Implementation of Comprehensive Geriatric Assessment in Elderly-Friendly Public Health Centers and General Public Health Centers in Bandung

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Abstract

Background: Comprehensive Geriatric Assessment (CGA) is a comprehensive, multi-dimensional biopsychosocial examination. The CGA is conducted at the primary health facility such as the public health centers (*Pusat Kesehatan Masyarakat*, Puskesmas); categorized as Eldery-Friendly Public Health Centers (Puskesmas Santun Lansia), a puskesmas where one of its programs provides health care for the elderly, and Puskesmas in general, where there is no specific program for the elderly. The purpose of the study was to analyze the difference between Puskesmas santun lansia and Puskesmas in providing CGA.

Methods: A comparative analytical study was carried out from August to November 2019, involving Puskesmas Santun Lansia (n=6) and puskesmas (n=12) in Bandung City. From each Puskesmas, two elderly were selected and observed for the CGA. The assessment consisted of the identity of the elderly, anamnesis, vital sign examination, physical examination, assessment of nutritional status, functional, psychosocial, social, cognitive, and mental assessment. The collected data were analyzed using the Chi-square or Fisher's exact test.

Results: This study showed that there was no difference between Puskesmas Santun Lansia and Puskesmas in the CGA, except in the simple nutritional anamnesis (p=0.003), anamnesis of the symptoms or signs of the dysfunction of the organ system (p=0.034), and body mass index measurement (p=0.009).

Conclusions: The CGA is not well implemented in both Puskesmas. In the future, both of the Puskesmas should enhance their knowledge and skills to provide the CGA as mentioned in the regulation of the Minister of Health No. 67/2015.

Keywords: Comprehensive geriatric assessment, elderly, Puskesmas, Puskesmas Santun Lansia

Introduction

The number of the elderly in West Java in 2017 was 4.16 million people and it is predicted that the number will reach to 5.07 million or 10.04% in 2021.[1] Bandung City as the capital of West Java will have elderly about 9.17% of the total population.[2]

The aging process represents the accumulation of changes in organ and mental function, which causes the elderly susceptible to various diseases or symptoms, called the geriatric syndrome.[3] The health providers should be able to recognize this syndrome to provide prompt treatment and prevent further complications.[3] The public health center (*Pusat Kesehatan Masyarakat*, Puskesmas) is a primary health facility that has the authority to provide early detection assessment to identify health disorders and to refer the patients to the hospital if needed, according to the regulation of the Minister of Health Republic of Indonesia No. 67/2015.[4] There are two types of Puskesmas, namely eldery-friendly public health centers (Puskesmas Santun Lansia), a Puskesmas that has a program specifically designed to deliver comprehensive geriatric health care, prioritizing the promotive and preventive actions[4] and the other type is Puskesmas in general that provide health care for all ages and do not have a specific program for the elderly. Based on the regulation of the Minister of Health Republic of Indonesia No. 67/2105, a Comprehensive Geriatric Assessment (CGA) should be carried out regardless of the type

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of the Puskesmas.[3] The CGA is conducted by a team of doctors, nurses, nutritionists, and trained public health workers.[3] The CGA is a multidimensional and biopsychosocial approach that assesses not only diseases as a standard medical assessment, but also to detect various conditions, such as physical, mental, functional, social, and environment that can worsen the health status of the elderly.[3,5] A study to evaluate the implementation of the CGA at the Puskesmas has not been carried out. The purpose of this study was to analyze the difference between Puskesmas Santun Lansia and Puskesmas in providing the CGA.

Methods

A quantitative comparative analytical study was performed involving 6 Puskesmas Santun Lansia and 12 Puskesmas in Bandung City, West Java, Indonesia from August to November 2019. The 12 Puskesmas was chosen from 74 Puskesmas by random number using a computer. From each Puskesmas, 2 (two) elderly patients who were being examined by the health providers were selected and observed. Consecutive sampling was conducted to select the elderly. The total samples were 12 elderly from Puskesmas Santun Lansia and 24 elderly from Puskesmas. Permission to do the study was obtained from three institutions, namely Bandung City Mayor Office, Bandung City Health Office, and the selected Puskesmas. This study had received the ethical clearance from the Ethics Committee of Universitas Padjadjaran Bandung, Indonesia, under the ethical clearance number 891/UN6.KEP/EC/2019.

