


The Role of Physical Activity in Enhancing Mental Health among Adults Facing

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INTRODUCTION

Stress is a common problem that occurs in society, and in certain cases, stress can occur in things related can affect individuals of any age, race, or gender. The prevalence of stress is high worldwide, with approximately 75% of American adults experiencing severe levels of stress, a number that continues to rise (Smith et al., 2020). Fritz's research on 100 North American students revealed that 38% of them experienced stress (Fritz et al., 2008). Bughi conducted research in California involving 104 students and found that the prevalence of stress in medical students was 51% (Bughi et al., 2006). Research in Mansoura, Saudi Arabia, which showed that 94.5% of medical students experienced stress (Al-Shahrani et al., 2023). Research conducted in Thailand by Saipanish involving 686 students showed that 61.4% of medical students experienced stress (Saipanish, 2003). Similarly, research conducted by Sidik in Malaysia on 396 medical faculty students found that 41.9% experienced stress (Sidik et al., 2003). In 2018, Lumbu researched stress among students at the Faculty of Medicine, University of North Sumatra in Indonesia (Lumbu & Setiawan, 2018). The study found that 11.1% of students experienced mild stress, 85.2% experienced moderate stress, and 3.7% experienced severe stress.

The International Council of Sport and Education defines sport as a physical activity that involves play and competition with oneself or others (Siedentop, 2022). It is planned, structured and

involves repetitive body movements to improve physical fitness. Regular exercise has numerous benefits for the body, including disease prevention, weight maintenance, and stress reduction. This can lead to a more relaxed and cheerful demeanor, both physically and emotionally (Utama, 2018). Regular exercise can help reduce stress levels by fighting the hormone cortisol. To boost the body's immunity to stress, exercise is a recommended approach.

Stress is caused by a stressor, which is a situation or condition that reduces a person's ability to feel happy, comfortable, and productive. Daily hassles, such as work problems, can be a source of stress. Personal stressors are threats or disturbances caused by major losses or events that occur at an individual level, such as the loss of a loved one, a job, or financial problems. Age is a significant factor in causing stress, as individuals tend to experience more stress as they age (Mroczek & Almeida, 2004). Physiological factors, such as a decline in visual, cognitive, memory, and auditory abilities, contribute to this phenomenon (Fortunato et al., 2016). Work experience is also a factor that can lead to work-related stress. Another source of stress is appraisal, which refers to the evaluation of a situation that can cause stress. Assessing a potentially stressful situation depends on two factors: personal factors and situational factors. It is important to consider all of these factors when evaluating a potentially stressful situation.

Other factors that can influence stress levels include physical condition, social support, self-esteem, lifestyle, and certain personality types (Schraml et al., 2011). Physical fitness refers to the body's capacity to perform daily tasks efficiently for extended periods without undue fatigue. The five fundamental components of fitness are heart and lung endurance, muscle strength, muscle endurance, flexibility, and body composition (Kemmler et al., 2010). Physical fitness is influenced by various factors, including genetics, age, gender, exercise, smoking habits, and nutritional status according to (Ahmad et al., 2019).

Exercise habits can significantly impact physical fitness, particularly in terms of exercise intensity, frequency, and duration (Vanhees et al., 2012). Developing a consistent exercise routine can greatly enhance fitness levels. Additionally, it is crucial to maintain a formal register, avoiding contractions, colloquialisms, and informal expressions. Finally, it is important to avoid introducing new content and to maintain a clear and logical structure with causal connections between statements. When using technical terms, it is important to explain their meaning when first introduced. It is important to note that any subjective evaluations should be clearly marked as such.

The term 'sport' originates from the words 'if', meaning movement, and 'raga', meaning body (Sogawa, 2006). The text should be free from grammatical errors, spelling mistakes, and punctuation errors. Exercise has numerous benefits, including maintaining a healthy body, preventing various diseases, and improving physical health. Sports activities utilize physical elements to promote joy and restore physical and mental health. Additionally, engaging in sports can help keep the body in prime condition and improve fitness. Sports activities promote sportsmanship, personality development, and good character, ultimately contributing to the development of a quality human being based on (Safitri et al., 2021).

According to (Muspita et al., 2018), health and fitness are fundamental human needs that require enjoyable and sustained physical activity to achieve. In order to achieve health and fitness, persistence and patience are required as it is not something that can be achieved quickly. It is important to ensure that physical challenges are appropriate for one's level of physical fitness, thus avoiding obstacles, in order to function smoothly and achieve the best results. Results and health can be significantly affected by a person's ability to perform tasks (Muspita et al., 2018). The development of sports is now very rapid and people are starting to realize the importance of sports activities, be it

educational sports, community sports, performance sports or sports for fitness. The purpose of exercise varies depending on the activity carried out, one of which is to determine a person's condition. To be able to participate in sports activities requires knowledge about one's own physical condition at the beginning or after carrying out physical activity to determine progress each time carrying out the physical activity According to (Damsir et al., 2021).

