





Interdisciplinary Care Management Improve Physical Activities of Daily Living among Elderly

 Wantonoro¹,  Sigit Harun²,  Tuan Van Nguyen^{3*},  Le Thanh Ha⁴

¹Department of Nursing, Universitas' Aisyiyah Yogyakarta, Indonesia.

²Unit Home care PKU Muhammadiyah Yogyakarta Hospital, Yogyakarta, Indonesia.

³Department of Nursing, Can Tho University of Medicine and Pharmacy, Vietnam; nvtuan@ctump.edu.vn (T.V.N.)

⁴Department of Endocrinology, 108 Military Central Hospital, Hanoi City, Vietnam.

Abstract. Long-term care is an activity carried out by professionals to ensure that patients can maintain freedom and quality of life according to their wishes, the elderly who require long-term care tend to experience reduced limitations in their Physical Activity Daily Living (PADLs), this long-term care can be done by homecare-based, homecare services require interdisciplinary implementation or collaboration between health professions to provide comprehensive services. Objectives: This research purposes to determine the effect of interdisciplinary homecare management on PADLs of the elderly with long-term care service needs. Methods: a quasi-experimental design. Fifteen elderly who match long-term care criteria were included in this study; including elderly with hypertension, elderly with diabetic problems, and elderly with stroke. All respondents were received 3-months interdisciplinary focused on activity daily living. The interdisciplinary approach involved professionals from three fields: nursing, physiotherapy, and nutrition. All professionals participated in the daily need treatment process for 3 months; the education was provided twice a week for each caregiver via face-to-face interactions in the caregiver/patient's house (home-based education). Wilcoxon test data analysis techniques were used. Results: The results of this study state that there is a significant influence of interdisciplinary home care PADLs for long-term care patients ($p=0.001$). Conclusion: The findings of this study support the effectiveness interdisciplinary homecare management program for elderly; Therefore, interdisciplinary homecare management is recommended in order to improve PADLs for elderly with long-term care needs. A subsequent investigation with homogeneous responders was suggested.

Keywords: Activity daily living, Homecare, Interdisciplinary, Long term care, Management.

1. INTRODUCTION

Aging phenomena and degenerative health problem were increased in the world. Study was reported the age-related decline in physical function, which confirms the complexity of elderly health problem (Saadeh et al., 2020). Age-related physiological changes, such as reduced acuity of sensory (vision and hearing), hypertension, slow reaction time, and impaired balance, loss of bone density, functional deterioration, cognitive impairment and multiple chronic conditions.(Jaul & Barron, 2017). Elderly patients with multiple health problems often experience disease complications and functional failure, perceive health services as complex and challenging to comprehend, therefore need support from health care professionals to ensure continuity of services (Kumlin et al., 2020).

The long-term services including bathing, eating, dressing, and other everyday tasks are needed for elderly. Long-term services and supports are delivered in nursing homes, assisted living facilities, the person's home, and other settings.(Heiks & Sabine, 2022).Elderly have a complex health problem regarding physical and mental degenerative. Then, interdisciplinary care is suggested for this vulnerable population. Interdisciplinary care focuses on process problems, sharing and working together in a professions health team to solve health problems (Codispoti et al., 2004). Long-term care with comprehensive approached are recommended for complexity elderly health problem. Study showed that long-term interdisciplinary care is recommended as one method to enhance the patients and family support system with respect to chronic health care management (Wantonoro et al., 2023).

Study have been shown the goal of multidimensional health for frail elderly patients is most effectively pursued by the interdisciplinary health care team (Wieland et al., 1996). In addition, long-term interdisciplinary care have led to improvements in the health of patients with chronic disease (Wantonoro et al., 2023). Significant regional disparities exist in terms of health status and in the quality, availability, and capacity of health services, different demography and cultural in Indonesia, therefore, investigate the homebased interdisciplinary care approach for elderly is needed.

Objective(s): The objective of the current research is to determine the effect of interdisciplinary home care management on activity daily living elderly.

2. METHODS

2.1. Study Design

This is a quantitative longitudinal study (3-months) with a quasi-experimental one-group pretest–posttest design.

2.2. Setting

The study setting in home-based intervention at community in Yogyakarta area, Indonesia.

2.3. Research Subject

The participants were recruited using *purposive sampling* sample approach. Fifteen long term care patients in the Yogyakarta area, Indonesia were included during the 3-month follow-up of the interdisciplinary intervention program.

2.4. Inclusion and Exclusion Criteria

The inclusion criterion was being a long-term care patient including Stroke, Diabetes Mellitus, Hypertension. Long term care patients with cognitive impairments were excluded from this study.

2.5. Instruments

The instrument used in this study was the Barthel Index Indonesian version questionnaire. validation Barthel Index Bahasa Indonesia had been tested; the internal consistency was found to have Cronbach a 0.938 (Agung, 2006).

2.6. Intervention

All respondents were received 3 months of interdisciplinary education regarding daily needs. Individual help, education was provided via leaflets and the demonstration basic need treatment by researchers. The interdisciplinary approach involved professionals from three fields: nursing, physiotherapy, and nutrition. All professionals participated in the daily need treatment process for 3-months; the help and education were provided twice a week for each patient via face-to-face interactions in home.

