Original Research Report

IMPROVEMENT OF CADRES' SKILLS AND KNOWLEDGE TO PROVIDE COMPREHENSIVE HEALTH SERVICES FOR THE ELDERLY

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ABSTRACT

Numerous issues have arisen as a result of the large size and rapid growth of the elderly population, attesting to the need for serious efforts from all sectors to enhance their welfare. However, the health cadres at the Integrated Health Post for the Elderly (*Pos Layanan Terpadu Lanjut Usia*/ Posyandu Lansia) lacked the training that would have equipped them with the necessary knowledge and skills to carry out their duties. This study aimed to evaluate the significance of training for enhancing the cadres' knowledge and skills in providing comprehensive health services for the elderly. This study was quasi-experimental research with a pre-test and post-test design. The data analysis was performed using the Shapiro-Wilk test ($p>0.05$) and the Wilcoxon test ($p<0.05$). A total of 30 health cadres at Songgon Community Health Center were measured for their levels of knowledge and skills before and after the training. The training included filling out health evaluation charts, providing leaflets containing health counseling materials for the elderly, practicing exercise for the elderly, and singing an elderly marching song. Before filling out the health evaluation chart, the cadres had to measure the elderly's degree of independence as well as their mental, emotional, and nutritional status. The cadres also had to measure the weight, height, and blood pressure of the elderly. Prior to training, the cadres' knowledge of hospitalization referrals, independence, and physical exercise for the elderly was limited. The cadres' skills in filling out health evaluation charts, assessing mental, emotional, and nutritional status, measuring blood pressure, and instructing physical exercise were also inadequate. There was a significant difference in the knowledge and skills of the health cadres before and after training ($p<0.05$). In conclusion, there was an improvement in the health cadres' knowledge and skills regarding comprehensive health services for the elderly at the Posyandu Lansia.

Keywords: Skills; health cadres; Integrated Health Post for the Elderly (Posyandu Lansia); comprehensive health services for the elderly; public health

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Highlights:
1. Due to the increasing elderly population in Indonesia, this study must address the knowledge and skill gaps among health cadres in a number of Integrated Health Posts for the Elderly (*Pos Layanan Terpadu Lanjut Usia*/ Posyandu Lansia).
2. Through this study, the health cadres increased their knowledge and skills, enabling them to provide comprehensive health services for the elderly.

INTRODUCTION

The success of national development has an impact on increasing life expectancy. The life expectancy of the Indonesian population in 2021 was estimated to be 69.67 years for men and 73.55 years for women (Statistics Indonesia 2022). However, increasing life expectancy does not only occur in Indonesia, as population aging is a global trend in this millennium. The worldwide proportion of the elderly population aged 60 years and over is growing very rapidly compared to other age groups. The global growth of the elderly population from 2000 to 2025 is expected to double, from 606

million (10% of the world's total population) to 1.2 billion. In developing countries, the increase in the elderly population is greater than in developed countries. Indonesia is a country with an aging population structure, where the elderly population was projected to be 27.08 million people, or 9.99% of the total population (Statistics Indonesia 2017).

The elderly experience health, economic, social, spiritual, and legal challenges. They frequently suffer from geriatric syndromes, degenerative diseases, infectious diseases, and trauma. Geriatric syndromes are a group of symptoms that arise as a result of the aging process (Olsen et al. 2016). The symptoms of geriatric syndromes are known as the 5 Bs in Javanese, i.e., *blaur* (presbyopia), *budek* (prebiacusis), *beser* (incontinence), *bungkuk* (osteoporosis), and *bingung* (dementia). Degenerative diseases prevalent among the elderly are hypertension (63.5%), diabetes mellitus (5.7%), heart disease (4.5%), stroke (4.4%), kidney disorders (0.8%), and cancer (0.4%). The most prevalent infectious diseases among the elderly are acute respiratory infections (28.1%), diarrhea (24%), pneumonia (16.3%), and pulmonary tuberculosis (2.6%) (Ministry of Health of the Republic of Indonesia 2019).

