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Factors Associated the Physical Activity of the Elderly at Care Home in D.I Yogyakarta

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Abstract

Background: Institutionalized elderly often exhibit lower functional mobility than community dwellers. However, how demographic factors, clinical profiles, and exercise habits interact to influence overall physical activity in long-term care facilities remains insufficiently understood.

Purpose: To examine the associations between age, gender, comorbidities, exercise regularity, and physical activity levels among care home residents

Methods: A cross-sectional study was conducted among 65 elderly (aged ≥ 60 years, ambulatory, capable of verbal communication, and had no history of dementia, stroke, depression, or severe physical injuries) at the Abiyoso care Home D.I. Yogyakarta. The sample size was calculated using Slovin's formula (5% error margin) and simple random sampling. Data were collected using structured demographic sheets, 1-week direct observation for exercise regularity and PASE. Data were analyzed using Chi-square tests ($p < 0.05$)

Results: Most respondents were aged 60–70 years (47.7%), female (67.7%), without comorbidities (50.8%), regularly exercised (83.1%), and exhibited low overall physical activity (75.4%). Age was significantly associated with physical activity ($p = 0.020$). Gender ($p = 0.917$), comorbidities ($p = 0.614$), and exercise regularity ($p = 0.053$) showed no statistically significant associations.

Conclusions: Advancing age is associated with lower physical activity, whereas brief formal exercise alone fails to offset daily sedentary habits. Care facilities should embed continuous, age-tailored daily mobility strategies rather than relying solely on periodic exercise programs.

Keywords: Care home, Elderly, Exercise regularity, Institutional care, Physical activity.

Introduction

The global population is aging rapidly, with the number of elderly predicted to reach 2 billion people by 2050 (WHO, 2018). Indonesia reflects this trend, with rising life expectancy (averaging 72 years) driving the elderly population to 29.6 million (11.75% of the total population). At the regional level, D.I. Yogyakarta Province holds the nation's highest proportion of elderly residents (635,328 individuals) and the highest life expectancy at 75.12 years (Badan Pusat Statistik, 2023). However, this demographic expansion is accompanied by a sharp decline in physical activity. National data indicate that 47.9% of Indonesian elderly

experience reduced physical activity as they age (Riskesdas, 2018), with institutionalized elderly showing even lower engagement—averaging only 332.53 MET-min/week (~7 hours/week) (Anggraeni & Rachmawati, 2018). The decline in physical activity among the elderly has increased more than twofold, especially in low-income countries (WHO, 2018). Theoretically, institutionalized care should foster comparable or even superior physical activity levels relative to community settings due to structured routines, scheduled exercise sessions, and dedicated supervisory support (Kazoglu & Yuruk, 2020; Cheng et al., 2021). However, environmental availability alone does not guarantee active engagement, as individual-level physiological constraints and behavioral habits (e.g., routine exercise participation) moderate actual physical activity levels (Izquierdo et al., 2021; Marhumi, 2022).

At the individual level, demographic and clinical variables play a critical role in shaping physical activity outcomes. Age is considered one of the factors that influence the level of physical activity, where the older a person gets, the more they will depend on and need assistance in daily activities (Gammack, 2017; Izquierdo et al., 2021). Gender differences further influence participation patterns, with older men tend to be more physically and outdoor activities than older women (Gallè et al., 2022; Stalling et al., 2024). Furthermore, chronic comorbidities frequently restrict physical exertion to light-to-moderate activities (Jaul & Barron, 2017; Huang & Lu, 2024).

However, while structured exercise programs are routinely provided in care homes, how specific behavioral habit interact with socio-demographic and health profiles to influence overall daily physical activity in institutional settings remains insufficiently explored in Indonesia. Most prior studies have focused primarily on community settings or evaluated exercise in isolation without accounting for the unique environmental constraints of institutional care. To address these empirical inconsistencies, this study examines the relationship between age, gender, comorbidities, exercise regularity, and physical activity levels among elderly residents at the Abiyoso Social Protection Home, D.I. Yogyakarta.