2.7. Data Analysis

The statistical Wilcoxon Test were used

2.8. Ethical Consideration

The study obtained approval from the ethical committee (2748/KEP-UNISA/IV/2023). All participants provided written informed consent before receiving interdisciplinary homecare.

3. RESULTS

3.1. Sample Characteristics

Fifteen respondents were involved in this research, there were patients aged > 70 years, total 5 elderly (33.3%). There were 4 respondents (26.7%) male and 11 respondents (73.3%) female. Based on education, the most common were elementary school with 7 respondents (46.7%), high school with 6 respondents (40%), Junior high school with 1 respondent (6.7%) and bachelor's degree with 1 respondent (6.7%). Based on the type of disease, there were 4 people with DM (26.7%), 3 people with stroke (20%), 6 people with hypertension (40%), and 2 respondents with comorbidities/more than 1 disease (13.3%). (Table 1)

Table 1: Sample Characteristics.

Characteristics	Frequency (f)	Percentage (%)
Age		
• 50-59 years	2	13.3
• 60-69 years	8	53.3
• >70 years	5	33.3
Gender		
• Male	4	26.7
• Female	11	73.3
Education		
• Elementary School	7	46.7
• Junior High School	1	6.7
• Senior High School	6	40.0
• Diploma/Bachelor	1	6.7
Disease		
• Diabetes mellitus	4	26.7
• Strokes	3	20
• Hypertension	6	40
• Comorbidities	2	13.3
Total	15	100.0

Table 2: Effect of interdisciplinary home care management on activity daily living patients.

Interdisciplinary homecare	Mean	Significance (p)
Pre test	12.60	0.001*
Post test	16.00	

Note: * Wilcoxon test.

3.2. Effectiveness Long-Term Interdisciplinary Home Care On Activity Daily Living Elderly

Based on the results of the bivariate test above using the Wilcoxon test, the results showed that the influence of interdisciplinary homecare on the Physical Activity Daily Living (PADLs) of long-term care patients ($p=0.001$), which means that there is an influence of interdisciplinary homecare on the activity of daily living of long-term care patients.

4. DISCUSSION

Long-term interdisciplinary management this study including professional nurse, professional physiotherapy, and professional nutrition who did home visited during 3-months. This study has been shown the homebased interdisciplinary improve activity of daily living of elderly who included (elderly with stroke, elderly with diabetic and, elderly with hypertension problem). Another study was shown integrated multidisciplinary program had no effect on daily activity of older stroke patients, however, the program might be promising in providing adequate (after) care, although adaptation of the program is recommended to increase its feasibility and improve its effects (Vluggen et al., 2021).

Home-based therapy was able to cease the deterioration and improve the performance of activities of daily living in stroke patients; its might be an alternative approach for stroke patients who require long-term management (Pui Kei et al., 2020). Another study confirm the multidisciplinary approach intervention can be effective in controlling blood pressure in elderly hypertensive patients (Woodham et al., 2020), And the study were confirmed that family-based interventions program are effective in improving glycemic control and wound healing including in the older person (Wuri Kartika et al., 2021).

Being older reduced physical and psychological competency, risk for worse cognitive impairment and increase the multiple chronic conditions (Jaul & Barron, 2017), increasing complexity of healthcare provision and interventions (Singh et al., 2018). The elderly becoming partial or full dependent with another people (caregiver), and also physic and social environment. Long-term interdisciplinary care education of family caregivers is recommended in order to improved patients and caregiver performance across genders, ages, education levels, and wound care experience durations on diabetic patients (Wantonoro et al., 2023). The key of interdisciplinary feature of such a team is that members establish the means of working together in the assessment and treatment of patients, with joint decision-making and goal-setting (Singh et al., 2018).

Successful interdisciplinary when caring for patients with multimorbidity in long-term care requires integration, understanding, and recognition of the interdependency from all persons involved, including patients and family caregivers (Doornebosch et al., 2022). Another study reported need for revitalizing long-term interdisciplinary care through interdisciplinary care practices, clarification of role descriptions, optimized staffing, capacity building of each category of staff and commitment from the all person (Vellani et al., 2022). Sustainable of the long-term interdisciplinary care are innovation, individual, professional, patient, social context, context of the organization, economic and political context (De Coninck et al., 2023).

Limitation of the study: Several limitations in this review study, such as limited number of respondents and heterogenic long term care patients included in this study, may considered for the general outcome

5. CONCLUSION

Interdisciplinary homecare is recommended in order to improve PADLs for elderly with long-term care needs. A subsequent investigation with homogeneous responders was suggested.

5.1. Suggestions:

Interdisciplinary homecare management is recommended in order to improve PADLs for elderly with long-term care needs. A subsequent investigation with homogeneous responders was suggested.

Acknowledgment:

The authors thank to all respondents who has participated in this study

Declaration of Conflicting Interest:

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding:

Universitas 'Aisyiyah Yogyakarta Research Funding.

