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The Relationship Between Knowledge Level about Physical Activity and Depression Among Pre-Elderly Individuals

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Abstract

This study aims to determine the relationship between knowledge about physical activity and depression in the pre-elderly group in the working area of the Ledeng Community Health Center (Regional Technical Implementation Unit), Bandung City. The method used is a descriptive correlational study with a cross-sectional approach, where data is collected over a period of time. The study sample consisted of 50 pre-elderly people aged 45–59 years selected using accidental sampling techniques. The instruments used included a questionnaire on the level of knowledge of physical activity and the Beck Depression Inventory-II (BDI-II). Data were analyzed descriptively and inferentially using the Chi-Square test with a significance level of $p < 0.05$. The results showed that the majority of respondents had good knowledge of physical activity (56%) and experienced minimal depression (82%). Statistical tests showed a relationship between knowledge of physical activity and levels of depression in the pre-elderly ($p = 0.000$). These results indicate that the better the pre-elderly people's understanding of physical activity, the less prone they are to developing depression. Thus, efforts to improve health education regarding the importance of physical activity need to be strengthened as a strategy to prevent depression and improve well-being in the pre-elderly group.

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INTRODUCTION

Middle age: According to the World Health Organization (WHO), this age group is called middle age or pre-elderly. At this time, individuals begin to undergo all kinds of biological, psychological, emotional and social changes constitute a continuing part of the process called aging. Furthermoer, in general, pre-elderly individuals encounter reduced physical fitness, such as weaker muscles, an increased likelihood of chronic disease, hormonal alterations that can influence mood and stability in life (Zheng et al., 2022). All these conditions are exacerbated by social pressures such as declining labor status, family economic responsibilities that get closer-or seem more immediate-and apprehensions about aging. As a result, many pre-elderly people are easily overcome by stress and a sense of helplessness (Jin & Jing, 2024).

Longitudinal research also indicates that between middle-aged persons (45 years Intervention that targets cognitive abilities is a effective way to reduce the risk of future frailty in late life ; older adultsutely in- creases this risk. The reported odds ratios (OR), ranging from 1.926 to 2.193, suggest that individuals with depressive symptoms face almost double the chande of physical frailty in late life than do those without suchsigns (Sun et al., 2024). These findings corroborate the fact that depression among the pre-elderly is not just a result of psychological degeneration, but at about this age it is also a symptom in the continuing process of bio-social decay. Untreated, in this process depression may very well develop into more serious mental disorders as people grow older (Kusuma et al., 2021).

Several international studies report that the incidence of depression is significantly increased among people between the ages of 45 and 59. In this period, pre-elderly individuals undergo a great number of physical, psychological and social changes which would make them still more susceptible to depressive symptoms. Some studies also suggest that depression middle-aged adults (45-59 years) is relatively high, even more so than previously seen among the younger, according to Arias De La Torre et al. (2021). Moreover, research by Christl et al. (2025), data show that among a 1,017 sample of people aged 50 years and older the peak incidence in number these individuals was found to occur between the ages of 50 to 59. Similarly, Ni et al. (2022), reported that among 16,512 subjects, more than half were middle-aged and nearly 51% of them were 45-59 years old. Even when compared to older populations older adults, middle-aged people have different risk factors for depression at this time in their lives. From a social and familial perspective, Zhang et al. (2024), reported that people aged 45 years and older (≥ 45) suffer even more depression that is influenced other adverse factors such as marital status, quality of family relationship and personal circumstances. And from a local level Yuliari (2019), found the people aged 45-59 are often burdened with both weak social support and financial pressure a lack of physical activity on account too many factors of daily life.

To help pre-elderly persons reduce depression, one approach is to get up and move around a little.An effective non-pharmacological intervention for reduction of depressive symptoms recognized universallyThe description was given aristocratic style by (Schuch et al., 2016). A meta-analysis conducted by Noetel et al. (2024), showed that exercise promotes mental health. Brisk walking, strength training, yoga, and other physical activities all help to reduce the symptoms of depression significantly. The effectiveness is as good as taking mild drugs. A study led by Bizzozero-Peroni et al. (2024), showed that people who walk more than 7,000 steps each day are 26% less likely to suffer from depression than those who walk less consistently.Persons engaging in moderate-intensity activity are less likely to get depression than their physically inactive counterparts, by 18- 25% (Pearce et al., 2022). From this, it can be understood that physical activity not only serves as a preventive measure but can also be used as an adjunctive therapy in managing depression, including among pre-elderly individuals.