Materials and Methods

Design

A cross-sectional design (Wang & Cheng, 2020) was employed to evaluate the relationship between age, gender, comorbidities, exercise regularity, and physical activity levels among the elderly at the Abiyoso D.I Yogyakarta care home.

Participants and Setting

The sample was calculated using the Slovin formula with a 5% margin of error, yielding a target sample of 65 elderly individuals. Participants were selected via computer generated simple random sampling based on theirs identification number and names (Mulisa, 2023; Majdina et al., 2024). The inclusion criteria comprised elderly living in the care home who were ambulatory, capable of verbal communication, and had no history of dementia, stroke, depression, or severe physical injuries.

Ethical consideration

This research was conducted with consideration of health research ethics principles, considering the vulnerable status of elderly participants. Ethical approval was granted by the Health Research Ethics

Committee of Stikes Guna Bangsa (Certificate No.051/KEPK/VI/2024). Before data collection is conducted, the researcher provides informed consent to the respondents. In this process, respondents are given a detailed explanation of the research objectives, the procedures to be followed, and assurance that their participation is voluntary without any coercion, including the right to withdraw at any time without any penalties.

Data collection

Exercise regularity was assessed using an observation sheet to over a one-week period and categorized into 1 = Irregular (1 – 2 times/week) and 2 = Regular (3 – 6 times/week). However, specific exercise parameters such as duration per session, exercise intensity, and specific modal types, were not individually quantified.

Physical activity was measured using the Indonesian version of Physical Activity Scale For The Elderly (PASE), which consists of 12 items in totals evaluates leisure-time, household, and work-related activities over the preceding seven days using a combination of dichotomius items (yes = 1, no = 0) and Likert scale (never=0, 1 – 2 days=1, 3 – 4 days=2, and 5 – 7 days=3). Total PASE scores were categorized into low (<200) and high (>200) levels (Washburn et al., 1993; Prayuni et al., 2022).

Before data collection, a validity and reliability test was conducted on the Physical Activity Scale For The Elderly (PASE) instrument on 60 elderly residents living in Budi Luhur care home D.I Yogyakarta with the same inclusion criteria as the research sample. The results of the validity test of the 12 questionnaire items were declared valid with an r value ranging from 0.274 – 0.884 (r > r table = 0.2441). The scale demonstrated good internal consistency, with a Cronbach's alpha of 0.829 (Hayashi et al., 2019).

After the research instruments were declared valid and reliable, data collection was conducted in June 2024 at Abiyoso D.I Yogyakarta care home. The sample was given an explanation regarding the research, and those who were willing were asked to provide a statement of consent, evidenced by informed consent. Subsequently, respondents were asked to directly fill out the physical activity questionnaire with assistance from the researcher, while for the regularity of the exercise, the researcher conducted direct observations for one week. After the data is collected, the completeness of the questionnaire filling will be rechecked. Once the collected data is deemed complete, respondents have the right to know the results of the questionnaire filling.

Data analysis

Bivariat analysis using the chi-square test was performed to examine the relationship between age, gender, comorbidities, exercise regularity, and physical activity levels (p value <0,05) where the analysis process uses the SPSS software program. Due to the sample size constraint (N=65), multivariate regression adjustments for confounding factors were not executed, and findings are interpreted as bivariate associations rather than causal relationships.

Results

The results from 65 respondents showed that the majority were aged 60 – 70 years (47.7%), female (67.7%), and free from self reported chronic comorbidities (50.8%). Notably, while a large majority of respondens

engaged in regular organized exercise sessions (83.1%), overall daily physical activity levels were overwhelmingly low with 75.4% categorized into the low physical activity group based on total PASE score (<200) as illustrated in Table 1.

