



AISCH 2022

The 3rd AI Insyirah International Scientific Conference on Health

PREVALENCE OF METABOLIC SYNDROME IN AN OLDER PEOPLE

¹Sumandar Sumandar , ²Yudiza Diaz Lutfi Sandi

¹ Departement of Nursing, STIKes AI Insyirah Pekanbaru, Indonesia

² Student of PhD Nursing, Kaohsiung Medical University, Taiwan
email : sumandar.05mangiri@gmail.com

ABSTRACT

The increase in the elderly population cannot be separated from the health problems that occur in the elderly, including the existence of metabolic disorders that have an impact on the process of disability and even death. The purpose of the study was to analyze the prevalence of metabolic syndrome among older people. The study was descriptive using a cross sectional approach. Data were collected on metabolic syndrome. 102 older adults in Pekanbaru Indonesia were selected by cluster sampling. The results showed that the prevalence of metabolic syndrome was 20.6%. It is hoped that this will become a special concern for the older people , health workers, especially in improving the performance of community health centers or nurses.

Keywords: Older adults, Metabolic syndrome

INTRODUCTION

Population ageing is a global phenomenon. Virtually each country in the world is experiencing growth in the size and proportion of older adults in their population. There were 703 million persons aged 65 years or over in the world in 2019. The number of older adults is projected to double to 1.5 billion in 2050. Globally, the share of the population aged 65 years or over increased from 6 per cent in 1990 to 9 percent in 2019. That proportion is projected to rise further to 16 per cent by 2050, so that one in six people in the world will be aged 65 years or over [1]. Currently, Indonesia is entering a period of population aging. Indonesia undergoing an increase older adults from 7,56 percent in the 2010 up to 9,7 percent in the 2019 and estimate in the 2035 is 15,77 percent .This can impact for elderly namely positive and negative impact [2]. The growth and development among older adults occurs continue. This related changes in the body, namely aging process [3].

The WHO defines active aging as the process of optimizing opportunities for health, participation, and security in order to enhance quality of life as people age including those who are frail, disabled, and in need of care [4].Population ageing is a human success story, a reason to celebrate the triumph of public health, medical advancements, and economic and social development over diseases, injuries and early deaths that have limited human life spans throughout history [1]. Healthy People 2030 focuses on reducing health problems and improving quality of life for older adults. Older adults are at higher risk for chronic health problems like diabetes, osteoporosis, and Alzheimer's disease [5]. Older adults were at high risk for the development of chronic illness and related disabilities [6]. A total of 818

community-dwelling older adults were surveyed and the prevalence of high-need older adults was 24.1% [7].

Some studies have been done conducted by health disorder to older adults. Metabolic syndrome may all contribute to poor muscle health [8]. Metabolic syndrome is defined as a combination of impaired glucose metabolism, dyslipidemia, abdominal obesity, and elevated blood pressure [9]. Metabolic syndrome is an accumulation of several disorders, which together raise the risk of an individual developing atherosclerotic cardiovascular disease, insulin resistance, and diabetes mellitus, and vascular and neurological complications such as a cerebrovascular accident [10]. Metabolic syndrome, an important healthcare burden worldwide [11]. The purpose of study was to analyze the prevalence of metabolic syndrome among older peoples in Tenayan raya, Pekanbaru Indonesia.

METHOD

Study was descriptive with cross sectional approach. There were 102 older adults dwelling-community in Kulim Distric Pekanbaru Indonesia selected by cluster sampling. Study based on inclusion criteria namely being able to cooperations and communication, fit of mental health, had no vision and hearing impairment during data collection processes. All participants were given verbal and written information about the aim of the study and they signed an informed consent form. The participants were ensured confidentiality and informed that participation was voluntary and that they could drop out of the study at any time. The study received ethical approval from ethical review board for medicine and health research medicine faculty Riau University (Number.B/13/UN.19.5.1.1.8/UEPKK/2020). There were measure three parts of measure namely demographic character, clinical characteristics such as prevalence of metabolic syndrome. For instruments have been translated into Indonesia language.

The procedure measure of metabolic syndrome namely hypertension was measured by sfigmomanometer, glucose was measured by glucose meter (one touch basic monitor) after 8 hours of fasting, while cholesterol level was measured by an automatic lipid pro-meter by inserting blood from peripheral into strips of a blood cholesterol test, central obesity was measured by meter. Statistical Package for Social Sciences version 22 carry out for process and analysis data. Data were presented by describing proportions of categorical variables. The significance on prevalence of metabolic syndrome

RESULTS

102 older adults in community dwelling in the Kulim Distric Pekanbaru Indonesia show that 66,7 percentange were female, prevalence of metabolic syndrome 20,6 percentange were Abnormal. More information can be seen in the table 1.

Tabel 1. Gender, Metabolic syndrome among older adults In Kulim Distric Pekanbaru Indonesia

Variables	F	%
Gender		
Female	68	67,7
Male	34	33,3
Metabolic syndrome		
No	81	70,4
Yes	21	20,6

DISCUSSION

Majority of respondents were female. Older adults with female have high spirit for discussion and caring about health condition Based on studies previous that the longer life expectancy in female compared to male, a higher prevalence of females, and was 46.9 % in women in China [20] [21] [22]. Older adults majority were menopause phase. The risk of human maturity in women is being menopause. Menopuase period related by social, psychological, emotional aspects due to physiological changes [3].

