can help to overcome adolescent mental health (3) for example: reduce feelings of anxiety (4); help speed recovery from stress (5); increase self-confidence and self-esteem (6).

In addition, the results of other studies show that physical activity will provide good benefits for the body, especially for physical fitness (7), motor skills related to skills, coordination and control as a basis for physical activity (8), bone health for example the content and density of minerals in the bone (9), brain and mental health (10) and academic achievement (11). The environment is understood to be able to influence physical activity especially related to the environment of residence (12), and school environment (13). Environmental variables and leisure physical activity are very helpful for developing policies and location-based interventions to encourage more physical activity (14). Physical activity can be influenced by the social environment, especially family, peers within the environment but various facilitators and barriers to participation are also reported (15). Family and friends in getting along will affect whether or not a teenager is active. The influence of social environmental variables on physical activity is better than perceived environmental factors such as home appliances (16), besides that social environmental support is not significantly related to physical activity in any sub-group (17). Further based on the results of the

study showed that the child, children and adolescents in rural environments have cardiorespiratory fitness, upper and lower extremity muscles, have better coordination, speed, and agility compared to children and adolescents in urban environments (18).

Based on the explanation above, a question arises on which this research is based, namely: what is the level of physical fitness and mental health of adolescents in rural and urban areas?

The physical environment is one of the elements that must be utilized by the organization so as to create a sense of comfort, peace, and can improve good work results to improve the performance of the organization (19), furthermore the physical environment is all physical factors which together constitute a physical atmosphere that surrounds a workplace (20).

For many people, an attractive physical environment contributes greatly to their daily activities. Available evidence supports the notion that a combination of urban design, land use, and road transport systems that prioritize walking and cycling will help create communities that are active in physical activity and become healthier (21).

The learning environment is a means for students to devote themselves to activities, to be creative, so that they get a number of new behaviors from their activities. In other words, the learning environment can be interpreted as a laboratory or a place for students to explore, experiment and express themselves to get new concepts and information as a form of learning outcomes (22). The learning environment is very instrumental in creating a pleasant learning atmosphere. The environment can increase the activity of learning, therefore the learning environment needs to be organized properly.

The participation in exercising of the urban population is higher when compared to the rural population (23). This condition is supported by the facilities and types of sports that develop in urban areas more than in rural areas (24). Based on this opinion, it can be concluded that the learning environment in urban areas supported by adequate facilities will have an impact on teenagers' interest in physical activity. For example, in the form of joining extracurricular activities, entering sports or clubs and playing in other communities.

Rural residences independently predict participation in organized activities, increase involvement in club sports, and reduce involvement in school sports (25). The involvement of adolescents in sports clubs that are relatively free of charge in rural areas will have a high level of interest. In places where physical activity can be carried out, efforts should be made to provide facilities for them so that routine school activities with inconvenience can be minimize

Physical activity is now a globally recognized program that is beneficial for the well-being of families, communities, and countries. Activity means that the nervous system and bones work, which results in body movements that release energy. Active based on global action plans by the World Health Organization (WHO) for physical activities launched in 2018-2030, it gives authority for the state to be present in providing policies and interventions that can help increase participation in physical activity (26). Recent data prove that one in four adults (1.4 billion people worldwide) do not meet WHO recommendations regarding physical activity while providing benefits from reducing the risk of chronic diseases and to improve their health and well-being (27). Physical activity for adolescents is able to provide benefits not only for the physical but also for the mental health. Besides regulating overweight and obesity, there are many other physical, psychological, and social benefits associated with increasing physical activity among teenagers (28). More regular physical activity will have an impact on adolescent mental health (29). Furthermore, the results of other studies explain that adolescents who carry out routine weekly activities will provide benefits for mental health, especially related to emotional stability (30). Physical activity for adolescents can provide benefits for physical and mental health, especially in mood disorders, autism spectrum and appetite (31).

Symptoms of adolescent depression can be reduced by physical activity (32). Based on the opinions and findings that have been stated, physical activity provides benefits for mental health for adolescents, especially related to emotional stability, mood, autism, appetite, intelligence, depression and so forth.

The process of everyday life of each person is closely related to will not be separated from physical fitness, because physical fitness is one very important factor in the continuity of daily life. Physical fitness is closely related to the state of one's health. The definition of health according to the World Health Organization (WHO) health is where physical, mental and social conditions are felt to be prosperous, not only the absence of disease or impairment of weakness in oneself (26). Meanwhile, physical fitness is the ability of one's body to perform daily tasks and work without causing significant exhaustion, so the body still has reserves of energy to overcome the added burden (33).