These results are consistent across various studies, Jin & Jing (2024), showed that the protective effects of physical activity against depression are stronger even than community social activities. Protective effects of this kind are especially pronounced in people with chronic illnesses. The odds in favor of physical activity are 1.397 against social activity in this case, while else where it should be added that strength, particularly grip strength, and adequate levels of physical activity are both significant protective factors against depression in both middle and old age. Research by Zheng et al. (2022), also emphasizes that physical strength particularly grip strength and adequate levels of physical activity play an important role as protective factors against the risk of depression in middle-aged and older adults, supports this In Kenya, research by Kasenzu (2024), and work by Gao et al. (2023), in China both showed that older people who regularly take part in physical activity are less likely to suffer from depression and

have a better quality of life. These universal and cannot drastically change findings suggest that the relationship between physical health and depression may not be restricted by culture or place.

The success of physical activity programs lies not only in the frequency or duration of exercise but more importantly, in the individual knowledge and understanding of benefits relating to it as well proper method. People who have knowledge enough about physical activity can be more motivated and show better adherence to exercise routines, hence tend to be less prone depression (Collado-Mateo et al., 2021). Health literacy furthermore plays a vital role in forming healthy lifestyles and in effectiveness of physical program interventions. As a result, enough knowledge of physical activity among pre-old peoples is expected to lead them to be more steady in exercising and to give emotional security. Knowledge about physical activity is an important factor affecting people's behavior and the realization of an active lifestyle. With adequate knowledge, people are able to realise that physical activity has benefits in preventing diseases and reducing the risk of depression. Septiana (2019), pointed out that the higher the individual's level of knowledge, the better their physical fitness. Similar results were obtained by Goenawan et al. (2018), who confirmed that by understanding the importance of physical activity, various metabolic disorders could be avoided among productive age groups.

However, only a limited number of them have looked into the role that informationon how people behave suggests might play in physical and psychological conditions, especially for pre-eldest people aged 45-59 years. In Indonesia, however, the research on this aspect is still relatively limited. Existing studies focus solely on the relationship between physical activity and depression, omitting knowledge as either amediating or moderating factor (Yuliari, 2019).

The purpose of this study is to examine the relationship between knowledge about physical activity and depression among pre-elderly individuals aged 45-59 years in the working area of the Ledeng Community Health Center, Bandung City. Specifically, the research aims to identify the level of physical activity knowledge in the pre-elderly population, assess their level of depression using standardized instruments, and analyze whether a significant association exists between these two variables. Through this objective, the study seeks to provide evidence that may support the development of targeted health education interventions to enhance understanding of physical activity as a preventive measure against depression in the pre-elderly group. As a result, this study rises as a new kind of study to inquire how knowledgeable pre-eldest people are about physical activity and whether that relates to their level of depression. The results are expected to serve as the basis for making educational strategies aimed at improving the mental health of pre-elderly people in Indonesia more effective.

METHODS

In this study, a descriptive correlational design was used with a cross-sectional approach i.e. data were collected at one point in time. The purpose of that was to investigate the relationship between participants 'level of knowledge about physical activity and the degree to which they are depressed. This design was selected to investigate the relation extent of independent variable-knowledge of physical activity is associated with dependent variable : depression levels in pre-elderly groups (Rachman, 2024).

The population studied in this was restricted in age to those years 45-59, and residents within City of Bandung Township Ledeng Regional Technical Implementation Unit Puskesmas. The total for this population comes to 50. The sample in this study was decided by way of an accidentalism. Respondents were selected according to the fact that they just happened to come under one' s notice during research period and on top of that will go along with it. The selection criteria in this study were pre-elderly individuals aged 45-59 years, they had to be in good physical condition and not receiving medical therapy; moreover, they had to be sufficiently physically fit by signing an informed consent. The exclusion criteria were individuals who declined to participate or were too physically weak to take part in the survey.