Physical exercise involves planned, structured, and repetitive body movements that use energy to improve fitness. Regular exercise has numerous health benefits, including reducing the risk of cardiovascular diseases, metabolic syndrome disorders, and osteoporosis, as noted by (Elsa, 2015). Physical condition as a person's ability to optimally achieve sports goals. Physical training routines and productivity levels have a direct impact on the results achieved. The more active a person is during exercise, the higher their productivity and fitness levels. Sports activities also greatly influence a person's physical fitness and play a direct role in their overall fitness composition. It is important to choose sports activities that are appropriate for the person's age, taking into account the type of activity, safety precautions, and equipment used. Sports activities should be conducted with proper rules and techniques, as stated by (Putra, 2021). According to (Lutfillah, 2020), the physical fitness of children and adolescents is a crucial indicator of their health and psychological well-being. It is measured through an integrated assessment of cardiorespiratory fitness, flexibility, muscle fitness, and body composition. In addition, poor physical fitness during childhood can have negative effects on the health of adolescents in both the short and long term.

Etymologically, adults are individuals who have reached a certain age. Therefore, adulthood is predicted to occur between the ages of 20-60 years, according to (Widodo, 2021). The success of improving physical fitness is closely related to the frequency, intensity, and duration of training. Exercising 3-5 times per week for 20-60 minutes can improve a person's physical fitness. It is important to pay attention to the intensity applied during training, specifically 60-90% of the maximum heart rate. The conditions and size of the training should also be adjusted to the goals and type of training.

Study Aims and Hypotheses

Therefore, it is necessary to analyze the results of several studies on sports and physical training models for adolescent physical fitness. This literature review aims to determine the influence of sports and physical training models on adolescents' physical fitness. The findings can be used as a recommendation for adolescents to improve their physical fitness.

Based on the background provided, the hypothesis of the research seems to be the influence of sports and physical training models on adolescents' physical fitness can significantly impact their overall health and well-being. This hypothesis suggests that engaging in sports activities and following structured physical training programs can lead to improvements in adolescents' physical fitness levels. The hypothesis stems from the discussion on the benefits of regular exercise and sports activities, which include disease prevention, stress reduction, and overall physical health improvement. The research aims to investigate how different sports and physical training models affect various aspects of adolescents' physical fitness, including cardiorespiratory fitness, flexibility, muscle fitness, and body composition.

METHODS

Design

This study employs an analytical observational approach using a cross-sectional design. An analytical approach involves analyzing data to understand relationships between variables, often

employing statistical methods. In observational studies, researchers observe and measure variables of interest without intervention, while cross-sectional designs gather data from a population at a single time point. Thus, this research likely observes adolescents' physical fitness levels in relation to sports and physical training models, analyzing data without intervention to explore associations between these factors.

Population

The study will target the community of XYZ Village, Ambon, specifically all adults aged 25-55 years, totaling 96 people. The sample size estimation formula for unpaired numerical analytical research was used to determine the minimum sample size. Sample size calculation for this study is as follows: Z_{α} , representing the type I error set at 5%, is 1.64, while Z_{β} , representing the type II error set at 10%, is 1.28. The standard deviation (S) is noted as 1.3 based on literature. The minimum difference in means considered significant ($X_1 - X_2$) is 1. Given these parameters, the formula for calculating sample size (n) yields $n_1 = n_2 = 29$. However, considering a dropout rate of 10%, the final sample size (N) is adjusted to 64 respondents. Thus, the sample size for this study is determined to be 64 respondents.