Table 1. Description of Age Distribution, Gender, Diseases, Exercise Regularity, and Physical Activity of the Elderly at Abiyoso Care home (n=65)

Characteristics		Frequency(n)	Percentage(%)
Age	60 – 70	31	47.7
	71 – 80	22	33.8
	81 - 90	12	18.5
Gender	Male	21	32.3
	Female	44	67.7
comorbidities	Suffering	32	49.2
	Not suffering	33	50.8
Exercise Regularity	Regular	54	83.1
	Irregular	11	16.9
Physical activity	High	16	24.6
	Low	49	75.4

Table 2. Overview of Physical Activities of the Elderly at Abiyoso Care home (n=65)

Characteristics	Categorical	Frequency(n)	Percentage(%)
Leisure Activities	Low	65	100
Household Activities	Low	17	26,2
	Medium	31	47,7
	High	17	26,2
Volunteer Activities	Low	47	72,3
	Medium	18	27,7

The categories of physical activity among the elderly, where in the domain of leisure activities (reading, watching TV, handicrafts, walking, recreation, exercise, running, cycling, weightlifting). All respondens (100%) scored within the low category, as leisure activities are only done 1-2 days/week or less than 2 hours/day. Household activities (washing dishes, dusting, mopping floors, gardening, caring for others) represented the primary source of physical exertion, with nearly half of the respondents (47.7%) achieving moderate activity levels in this domain, while voluntary activities were minimal with 72.3% falling into the low engagement tier (Table 2).

The results of the analysis of the relationship between age, gender, exercise regularity, and physical activity in the elderly at Abiyoso care home found that only age was significantly related to physical activity (p value = 0.02), while gender (p value = 0.917), comorbidities (p value = 0.614), and exercise regularity (p value = 0.053) were not related to physical activity.

Table 3. Analysis of the Relationship Between Age, Gender, Exercise Regularity, and Physical Activity in the Elderly at Abiyoso Care home

Variable	Physical Activity		P value
	Low	High	
	n (%)	n (%)	
Age			
60 – 70 tahun	20 (30,8)	11 (16,9)	0,020
71 – 80 tahun	17 (26,2)	5 (7,7)	
81 – 90 tahun	12 (18,5)	0	
Gender			
Male	16 (24,6)	5 (7,7)	0,917
Female	33 (50,8)	11 (16,9)	
Comorbidities			
suffering	25 (38,5)	7 (10,8)	0,614
not suffering	24 (369)	9 (13,8)	
Exercise Regularity irregular			
Regular	11 (16,9)	0	0,053
	38 (58,5)	16 (24,6)	

Among all examined independent variables, age was the sole statistically significant factor associated with physical activity levels ($p = 0.020$). Younger-old residents (60–70 years) demonstrated a higher propensity for maintaining functional activity compared to their older counterparts, reflecting the expected physiological age-related decline. Conversely, no statistically significant associations were identified for gender ($p = 0.917$), comorbidities ($p = 0.614$), or exercise regularity ($p = 0.053$). Interestingly, although exercise regularity did not reach statistical significance, its borderline p-value ($p = 0.053$) points to a potential statistical trend. The lack of statistical significance here is likely influenced by a ceiling effect in exercise participation (83.1% regular exercise) alongside limited statistical power ($N = 65$), which may have masked subtle behavioral effects across subgroups.

Discussion

Physical Activity in Care Home

The findings of this study demonstrate that the majority of elderly residents at the Abiyoso Care Home exhibit low overall physical activity levels. This observation aligns with prior studies reporting lower physical activity engagement among institutionalized elderly compared to community-dwelling counterparts (Faridi et al., 2020; Sudhir Kumar et al., 2021; Salsabilla et al., 2023). The institutional physical and organizational environment significantly shapes resident behavior. Facilities designed for resident comfort often inadvertently foster a sedentary lifestyle by fulfilling all daily domestic needs such as meal provision, cleaning, and laundry thereby reducing spontaneous physical exertion (Narsakka et al., 2022).