The inclusion criteria were health providers who examined the patients in the selected Puskesmas and had worked at the same Puskesmas for more than 1 year. The exclusion criteria were the health providers who stopped the examination for any reason.

The variables were 10 components of CGA. The components were: 1) patient's identity: age, gender, address; economic status (income and had a health insurance); social relationship with the member of the family or their neighbours that affect their health status; the environment assessment; and the persons who lived with the elderly or had the closest relationship with the elderly (living arrangement); 2) anamnesis consisted of the chief complaint, the history of the disease, the history of surgery, the history of treatment (medicine from the doctor and others), the history of family diseases, the simple nutritional anamnesis, and the anamnesis of the symptoms or signs of the dysfunctions of

Table 1 Patient's Identity, Economic Status, Social Relationship, Environmental Conditions, and Living Arrangement

No	Questions Asked by The Health Provider	Puskesmas Santun Lansia n=12	Puskesmas n=24	P-value
1	Identity			
	Yes	12	24	N/A
	No	0	0	
2	Economic Status			
	Yes	0	0	N/A
	No	12	24	
3	Social Relationship			
	Yes	0	0	N/A
	No	12	24	
4	Environmental Conditions			
	Yes	0	0	N/A
	No	12	24	
5	Living arrangement			
	Yes	4	2	0.149*
	No	8	22	

Notes: *Fisher's exact Test; N/A= not applicable

Table 2 Anamnesis and Vital Sign Examination

No	Anamnesis and Vital Sign	Puskesmas Santun Lansia n=12	Puskesmas n=24	P-value
1	Anamnesis			
	a. Chief complain			
	Yes	12	24	N/A
	No	0	0	
	b. History of disease			
	Yes	7	15	1.000*
	No	5	9	
	c. History of surgery			
	Yes	1	1	1.000*
	No	11	23	
	d. History of treatment			
	Yes	7	11	0.480**
	No	5	13	
	e. History of the family disease			
	Yes	0	1	1.000*
	No	12	23	
	f. Simple nutritional anamnesis			
	Yes	6	1	0.003*
	No	6	23	
	g. Symptoms or signs of the dysfunction of the organ system			
	Yes	4	1	0.034*
	No	8	23	
2	Vital sign examination			
	a. Level of consciousness			
	Yes	2	1	0.253*
	No	10	23	
	b. Blood pressure			
	Yes	12	24	N/A
	No	0	0	
	c. Heart rate			
	Yes	6	13	0.813**
	No	6	11	

Notes: * Fisher'sexacttest; ** Chi-square test; N/A=not applicable

theorgan system; 3) the vital sign consisted of the level of consciousness, blood pressure, and heart rate; 4) physical examinations consisted of the examination of the neurology system (nerve reflex), respiratory system (sounds of the lungs), cardiovascular system (heart sounds), gastrointestinal system (epigastric palpation, bowel sounds), urogenital system (costovertebral angle tenderness test), musculoskeletal system (range of motion examination), hematology system (examination of the conjunctiva), andmetabolicendocrine system (examination of the enlargement of the thyroid gland); 5)

Table 3 Physical Examination of the Organ Systems

No	Physical Examination of the Organ Systems	Puskesmas Santun Lansia n=12	Puskesmas n=24	P-value
1	Neurology			
	Yes	0	0	N/A
	No	12	24	
2	Respiratory and Cardiovascular			
	Yes	12	24	N/A
	No	0	0	
3	Gastrointestinal			
	Yes	6	6	0.157*
	No	6	18	
4	Urogenital			
	Yes	2	0	0.105*
	No	10	24	
5	Musculoskeletal			
	Yes	2	4	1.000*
	No	10	20	
6	Hematology			
	Yes	2	2	0.588*
	No	10	22	
7	Metabolicendocrine			
	Yes	2	3	1.000*
	No	10	21	

Notes: *Fisher'sexact test; ** Chi-squaretest; N/A= not applicable

assessment of nutritional status consisted of the measurements of the body mass index, nutritional intake, and Mini Nutritional Assessment; 6) examination of the functional status measured by Activity Daily of Living Barthel; 7) assessment of psychosocial status as measured by geriatric depression scales; 8) assessment of social problems (neglected or abuse); 9) cognitive status by Abbreviated Mental Test; and 10) mental status by the 2-minute method.