Research Flow

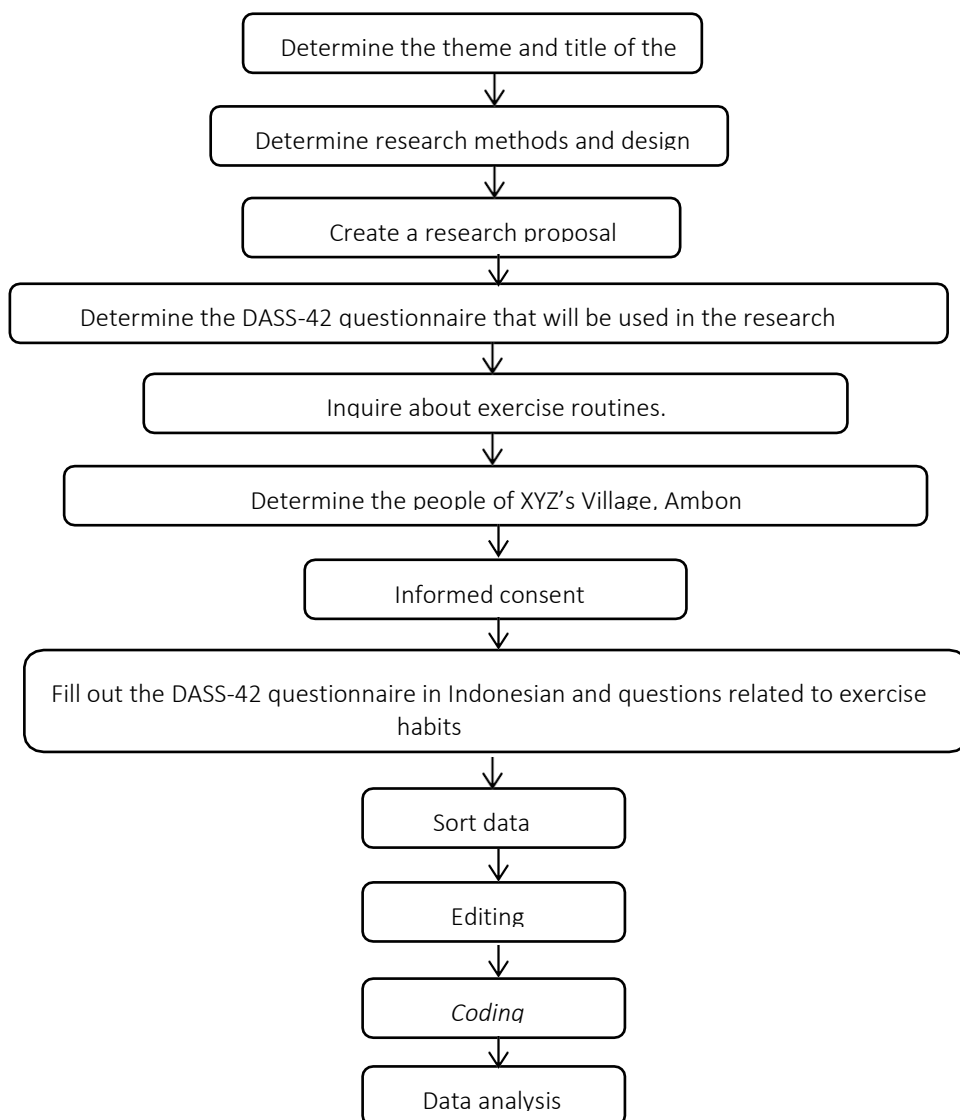


Figure 2. Research Flow

The research flow outlined presents a structured and comprehensive guide for conducting the research. Starting with identifying the research theme and title, the process involves narrowing the focus to specific problems, opportunities, or questions, resulting in a concise and informative research title reflective of the central theme. Subsequently, determining suitable research methods and design becomes pivotal, necessitating carefully considering techniques such as surveys, interviews, or experiments to gather data effectively, aligning with the research objectives. Creating a research proposal entails articulating purpose, goals, significance, methods, and timeframe, alongside conducting a literature review to synthesize relevant studies and obtain necessary approvals and ethical clearances. The selection of the DASS-42 questionnaire in Indonesian, validated for cultural appropriateness, marks another significant aspect, requiring permission and adherence to copyright regulations. Inquiries about exercise routines are developed to assess habits comprehensively, ensuring clarity and understanding through pilot testing. Determining the target population within the XYZ village, Ambon, involves specifying demographic parameters and sampling methods to ensure representativeness while adhering to inclusion and exclusion criteria for a balanced sample. Securing informed consent from participants underscores the ethical dimension of the study, ensuring participants' right to withdraw at any time. Subsequent phases involve sorting and organizing collected data, reviewing and correcting errors, and developing a coding scheme for systematic analysis.

Data Management

This research utilizes primary data, which is obtained directly from data sources. The questionnaire was filled out by research respondents and administered by the researcher on the sample, which consisted of the community in XYZ village, Ambon. Responses were collected on the same day. The secondary data used in this study is the community's population in XYZ village, Ambon. This study employed the DASS 42 questionnaire as a research instrument to collect data on participants' identity and stress levels. Additionally, simple questions were used to measure participants' exercise habits. Data analysis, employing appropriate statistical methods or thematic analysis, facilitates the interpretation of results and the derivation of meaningful conclusions in line with research objectives. Administering the DASS-42 questionnaire and exercise habit inquiries to participants in a comfortable and ethical environment concludes the research process, ensuring comprehensive data collection aligned with the study's overarching goals.

RESULTS AND DISCUSSION

Results

The study conducted univariate analysis on three variables: gender, stress level, and exercise habits, with a sample size of 96 respondents. The researchers focused on the gender variable. The data showed that 69 respondents (72.9%) were women and 27 (27.1%) were men. The researchers observed the characteristics of gender in the community of XYZ Village, Ambon, see figure 3.

This study classified stress into five levels: normal, mild, moderate, severe, and very severe. The classification was determined based on 14 questions from the DASS 42 questionnaire, with each question offering four answer choices ranging from 0 to 4 to obtain a total score. Respondents will be classified based on their total score as normal (0-14), mild stress (15-18), moderate stress (19-25), severe stress (26-33), or very severe stress (≥ 34) see figure 4.