Mental health is as important as physical health and other illnesses or disabilities that arise in the body, because mental health accounts for 13 percent of the total global disease burden with the prediction that depression is the main cause of the global burden of disease in 2030 (34). This is in line with the Riskesdas 2013 data, which is around 6% and rose to 9.8% in 2018.

Internal and external factors are the main factors that can

affect a person's mental health (35). Although internal factors are factors within an individual consisting of personality, physical condition, development and maturity, psychological conditions, diversity, attitude toward life problems and balance in thinking. And external factors are factors originating from outside the individual consisting of: economic conditions, culture and environmental conditions, both family, community, and educational environment. The purpose of this study is the first to reveal differences in the physical fitness of urban and rural adolescents. the second is to reveal the differences in mental health of urban and rural adolescents. Thus, it is known which one is better in the physical fitness and mental health of adolescents between urban and rural areas.

MATERIALS AND METHODS

The population of adolescents released by the Central Statistics Agency of West Sumatra which was last updated on February 28, 2019 aged 10 to 14 years was 499,406 and aged 15 to 19 years was 481,156 people, thus the total number of teenagers in West Sumatra was 980,562 youths. This type of research is a causal-comparative research. A total of 160 adolescents in the province of West Sumatera Indonesia are divided into two areas, namely urban areas with 80 adolescents divided into 40 boys and 40 girls, then in rural areas consisting of 40 boys and 40 girls were used as the research sample. Thus the sample required is 160 youths. To measure the level of physical fitness of adolescents aged 16-19 years, the Indonesian Physical Fitness Test (TKJI) was carried out which consisted of: 1) sprinting 60m; 2) pull-ups (men) and hanging elbows (women); 3) Sit ups; 4) Vertical jump; 5) Middle-distance running (1200m Men & 1000m Women) With a validity level for the category of adolescents aged 16 to 19 years for men 0,960 and for women 0,711, while the reliability coefficient for men is 0.720 and for women 0.673 (36). To measure mental health using a questionnaire. The preparation of this questionnaire certainly refers to the grid that was prepared by the researcher in advance and in this study refers to the Liker scale. The results of the instrument item validity test (r count) were consulted with the critical price table from the r product moment table. For N = 30 with a significant level of 0.05 % is 0.374 (37). The procedures in this study include: 1) Preparation of the research team and experts; 2) licensing arrangements with related agencies, namely the education and school offices; 3) preparation of research instruments; 4) ethical management; 5) data collection in the field; 6) data processing. The data that has been collected from the results of the pre-test, post-test were analyzed using normality test statistics, homogeneity test and t-test with the following calculation steps: 1) Normality test using Lilliefors. Normality test aims to determine whether the data obtained is normally distributed or not; 2) Test the hypothesis by using the t-test. This is to find out how the differences in physical fitness between the city sample group and the village sample group. The data were analyzed using a analisis univariat using Statistical Product and Service Solutions (SPSS) version 21.

Ethical clearance

This study was approved by Ethics Commission, Universitas Negeri Padang No. 1538/UN35/KE/2020.

RESULTS

Based on the analysis carried out on existing data, there are differences in the physical fitness of male students between those in urban and rural areas with a significant value of 0.000 <0.05. In general, the average physical fitness level of male adolescent students in rural areas is better than the city, it can be seen that the average value of the village is 19.05> the city is 15.23. For female sex, the significant difference between urban and rural physical fitness is 0.000 <0.05. The difference between the average physical fitness of female adolescents and the average rural area is 14.00> greater than that of urban 11.50. Meanwhile, men's mental health in urban areas was better with an average of 104.53 compared to rural areas of 96.23. The average mental health of urban female adolescent students was 98.38 better than in rural 94.83. In general, the physical fitness level of rural adolescent students was better than urban areas with a difference in aver. age (99.65> 61.35). In general, the mental health of adolescent students in urban areas is better than in rural areas (86.93> 74.08). as shown in the following table I :

Table I: Differences in the physical fitness and Mental Healt of urban and rural men and female

		N	Mean	Std. Deviation	Std. Error Mean
TKJI	Rural (Men)	40	19.05	2.241	.354
	Urban (Men)	40	15.23	2.412	.381
	Rural (Female)	40	14.00	3.170	.501
	Urban (Female)	40	11.50	2.708	.428
Total TKJI	Rural	80	33.05	5.411	99.65
	Urban	80	26.73	5.120	61.35
Mental test	Rural (Men)	40	96.23	7.748	1.225
	Urban (Men)	40	104.53	6.575	1.040
	Rural (Female)	40	98.38	6.250	.988
	Urban (Female)	40	94.83	5.913	.935
Total Mental test	Rural	80	194.61	13.998	74.08
	Urban	80	919.36	12.488	86.93