While structured exercise programs are scheduled within the facility, overall physical activity levels remain low. This pattern is consistent with observations by Nakrem (2015) and Kilgour et al (2024), who noted that institutional exercise programs often lack the frequency, duration, or tailored progression required to

substantially elevate total daily energy expenditure. Furthermore, unmeasured psychosocial determinants such as geriatric depression, emotional loneliness, and reduced intrinsic motivation may further attenuate engagement in non-structured physical pursuits within the facility (Gebhard & Frank, 2024).

Age and Physical Activity

Age was identified as the sole independent variable demonstrating a statistically significant association with physical activity levels. Residents aged 60–70 years exhibited higher activity levels compared to those over 70 years. This inverse relationship between advancing age and physical activity aligns with broader empirical literature (Christy & Junita Bancin, 2019; Roslaini et al., 2022). Physiologically, older age is associated with progressive degenerative shifts, including sarcopenia, reduced bone mineral density, and compromised cardiorespiratory capacity, which collectively constrain tolerance for sustained physical exertion (Prayuni et al., 2022).

Physically, advanced age also correlates with gait instability and functional decline in Activities of Daily Living (ADL) (Gallè et al, 2022). From a psychosocial perspective, an elevated fear of falling among older residents (>70 years) often induces self-restricted mobility and behavioral avoidance (Kilgour et al, 2024). Consequently, age serves as a crucial stratification factor when designing institutional movement protocols, highlighting the need for safe, progressive, and functionally tailored physical routines (Gammack, 2017; Izquierdo et al., 2021).

Gender and Physical Activity

In contrast to observational trends in community dwelling populations where older men frequently report higher outdoor activity while older women engage more in group-based social pursuits (Li et al., 2017), this study found insufficient statistical evidence to indicate an association between gender and physical activity levels ($p = 0.917$).

The lack of observed difference in this study is likely attributable to the environmental homogeneity of institutional living (Triwanti et al., 2014). In care homes, daily routines, meal schedules, and recreational opportunities are standardized across residents regardless of gender, eliminating traditional gender-based divisions of domestic or occupational labor (Krisman Gea et al., 2024). These findings reinforce the premise that in long-term care settings, institutional environmental factors and activity programs play a more dominant role in shaping the physical behavior patterns of the elderly compared to biological factors such as gender (Monika et al., 2020; Wylie et al., 2022). Applying the Self-Determination Theory (Ryan & Deci, 2000), physical activity interventions in institutional contexts should focus on enhancing universal psychosocial drivers such as autonomy and group motivation rather than tailoring programs strictly along gender lines (Karmila et al., 2018; Kilgour et al., 2024).

Comorbidities and Physical Activity

Theoretically, chronic diseases such as hypertension, diabetes mellitus, or rheumatism are often considered major impediments to physical mobility (Huang & Lu, 2024). However, our analysis yielded insufficient statistical evidence to establish a significant association between the presence of comorbidities and physical activity levels ($p = 0.614$).

This finding is interesting because, However, in the context of the elderly in care homes, this condition is likely caused by the elderly with comorbidities who have adapted and received regular medication monitoring from the care home health staff, allowing them to continue engaging in light to moderate physical activities within their capabilities (Clarke & Witham, 2017). Conversely, residents without formal comorbidities may still exhibit marked inactivity if driven by unmeasured psychosocial barriers, such as low self-efficacy, apathy, or depression (Kilgour et al, 2024). This is in line with Leung et al (2021) research, which revealed that low physical activity in care homes is often a result of a sedentary lifestyle that has become a collective habit, making comorbidities no longer a significant differentiating factor. Thus, clinical status alone is an insufficient indicator of physical activity engagement in residential facilities (Holmes et al., 2016).

Exercise Regularity and Physical Activity

Interestingly, bivariate analysis revealed no statistically significant association between exercise regularity and overall physical activity categories ($p = 0.053$), although this value approaches the conventional threshold of significance. These results contradict several community-based studies that report strong positive associations between formal exercise attendance and overall physical activity (Marhumi, 2022).