The graph of figure 3 illustrates that the majority of respondents (59.4%) experienced normal levels of stress, while only a small percentage (5.2%) reported very severe stress. The questionnaires were distributed after the completion of the final exams of the school year (OSCE and SOCA exams), during which respondents had to endure a challenging period of preparation. According to this research, the level of stress experienced by respondents is impacted by this factor. The study found that the highest stress level was considered normal.

Meanwhile, the data indicates that 60.4% of respondents do not exercise regularly, while only 39.6% do. This may be due to the busy schedules of medical students, who have limited free time for physical activity. These findings are consistent with Rony's research, which reported that 81.93% of medical students at Riau University have poor exercise habits, see figure 5.

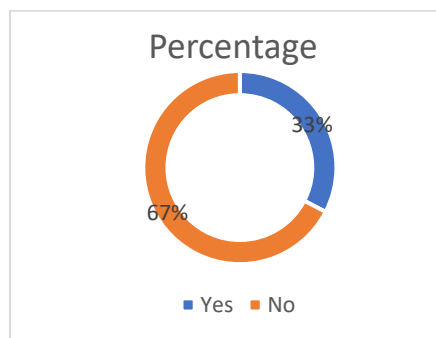


Figure 3. Distribution of Respondents Based on Physical Activity in the XYZ Village Community, Ambon

Then, it was found that 38 respondents who exercised regularly had the following characteristics. The highest frequency of exercise was once a week, with 14 respondents (36.8%). 11 respondents (28.9%) exercised twice a week, while 13 respondents (34.2%) exercised more than twice a week. According to the distribution of time spent exercising each week among individuals who habitually exercise, 7 respondents (18.4%) required 10 minutes for each exercise session, while 12 respondents (31.6%) took 20 minutes. The remaining respondents spent more than 20 minutes, totaling 19 respondents (50.0%). According to distribution of exercise types among individuals with exercise habits, 29 respondents engaged in aerobic exercise (76.3%), while 4 respondents engaged in anaerobic exercise (10.5%). Additionally, 5 respondents reported engaging in both aerobic and anaerobic exercise (13.2%).

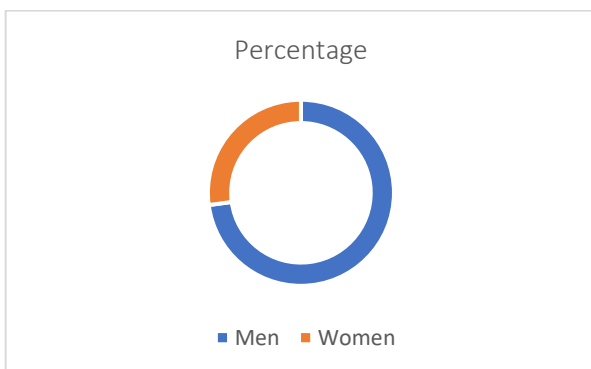


Figure 4. Distribution of Respondents Based on Gender in the XYZ Village Community, Ambon

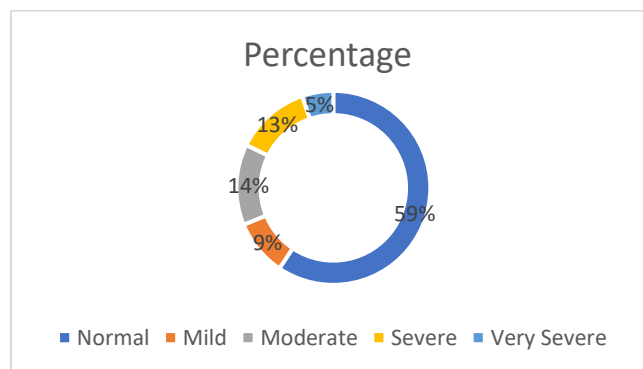


Figure 5. Distribution of Respondents Based on Stress or Mental Health in the XYZ Village Community, Ambon

Table 1. Distribution of people based on their exercise frequency per week, duration, and type of exercise

Exercise frequency per week	Total		Percentage (%)
Once per week	14		36,8
2x per week	11	N=38	28,9
More than two times	13		34,2
Duration	Total		Percentage (%)
10 minutes	7		18,4
20 minutes	12	N=38	31,6
More than 20 minutes	19		50,0
Type of Exercise	Total		Percentage (%)
Aerobic	29		76,3
Anaerobic	4	N=38	10,3
Aerobic & Anaerobic	5		13,2

Based on the table 1 above, it is evident that 41 female respondents (42.7%) experienced normal stress, 8 respondents (8.3%) experienced mild stress, 10 respondents (10.4%) experienced moderate stress, 7 respondents (7.3%) experienced severe stress, and 3 respondents (3.1%) experienced very severe stress. Meanwhile, among the male respondents, 16 (16.7%) experienced normal stress, 1 (1%) experienced mild stress, 3 (3.1%) experienced moderate stress, 5 (5.2%) experienced severe stress, and 2 (2.1%) experienced very severe stress.