Two types of questionnaires were used in the research.The first instrument was the Beck Depression Inventory-II (BDI-II), and the second instrument is a test about Persons knowledge of physical activity.The Beck Depression Inventory-II (BDI-II) is a self-report inventory used for assessing the severity or degree of depressive symptoms in individuals aged 13 years and older.The model contains twenty-one items asking about your feelings, thinking, motivation, and actions done by oneself as well as physical symptoms corresponding to levels of depression (Palupi et al., 2021). Of the 21 questions, each is scored on a 0–3 scale covering psychological measures of emotional, cognitive, motivational and physical dimensions. The scoring categories are their

sum totals that include 0–13 (minimal depression), 14–19 (mild depression), 20–28 (moderate depression), 29–63 (severe depression) (Purwoningrum et al., 2020). Beck Depression Inventory (BDI) had an Alpha of Cronbach ' value of 0.899. This figure is greater than 0.60, indicating that index reliability for Moods Depressive Instrument measurement is reliable (Dewi & Dianovinina, 2022).

The second instrument was a physical activity knowledge questionnaire for determining respondents ' understanding of concepts, benefits, and practical recommendations related to physical activity appropriate for the pre-elderly adults. The questionnaire consisted of 30 questions with true or false answers, both positive and negative.With respect to the questions, they were to be based upon self-explanations in Tremblay et al. (2016), and (WHO, 2020). Before it was used in the formal investigation, the instrument underwent tests of both reliability and validity in order to confirm its applicability as measurement tools. The results of the validity test showed that 5 items were invalid, with correlation values of less than the minimum threshold ($r < 0.3$); the remaining 25 items were valid and appropriate for data collection. Reliability testing using Cronbach ' s Alpha produced a value of 0.772, suggesting that the instrument had high internal reliability and was appropriate for measuring the level of physical activity knowledge in pre-elderly adults. The scale of measurement used was the Guttman scale, whereby right positive wrong negative answers were scored 1, and wrong positive right negative answers 0 (Rachman, 2024). The results of the scale were grouped into three levels: proper knowledge (≥76–100%), enough information (56–75%), and poor awareness (≤55%). Both instruments were tested for validity before the instruments were used in the final survey, as well as their reliability, thus it was reasonable to use them as measurement tools for this research.

Questionnaires completed their data were then edited, coded, tabulated, and transferred to SPSS version 25 software. The data analysis was divided into three steps. Firstly, a descriptive analysis of the physical activity knowledge questionnaire used in this research, which was designed to describe the frequency distribution and percentage of pre-elderly subjects' knowledge status on physical activity. Second, a descriptive analysis of the BDI-II questionnaire used here, which describes the degree that respondents feel depressed in a particular category. Third, using Chi-Square test, inferential analysis was made to check relationship between pre-elderly people who have knowledge and those who do not. significant difference will be found if data is taken as being statistically significant when p values are less than 0.05 (Prihanti, 2016). All results of the analysis were presented in the form frequency tables and cross-tab analysis.

RESULTS AND DISCUSSION

Table 1. Demographic Characteristics of Respondents (n = 50)

Characteristics	Frequency	Percentage
Gender		
Male	21	42,0
Female	29	58,0
Age		
45-50	19	38,0
51-55	18	36,0
56-59	13	26,0

As you can see from the **Table 1**, the total number of respondents in this study was 50 people.In terms of gender the respondents were mostly women. There were 29 participants (58 percent), while men numbered 21 individuals (42 percent). Female pre-elderly individuals in the study outnumbered men, which may suggest that women living in that area have more activity or contact them more easily because of health surveys and the like.Based on age categories, the largest group among the respondents was 45–50 years old with 19 individuals (38.0 percent). Next was 51–55 years of age, with 18 individuals (36.0 percent), and then 56–59 year-olds rounded out as 13 individuals in comparison (26 percent). This data shows that the vast majority of respondents were in the early pre-elderly stage, those aged 45–50, who are in the initial stage of the physical and psychological changes in the transition to old age. Generalizing, nothing in it says but most respondents were pre-elderly women of 45–50 years of age, a very important group in efforts to prevent mental health disorders such as depression by improving health knowledge.