DISCUSSION

The physical fitness of adolescent students in Indonesia should be a serious concern for the government and the wider community. It should be that both rural and urban areas receive the same portion of treatment so that they have the same good level of physical fitness. As a matter of fact, what happens is the opposite, which turns out to be a common task to solve this problem in the future, where it was stated that the urban boys and girls produced better physical performance than their rural counterparts (38). A study reported that the level of physical activity among rural and urban youths greatly affected their physical fitness (39,40). Rural boys and girls have higher levels of physical fitness than their urban counterparts. Similar results were previously noted among youth in Spain (41,42). Youth physical fitness is important to be a concern from an early age because it will have an impact on the life to come. Urban and rural youth should have the same right to live fitter, therefore this data proves how important it is to be known by all groups to be noticed from all elements of society. For example, although two adolescents may both live in a rural area or have a similar household income, their experiences, perspectives, and behaviors may differ based on their race. Indeed, intersectionality has been used as a framework for examining interactions amongst factors associated with health disparities in minority populations (47,48,49).

Likewise, with regard to mental health, both urban and rural adolescent students along with the development of science and technology today have more or less impact on their lives. Rural adolescents are also more affected by their mental health problems. In contrast to previous studies showing that rural and urban youth in Canada experience similar levels of stress (43), our results reveal differences in mental health among young women with urban adolescent dislike. Taking into account that youth living in rural areas tend to experience a more positive life than urban ones from rural youth (44,45), adolescent students in our sample represent a large proportion of those in urban and rural areas in Indonesia who may also need more complete and efficient data support. The mental health of urban male students is better than that of rural students, while the mental health of urban female students is lower than that of rural students (46). This means that the mental health of rural and urban youth has its own advantages and disadvantages that need attention in the long term. Mental health is important for rural and urban youth because it will have an impact on their physical. if they are mentally disturbed, it is feared that other more serious problems will occur for survival.

CONCLUSION

Based on the analysis of the results and the discussion that has been explained, it can be concluded as follows: First, there is a significant difference in the level of physical fitness between urban and rural adolescents. It can be seen that the physical fitness of rural youth is better than that of urban youth. Second, there are significant differences in mental health between urban and rural adolescents. It can be seen that the mental health value of urban adolescents is better than that of rural adolescents. So for further research, it is necessary to connect with other variables that are more relevant for further researchers.

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REFERENCES

1. Suherman A. Revitalisasi pengajaran dalam pendidikan jasmani. Bandung: CV. Bintang Warli Artika. 2009.
2. Ayuningtyas D, Rayhani M. Analisis Situasi Kesehatan Mental Pada Masyarakat Di Indonesia Dan Strategi Penanggulangannya. Jurnal Ilmu Kesehatan Masyarakat. 2018 Oct 10;9(1):1-0.
3. Harris MA. The relationship between physical inactivity and mental wellbeing: Findings from a gamification-based community-wide physical activity intervention. Health psychology open. 2018 Jan;5(1):2055102917753853.
4. Schaeffer DJ, Krafft CE, Schwarz NF, Chi L, Rodrigue AL, Pierce JE, Allison JD, Yanasak NE, Liu T, Davis CL, McDowell JE. An 8□month exercise intervention alters frontotemporal white matter integrity in overweight children. Psychophysiology. 2014 Aug;51(8):728-33.
5. Hillman CH, Buck SM, Themanson JR, Pontifex MB, Castelli DM. Aerobic fitness and cognitive development: Event-related brain potential and task performance indices of executive control in preadolescent children. Developmental psychology. 2009 Jan;45(1):114.
6. Jones RA, Downing K, Rinehart NJ, Barnett LM, May T, McGillivray JA, Papadopoulos NV, Skouteris H, Timperio A, Hinkley T. Physical activity, sedentary behavior and their correlates in children with Autism Spectrum Disorder: A systematic review. PloS one. 2017 Feb 28;12(2):e0172482.
7. Crouter SE, Salas C, Wiecha J. Effects of an afterschool community center physical activity program on fitness and body composition in obese youth. Journal of Sports Sciences. 2017 Jun 3;35(11):1034-40.
8. Berntzen B, Jukarainen S, Kataja M, Hakkarainen A, Lundbom J, Lundbom N, Tammelin T, Simonen R, Piiril∆ P, Rissanen A, Kaprio J. Physical activity,