According to Law of the Republic of Indonesia No. 13 of 1998 Concerning the Welfare of the Elderly, the health of the elderly is a state of body, spiritual, and social well-being that allows them to live socially and economically productive lives. The elderly cannot be excluded from public healthcare, as every effort to improve the public health status is an investment in the development of the country (Djamhari et al. 2020). In addition, Act of the Republic of Indonesia No. 36 of 2009 on Health mandates that efforts to improve and maintain public health must include the elderly and be conducted in accordance with nondiscriminatory, participatory, and sustainable principles. The principle of nondiscrimination requires that all individuals, including the elderly, have access to health services (Wahono et al. 2023). The large size and rapid growth of the elderly population contribute to a variety of problems, so all sectors must devote significant resources that will improve their welfare.

In Indonesia, the Community Health Center plays an important role in the health development of its respective service area. The Community Health Center is responsible for coordinating community health initiatives in order to increase the community's awareness, willingness, and capacity to live a healthy lifestyle and obtain optimal health status (Harahap 2021). The Community Health Center organizes the Integrated Health Post for the Elderly, which is also known as *Pos Layanan Terpadu Lanjut Usia* (Posyandu Lansia) in Indonesian. Posyandu Lansia is a form of community participation in the provision of health services for the elderly. In Posyandu Lansia, the community conducts routine health examinations with the participation of health cadres. However, health services at Posyandu Lansia had not been implemented optimally in a number of areas (Arsyati & Chandra 2020). One of the causes was the lack of knowledge and skills of the cadres in providing health services to the elderly. Therefore, training is essential to enhance the knowledge and skills of the cadres in providing comprehensive health services at Posyandu Lansia. This study aimed to analyze the differences in the cadres' knowledge and skills before and after the training. After the training, the cadres are expected to contribute to the improvement of the health status, productivity, and independence of the elderly population.

MATERIALS AND METHODS

The present study was conducted as quasi-experimental research with a pre-test and post-test design. The intervention in this study was training the cadres at Posyandu Lansia to provide comprehensive health services. A questionnaire was used to conduct pre- and post-tests on the cadres before and after the intervention to assess their level of knowledge and skills (Alessandri et al. 2017, Stratton 2019). This study was conducted at the Songgon Community Health Center in Banyuwangi, Indonesia, in September 2022. The service area of Songgon Community Health Center covers nine villages with 21,463 elderly citizens. Songgon Community Health Center is responsible for coordinating 11 Posyandu Lansia with 30 health cadres. The Community Service Team from the Department of Public Health and Preventive Medicine, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia, conducted a two-day training in the hall of the Songgon Community Health Center. This research received ethical approval from the Health Research Ethics Committee, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia, with registration No. 180/EC/KEPK/FKUA/2022 on 19/09/2022.

The training session involved the participation of 30 health cadres. The seminar materials included a definition of the elderly, problems among the elderly, health concerns among the elderly (geriatric syndromes), comprehensive health services, the role of the health cadres, the role of Posyandu Lansia, the five desks for Posyandu Lansia, the frequency of health services in Posyandu Lansia, and health evaluation charts for the elderly (Dewi et al. 2018). The health cadres were trained to fill out health evaluation charts for the elderly. Initially,

they must measure the degree of elderly independence, mental and emotional state, nutritional status, weight, height, and blood pressure. Additionally, they were assigned the responsibility of distributing leaflets that contained health counseling materials, practicing physical exercise, and performing the marching song for the elderly. The participants were measured for their levels of knowledge and skills about comprehensive health services for the elderly by filling out questionnaires before and after the training (Zadworna-Cieślak 2020).

Descriptive and analytic statistics were used in this study. As the data were ordinal, the descriptive statistics are presented in tables of percentage frequency distribution, as well as a central tendency in the form of range (min-max) and median (Vetter 2017). The data were analyzed using the Shapiro-Wilk test to assess the normal distribution of the data, with a normal distribution indicated by $p>0.05$. It was then followed by the Wilcoxon test to determine whether there was any difference between the cadres' pre- and post-training knowledge and skills, with a significance of $p<0.05$ (Taheri & Hesamian 2013). The data were statistically analyzed using SPSS Statistics for Windows, version 17.0 (SPSS Inc., Chicago, Ill., USA).