Table 2. Frequency Distribution of Physical Activity Knowledge Levels among Pre-Elderly Individuals (n = 50)

Variable Level of knowledge of physical activity	Frequency	%
Good	28	56,0
Fair	20	40,0
Poor	2	4,0

The **Table 2** shows most respondents possess a good level of physical activity knowledge, in total 28 persons (56.0%). This can be further seen in: TikTok and Twitter each had an article that was read by 27 respondents (54.0%). Follow-ups are then As shown on the table above, knowledge levels regarding physical exercise among different respondents vary. But No water rowers at all. A seed seeder and upright bike. There is this one study also that deals with the influence of environmental factors but is not low; FROC stands for the Growth Effects Scale of Physical Outputs and Resources for Urban and Rural areas.

This indicates that the vast majority of individuals approaching old age in our study hinterland have a good grasp of the benefits, means and proper intensity of bodily exercise required to maintain their constitution as well as avoid mental disorders such as depression. But there are still a small number of respondents who have a low knowledge level; this points to the necessity for continuous health education efforts in terms of explaining to people in pre-old age how important exercise actually is.

Table 3. Frequency Distribution of Depression among Pre-Elderly Individuals (n = 50)

Variable Depression	Frequency	%
Minimal depression (0-13)	41	82,0
Mild depression (14-19)	5	10,0
Moderate depression (20-28)	3	6,0
Severe depression (29-63)	1	2,0

According to the result shown in **Table 3**, the majority of pre-elderly people fall in minimal depression category, a total 41 well over half of all respondents (82.0%). The grading is distributed as follows: 5 people (10.0%) mildly depressed; 3 people (6.0%) in moderate depression; and only 1 person (2.0%) has really severe depression.

The results of this preponderance of mental health in the study area show that the vast majority of people are good or perfect: 60% (36 cases) is depressive with extremely low levels of tension. However, the presence of a few respondents experiencing mild to severe depression indicates that the pre-elderly age group still suffers from danger in this field. Therefore, to keep the mental health of pre-elderly individuals on an even keel, voluntary efforts and social support items like improving physical recreation are required.

Based on the **Table 4**, it's clear that out of 28 interviewees who knew something about physical activity, most were like the 24 people with only a trace of depression. In addition 3 people had mild depression, 1 person episode was moderate; no interviewee experienced severe depression.Who had a moderate level of 12 individuals interviewed in this study was again the least upset group by a 17-to-2 ratio, followed by 1 person episode of moderate depression. But all those with low knowledge--2 persons each--had depression from medium to severe degrees, each category having 1 person.One of the questions in the non-parameter tests (Chi-Square test between different levels and numbers shows that under 0.05 level) with statistical analysis, produces p value=0.000 ($p < 0.05$). This sets up significant level significance for level of knowledge on physical activity and happening depression among people aged 55 or older.

Table 4. Relationship Between Physical Activity Knowledge and the Occurrence of Depression Among Pre-Elderly Individuals

Physical Activity Knowledge Level	BDI-II					
	Minimal Depression	Mild Depression	Moderate Depression	Severe Depression	n	p-value
Good	24	3	1	0	28	0,000
Fair	17	2	1	0	20	
Poor	0	0	1	1	2	
Total	41	5	3	1	50	

A better knowledge of physical activity is significantly correlated with less depression in pre-elderly individuals, according to findings from this research ($p = 0.000$). This represents an example of cause and effect: the better an individual's understanding about physical exercise, lower level depression experienced has to be. Consistant with previous research showing the same type of connection Collado-Mateo et al. (2021), these findings suggest that a certain level of fitness knowledge plays an important role in shaping our lifestyles. Such understanding is also beneficial to developing a strong adherence toward regularly exercising, which in turn reduces the chances of acquiring mental disorders such as depression eventually.