in monozygotic twin pairs discordant for body mass index. Scandinavian journal of medicine & science in sports. 2018 Mar;28(3):1048-55.
9. Poitras VJ, Gray CE, Borghese MM, Carson V, Chaput JP, Janssen I, Katzmarzyk PT, Pate RR, Connor Gorber S, Kho ME, Sampson M. Systematic review of the relationships between objectively measured physical activity and health indicators in school-aged children and youth. Applied Physiology, Nutrition, and Metabolism. 2016;41(6):S197-239.
10. Biddle SJ, Asare M. Physical activity and mental health in children and adolescents: a review of reviews. British journal of sports medicine. 2011 Sep 1;45(11):886-95.
11. Rasberry CN, Tiu GF, Kann L, McManus T, Michael SL, Merlo CL, Lee SM, Bohm MK, Annor F, Ethier KA. Health-related behaviors and academic achievement among high school students—United States, 2015. MMWR. Morbidity and mortality weekly report. 2017 Sep 8;66(35):921.
12. Sallis JF, Johnson MF, Calfas KJ, Caparosa S, Nichols JF. Assessing perceived physical environmental variables that may influence physical activity. Research quarterly for exercise and sport. 1997 Dec 1;68(4):345-51.
13. Morton KL, Atkin AJ, Corder K, Suhrcke M, Van Sluijs EM. The school environment and adolescent physical activity and sedentary behaviour: a mixed□studies systematic review. Obesity reviews. 2016 Feb;17(2):142-58.
14. Wang J, Lee K, Kwan MP. Environmental influences on leisure-time physical inactivity in the US: An exploration of spatial non-stationarity. ISPRS International Journal of Geo-Information. 2018 Apr;7(4):143.
15. Kirby J, Levin KA, Inchley J. Socio-environmental influences on physical activity among young people: a qualitative study. Health education research. 2013 Dec 1;28(6):954-69.
16. Maddison R, Vander Hoorn S, Jiang Y, Mhurchu CN, Exeter D, Dorey E, Bullen C, Utter J, Schaaf D, Turley M. The environment and physical activity: The influence of psychosocial, perceived and built environmental factors. International Journal of Behavioral Nutrition and Physical Activity. 2009 Dec;6(1):1-0.
17. Pan SY, Cameron C, DesMeules M, Morrison H, Craig CL, Jiang X. Individual, social, environmental, and physical environmental correlates with physical activity among Canadians: a cross-sectional study. BMC public health. 2009 Dec;9(1):1-2.
18. Sylejmani B, Myrtaj N, Maliqi A, Gontarev S, Georgiev G, Kalac R. Physical fitness in children and adolescents in rural and urban areas.
19. Sihombing. S. Manajemen Sumber Daya Manusia. Jakarta: Balai Pustaka. 2004.
20. Gie, TL. Administrasi Perkantoran Modern. Yogyakarta: Liberty. 2000.
21. Handy SL, Boarnet MG, Ewing R, Killingsworth RE. How the built environment affects physical activity: views from urban planning. American journal of preventive medicine. 2002 Aug 1;23(2):64-73.
22. Mariyana R. Pengelolaan Lingkungan Belajar. Jakarta: Kencana Media Group. 2010.
23. Prasetyo Y. Kesadaran masyarakat berolahraga untuk peningkatan kesehatan dan pembangunan nasional. Medikora. 2013;11(2).
24. Sekretaris Kemenpora RI. Penyajian Data dan Informasi Statistik Keolahragaan Tahun 2010. Jakarta: Kemenpora RI. 2010.
25. Dollman J, Norton K, Tucker G. Anthropometry, fitness and physical activity of urban and rural South Australian children. Pediatric Exercise Science. 2002 Aug 1;14(3):297-312.
26. World Health Organization. Global action plan on physical activity 2018–2030. More active people for a healthier world. World Health Organization, License: CC BY-NC-SA 3.0 IGO. 2018 [Online] Retrieved from: ttp://www.who.int/iris/handle/10665/272722.
27. Guthold R, Stevens GA, Riley LM, Bull FC. Worldwide trends in insufficient physical activity from 2001 to 2016: a pooled analysis of 358 population-based surveys with 1· 9 million participants. The lancet global health. 2018 Oct 1;6(10):e1077-86.
28. Shearer EM, Moore BA. The effects of physical activity on the physical and psychological health of adolescents. InHandbook of adolescent health psychology 2013 (pp. 165-174). Springer, New York, NY.
29. Hrafnkelsdottir SM, Brychta RJ, Rognvaldsdottir V, Gestsdottir S, Chen KY, Johannsson E, Gupmundsdottir SL, Arngrimsson SA. Less screen time and more frequent vigorous physical activity is associated with lower risk of reporting negative mental health symptoms among Icelandic adolescents. PloS one. 2018 Apr 26;13(4):e0196286.
30. Brunes, A., Flanders, W.D. and Augestad, L.B., 2015. The effect of physical activity on mental health among adolescents with and without self-reported visual impairment: The Young-HUNT Study, Norway. British Journal of Visual Impairment, 33(3), pp.183-199.
31. Mangerud WL, Bjerkeset O, Lydersen S, Indredavik MS. Physical activity in adolescents with psychiatric disorders and in the general population. Child and adolescent psychiatry and mental health. 2014 Dec;8(1):1-0.
32. Korczak DJ, Madigan S, Colasanto M. Children's physical activity and depression: a meta-analysis. Pediatrics. 2017 Apr 1;139(4).
33. Kusmaedi. N. Olahraga Lansia. Bandung: FPOK – UPI. 2008.
34. Harris MA. The relationship between physical inactivity and mental wellbeing: Findings from

