Determinants of physical activity among middle aged and elderly

by Citra Puspa Juwita, Weeke Budhyanti, James Wilson Hasoloan Manik

Submission date: 19-Sep-2022 10:41AM (UTC+0700)
Submission ID: 1903175265
File name: artikel_aktivitas_fisik_middle_aged_and_elderly.pdf (544.51K)
Word count: 2789
Character count: 14915

International Journal of Community Medicine and Public Health
Juwita CP et al. Int J Community Med Public Health. 2022 Sep;9(9):3385-3388
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20222197

Original Research Article

Determinants of physical activity among middle aged and elderly

Citra Puspa Juwita*, Weeke Budhyanti, James Wilson Hasoloan Manik

Department of Physiotherapy, Faculty of Vocational Studies, Universitas Kristen Indonesia, Jakarta, Indonesia

Received: 20 July 2022
Accepted: 12 August 2022

***Correspondence:**
Citra Puspa Juwita,
E-mail: citra.simatupang@uki.ac.id

ABSTRACT

Background: Physical activity is an important role to avoid non-communicable diseases. This study aims to find out the determinants associated with physical activity among middle aged and elderly.
Methods: This study used a cross-sectional design on aged 45-year-old respondent that lived in DKI Jakarta. Data collection was carried out for 6 months through interviews conducted by enumerators with recording answers using g-form. Physical activity data was obtained by interviewing activities conducted by respondents in the last 7 days which will then be categorized into heavy, moderate, and low. The physical activity questionnaire used the global physical activity questioner, and the other variables were assessed through interviews with categorized results. Data processed using SPSS through descriptive data, to assess data's frequency and correlation by looking at the magnitude of the relationship.
Results: Correlation assessed with gamma test as the data was categorical with more than 3 groups and was not normally distributed. There was a significant association between physical activity and work (p=0.001), comorbid amounts (p=0.001), and body mass index (p=0.011) with a fairly strong correlation. Hypertension and joint disease are common diseases (33%) acquired among middle aged and elderly.
Conclusions: There is a relationship between physical activity and work, the number of comorbidities, and body mass indexes with a fairly strong relationship. Interviews directly with respondents can lead to better data.

Keywords: Physical activity, Middle aged and elderly, Global physical activity questioner, Comorbid

INTRODUCTION

Indonesia facing a double burden of malnutrition, where the prevalence of under-nutrition is still high and the prevalence of over-nutrition tend to increase. This situation may increase the risk of non-communicable diseases due to metabolic disorders, such as diabetes, hypertension and stroke. The increase in risk factors for non-communicable diseases (NCDs) is influenced, among others, by the low understanding and awareness of the public to implement a balanced nutritious diet and carry out physical activity.[1] The results of basic health research (Riset Kesehatan Dasar, Riskesdas) in 2013 showed that as many as 26.1 percent of the population was classified as living a sedentary ilfe (lack of physical activity). Therefore, in 2017, Indonesia launched the healthy living community movement (Gerakan Masyarakat Hidup Sehat, GERMAS) where one of the goals was to increase physical activity. GERMAS within the scope of increasing physical activity are socialization, the involvement of leaders of school institutions and companies, as well as facilitation of infrastructure. COVID-19 is still stalking all of us, so changes in hygiene and healthy living behavior are needed. The recommended physical activity in GERMAS activities is to do physical activity 30 minutes per day, in the form of daily activities, physical exercise, and sports.[2] After

GERMAS activities were carried out, physical activity measurements have been carried out again in 2018.

Riskesdas 2018 reported physical activity using questions modified global physical activity questionnaire (GPAQ). The collected physical activity behavior includes strenuous and moderate physical activity on daily activities (combined at work or at home, leisure time, and transportation) in days per week and in minutes per day. High physical activity is physical activity performed for >3 days per week and >1500 MET minutes per week (MET value of minutes of heavy physical activity=8). Moderate physical activity is physical activity being performed for >5 days a week with an average length of such activity >150 minutes a week (or >30 minutes per day). Riskesdas 2018 reported that in the population aged 45-59 years, there were 21.9-25.8% that live sedentary lifestyle (lacked physical activity). In the age group above 60 years, only 31.4-46% did less physical activity.[3] Thus, there has been no significant increase in the level of physical activity, including in the older. Individuals among middle aged and elderly group were a concern in the study, as they were experiencing health challenges. In older, there has been an accumulation of processes of degeneration of body tissues, resulting in an increased risk of health problems and a decrease in the quality of life. Several studies have been conducted to look for factors that influence the involvement of individuals in physical activity, with the result that the determinants that influence are, among others, gender, economic ability, and health factors (e.g. comorbidities), but these determinants differ from country to country.[4-6] The reluctance of individuals of older in Indonesia to engage in physical activity must be considered and we need to find out the cause of physical encouragement, in order to be able to take relevant promotional measures to encourage physical activity. This study was conducted to look for these factors, in this research, we limit it to DKI Jakarta as an urban area. The restrictions were made due to differences in urban and rural lifestyles.