Each component was put in a checklist and during the observation, the researchers would fill "yes" if the components were carried out by the health provider and would fill "no" if the components were not carried out by the health provider. This checklist was provided for every elderly that was examined by the health provider. Before the observation, the researcher explained the purpose, benefits, and risks of the study both to the health provider who conducted the examination and the patient. If they both agreed to participate in the study, they signed the informed consent form.

The data were collected not only by observation, but the researcher also checked the patient's medical records for taking additional information related to the components observed. The collected data were presented by tables and were analyzed using the Chi-square test and Fisher's exact test.

Results

A study on the difference between Puskesmas Santun Lansia and Puskesmas in providing the CGA had been carried out involving 18 Puskesmas. The elderly patients consisted of 11 males and 25 females. This study discovered that every elderly who came to the Puskesmas was given an initial assessment/screening by a nurse. The assessment was a measurement of blood pressure and a short anamnesis on the patient's complaint. Then, the patient moved to the examination room where health provider

Table 4 Nutritional Status Assessment

Nutritional Status Assessment	Puskesmas Santun Lansia n=12	Puskesmas n=24	p-value
MNA			
Yes	0	0	N/A
No	12	24	
Nutritional intake			
Yes	0	0	N/A
No	12	24	
BMI measurements			
Yes	10	9	0.009**
No	2	15	

Notes: MNA= mini nutritional assessment; BMI= body mass index;** Chi-square test; N/A= not applicable

waited to conduct a further examination. The initial assessment and examination could be carried out in the same room or a separate room. Ten of the 18 Puskesmas, had a separate room to conduct the initial assessment and examination. Not all the examination was conducted by a physician. The examination was conducted by a physician in seventeen of 18 Puskesmas, while in one Puskesmas it was conducted by a midwife.

The patients' identity was one of the components of the CGA that was always asked by the health providers at both types of Puskesmas. The economic status, social relationship, and environmental conditions were never asked by the health providers. The question about the persons who lived or had the closest relationship with the elderly was asked at some of the Puskesmas (Table 1). The statistical test using the Fisher's exact test revealed that there was no difference between the Puskesmas Santun Lansia and Puskesmas in asking about the persons who lived or had the closest relationship with the elderly (p=0.149).

Regarding the anamnesis, only the chief complaint was always asked at both Puskesmas. The history of surgery, history of the family disease, and the symptoms or signs of the dysfunctions of the organ system were rarely asked at both Puskesmas. The history of disease and treatment was not always asked at both Puskesmas. This study discovered that there was a difference between Puskesmas Santun Lansia and Puskesmas in asking about nutritional status and symptoms or signs of the dysfunction of the organ system (p-value=0.003 and 0.034, respectively). The health providers at the Puskesmas Santun Lansia frequently asked those topics to the elderly compared to the health providers at the Puskesmas. Regarding the vital sign examination, the blood pressure was always examined by the health providers, but the level of consciousness was rarely examined by them. Moreover, the heart rate was not always examined at both Puskesmas (Table 2).

This study discovered that the physical examinations of the system that always examined were the respiratory system and cardiovascular system. Other examinations were based on patient complaints. The physical examination that never checked was the examination of the neurology system. (Table 3).

The examination of nutritional status that never conducted at both Puskesmas, was MNA and nutrient intake records. Body Mass Index (BMI) was the only nutritional status assessment examined at the Puskesmas, but most of it was conducted at the Puskesmas Santun Lansia (Table 4).

This study showed that screening of the functional status, psychosocial status, social status, cognitive status, and mental status as part of the CGA was not carried out at both Puskesmas. The health providers mentioned that they did not have the time to do them, because there were many patients to be examined.