Prevalence metabolic syndrome among older adults could be influenced by age. Some studies have been done explored, Population aging is accompanied by higher prevalence of metabolic syndrome in the Niterói Brazil [25]. A higher Body Mass Index, urban area were predictive and influencing of developing metabolic syndrome[26],[27]. The found of study was higher in female. This study consistent among older adults in the China that risk for metabolic syndrome in women was 1.20 times higher than that in men [27].

Prevalence of metabolic syndrome in this study were affected by age, gender, living in the urban area. Older adults have been occurs disorder namely psysiology disorder or function body disorder. This related by aging. Metabolic syndrome is a group of several symptoms of metabolic disorders, such as hyperglycemia, hypertension, central obesty, dyslipidemia [32]. The prevalence of hypertension among community-dwelling older adults was 35%, [33]. Some studies have been done explored by metabolic syndrome namely in the Chinese community-dwelling older adults that aging condition can be occurs Metabolic syndrome was correlated with handgrip strength [20]. There are many causes of metabolic syndrome. Among the factors of the condition of decreased body function, some are already living alone, so that the family does not help the elderly in dealing with the disease conditions suffered by the elderly.

CONCLUSION AND RECOMMENDATION

The results of this study indicate that the prevalence of metabolic syndrome is quite high at 20.6%. This needs to get high attention for the elderly, health workers, improving the performance of public health nurses (PERKESMAS).

ACKNOWLEDGEMENT

We would like to Ministry of Research, Technology and Higher Education (Ristekdikti) of the Republic of Indonesia for funding. We would like to Mr. Rohmi Fadli, Ms. Eva Mayasari, my students and community dwelling older adults for their contribution in making study.

REFERENCES

- [1] U. Nations, "World Population Ageing 2019." the United Nations, 2019.
- [2] Sumandar, "Pengantar Keperawatan Gerontik dengan pendekatan Asuhan keperawatan," 1st ed., N. F. Subekti, Ed. Jogjakarta, Indonesia: Deepublish, 2019, pp. 1–146.
- [3] A. S. O. R. Sumandar, Yesi Septina Wati, "The Anxiety Among Menopause Period : Study About Level , Precipitation Factors And Coping Mechanism," *Enudrance*, vol. 3, no. 3, pp. 227–232, 2020.
- [4] H. Halaweh, S. Dahlin-Ivanoff, U. Svantesson, and C. Willén, "Perspectives of older adults on aging well: A focus group study," *J. Aging Res.*, vol. 2018, 2018.
- [5] HealthyPeople.gov, "older Adults new." Office of Disease Prevention and Health Promotion.
- [6] S. Sumandar, "Predictors of Prediabetic Insidencree among Elderly in Keritang District Indragiri Hilir Riau," *J. Keperawatan Soedirman*, vol. 13, no. 3, p. 138, 2018.
- [7] H. Wei-Yun Chang, Kuei-Min Chen, Meng-Chin Chen, Li-Yen Yang, "Prevalence and demographic characteristics of high - need community - dwelling older adults in Taiwan," *Heal. Soc. care community*, 2020.
- [8] J. Mesinovic, L. McMillan, C. Shore-Lorenti, B. De Courten, P. Ebeling, and D. Scott, "Metabolic Syndrome and Its Associations with Components of Sarcopenia in Overweight and Obese Older Adults," *J. Clin. Med.*, vol. 8, no. 2, p. 145, 2019.
- [9] S. Y. Ju, J. Y. Lee, and D. H. Kim, "Association of metabolic syndrome and its components with all-cause and cardiovascular mortality in the elderly," *Med. (United States)*, vol. 96, no. 45, 2017.
- [10] A. L. Franke and H. Suplicy, *Metabolic syndrome*, vol. 64, no. SPEC. ISS. 2007.
- [11] S. Y. Kim, J. S. Lee, and Y. H. Kim, "Handgrip strength and current smoking are associated with cardiometabolic risk in korean adolescents: A population-based study," *Int. J. Environ. Res. Public Health*, vol. 17, no. 14, pp. 1–10, 2020.
- [12] J. Wearing, P. Konings, M. Stokes, and E. D. de Bruin, "Handgrip strength in old and oldest old Swiss adults – a cross-sectional study," *BMC Geriatr.*, vol. 18, no. 1, pp. 1–9, 2018.
- [13] R. P. McGrath, W. J. Kraemer, S. Al Snih, and M. D. Peterson, "Handgrip Strength and