Research conducted by Eva at a private university in Bangladesh found that stress levels were higher among female second and third-year medical students (64%) than male students (36%). This is consistent with Rahmayani's research, which found that female first-year students at the Faculty of Medicine, Andalas University, had a higher stress level (69.9%) than male students (30.4%).

Wang suggests that there is a difference in stress response between men and women, which is influenced by the activity of the HPA axis and the sympathetic nervous system. These systems provide negative feedback when the body experiences stress. The HPA axis regulates the hormone cortisol, while the sympathetic nervous system regulates heart rate and blood pressure. Men and women have different responses to stress due to variations in their hormonal and nervous systems. Men tend to have a higher response from the HPA and autonomic nervous system, while women's sex hormones respond to the HPA sympathoadrenal, which can reduce the negative feedback of the hormone cortisol to the brain. Men tend to have a higher response from the HPA and autonomic nervous system, while women's sex hormones respond to the HPA sympathoadrenal, which can reduce the negative feedback of the hormone cortisol to the brain. As a result, women tend to experience stress differently than men.

The table 2 above shows that 27 out of 96 respondents (28.1%) had a habit of exercising, while 42 respondents (43.8%) did not. Of the respondents, 11 (11.5%) were male, and 16 (16.7%) did not have an exercise habit. Mak's research on exercise habits found that young adult men exercise more frequently than women, with 63.8% of men exercising after studying and 78.7% of men and 60% of women exercising on holidays. Table 1 shows that 26 respondents (27.1%) had a habit of exercising

Table 2. Shows the frequency distribution of stress levels by gender

Gender	Stress or Mental Health					Total N(%)
	Normal N(%)	Mild N(%)	Moderate N(%)	Severe N(%)	Very Severe N(%)	
Women	41(42,7%)	8(8,3%)	10(10,4%)	7(7,3%)	3(3,1%)	69(71,9%)
Men	16(16,7%)	1(1%)	3(3,1%)	5(5,2%)	2(2,1%)	27(28,1%)
Total	57(59,4%)	9(9,4%)	13(13,5%)	12(12,5%)	5(5,2%)	96(100%)

Table 3. Respondents based on the frequency distribution of exercise habits by gender and the relationship between exercise habits and stress levels people in XYZ's Village Ambon

Gender	Exercise Habits		Total
	Yes N(%)	No N(%)	N(%)
Women	27(28,1%)	42(43,8%)	69(71,9%)
Men	11(11,5%)	16(16,7%)	27(28,1%)
Total	38(39,6%)	58(60,4%)	96(100%)
Exercise Habits	Stress and Mental Health		Total
	Yes N (%)	No N (%)	N (%)
Yes	26 (27,1)	12 (12,5)	38 (39,6)
No	31 (32,3)	27 (27,1)	58 (60,4)
Total	57 (59,4)	39 (40,6)	96 (100%)
P Score			0,144

with normal stress levels, while 12 respondents (12.5%) had abnormal stress levels. Additionally, 31 respondents (32.3%) did not have the habit of exercising with normal stress levels, and 27 respondents (27.1%) had abnormal stress levels.

The study conducted univariate analysis on three variables: gender, stress level, and exercise habits, with a sample size of 96 respondents, primarily focusing on the gender variable. The data revealed that out of the respondents, 69 (72.9%) were women, and 27 (27.1%) were men, reflecting the gender distribution in the XYZ Village, Ambon community. The study classified stress into five categories based on responses from the DASS 42 questionnaire, with a majority of respondents (59.4%) experiencing normal stress levels. In contrast, only a small percentage (5.2%) reported very severe stress. Notably, the distribution of stress levels was influenced by the challenging period of preparation for final exams, during which the questionnaires were distributed. Regarding exercise habits, the data indicated that 60.4% of respondents did not exercise regularly, which might be attributed to the busy schedules of medical students. Among those who exercised regularly, various patterns emerged, including the frequency, duration, and type of exercise, with aerobic activities being the most common.

DISCUSSION

Based on the Chi-Square correlation test results, a p-value of .144 was obtained, indicating no significant relationship between exercise habits and stress levels in the community of XYZ Village, Ambon. These findings are consistent with Ramirez's research, which also found no significant relationship between stress levels in groups who exercised and those who did not (Ramirez et al., 2018). Chen's research also found no significant relationship between exercise habits and stress levels in USU FK students entering 2008 (Chen et al., 2019). However, it is important to note that the study had limitations, as it did not examine other potential risk factors that could affect stress levels beyond exercise habits.