This indicates that elderly who regularly participate in exercise every week do not automatically fall into the high physical activity category overall in their daily lives. The regularity of exercise and the level of physical activity among the elderly show complex and not always linear results (Naghibi et al., 2021). This discrepancy can be critically interpreted through the concepts of exercise volume and post-exercise compensation. Institutional exercise sessions in care homes are typically low-intensity and short in duration (15–30 minutes), contributing minimally to total 24-hour energy expenditure (Gammack, 2017). As stated by Dooley et al (2022), total daily physical activity reflects the accumulation of all daily bodily movements, including independent ambulation and ADL tasks. Furthermore, residents participating in morning exercise sessions may exhibit compensatory sedentary behavior throughout the remainder of the day, perceiving their physical effort as already fulfilled (Leung et al., 2021; Hwang et al., 2021). This finding is supported by the research of Liu et al (2017), which states that the level of physical activity is more determined by independence in performing ADL than by participation in structured exercise alone. Thus, although exercise is beneficial for heart fitness and joint flexibility, its regularity alone is not a single factor capable of boosting the overall level of physical activity if not accompanied by an increase in daily mobility within the care home environment (Vetrovsky et al., 2021).

Conclusions

Within the scope of this single-center cross-sectional study, physical activity levels among elderly residents at the Abiyoso care home were predominantly low. Among the evaluated determinants, advancing age emerged as the primary factor associated with lower physical activity engagement, reflecting progressive functional and physiological declines. Conversely, no statistically significant associations were observed for gender, chronic comorbidities, or exercise regularity within this cohort. These findings suggest that the standardized institutional environment and uniform daily routines play a dominant role in shaping residents' mobility patterns, where short-duration formal exercise sessions alone are insufficient to offset prolonged post-exercise sedentary behavior.

These conclusions must be interpreted within the context of the study's methodological constraints, including a modest sample size, bivariate analytical design, and self-reported measurement tools. Consequently, these findings represent preliminary associative insights specific to this institutionalized cohort and cannot be generalized to broader community-dwelling elderly populations.

To optimize physical health outcomes in long-term care settings, institutional management should move beyond reliance on brief, weekly exercise routines. Practical strategies should prioritize creating an active living environment that integrates low-intensity movement opportunities throughout the day, restructures prolonged sitting periods, and provides age-stratified functional support for older residents (>70 years). Future research should employ larger, multi-center cohorts utilizing *a* priori statistical power calculations and longitudinal designs. Integrating objective movement tracking alongside multivariate modeling will better clarify the complex interactions between physical activity, physiological capacity, and unmeasured psychosocial variables such as depression, self-efficacy, and staff-resident social support

References

Anggraeni, V., & Rachmawati, M. R. (2018). Tidak terdapat hubungan antara aktivitas fisik dengan kadar gula darah pada lanjut usia di panti sosial. *Jurnal Biomedika Dan Kesehatan*, *1*(1). https://doi.org/10.18051/jbiomedkes.2018.v1.101-108

Badan Pusat Statistik. (2023). *Statistik Penduduk Lanjut Usia 2023* (Vol. 2). Badan Pusat Statistik.

Cheng, I. F., Kuo, L. C., Tsai, Y. J., & Su, F. C. (2021). The Comparisons of Physical Functional Performances between Elderly with and without Regular Physical Activity in Two Different Living Settings. *International Journal of Environmental Research and Public Health*, *18*(7), 3561. https://doi.org/10.3390/ijerph18073561

Christy, J., & Junita Bancin, L. (2019). Hubungan Karakteristik (Umur, Jenis Kelamin, Status Perkawinan) dengan Aktivitas Fisik dan Aktivitas Sosial Lansia di Wilayah Kerja Puskesmas Padangmatinggi Kota Padangsidimpuan. *Sintaks*, *1*(1).