METHODS

In order to obtain determinants related to physical activity among middle aged and elderly, this study used cross-sectional design. The collection of interview data in person or by telephone was carried out by enumerators who had followed the equalization of the perception of the contents of the questionnaire from the researcher. The population are 2.904.056 with aged 45 years and over, live in DKI Jakarta, the participants of this study are 199 among middle aged and elderly. Respondent' answers recorded using an online questionnaire (g-form) prepared by the researcher with the data collection time January-June 2022. Determinant variables include gender, age, occupation, comorbidities, height, and weight which the enumerator immediately asked the respondent. Physical activity is obtained through interviews about physical activity for the past 7 days which include strenuous physical activity, moderate physical activity, walking or cycling activities of at least 10 minutes, recreational or strenuous sports activities, and moderate sports activities. High physical activity is an activity that requires more energy characterized by shortness of breath and a elevated heartbeat rhythm. The questionnaire used is the GPAQ (WHO, 2012) which has been used in routine health surveys in Indonesia. The end result of physical activity is categorized into heavy, moderate, and low. Data analysis used IBM 21 SPSS with frequency descriptive data and looked at "r" values for correlation.[7-16]

RESULTS

Total 199 participant join this study; it was found that the most participant were women 58% with an average age of 63 years where the lowest age was 45 years and the highest was 91 years. The characteristics of the participant may be seen in (Table 1).

Table 1: Characteristics of participants.

Variables	N	%
Gender		
Men	83	42
Women	116	58
Age (years)		
45-59	77	39
60-69	60	30
≥70	61	31
Mean age: 63 years, Age range: 45-91 years		
Employee		
Yes	100	50
No	99	50
Comorbidities		
None	41	21
1	84	42
>1	74	37
Physical activity		
Heavy	108	54
Moderate	62	31
Low	29	15
BMI		
Skinny weight	3	1.5
Light skinny	118	59
Ideal	68	34
Light grease	9	5
Heavy grease	1	0.5

Among middle aged and elderly tends to have comorbidities, from the most comorbid research data is found in a mother who is 55-year-old who has 7 comorbidities. Joint disease (65) and hypertension (63) are common diseases owned by participant. The results of the Kolmogorov-Smirnov normality test from this study variable were obtained non normally distributed with p=0.000<0.05. The research variables used categorical

data with more than 2 groups so that gamma tests were used to see the correlation between variables.

Table 2: Types of comorbid diseases.

Types of disease	N
Cholesterol	50
Hypertension	63
Joint Diseases	65
Heart	22
Stroke	8
Diabetes	36
Cataracts	12

Meaningful relationships determinants of physical activity are jobs with fairly strong relationships and positive relationship directions, followed by comorbid determinants with fairly strong relationships and positive relationships, and BMI with fairly strong relationships and negative relationships. Determinants that were not related to physical activity in this study were type of playfulness and age (Table 3).

DISCUSSION

The number of participants who did not carry out physical activity was 15%, lower than research in 2013 and 2018, without any meaningful difference between the gender and age of the respondents.[1,3]

Table 3: Correlation of variable.