However, these results do not align with Irazusta's research, which indicates a significant correlation between exercise habits and stress levels among students (Irazusta et al., 2006). Kim's research also found a significant relationship between exercise and anxiety levels (Kim et al., 2020). This suggests that exercise can reduce stress levels, which may lead to a decrease in anxiety and depression among students. The study found different results compared to previous research due to a larger sample size that included first-year students who were adapting to cultural differences and a new living environment. It is crucial to maintain objectivity in reporting research findings.

Analysis of stress levels by gender revealed differing experiences, with women generally reporting higher stress levels than men, consistent with previous research findings. However, no

significant relationship was found between exercise habits and stress levels, in contrast to some previous studies. These findings underscore the complex interplay between gender, stress, and exercise habits among adults facing challenges in XYZ Village, Ambon, and highlight the need for further investigation into factors influencing mental health outcomes.

The study found different results from previous research due to a larger sample size that included first-year students adapting to cultural differences and a new living environment. It is important to note that individual responses to stress can vary. In addition, this research includes multiple variable groupings on stress levels, resulting in some categories having only a few respondents. This condition can act as a confounding factor, potentially affecting research results such as the one mentioned above. The study revealed unexpected results, as some respondents with exercise habits experienced severe stress levels. This suggests that individuals may respond to stress differently and that exercise habits may not always be a determining factor in stress levels. Researchers became interested in obtaining direct information through interviews with several respondents who experienced severe to very severe levels of stress but did not exercise. The results showed that the coping methods used included watching films, shopping, playing games, sleeping, eating, and seeking new environments or joining organizations to improve soft skills and reduce stress.

According to Mocanu's research, students tend to choose sedentary activities such as watching movies and playing games to relieve stress because they are more convenient than exercising (Mocanu et al., 2021). This is because they can be done without leaving the house or boarding house. It is important to note that these activities do not provide the same physical benefits as exercise. Therefore, it is recommended that students find ways to incorporate physical activity into their stress relief routines. This fragment of text is already well-written and adheres to the desired characteristics. No changes are necessary. Baker identifies two types of stress coping: problem-solving focused and emotion-focused coping (Baker & Berenbaum, 2007). Problem-solving coping involves actively seeking solutions to overcome stressors, while emotion-focused coping involves regulating emotions to adapt to the impacts of stress (Herman & Tetrick, 2009). It is important to note that both types of coping mechanisms can be effective depending on the situation. Spirituality or religious practices are another method that can help cope with stress. Spirituality can be practiced through Sunnah worship, which includes meditation, prayer, rituals, and reading holy books. This method is consistent with Greenberg's theory that spirituality can reduce emotional responses to stress. Spirituality can be beneficial for physical and psychological well-being, and is an effective way to manage stress.

Implications

The findings suggest that exercise habits may not significantly correlate with stress levels among adults aged 25-55 years in the XYZ area of Ambon. This implies that interventions solely focused on promoting exercise may not effectively reduce stress levels in this population. Instead, broader approaches that address multifaceted factors contributing to stress may be necessary. Medical educators and policymakers should consider incorporating stress management techniques beyond physical activity into educational programs and public health initiatives targeting adults in similar demographic profiles. Additionally, healthcare providers may need to explore alternative strategies to support stress reduction among individuals in this community, considering the limited impact of exercise habits alone.

Limitations and Future Research Direction

One limitation of this study is its cross-sectional design, which only provides a snapshot of the relationship between exercise habits and stress levels at a specific time. Future research could employ longitudinal designs to explore changes in stress levels over time in response to changes in exercise

habits. Moreover, the study focused on adults aged 25-55 years in the XYZ area of Ambon, limiting the generalizability of the findings to other age groups and geographic locations. Future studies could include a more diverse sample to enhance the external validity of the findings. Additionally, the study utilized self-reported measures for exercise habits and stress levels, which may be subject to recall and social desirability biases. Future research could incorporate objective measures, such as activity trackers and physiological markers, to provide more accurate assessments. Furthermore, qualitative research methods could be employed to gain deeper insights into the subjective experiences and perceptions of stress and exercise among individuals in the community. This would enable researchers to explore the underlying mechanisms driving the relationship between exercise habits and stress levels, informing the development of more targeted interventions and strategies for stress management.

CONCLUSION

The study examined stress levels among 96 respondents from XYZ Village in Ambon City. The majority experienced normal stress, followed by mild, moderate, severe, and very severe stress. Regarding exercise habits, some respondents exercised regularly, while others did not. However, the research found no significant correlation between exercise frequency and stress levels among the residents of XYZ Village in Ambon City.

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AUTHOR CONTRIBUTION STATEMENT

All authors have read and approved the final version of the manuscript.