Most respondents in this study understood the importance of physical exercise quite well (56%) and had levels of depression that were considered to be mild (82%). The obtained high level of understanding may be partly influenced by a number factors including exposure to health information in primary healthcare programs, educational activities given by health workers and family encouragement toward adopting a healthy life-style. This indicates that an elderly person with a good appreciation of why physical exercise is helpful is likely, therefore to possess emotional stability and mental health. Lastly, WHO

(2010), also affirms the claim that high health literacy can protect an individual against the development of psychological disorders, at the same time allowing for them to regulate daily stresses and maintain a regular pattern of physical activity.

Several previous studies have found that physical activity plays an important role in maintaining an individual's mental health (Borroe & Minto, 2023).From a scientific standpoint, non-pharmacological interventions with well-esteemed health effects include physical activity. Meta-analytic results demonstrate that aerobics, yoga and muscle work (strength training) all have antidepressant effects: their efficacy is about equal to that of mild pharmacological treatments, mildly perhaps better. In addition, Bizzozero-Peroni et al. (2024), found in their study that people who did more than 7,000 steps a day were approximately 26% less likely to develop depression than those who had lower levels of physical activity.Also, Zheng et al. (2022), observations further support that muscle strength (especially grip strength) and sufficient physical activity serve as protective factors against depression, particularly among people in the middle and older age brackets.Regular physical activity stimulates the production of chemicals in the brain. These chemicals, such as endorphins, serotonin and dopamine are crucial for mood regulation (Jin & Jing, 2024). I am not the only one who has noticed this insight. Both studies by Kasenzu (2024) and Gao et al. (2023), confirm previous findings in demonstrating that middle-aged persons who persist in physical activity not only enjoy better mental health but also live more fulfilling lives overall compared thosewho do not exercise regularly. Therefore it can be concluded that the relationship between physical activity and depression is universal, without respect to differences in cultural or geographical background.

Furthermore, the research showed that the range of people's knowledge has a major impact on whether they will live a healthy way of life or not. This finding is in keeping with the claim of Septiana (2019), that the higher physical health understanding a person has, the better his or her condition is probably. Similarly, Goenawan et al. (2018), state that a broadly-based education in the importance of physical activity enables the prevention of metabolic syndrome and safeguards mental stability in people the productive years. Betrays an grasp of the importance of physical activity. One that is growing ever more actual is: better scan. In the case of pre-old age people, understanding like this becomes a main factor in holding oneself fit, avoiding social isolation and not becoming depressed. Consequently, to continue health education for pre-old age people and build up health literacy from a prevention-promotion perspective as one of the strategies to decrease depression risk in the future.

CONCLUSION

In the operational area of Regional Technical Implementation Unit Puskesmas Ledeng in Bandung City, this study discovered that the extent of mental depression among the pre-elderly group of people is closely associated with their knowledge of physical activity. The better pre-elderly persons know about how important physical activity is, the less likely they are to have depressive symptoms.Thus, regular exercise let pre-elderly people keep emotionally balanced. It can fend off long term sadness and emotional jitters. Because of this, health education and psychological counselling must make the positive influence of physical activity an ongoing focus of attention. So far this is the best preventive measure among pre-elderly people for reducing depression and raising their living standard.

REFERENCES

Bizzozero-Peroni, B., Díaz-Goñi, V., Jiménez-López, E., Rodríguez-Gutiérrez, E., Sequí-Domínguez, I., Núñez De Arenas-Arroyo, S., López-Gil, J. F., Martínez-Vizcaíno, V., & Mesas, A. E. (2024). Daily Step Count and Depression in Adults: A Systematic Review and Meta-Analysis. JAMA Network Open, 7(12). https://doi.org/10.1001/jamanetworkopen.2024.51208

Christl, J., Grumbach, P., Jockwitz, C., Wege, N., Caspers, S., & Meisenzahl, E. (2025). Prevalence of depressive symptoms in people aged 50 years and older: A retrospective cross-sectional study. Journal of Affective Disorders, 373, 353–363. https://doi.org/10.1016/j.jad.2024.12.099