- Health in Aging Adults,” *Sport. Med.*, vol. 48, no. 9, 2018.
- [14] T. Kristiana, N. Widajanti, and R. Satyawati, “Association between Muscle Mass and Muscle Strength with Physical Performance in Elderly in Surabaya,” *Surabaya Phys. Med. Rehabil. J.*, vol. 2, no. 1, p. 24, 2020.
- [15] R. McGrath *et al.*, “What are the association patterns between handgrip strength and adverse health conditions? A topical review,” *SAGE Open Med.*, vol. 8, p. 205031212091035, 2020.
- [16] H. Makizako *et al.*, “Associations of social frailty with loss of muscle mass and muscle weakness among community-dwelling older adults,” *Geriatr. Gerontol. Int.*, vol. 19, no. 1, pp. 76–80, 2019.
- [17] S. C. Confortin, L. M. Ono, V. Meneghini, A. Pastorio, A. R. Barbosa, and E. D’Orsi, “Factors associated with handgrip strength in older adults residents in Florianópolis, Brazil: EpiFloripa Aging Study,” *Rev. Nutr.*, vol. 31, no. 4, pp. 385–395, 2018.
- [18] E. Aartolahti, E. Lönnroos, S. Hartikainen, and A. Häkkinen, “Long-term strength and balance training in prevention of decline in muscle strength and mobility in older adults,” *Aging Clin. Exp. Res.*, vol. 32, no. 1, pp. 59–66, 2020.
- [19] Y. Zhang *et al.*, “Muscle mass reduction, low muscle strength, and their combination are associated with arterial stiffness in community-dwelling elderly population: the Wakayama Study,” *J. Hum. Hypertens.*, pp. 0–1, 2020.
- [20] P. Song *et al.*, “Clinical relevance of different handgrip strength indexes and metabolic syndrome in Chinese community-dwelling elderly individuals,” *Arch. Gerontol. Geriatr.*, vol. 87, pp. 8–9, 2020.
- [21] P. R. Wagner, S. Ascenço, and L. M. Wibelinger, “Hand grip strength in the elderly with upper limbs pain,” *Rev. Dor*, vol. 15, no. 3, pp. 182–185, 2014.
- [22] L. A. Fitriana, N. Ufamy, K. Anggadiredja, L. Amalia, S. Setiawan, and I. K. Adnyana, “Demographic Factors and Disease History Associated with Dementia among Elderly in Nursing Homes,” *J. Keperawatan Padjadjaran*, vol. 8, no. 2, 2020.
- [23] C. W. L. Ng, N. Luo, and B. H. Heng, “Health status profiles in community-dwelling elderly using self-reported health indicators: a latent class analysis,” *Qual. Life Res.*, vol. 23, no. 10, pp. 2889–2898, 2014.
- [24] A. S. Utumo, *Status kerja lansia Berdayaguna*, 1st ed. Surabaya: Media Sahabat Cendikia, 2019.
- [25] M. A. N. Saad, G. P. Cardoso, W. de A. Martins, L. G. C. Velarde, and R. A. da Cruz Filho, “Prevalência de síndrome metabólica em idosos e concordância entre quatro critérios,” *Arq. Bras. Cardiol.*, vol. 102, no. 3, pp. 263–269, 2014.
- [26] J. M. Van Ancum *et al.*, “Predictors of metabolic syndrome in community-dwelling older

- adults,” *PLoS One*, vol. 13, no. 10, pp. 31–32, 2018.
- [27] H. Yan *et al.*, “Study of epidemiological characteristics of metabolic syndrome and influencing factors in elderly people in China,” *Chinese J. Endem.*, vol. 40, no. 3, pp. 284–289, 2019.
- [28] M. C. Montes *et al.*, “Strength and multimorbidity among community-dwelling elderly from southern Brazil,” *Nutrition*, vol. 71, 2020.
- [29] H. L. Ong *et al.*, “Hand-grip strength among older adults in Singapore: A comparison with international norms and associative factors,” *BMC Geriatr.*, vol. 17, no. 1, pp. 1–11, 2017.
- [30] S. K. Nurulistyawan Tri Purnanto, “Hubungan antara usia, jenis kelamin, pendidikan dan pekerjaan dengan Activity Daily Living (ADL) pada lansia di Puskesmas Gribig Kabupaten Kudus,” *THE SHINE CAHAYA DUNIA D-III KEPERAWATAN*, vol. 3, no. 1, pp. 47–53, 2018.
- [31] A. M. A. II, *Physical activity guidelines for Americans*, 2nd ed. USA, 2018.
- [32] R. Christijani, “Penentuan Diagnosis Sindrom Metabolik Berdasarkan Penilaian Skor Sindrom Metabolik Dan Ncep Atp-iii Pada Remaja [Penelitian Di Beberapa Sma Di Kota Bogor],” *Penelit. Gizi dan Makanan (The J. Nutr. Food Res.)*, vol. 42, no. 1, pp. 21–28, 2019.
- [33] C. A. Gray, O. T. Sims, and H. Oh, “Prevalence and Predictors of Co-occurring Hypertension and Depression Among Community-Dwelling Older Adults,” *J. Racial Ethn. Heal. Disparities*, vol. 7, no. 2, pp. 365–373, 2020.
- [34] R. A. Merchant, Y. H. Chan, J. Y. Lim, and J. Emorley, “Prevalence of metabolic syndrome and association with grip strength in older adults: Findings from the hope study,” *Diabetes, Metab. Syndr. Obes. Targets Ther.*, vol. 13, pp. 2677–2686, 2020.