Clarke, C. L., & Witham, M. D. (2017). The Effects of Medication on Activity and Rehabilitation of Older People – Opportunities and Risks. *Rehabilitation Process and Outcome*, *6*. https://doi.org/10.1177/1179572717711433

Dooley, E. E., Pompeii, L. A., Palta, P., Martinez-Amezcua, P., Hornikel, B., Evenson, K. R., Schrack, J. A., & Pettee Gabriel, K. (2022). Daily and hourly patterns of physical activity and sedentary behavior of elderly: Atherosclerosis risk in communities (ARIC) study. *Preventive Medicine Reports*, *28*, 101859. https://doi.org/10.1016/j.pmedr.2022.101859

Faridi, A., Setiawati Rahayu, N., Werdhasari, A., Kesehatan Bandara Bungo Jambi, K., & Kesehatan, K. R. (2020). Karakteristik, Aktifitas Fisik dan Asupan Zat Gizi Terhadap Status Gizi Lansia di Panti Tresna Werdha. *Media Gizi Pangan*, *27*.

Gallè, F., Sabella, E. A., Di Muzio, M., Barchielli, B., Da Molin, G., Ferracuti, S., Liguori, G., Orsi, G. B., & Napoli, C. (2022). Capturing the Features of Physical Activity in Old Adults during the COVID-19 Pandemic: Results of an Italian Survey. *International Journal of Environmental Research and Public Health*, *19*(11), 6868. https://doi.org/10.3390/ijerph19116868

Gammack, J. K. (2017). Physical Activity in Older Persons. *Missouri Medicine*, *114*(2), 105. https://pmc.ncbi.nlm.nih.gov/articles/PMC6140016/

Gebhard, D., & Frank, J. I. (2024). Everyday life and boredom of people living with dementia in residential long-term care: a merged methods study. *BMC Geriatrics*, *24*(1), 1049. https://doi.org/10.1186/s12877-024-05641-7

Hayashi, P., Abib, G., & Hoppen, N. (2019). Validity in qualitative research: A processual approach. *Qualitative Report*, *24*(1). https://doi.org/10.46743/2160-3715/2019.3443

Holmes, S. D., Galik, E., & Resnick, B. (2016). Factors that Influence Physical Activity among Residents in Assisted Living. *Journal of Gerontological Social Work*, *60*(2), 120. https://doi.org/10.1080/01634372.2016.1269035

Huang, Y., & Lu, Z. (2024). A cross-sectional study of physical activity and chronic diseases among middle-aged and elderly in China. *Scientific Reports 2024 14:1*, *14*(1), 30701-. https://doi.org/10.1038/s41598-024-78360-z

Hwang, C. L., Chen, S. H., Chou, C. H., Grigoriadis, G., Liao, T. C., Fancher, I. S., Arena, R., & Phillips, S. A. (2021). The physiological benefits of sitting less and moving more: opportunities for future research. *Progress in Cardiovascular Diseases*, *73*, S0033-0620(21)00003-7. https://doi.org/10.1016/j.pcad.2020.12.010

Izquierdo, M., Duque, G., & Morley, J. E. (2021). Physical activity guidelines for older people: knowledge gaps and future directions. *The Lancet Healthy Longevity*, *2*(6), e380–e383. https://doi.org/10.1016/S2666-7568(21)00079-9

Jaul, E., & Barron, J. (2017). Age-Related Diseases and Clinical and Public Health Implications for the 85 Years Old and Over Population. *Frontiers in Public Health*, *5*, 335. https://doi.org/10.3389/fpubh.2017.00335

Karmila, K., Kartika, K., & Arnita, A. (2018). FAKTOR YANG MEMPENGARUHI KEIKUTSERTAAN SENAM LANSIA DI WILAYAH KERJA PUSKESMAS TITUE. *An-Nadaa: Jurnal Kesehatan Masyarakat*, *5*(2). https://doi.org/10.31602/ann.v5i2.1653

Kazoglu, M., & Yuruk, Z. O. (2020). Comparison of the physical fitness levels in nursing home residents and community-dwelling elderly. *Archives of Gerontology and Geriatrics*, *89*, 104106. https://doi.org/10.1016/j.archger.2020.104106