Collado-Mateo, D., Lavín-Pérez, A. M., Peñacoba, C., Del Coso, J., Leyton-Román, M., Luque-Casado, A., Gasque, P., Fernández-Del-olmo, M. Á., & Amado-Alonso, D. (2021). Key factors associated with adherence to physical exercise in patients with chronic diseases and older adults: An umbrella review. In International Journal of Environmental Research and Public Health (Vol. 18, Issue 4, pp. 1–24). MDPI AG. https://doi.org/10.3390/ijerph18042023

Dewi, K. R., & Dianovinina, K. (2022). Perempuan Dan Depresi: Pengaruh Ketidakpuasan Tubuh. Proyeksi, 17(1), 89–99.

Gao, Y., Jia, Z., Zhao, L., & Han, S. (2023). The Effect of Activity Participation in Middle-Aged and Older People on the Trajectory of Depression

in Later Life: National Cohort Study. JMIR Public Health and Surveillance, 9. https://doi.org/10.2196/44682

Goenawan, H., Murniati Tarwan, V., Sylviana, N., Nurhayati, T., Nur Fatimah, S., Lesmana, R., Susanti Pratiwi, Y., Purba, A., & Baniasih Akbar, I. (2018). Gambaran Pengetahuan Tentang Pentingnya Aktivitas Fisik Sebagai Pencegah Sindrom Metabolik Pada Staf Perguruan Tinggi Di Jawa Barat. Jurnal Pengadian Kepada Masyarakat, 2, 1–23. http://www.

Jin, L., & Jing, F. (2024). Effects of activity participation and cognitive levels on depression in middle-aged and older adults with chronic illness: a national cross-sectional study. Frontiers in Psychology, 15. https://doi.org/10.3389/fpsyg.2024.1415715

Kasenzu, B. (2024). Effect of Physical Exercise on Depression Symptoms in Middle-Aged Adults in Kenya. American Journal of Psychology, 6(2), 40–51. https://doi.org/10.47672/ajp.2224

Kusuma, S. P., Mukarromah, N., & Yumni, F. L. (2021). Terapi Musik Dalam Mengurangi Depresi Pada Lansia di Panti Werdha Hargodedali Surabaya. Indonesian Academia Health Sciences Journal INAHES, 1(1), 1–5.

Ni, X., Su, H., Lv, Y., Li, R., Chen, C., Zhang, D., Chen, Q., Zhang, S., Yang, Z., Sun, L., Zhou, Q., Zhu, X., Gao, D., Fang, S., Hu, C., Pang, G., & Yuan, H. (2022). The major risk factor for depression in the Chinese middle-aged and elderly population: A cross-sectional study. Frontiers in Psychiatry, 13. https://doi.org/10.3389/fpsyt.2022.986389

Noetel, M., Sanders, T., Gallardo-Gómez, D., Taylor, P., Del Pozo Cruz, B., Van Den Hoek, D., Smith, J. J., Mahoney, J., Spathis, J., Moresi, M., Pagano, R., Pagano, L., Vasconcellos, R., Arnott, H., Varley, B., Parker, P., Biddle, S., & Lonsdale, C. (2024). Effect of exercise for depression: Systematic review and network meta-analysis of randomised controlled trials. BMJ. https://doi.org/10.1136/bmj-2023-075847

Palupi, N. R., Leonita, A., Fakhira, A. D., Rahmasari, N., Mandagi, A. M., Lingkungan, D. K., & Masyarakat, K. (2021). Risiko Jenis Kelamin Dengan Kejadian Depresi Pada Guru Dalam Menghadapi Work From Home Selama Pandemi Covid-19. Jurnal CHMP, 4(1), 10–17. http://cmhp.lenterakaji.org/index.php/cmhp

Pearce, M., Garcia, L., Abbas, A., Strain, T., Schuch, F. B., Golubic, R., Kelly, P., Khan, S., Utukuri, M., Laird, Y., Mok, A., Smith, A., Tainio, M., Brage, S., & Woodcock, J. (2022). Association between Physical Activity and Risk of Depression: A Systematic Review and Meta-analysis. In JAMA Psychiatry (Vol. 79, Issue 6, pp. 550–559). American Medical Association. https://doi.org/10.1001/jamapsychiatry.2022.0609

Prihanti. (2016). Pengantar Biostatistik. UMMPress.