Discussions

The comprehensive geriatric assessment can identify multidimensional problems suffered by the elderly. The identified problems contribute to the planning of treatment effectively to reduce mortality.[5] The first component of the CGA is the patient's identity. The name, age, gender, and address can avoid

confusion in the provision of services to patients.[6] In this study, the economic, social, and environmental issues were not assessed. A study discovered that at the community level, the socioeconomic and environmental factors severely influenced the elderly health status such as cognitive impairment, physical impairment, health decline, and mortality.[7] The economic activity is essential for the elderly to improve the quality of life and their daily life activities. A previous study revealed that the health of an elderly can be influenced by their daily activities, demographic characteristics, and habits. Elderly women are influenced by the economic and social demographic activities gained from their partners.[8] The environmental factors are associated with the risk of falling. Environments with outdoor parks can reduce falls, depression, and stress. The exposure to the sun can stabilize the heart rhythm in some people and has benefits in improving sleep quality and alleviating anxiety.[9]

The persons who live with the elderly are very important. They play a role as their caregiver. They help to carry out daily activities and support patients emotionally and financially. The elderly who have mobility problems will need a caregiver in doing basic activities such as moving, bathing, eating, drinking, and so on. The caregiver has the responsibility to take the patient to a health facility and to listen to the doctor's explanation directly to prevent any misunderstood in taking care of the elderly.[10]

This study discovered that vital signs examination was not always examined. The vital signs are important because they are considered as the basic data to identify some organ problems especially in the elderly. The vital signs are also used to see the disease progression and therapeutic efficacy.[11]

This study discovered that the physical examination of all the organ systems was not carried out completely. The examinations were only performed according to the patient's complaint. The dysfunction of the organ systems in the elderly frequently do not appear in any symptoms or signs, so it is an obligation to the health providers to perform a physical examination completely with or without any complaints from the elderly. This can help healthcare professionals to detect disease, to treat promptly and to prevent further complications.[12]

Nutrient intake records and MNA are very important tools to detect nutritional status.[13] This study discovered that those tools were never conducted to the elderly. The elderly are one of the vulnerable groups susceptible to nutritional difficulties.[13] The MNA is highly recommended as the first-step examination to detect nutritional difficulties in the elderly.[13] This study discovered that not all of the patient's BMI was measured by the health providers. The BMI can be used to detect malnutrition.[14] Obesity is a major problem in the elderly and a factor in enhancing chronic diseases, morbidity, mortality, and may decrease quality of life.[14]

Other examinations for the elderly are functional, psychosocial, social, cognitive, and mental assessment. This study discovered that those examinations were not conducted at the Puskesmas. The functional assessment is used to evaluate the ability of the elderly to help themselves in daily activity. Functional assessment should be performed as part of a holistic treatment for the elderly.[15] All the life changes experienced by the elderly make them more sensitive, feeling of loneliness, depression, and isolation. Psychosocial aspects greatly affect one's physical health. Some psychosocial problems have a role in increasing the risk of hypertension, stroke, and cardiovascular disease. The complexity of psychosocial problems makes it very difficult to detect.[16] Good social support will improve psychological and physical health.[17] Psychosocial problems, social assessment, cognitive and mental assessment are unfortunately not examined in the Puskesmas. Each of these components has a role in the health status of the elderly. Changes in the structure and function of the brain in the elderly cause cognitive decline. Cognitive disorders occur gradually to the experience of dementia. Loneliness also plays a role in the impairment of cognitive function.[18,19] Detection of mental status is highly recommended in primary health facilities. Early detection will help identify psychological or mental health problems in the elderly.[20]

This study has some limitations. The CGA should be carried out for a new elderly patient. During the study, there were no new patients who came to the Puskesmas. Eventhough the standard of health care for the elderly at the Puskesmas commences since 2015, the patient's medical record was not yet revised according to the CGA. This condition made the researcher had to explore the existing medical record to prove if the CGA was performed or not. If there were no statements written related to the components of the CGA in the medical record, the researchers decided that

those components were not assessed or asked.

It can be concluded that CGA is not yet fully implemented in both Puskesmas. The health providers at the Puskesmas should be aware that standard medical assessment is not enough to identify the elderly's health problems. The elderly condition is not a single one, but multi-dimension and multi-morbidity. A comprehensive assessment should be carried out to explore other issues than physical impairment, such as functional impairments and the economic, environmental, and social issues which affect elderly health. It is an input to a comprehensive intervention plan that can improve the elderly wellbeing and quality of life.

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