Variable	Category	Physical activity			Correlation	Significance
		Heavy	Moderate	Low		
Gender	Men	48	24	11		0.399
	Women	60	38	18		
Age (years)	45-59	42	26	9		0.121
	60-69	40	16	4		
	≥70	26	19	16		
Employee	Yes	64	28	8	0,378	0.001
	No	44	34	21		
Comorbidities	None	32	7	2	0,363	0.001
	1	43	31	10		
	>1	33	24	17		
BMI	Skinny weight	0	1	2	-0,303	0.011
	Light skinny	58	41	19		
	Ideal	43	19	6		
	Light grease	6	1	2		
	Heavy grease	1	0	0		

The prevalence of mild fats is higher than the national data in 2018 which amounted to 13.6%, although heavy fats were lower than the national data in 2018 which amounted to 21.8%.[3] Different with a study conducted by Weeke 2021, in which at the age of 19-57 years physical activity has a weak negative relationship with BMI.[8] It may happen as on above 45-year-old people, there are slowing metabolism causing physical activity to have a greater effect than at the age of under 45 years. After the age of 20-year-old, there is a 10% decrease in the speed of food metabolism for every decade. When it reaches the age of 50 years, there is already a 30% decrease in metabolic ability and a decrease in muscle mass (sarcopenia).[9] Thus, physical activity must be carried out to help metabolic processes and maintain muscle function. Interestingly obtained from the results of this study, that there is a positive correlation in adult individuals with comorbidities indicating that individuals are encouraged to engage in physical activity because health problems have occurred. With this fact, it can be presumed that adult individuals are actually aware that regular physical activity can prevent chronic diseases and improve the quality of health but are reluctant to do so until they are forced to. For this reason, increasing the frequency of community services through monthly physical examinations (blood pressure, blood sugar, cholesterol and uric acid) can be upgraded, not only to individuals over 60 years old, but starting at the age of 45 years.[4] This is necessary because hypertension, diabetes, cholesterol and hyperuricemia in most individuals are asymptomatic until they are already chronic.[10-12] The role of health workers to promote physical activity as a profession that is still trusted by the public is also very necessary, promotion by health workers is supported by a good perception of physical activity.[13] There is a positive correlation between individuals who are still employee and not, indicating that after entering retirement, as well as in individuals who are activities at home less active than working individuals. This means that the encouragement of physical activity in the household environment must be increased with a minimum limit of at least 150-300 minutes of moderate intensity throughout the week, or 75-150 minutes with strong intensity throughout the week, or a combination of moderate and strong intensity throughout the week. One of the important ones is also the understanding that the

minimum limit of 150 minutes of activity throughout the week for adult individuals does not have to be done at one time, but rather divided through several sessions. In one day, it can be done 30 minutes divided into three sessions. A session can include 10 minutes of activity, and the type of activity performed varies. The activities chosen can be daily activities, including shopping to stalls, going to worship places, sweeping, cleaning beds, mopping, and washing dishes.[14] Outside the home environment, it can be done through increasing the distance of vehicle parking, selecting walking lanes through pedestrian routes, or increasing visits to inclusive recreational parks for families (e.g., garden park in village).

Limitations

Interviews conducted over the phone can cause the understanding of the questions performed by the enumerator not to be conveyed correctly.

CONCLUSION

Physical activity in older is quite strongly related to work and non-work, having comorbid amounts, and body mass index. In general, among middle aged and elderly have comorbid hypertension and joint diseases.