Purwoningrum, K., Mirayanti Mandagi, A., & Author, C. (2020). Tingkat Depresi Pada Remaja Di Banyuwangi Berdasarkan Jenis Kelamin Menggunakan Beck Depression Inventory-Ii. Preventif: Jurnalkesehatanmasyarakat, 11(2), 105–111. http://jurnal.fkm.untad.ac.id/index.php/preventif

Rachman, A. (2024). Metode Penelitian Kuantitatif, Kualitatif Dan R&D. Saba Jaya Publisher.

Schuch, F. B., Vancampfort, D., Rosenbaum, S., Richards, J., Ward, P. B., Veronese, N., Solmi, M., Cadore, E. L., & Stubbs, B. (2016). Exercise for depression in older adults: A meta-analysis of randomized controlled trials adjusting for publication bias. Revista Brasileira de Psiquiatria, 38(3), 247–254. https://doi.org/10.1590/1516-4446-2016-1915

Septiana, R. A. (2019). Hubungan Pengetahuan Kebugaran Jasmani dengan Tingkat Kebugaran Jasmani. Journal Of Physical And Outdoor Education, 1(1), 73–80.

Sun, Y., Li, X., Liu, H., Li, Y., Gui, J., Zhang, X., Li, X., Sun, L., Wang, C., Li, J., Liu, M., Zhang, D., Gao, J., Kang, X., Lei, Y., Zhang, L., & Yuan, T. (2024). Predictive role of depressive symptoms on frailty and its components in Chinese middle-aged and older adults: a longitudinal analysis. BMC Public Health, 24(1). https://doi.org/10.1186/s12889-024-19627-y

Tremblay, J., Regnerus, M. D., Educação, S. D. A. S. N. D. E., Júnior, F. T., Sanfelice, J. L., Tavares Júnior, F., Dourado, L. F., Brito, M. M. A. de, Maiti, Bidinger, Sposito, M. P., Dubet, F. F., Ribeiro, C. A. C., Silva, N. do V., Barbosa, M. L. de O.,Cunha, N. M., Dayrell, J., Rogošić, S., Baranović, B., … Alves, S. (2021). Analisis Kesiapan E-Government Pada Dinas Komunikasi Dan Informatika Di Kota SorongNo. Educacao e Sociedade, 1(1), 1689–1699. http://www.biblioteca.pucminas.br/teses/Educacao_PereiraAS_1.pdf%0Ahttp://www.anpocs.org.br/portal/publicacoes/rbcs_00_11/rbcs11_01.htm%0Ahttp://repositorio.ipea.gov.br/bitstream/11058/7845/1/td_2306.pdf%0Ahttps://direitoufma2010.files.wordpress.com/2010/03/emi

WHO. (2010). Global Recommendations on Physical Activity for Health.

WHO. (2020). Who Guidelines On Physical Activity And Sedentary Behaviour.

Yuliari, M. (2019). Hubungan Aktivitas Fisik Dengan Tingkat Depresi Pada Lansia Di Panti Sosial Tresna Werdha Wana Seraya Denpasar Tahun 2018. Sekolah Tinggi Ilmu Kesehatan Bali Denpasar.

Zhang, X., Xue, M., Zhang, Z., Gao, Z., Li, C., Wu, J., & Niu, W. (2024). Impact of social, familial and personal factors on depressive symptoms in middle-aged and older adults from the national CHARLS cohort. BMC Public Health, 24(1). https://doi.org/10.1186/s12889-024-20159-8

Zheng, H., He, Q., Xu, H., Zheng, X., & Gu, Y. (2022). Lower grip strength and insufficient physical activity can increase depressive symptoms among middle-aged and older European adults: a longitudinal study. BMC Geriatrics, 22(1). https://doi.org/10.1186/s12877-022-03392-x.