RESULTS

Table 1 presents the characteristics of the health cadres at Posyandu Lansia of Songgon Integrated Health Care Center. The mean age of the cadres was 36 years. The majority of cadres were housewives with a high school degree. The Sedap Malam Posyandu had the highest number of health cadres.

Prior to the training, the knowledge of the health cadres was severely insufficient, especially in regards to blood pressure tests (100%), health evaluation (96.7%), elderly quality of life (96.7%), the definition of the elderly (93.3%), and elderly problems (100%), as shown in Table 2. In addition, the knowledge of the health cadres was limited in regards to hospitalization referrals (20%), physical exercise frequency (23.3%), elderly independence (30%), elderly productivity (43.3%), and elderly health concerns (46.7%).

After the training, there was an increase in the health cadres' knowledge, especially regarding blood pressure tests (100%), elderly health evaluation (100%), elderly quality of life (100%), the definition of the elderly (100%), and elderly problems (100%). However, several knowledge areas required further improvement, including hospitalization referrals (43.3%), the frequency of physical exercise (33.3%), elderly independence (33.3%), elderly productivity (83.3%), and elderly health concerns (70%).

Table 1. Characteristics of the health cadres.

Characteristics	n	%
Age (years)		
Mean±SD	36±8.83	
Education		
Elementary school	5	16.7
Junior high school	9	30
Senior high school	16	53.3
Occupation		
Housewife	23	76.7
Entrepreneur	6	20
Administrative worker	1	3.3
Posyandu names		
Arum Senja	1	3.3
Balak	2	6.7
Bayu	3	10
Beringin	3	10
Dahlia	2	6.7
Parikuning	3	10
Sedap Malam	5	16.7
Sragi	3	10
Sri Utomo	4	13.3
Sumberbulu	3	10
Teratai	1	3.3

Table 2. Distribution of the cadres' correct answers for the knowledge evaluation.

Knowledge	Pre [n (%)]	Post [n (%)]
Definition of the elderly	28 (93.3%)	30 (100%)
Elderly problems	27 (90.0%)	30 (100%)
Elderly health concerns	14 (46.7%)	21 (70.0%)
Elderly productivity	13 (43.3%)	25 (83.3%)
Frequency of exercise	7 (23.3%)	10 (33.3%)
Elderly independence	9 (30.0%)	10 (33.3%)
Blood pressure tests	30 (100%)	30 (100%)
Health evaluation	29 (96.7%)	30 (100%)
Elderly quality of life	29 (96.7%)	30 (100%)
Hospitalization referrals	6 (20.0%)	13 (43.3%)

Prior to the training, the cadres' skills were already sufficient in regards to measuring weight and height (100%) and providing health education (93.3%), as shown in Table 3. However, the cadres' lacked the skills for filling out health evaluation charts (30%), measuring nutritional status (40%), measuring emotional status (40%), instructing physical exercise (46.7%), and measuring blood pressure (50%).

After the training, there was an increase in the cadres' skills, particularly in filling out health evaluation charts (33.3%), measuring nutritional

status (86.7%), measuring emotional status (66.7%), and instructing physical exercise (76.7%). However, the cadres' skill to measure blood pressure decreased to 46.7%.

Table 3. Distribution of the cadres' correct answers for the skills evaluation.

Skills	Pre [n (%)]	Post [n (%)]
Filling out health evaluation charts	9 (30.0%)	10 (33.3%)
Measuring independence	22 (73.3%)	28 (93.3%)
Measuring blood pressure	15 (50.0%)	14 (46.7%)
Measuring weight	30 (100%)	30 (100%)
Measuring height	30 (100%)	30 (100%)
Measuring nutritional status	12 (40.0%)	26 (86.7%)
Measuring emotional status	12 (40.0%)	20 (66.7%)
Providing health education	28 (93.3%)	28 (93.3%)
Instructing physical exercise	14 (46.7%)	23 (76.7%)
Determining hospitalization refferals	18 (60.0%)	24 (80.0%)

The differences between pre-training and post-training knowledge and skills were analyzed. The normality test was used to determine whether or not the data were normally distributed. Table 4 shows the normality test results, with $p<0.001$ for both knowledge and skills variables.