Kilgour, A. H. M., Rutherford, M., Higson, J., Meredith, S. J., McNiff, J., Mitchell, S., Wijayendran, A., Lim, S. E. R., & Shenkin, S. D. (2024). Barriers and motivators to undertaking physical activity in adults over 70—a systematic review of the quantitative literature. *Age and Ageing*, *53*(4), afae080. https://doi.org/10.1093/ageing/afae080

Krisman Gea, Y., Raharjao, S. T., Ginanjar, G., & Basar, K. (2024). ANALISIS PROGRAM PELAYANAN SOSIAL LANJUT USIA DI PANTI SOSIAL TRESNA WERDHA BUDI MULIA 3 JAKARTA SELATAN. *Kebijakan : Jurnal Ilmu Administrasi*, *15*(02), 183–194. https://doi.org/10.23969/kebijakan.v15i02.9278

Leung, K. C. W., Sum, K. W. R., & Yang, Y. J. (2021). Patterns of Sedentary Behavior among Elderly in Care Facilities: A Scoping Review. *International Journal of Environmental Research and Public Health*, *18*(5), 1–18. https://doi.org/10.3390/ijerph18052710

Li, W., Procter-Gray, E., Churchill, L., Crouter, S. E., Kane, K., Tian, J., Franklin, P. D., Ockene, J. K., & Gurwitz, J. (2017). Gender and age differences in levels, types and locations of physical activity among elderly living in car-dependent neighborhoods. *The Journal of Frailty & Aging*, *6*(3), 129. https://doi.org/10.14283/jfa.2017.15

Liu, C. ju, Xu, H., Keith, N. C. R., & Clark, D. O. (2017). Promoting ADL independence in vulnerable,

community-dwelling elderly: a pilot RCT comparing 3-Step Workout for Life versus resistance exercise. *Clinical Interventions in Aging*, *12*, 1141. https://doi.org/10.2147/CIA.S136678

Majdina, N. I., Pratikno, B., & Tripena, A. (2024). PENENTUAN UKURAN SAMPEL MENGGUNAKAN RUMUS BERNOULLI DAN SLOVIN: KONSEP DAN APLIKASINYA. *Jurnal Ilmiah Matematika Dan Pendidikan Matematika*, *16*(1), 73–84. https://doi.org/10.20884/1.jmp.2024.16.1.11230

Marhumi. (2022). Hubungan senam lansia dengan level aktivitas fisik pada lansia di wilayah kerja puskesmas Lempa kecamatan Pammana Kabupaten Wajo. *INITIUM MEDICA JOURNAL*, *2*.

Monika, R., Setiawan, A., & Nurviyandari, D. (2020). Partisipasi Sosial Dan Kepuasan Hidup Lanjut Usia Di Panti Sosial Tresna Werdha Wilayah Yogyakarta. *Jurnal Kesehatan Samodra Ilmu*, *11*(1), 94–103. https://doi.org/10.55426/jksi.v11i1.19

Mulisa, F. (2023). The Use of True-Random, Quasi-Random, and Nonrandom Sampling Techniques in in Educational Studies. *Computer Engineering and Intelligent Systems*, *14*(1), 19–25. https://doi.org/10.7176/ceis/14-1-03

Naghibi, S. A., Rostami, F., Moosazadeh, M., & Kazemi, S. S. (2021). Physical activity in elderly: A cross sectional study. *Payesh (Health Monitor)*, *20*(2), 179–190. https://doi.org/10.52547/payesh.20.2.179

Nakrem, S. (2015). Understanding organizational and cultural premises for quality of care in nursing homes: an ethnographic study. *BMC Health Services Research 2015 15:1*, *15*(1), 508-. https://doi.org/10.1186/s12913-015-1171-y