REFERENCES

- Agung, I. (2006). Reliability and validation test activity of daily living Barthel index to measure basic functional status of elderly people in RSCM (In Indonesian). . <https://onsearch.id/Record/IOS1.INLIS00000000033738>
- Codispoti, C., Douglas, M. R., McCallister, T., & Zuniga, A. (2004). The use of a multidisciplinary team care approach to improve glycemic control and quality of life by the prevention of complications among diabetic patients. *J Okla State Med Assoc*, 97(5), 201-204.
- De Coninck, L., Declercq, A., Bouckaert, L., Döpp, C., Graff, M. J. L., & Aertgeerts, B. (2023). The willingness and barriers to collaborate in the care of frail older adults: perspectives of primary care professionals. *BMC Geriatrics*, 23(1), 488. <https://doi.org/10.1186/s12877-023-04163-y>
- Doornebosch, A. J., Smaling, H. J. A., & Achterberg, W. P. (2022). Interprofessional Collaboration in Long-Term Care and Rehabilitation: A Systematic Review. *J Am Med Dir Assoc*, 23(5), 764-777.e762. <https://doi.org/10.1016/j.jamda.2021.12.028>
- Heiks, C., & Sabine, N. (2022). Long Term Care and Skilled Nursing Facilities. *Dela J Public Health*, 8(5), 144-149. <https://doi.org/10.32481/djph.2022.12.032>
- Jaul, E., & Barron, J. (2017). Age-Related Diseases and Clinical and Public Health Implications for the 85 Years Old and Over Population. *Front Public Health*, 5, 335. <https://doi.org/10.3389/fpubh.2017.00335>
- Kumlin, M., Berg, G. V., Kvigne, K., & Hellesø, R. (2020). Elderly patients with complex health problems in the care trajectory: a qualitative case study. *BMC Health Services Research*, 20(1), 595. <https://doi.org/10.1186/s12913-020-05437-6>
- Pui Kei, C., Mohd Nordin, N. A., & Abdul Aziz, A. F. (2020). The effectiveness of home-based therapy on functional outcome, self-efficacy and anxiety among discharged stroke survivors. *Medicine (Baltimore)*, 99(47), e23296. <https://doi.org/10.1097/md.00000000000023296>
- Saadeh, M., Welmer, A. K., Dekhtyar, S., Fratiglioni, L., & Calderón-Larrañaga, A. (2020). The Role of Psychological and Social Well-being on Physical Function Trajectories in Older Adults. *J Gerontol A Biol Sci Med Sci*, 75(8), 1579-1585. <https://doi.org/10.1093/gerona/glaa114>
- Singh, R., Küçükdeveci, A. A., Grabljevec, K., & Gray, A. (2018). The role of Interdisciplinary Teams in Physical and Rehabilitation Medicine. *J Rehabil Med*, 50(8), 673-678. <https://doi.org/10.2340/16501977-2364>
- Vellani, S., Green, E., Kulasegaram, P., Sussman, T., Wickson-Griffiths, A., & Kaasalainen, S. (2022). Interdisciplinary staff perceptions of advance care planning in long-term care homes: a qualitative study. *BMC Palliative Care*, 21(1), 127. <https://doi.org/10.1186/s12904-022-01014-2>
- Vluggen, T., van Haastregt, J. C. M., Tan, F. E., Verbunt, J. A., van Heugten, C. M., & Schols, J. (2021). Effectiveness of an integrated multidisciplinary geriatric rehabilitation programme for older persons with stroke: a multicentre randomised controlled trial. *BMC Geriatr*, 21(1), 134. <https://doi.org/10.1186/s12877-021-02082-4>
- Wantonoro, W., Komarudin, K., Imania, D. R., Harun, S., & Van Nguyen, T. (2023). The Influence of 6-Month Interdisciplinary Accompaniment on Family Caregivers' Knowledge and Self-Efficacy Regarding Diabetic Wound Care. *SAGE Open Nursing*, 9, 23779608231167801.
- Wieland, D., Kramer, B. J., Waite, M. S., & Rubenstein, L. Z. (1996). The Interdisciplinary Team in Geriatric Care. *American Behavioral Scientist*, 39(6), 655-664. <https://doi.org/10.1177/0002764296039006003>
- Woodham, N. S., Taneepanichskul, S., Somrongthong, R., Kitsanapun, A., & Sompakdee, B. (2020). Effectiveness of a Multidisciplinary Approach Intervention to Improve Blood Pressure Control Among Elderly Hypertensive Patients in Rural Thailand: A Quasi-Experimental Study. *Journal of multidisciplinary healthcare*, 13, 571-580. <https://doi.org/10.2147/jmdh.s254286>
- Wuri Kartika, A., Widyatuti, W., & Rekawati, E. (2021). The effectiveness of home-based nursing intervention in the elderly with recurrent diabetic foot ulcers: A case report. *Journal of Public Health Research*, 10(2), 2162. <https://doi.org/10.4081/jphr.2021.2162>