Table 4. The normality test results of the differences between pre- and post-training knowledge and skills.

Variables	n	p
Knowledge	30	<0.001
Skill	30	<0.001

Table 5. The differences between pre- and post-training knowledge and skills.

Variables	Median (min–max)	Median (min–max)	p
Knowledge			
Pre	6.5 (1–9)	1 (0–6)	<0.001
Post	8 (5–10)		
Skills			
Pre	7 (2–10)	1 (0–5)	<0.001
Post	8 (3–10)		

The results of the Shapiro-Wilk test indicated that the differences between pre- and post-training knowledge and skills were not normally distributed ($p<0.05$). Therefore, the data analysis was followed by the Wilcoxon test.

The results of the Wilcoxon test are presented in Table 5. The analysis results revealed a statistically significant difference in the level of knowledge among the cadres prior to and following the training ($p<0.05$). Similarly, there was a notable difference observed in the skills of the cadres prior to and following the training.

DISCUSSION

The World Health Organization has categorized the elderly age group into three distinct subgroups. The category of the younger elderly comprises individuals aged 60–74 years, while the middle portion of the category comprises those aged 75–90 years. The older subgroup comprises individuals who are >90 years old (Lee et al. 2018). On the other hand, the Ministry of Health of the Republic of Indonesia has classified the elderly age group into three subgroups. These subgroups include the pre-senior subgroup consisting of individuals aged 45–59 years, the senior subgroup consisting of those aged 60–70 years, and the elderly subgroup with higher risk that includes individuals above 90 years of age (Sumiati et al. 2022).

There is no way to avoid aging, but it can be transformed into a healthy process through the maintenance and improvement of physical and mental health, independence, and quality of life. The aging process varies from person to person due to genetic, lifestyle, and health factors. The elderly experience progressive generalized functional impairment, a loss of adaptive stress responses, and an increased risk of age-related diseases (Hubbard et al. 2013, Levine 2013). Physical, psychological, and social conditions can influence the health and quality of life of the elderly.

In this study, the cadres' knowledge of health issues affecting the elderly improved from 46.7% to 70% after training (Table 2). This knowledge is crucial because elderly individuals are susceptible to developing health issues. Several health issues that are prevalent among the elderly are hypertension (63.5%), diabetes mellitus (5.7%), heart disease (4.5%), and stroke (4.4%) (Ministry of Health of the Republic of Indonesia 2019). Diabetes mellitus was recognized as the most prevalent health issue in the cadres' working area.

Comprehensive health services for the elderly include promotive, preventive, curative, and rehabilitative efforts. Promotive health services aim to revive the elderly's spirit of life so that they feel

valued and remain useful to themselves, their families, and the community. Preventive health services are intended to reduce the likelihood of age-related diseases that lead to complications. Curative health services are multidisciplinary, science-based endeavors to treat the elderly. Rehabilitative health services consist of efforts to restore the diminished function of body organs, for example, by wearing glasses, hearing aids, or dentures (Wendimagegn & Bezuidenhout 2019).

Posyandu Lansia is a forum for providing health services for the elderly. The community within Posyandu Lansia's service area is responsible for carrying out the formation and implementation processes. The government, non-governmental organizations, private sector, and social organizations play a role in the development of Posyandu Lansia, with a focus on promotive and preventative health services (Ilyas 2017). In addition to health services, Posyandu Lansia can provide social services, religious services, education, skills, exercise, arts, culture, and other services required by the elderly to improve their quality of life through enhanced health and welfare. The establishment of Posyandu Lansia facilitates elderly individuals becoming more active and developing their potential (Frisca et al. 2020).