Narsakka, N., Suhonen, R., Kielo-Viljamaa, E., & Stolt, M. (2022). Physical, social, and symbolic environment related to physical activity of older individuals in long-term care: A mixed-method systematic review. *International Journal of Nursing Studies*, *135*, 104350. https://doi.org/10.1016/j.ijnurstu.2022.104350

Prayuni, A. B., Tamin, T. Z., Alwin, W., & Dewi Friska. (2022). Association of Physical Activity and Physical Performance with Sarcopenia in Elderly Obese Patient in Community. *Indonesian Journal of Physical Medicine and Rehabilitation*, *11*(02). https://doi.org/10.36803/ijpmr.v11i02.334

Riskesdas. (2018). Laporan Riskesdas 2018. *Laporan Nasional Riskesdas 2018*, *53*(9), 154–165. http://www.yankes.kemkes.go.id/assets/downloads/PMK No. 57 Tahun 2013 tentang PTRM.pdf

Roslaini, R., Asniar, A., & Susanti, S. S. (2022). FAKTOR- FAKTOR YANG BERHUBUNGAN DENGAN AKTIVITAS FISIK LANSIA DENGAN HIPERTENSI. *Quality : Jurnal Kesehatan*, *16*(2). https://doi.org/10.36082/qjk.v16i2.612

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1). https://doi.org/10.1037/0003-066X.55.1.68

Salsabilla, D., Yuliadarwati, N. M., & Lubis, Z. I. (2023). Hubungan antara Aktivitas Fisik dengan Keseimbangan pada Lansia di Komunitas Malang. *NURSING UPDATE : Jurnal Ilmiah Ilmu Keperawatan P-ISSN : 2085-5931 e-ISSN : 2623-2871*, *14*(1). https://doi.org/10.36089/nu.v14i1.1086

Stalling, I., Gruber, M., & Bammann, K. (2024). Sex differences in physical functioning among elderly: cross-sectional results from the OUTDOOR ACTIVE study. *BMC Public Health*, *24*(1). https://doi.org/10.1186/s12889-024-19218-x

Sudhir Kumar, Sudheera Kunduru, & Demonge Kushan Anthony. (2021). Physical Activity Levels among Community Dwelling and Care Home Dwelling Elderly Population. *Indian Journal of Physiotherapy & Occupational Therapy - An International Journal*, *16*(1). https://doi.org/10.37506/ijpot.v16i1.17787

Triwanti, S. P., Ishartono, I., & Gutama, A. S. (2014). PERAN PANTI SOSIAL TRESNA WERDHA DALAM UPAYA MENINGKATKAN KESEJAHTERAAN LANSIA. *Share : Social Work Journal*, *4*(2).

https://doi.org/10.24198/share.v4i2.13072

Vetrovsky, T., Omcirk, D., Malecek, J., Stastny, P., Steffl, M., & Tufano, J. J. (2021). Morning fatigue and structured exercise interact to affect non-exercise physical activity of fit and healthy elderly. *BMC Geriatrics*, *21*(1). https://doi.org/10.1186/s12877-021-02131-y

Wang, X., & Cheng, Z. (2020). Cross-Sectional Studies: Strengths, Weaknesses, and Recommendations. In *Chest* (Vol. 158, Issue 1, pp. S65–S71). https://doi.org/10.1016/j.chest.2020.03.012

Washburn, R. A., Smith, K. W., Jette, A. M., & Janney, C. A. (1993). The physical activity scale for the elderly (PASE): Development and evaluation. *Journal of Clinical Epidemiology*, *46*(2). https://doi.org/10.1016/0895-4356(93)90053-4

WHO. (2018). Regional Framework On Healthy Ageing (2018-2022). In *Searo Publications*. World Health Organization, Regional Office for South-East Asia.

Wylie, G., Kroll, T., Witham, M. D., & Morris, J. (2022). Increasing physical activity levels in care homes for older people: a quantitative scoping review of intervention studies to guide future research. *Disability and Rehabilitation*, *45*(19), 3160. https://doi.org/10.1080/09638288.2022.2118869