REFERENCES

- Ahmad, A., Azrin, M., & Firdaus, F. (2019). Tingkat Daya Tahan Jantung Paru Pada Pusat Pendidikan dan Latihan Pelajar Atlet Sepak Bola (PPLP) Pekanbaru Menggunakan Metode Lari 12 Menit. *Jurnal Ilmu Kedokteran*, 13(2), 21. <https://doi.org/10.26891/JIK.v13i2.2019.21-26>
- Al-Shahrani, M. M., Alasmri, B. S., Al-Shahrani, R. M., Al-Moalwi, N. M., Al Qahtani, A. A., & Siddiqui, A. F. (2023). The Prevalence and Associated Factors of Academic Stress among Medical Students of King Khalid University: An Analytical Cross-Sectional Study. *Healthcare (Basel)*, 11(14). <https://doi.org/10.3390/healthcare11142029>
- Baker, J. P., & Berenbaum, H. (2007). Emotional approach and problem-focused coping: A comparison of potentially adaptive strategies. *Cognition & Emotion*, 21(1), 95-118. <https://doi.org/10.1080/02699930600562276>
- Bughi, S. A., Sumcad, J., & Bughi, S. (2006). Effect of Brief Behavioral Intervention Program in Managing Stress in Medical Students from Two Southern California Universities. *Med Educ Online*, 11(1), 4593. <https://doi.org/10.3402/meo.v11i.4593>
- Chen, S. H., Chen, S. C., Lai, Y. P., Chen, P. H., Huang, T. Y., Lin, C. C., & Yeh, K. Y. (2019). Correlates Between Health Beliefs and Health-Promoting Lifestyle Profiles in the Development of Metabolic Syndrome in Taiwan. *Asia Pac J Public Health*, 31(1), 30-38. <https://doi.org/10.1177/1010539518816245>
- Damsir, D., Idris, M., & Rizhardi, R. (2021). SURVEI TINGKAT KEBUGARAN JASMANI PADA SISWA SEKOLAH MENENGAH PERTAMA. *JOLMA*, 1(1), 41. <https://doi.org/10.31851/jolma.v1i1.5369>
- Elsa Y, A. (2015). *Pengaruh Latihan Fisik Submaksimal Terhadap Kadar F2- Isoprostan Pada Siswa Pusat Pendidikan Dan Latihan Olahraga Pelajar Sumatera Barat*. Eksakta. [Google Scholar](https://scholar.google.com/citations?user=...)

- Fortunato, S., Forli, F., Guglielmi, V., De Corso, E., Paludetti, G., Berrettini, S., & Fetoni, A. R. (2016). A review of new insights on the association between hearing loss and cognitive decline in ageing. *Acta Otorhinolaryngol Ital*, 36(3), 155-166. <https://doi.org/10.14639/0392-100X-993> (Ipoacusia e declino cognitivo: revisione della letteratura.)
- Fritz, M. V., Chin, D., & DeMarinis, V. (2008). Stressors, anxiety, acculturation and adjustment among international and North American students. *International Journal of Intercultural Relations*, 32(3), 244-259. <https://doi.org/10.1016/j.ijintrel.2008.01.001>
- Herman, J. L., & Tetrick, L. E. (2009). Problem-focused versus emotion-focused coping strategies and repatriation adjustment. *Human Resource Management*, 48(1), 69-88. <https://doi.org/10.1002/hrm.20267>
- Irazusta, A., Gil, S., Ruiz, F., Gondra, J., Jauregi, A., Irazusta, J., & Gil, J. (2006). Exercise, physical fitness, and dietary habits of first-year female nursing students. *Biol Res Nurs*, 7(3), 175-186. <https://doi.org/10.1177/1099800405282728>
- Kemmler, W., von Stengel, S., Engelke, K., Haberle, L., Mayhew, J. L., & Kalender, W. A. (2010). Exercise, body composition, and functional ability: a randomized controlled trial. *Am J Prev Med*, 38(3), 279-287. <https://doi.org/10.1016/j.amepre.2009.10.042>
- Kim, S. Y., Jeon, S. W., Lee, M. Y., Shin, D. W., Lim, W. J., Shin, Y. C., & Oh, K. S. (2020). The Association between Physical Activity and Anxiety Symptoms for General Adult Populations: An Analysis of the Dose-Response Relationship. *Psychiatry Investig*, 17(1), 29-36. <https://doi.org/10.30773/pi.2019.0078>
- Lutfillah, S. (2020). *Tingkat Kebugaran Jasmani Tim Futsal Putri : Literatur Review*. Jurnal Pendidikan Olahraga Dan Kesehatan. [Google Scholar](https://scholar.google.com/citations?user=...)
- Lombu, I. P., & Setiawan, S. (2018). Hubungan Tingkat Stres Dengan Strategi Koping Mahasiswa Reguler Profesi Ners Di Fakultas Keperawatan Universitas Sumatera Utara. *Talenta Conference Series: Tropical Medicine (TM)*, 1(1), 36-40. <https://doi.org/10.32734/tm.v1i1.55>
- Mocanu, G. D., Murariu, G., & Munteanu, D. (2021). The Influence of Socio-Demographic Factors on the Forms of Leisure for the Students at the Faculty of Physical Education and Sports. *Int J Environ Res Public Health*, 18(23). <https://doi.org/10.3390/ijerph182312577>
- Mohd Sidik, S., Rampal, L., & Kaneson, N. (2003). Prevalence of emotional disorders among medical students in a Malaysian university. *Asia Pacific Family Medicine*, 2(4), 213-217. <https://doi.org/10.1111/j.1444-1683.2003.00089.x>
- Mroczek, D. K., & Almeida, D. M. (2004). The effect of daily stress, personality, and age on daily negative affect. *J Pers*, 72(2), 355-378. <https://doi.org/10.1111/j.0022-3506.2004.00265.x>
- Muspita, M., Kamarudin, K., & Fernando, R. (2018). Profil Kebugaran Jasmani Mahasiswa Penjaskesrek Semester I FKIP UIR Tahun 2015/2016. *Journal Sport Area*, 3(1), 70-78. [https://doi.org/10.25299/sportarea.2018.vol3\(1\).1306](https://doi.org/10.25299/sportarea.2018.vol3(1).1306)
- Muspita, M., Kamarudin, K., & Fernando, R. (2018). Profil Kebugaran Jasmani Mahasiswa Penjaskesrek Semester I FKIP UIR Tahun 2015/2016. *Journal Sport Area*, 3(1), 70-78. [https://doi.org/10.25299/sportarea.2018.vol3\(1\).1306](https://doi.org/10.25299/sportarea.2018.vol3(1).1306)
- Putra, B. (2021). *Survei Tingkat Kebugaran Jasmani Siswa Sekolah Sepak Bola Pelindo III U-13 Tahun 2021 Kota Surabaya*. [Google Scholar](https://scholar.google.com/citations?user=...)
- Ramirez, J., Duijvenboden, S. V., Ntalla, I., Mifsud, B., Warren, H. R., Tzani, E., Orini, M., Tinker, A., Lambiase, P. D., & Munroe, P. B. (2018). Thirty loci identified for heart rate response to exercise and recovery implicate autonomic nervous system. *Nat Commun*, 9(1), 1947. <https://doi.org/10.1038/s41467-018-04148-1>
- Safitri, A., Maghfiroh, I., Khafis, A., & Panggraita, G. N. (2021). Profil Kebugaran Jasmani Atlet Petanque Kabupaten Pekalongan. *Halaman Olahraga Nusantara (Jurnal Ilmu Keolahragaan)*, 4(1), 126. <https://doi.org/10.31851/hon.v4i1.5070>