ACKNOWLEDGEMENTS

Authors would like to thank the Universitas Kristen Indonesia which supports research funds and to research assistants (enumerators) who are willing to assist researchers in interviewing respondents.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. National report on basic health research, Jakarta. Available at: www.sciepub.com/reference/301235. Accessed on 20 October 2021.
2. General guidelines for the implementation of the healthy living community movement 2017. Available at: https://www.frbsf.org/. Accessed on 20 October 2021.
3. National report on basic health research 2018. Available at: https://ghdx.healthdata.org/. Accessed on 20 October 2021.
4. Ethisan P, Somrongthong R, Ahmed J, Kumar R, Chapman RS. Factors related to physical activity among the elderly population in rural Thailand. J Prim Care Community Health. 2017;8(2):71-6.
5. McKevitt S, Healey E, Jinks C, Rathod-Mistry T, Quicke J. The association between comorbidity and physical activity levels in people with osteoarthritis: Secondary analysis from two randomised controlled trials. Osteoarthr Cartil Open. 2020;2(2):100057.
6. Lee IM, Shiroma EJ, Lobelo F, Puska P, Blair SN, Katzmarzyk PT. Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy. Lancet. 2012; 380(9838):219-29.
7. Global physical activity questionnaire (GPAQ) analysis guide. Available at: http://en&btnG=Search&q=intitle:Global+Physical+Activity+Questionnaire+(GPAQ)+Analysis+Guide#1. Accessed on 20 September 2021.
8. Budhyanti W. Body mass index and fitness level of Jakarta's young adults. IJMAES. 2021;7(4):1113-21.
9. Rezuş E, Burlui A, Cardoneanu A, Rezuş C, Codreanu C, Pârvu M, Rusu Zota G, Tamba BI. Inactivity and skeletal muscle metabolism: a vicious cycle in old age. Int J Mol Sci. 2020;21(2):592.
10. Fatima S, Mahmood S. Combatting a silent killer the importance of self-screening of blood pressure from an early age. Excli J. 2021;20:1326-7.
11. Skoczyńska M, Chowaniec M, Szymczak A, Langner-Hetmańczuk A, Maciążek-Chyra B, Wiland P. Pathophysiology of hyperuricemia and its clinical significance a narrative review. Rheumatologia. 2020;58(5):312-23.
12. Ahuja A, Gupta J, Gupta R. Diabetes silent killer: medical focus on food replacement and dietary plans. Adv Biores. 2020;11(5):128-35.
13. Juwita CP, Simanjuntak D. Behavior of health care professionals to promoting of Physical Activity in the Pandemic Covid-19. Int J Med Exer Sci. 2021:7(2): 1026-33.
14. Jakicic JM, Kraus WE, Powell KE, Campbell WW, Janz KF, Troiano RP, et al. Association between bout duration of physical activity and health: systematic review. Med Sci Sports Exer. 2018:51(6):1213-9.
15. BPS. Statistik Penduduk Lanjut Usia 2019. Badan Pusat Statistik. Available at: https://www.bps.go.id/. Accessed on 20 September 2021.
16. Juwita CP, Napitupulu RM. Hygiene and healthy living behavior and stress during the covid-19 pandemic. Int J Med Exer Sci. 2021;7(3):1041-8.

Cite this article as: Juwita CP, Budhyanti W, Manik JWH. Determinants of physical activity among middle aged and elderly. Int J Community Med Public Health 2022;9:3385-8.

Determinants of physical activity among middle aged and elderly

ORIGINALITY REPORT

18%	17%	10%	9%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	www.researchgate.net Internet Source	3%
2	www.sysrevpharm.org Internet Source	3%
3	eprints.uad.ac.id Internet Source	2%
4	Submitted to CVC Nigeria Consortium Student Paper	2%
5	Submitted to Badan PPSDM Kesehatan Kementerian Kesehatan Student Paper	1%
6	hdl.handle.net Internet Source	1%
7	ijmaes.org Internet Source	1%
8	mail.scialert.net Internet Source	1%
	Www.dovepress.com	

9	Internet Source	1 %
10	www.ijord.com Internet Source	1 %
11	Priska Dantjie, Yuliani Setyaningsih, Nurjazuli. "Safety and Health Management Commitment and Implementation of COVID-19 Prevention at Manufacture Workplace Environment", E3S Web of Conferences, 2020 Publication	<1 %
12	psbd.pau.edu.tr Internet Source	<1 %
13	Muhammad Irfan Khakim, Dewi Martha Indria, Fancy Brahma Adiputra. "Relationship Between Physical Activity and Sedentarily Activity with Nutritional Status for Adults 20-39 years old in Malang", Jurnal Formil (Forum Ilmiah) Kesmas Respati, 2022 Publication	<1 %
14	apps.who.int Internet Source	<1 %
15	dcms.lib.nu.ac.th Internet Source	<1 %
16	psite.santepubliquefrance.fr Internet Source	<1 %
	vuir.vu.edu.au	

17	Internet Source	<1%
18	www.idsp.nic.in Internet Source	<1%
19	"Nutrition and Health in a Developing World", Springer Science and Business Media LLC, 2017 Publication	<1%
20	Nucharapon Liangruenrom, Kanyapat Suttikasem, Melinda Craike, Jason A. Bennie, Stuart J. H. Biddle, Zeljko Pedisic. "Physical activity and sedentary behaviour research in Thailand: a systematic scoping review", BMC Public Health, 2018 Publication	<1%

Exclude quotes	On	Exclude matches	Off
Exclude bibliography	On		