a gamification-based community-wide physical activity intervention. Health psychology open. 2018 Jan;5(1):2055102917753853.
35. Bukhori B. Hubungan kebermaknaan hidup dan dukungan sosial keluarga dengan kesehatan mental narapidana (Studi kasus nara pidana Kota Semarang). Jurnal ad-din. 2012;4(1):1-9.
36. Kemendiknas. Tes Kesegaran Jasmani Indonesia (TKJI) Usia 16-19 Tahun. 2010.
37. Semiun, Y. Kesehatan Mental 3. Yogyakarta: Penerbit Kanisius. 2006.
38. Eiben OG, Barabбs A, Nйmeth Б. Comparison of growth, maturation, and physical fitness of Hungarian urban and rural boys and girls. Journal of Human Ecology. 2005 Feb 1;17(2):93-100.
39. Davy BM, Harrell K, Stewart J, King DS. Body weight status, dietary habits, and physical activity levels of middle school-aged children in rural Mississippi. Southern medical journal. 2004 Jun 1;97(6):571-8.
40. Paxton RJ, Estabrooks PA, Dzewaltowski D. Attraction to physical activity mediates the relationship between perceived competence and physical activity in youth. Research quarterly for exercise and sport. 2004 Mar 1;75(1):107-11.
41. Chillyn P, Ortega FB, Ferrando JA, Casajus JA. Physical fitness in rural and urban children and adolescents from Spain. Journal of Science and Medicine in Sport. 2011 Sep 1;14(5):417-23.
42. Albarwani D Phil S, Al-Hashmi K, Al-Abri M, Jaju D, Hassan MO. Effects of overweight and leisure-time activities on aerobic fitness in urban and rural adolescents. Metabolic syndrome and related disorders. 2009 Aug 1;7(4):369-74.
43. Elgar FJ, Arlett C, Groves R. Stress, coping, and behavioural problems among rural and urban adolescents. Journal of adolescence. 2003 Oct 1;26(5):574-85.
44. Haugen MS, Villa M. Big Brother in rural societies: Youths' discourses on gossip. Norsk Geografisk Tidsskrift-Norwegian Journal of Geography. 2006 Sep 1;60(3):209-16.
45. Rauhut D, Littke H. 'A one way ticket to the city, please!'on young women leaving the Swedish peripheral region Vдsternorrland. Journal of rural studies. 2016 Feb 1;43:30 -10.
46. Chaeroni A, Kusmaedi N, Ma'mun A, Budiana D, Haris F. The Influence of the Learning Environment on Students' Physical and Mental Health Based on Gender. International Journal of Human Movement and Sports Sciences. 2021 Jul 9(4):622 – 628.
47. Ray R. An Intersectional Analysis to Explaining a Lack of Physical Activity Among Middle Class Black Women. Sociol. Compass. 2014;6:780–791.
48. Lypez N., Vargas E., Juarez M., Cacari-stone L., Bettez S. What's Your "Street Race"? Leveraging Multidimensional Measures of Race and Intersectionality for Examining Physical and Mental Health Status among Latinxs. Sociol. Race Ethn. 2018;4:49–66.
49. Evans C.R. Adding interactions to models of intersectional health inequalities: Comparing multilevel and conventional methods. Soc. Sci. Med. 2019;221:95–105.