- Saipanish, R. (2003). Stress among medical students in a Thai medical school. *Med Teach*, 25(5), 502-506. <https://doi.org/10.1080/0142159031000136716>
- Schraml, K., Perski, A., Grossi, G., & Simonsson-Sarnecki, M. (2011). Stress symptoms among adolescents: the role of subjective psychosocial conditions, lifestyle, and self-esteem. *J Adolesc*, 34(5), 987-996. <https://doi.org/10.1016/j.adolescence.2010.11.010>
- Siedentop, D., & Van der Mars, H. . (2022). *Introduction to physical education, fitness, and sport. Human kinetics*. [Google Scholar](#)
- Smith, B. E., Miles, T. P., Elkins, J., Barkin, J. L., Ebell, M. H., & Ezeamama, A. E. (2020). The Impact of Stressful Life Events on the Incidence of Type 2 Diabetes in U.S. Adults From the Health and Retirement Study. *J Gerontol B Psychol Sci Soc Sci*, 75(3), 640-649. <https://doi.org/10.1093/geronb/gby040>
- Sogawa, T. (2006). Ethnic Sport, its Concept and Research Perspectives. *International Journal of Sport and Health Science*, 4(Special_Issue_2), 96-102. <https://doi.org/10.5432/ijshs.4.96>
- Utama, F. (2018). ESQ Way 165: Alternatif Metode Pengembangan Kecerdasan Emosi dan Spiritual Anak. *Journal of Early Childhood Care and Education*, 1(1). <https://doi.org/10.26555/jecce.v1i1.59>
- Vanhees, L., Geladas, N., Hansen, D., Kouidi, E., Niebauer, J., Reiner, Z., Cornelissen, V., Adamopoulos, S., Prescott, E., Borjesson, M., Bjarnason-Wehrens, B., Bjornstad, H. H., Cohen-Solal, A., Conraads, V., Corrado, D., De Sutter, J., Doherty, P., Doyle, F., Dugmore, D., . . . Vanuzzo, D. (2012). Importance of characteristics and modalities of physical activity and exercise in the management of cardiovascular health in individuals with cardiovascular risk factors: recommendations from the EACPR. Part II. *Eur J Prev Cardiol*, 19(5), 1005-1033. <https://doi.org/10.1177/1741826711430926>
- Widodo, A. (2021). *Literature Review Hubungan Penggunaan Gawai Terhadap Aktivitas Fisik Remaja*. Jurnal Kesehatan Olahraga. [Google Scholar](#)