Posyandu Lansia incorporates the utilization of five desks to represent the sequential process involved in delivering healthcare services. Desk 1 is designated for the purpose of registration. Desk 2 serves the purpose of examining weight and height measurements, determining body mass index (BMI), and documenting the results on the health evaluation chart. Desk 3 is designated for the purpose of conducting basic examinations and administering treatments such as blood pressure, blood sugar levels, hemoglobin levels, and vitamin supplements. Desk 4 is designated for the purpose of conducting counseling activities, specifically pertaining to subjects such as health, nutrition, and welfare. Desk 5 serves the purpose of delivering information and facilitating social activities, including the provision of additional food, capital assistance, mentorship, and other relevant forms of support as required (Nikmah & Khomsatun 2020, Harahap 2021). In this study, the cadres' skills to assess nutritional status increased from 40% before training to 86.7% after training (Table 3). The cadres were already skilled in measuring weight and height but had not been able to determine the nutritional status of the elderly based on the health evaluation chart. However, the cadres' skills to measure blood pressure remained low (50%) because they rarely worked at Desk 3. Health professionals assisted in carrying out the basic examinations and treatments.

In this study, Posyandu Lansia provided health services at least once per month. However, it was suggested that physical activity and religious study be performed at least once per week. The cadres' knowledge on the frequency of physical exercise slightly improved from 23.3% before training to 33.3% after training. The cadres believed that physical exercise for the elderly only needed to be carried out at the same time as the Posyandu Lansia health services, which were once per month. Generally, the elderly exercised prior to the start of health services. However, the elderly should have exercised at least once a week (Mardius & Astuti 2017).

The health evaluation chart for the elderly is a tool for recording the physical, mental, and emotional health conditions of elderly individuals. Posyandu Lansia records information on the elderly's health evaluation chart, which can be used to monitor and evaluate their health progress. It is also possible to monitor the degree of independence, emotional and mental conditions, blood pressure, nutritional status, and fasting blood sugar levels of the elderly through the health evaluation chart (Fatmah & Nasution 2012, Kusumawardani & Andanawarih 2018). In this study, the cadres' skill in filling out health evaluation charts for the elderly slightly improved from 30% to 33.3%. The cadres' skill in assessing the mental and emotional status of the elderly was limited (40%) but improved after training (66.7%).

By using the health evaluation chart, the cadres should be able to determine whether an elderly individual needs to be referred to a hospital (Riasmini 2021). Although the cadres' knowledge of hospitalization referrals was limited (20%) prior to training, it increased after training (43.3%). The cadres' knowledge and skills regarding the independence of the elderly increased from 30% to 33.3% and from 73% to 93%, respectively. Approximately 50% of the cadres have completed their education at the elementary and junior high school levels. The potential influence of the education levels of the cadres on their deficiency in knowledge and skills may be considered.

Strength and limitations

This study can raise awareness of the significance of training for establishing sustainable community services at Posyandu Lansia. This study may suggest a recommendation that health cadres and health workers participate in training regularly to increase their capacity and enable them to provide comprehensive health services for the elderly. However, the long-term impact of the training on the cadres' skills and knowledge could not be concluded, as this study only performed the intervention once.

CONCLUSION

The training conducted at the Posyandu Lansia of Songgon Community Health Center, Banyuwangi, Indonesia, led to a significant improvement in the cadres' knowledge and skills regarding comprehensive health services for the elderly. Prior to the training, the cadres had inadequate knowledge and skills in the frequency of physical exercise, the independence of the elderly, hospitalization referrals, filling out health evaluation charts, measuring blood pressure, assessing emotional and mental status, and instructing physical exercise. It is anticipated that the enhancement of the cadres' knowledge and skills will facilitate the implementation of comprehensive health services to promote healthy aging and the well-being of the elderly.

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Conflict of interest

None.

Ethical consideration

This research had received ethical approval from the Health Research Ethics Committee, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia, with registration No. 180/EC/KEPK/FKUA/2022 on 19/09/2022.

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Author contribution

LDj contributed to the conceptualization, study design, data collection, data analysis, data interpretation, intervention, supervision, manuscript writing, and content revision. LDe contributed to the conceptualization, study design, data analysis, manuscript writing, and content revision. S contributed to the conceptualization, study design, manuscript writing, and content revision. NNB contributed to data collection and documentation. FN contributed to data collection and administration. SP contributed to data collection, intervention, and supervision.

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