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Analysis of Continuous Education Services by Family Doctors in High Risk Cardiometabolic Patients

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Abstract

This study aims to determine the effect of handling the concept of family medicine in continuous education services to patients with Cardiometabolic problems in the Elderly based on nutritional status and metabolic status.This research is a type of Quasy experimental research. Sampling was conducted at PKM Panambungan Makassar during the study period November 2016 - March 2017 taken by purposive sampling method that is to determine the sample based on the inclusion criteria.The results showed that there were 57 cardiometabolic patients who fulfilled the inclusion and exclusion criteria, which were divided into 2 groups receiving treatment with continuous education service and treatment group without continuous education service. This research uses a purposive sampling method that is to determine the sample based on the inclusion criteria to avoid the diversity in the sampling. The statistical test using independent T-test showed the difference of mean percentage of IMT examination result (ρ = 0.001), between continuous education service group (-13,19%) and the group without continuous education service (1,57%). Systolic blood pressure between continuous education (-0.36%) and with continuous education (4.32%) was significantly different (ρ = 0.116).

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Diastolic blood pressure between the continuous education service group (-3.82%) and with the group without continuous education service (-4.36%) did not differ significantly (ρ = 0.871). Cholesterol levels between continuous education service group (17.72%) and group without continuous education service (-5.72%) differed significantly (ρ = 0.003). GDS levels between continuous education service groups (-13.81%) and those without continuous education service (4.07%) differed significantly (ρ = 0.031). The mean of decreasing of the examination results on all variable that was found was higher in group of continuous education service. Increased BMI, GDS, and cholesterol are markers of increased risk of cardiometabolic disease. Thus, improving the risk of cardiometabolic disease except on the results of systolic and diastolic pressure tests, significant in groups with continuous education services.

Keywords: cardiometabolic; continuous education service; high risk.

1. Introduction

Cardiometabolic Syndrome with an increased risk of coronary artery disease, stroke, peripheral vascular disease, renal insufficiency, cancer and other cardiovascular-related co-morbid factors worldwide are estimated to cause 18 million mortality per year making it one of the most significant threats facing mankind today. The widespread prevalence of this syndrome and its disease component almost infest all nations around the world; big and small, rich and poor, forcing world leaders to take seriously by pooling resources to create innovative ways to combat health problems and diseases that can disrupt the economy. CMS does not distinguish between rich or developing countries, more than that even children can suffer from the same syndrome sustained by adults. CMS may be controlled with more attention to the control of blood pressure, blood glucose, increased blood lipids, weight reduction, exercise, and smoking cessation [1]. Cardiometabolic risk factors include hypertension, dyslipidemia and insulin resistance predisposing to atherosclerosis and type 2 diabetes (T2DM) [2,3]. Cardiometabolic risk is similar to the metabolic syndrome but more inclusive, as it includes smoking and glucose in the range of diabetes, including abdominal obesity, hypertension, and elevated blood triglyceride (TG) levels, decreased HDL (HDL-C) and high glucose [4]. Therefore, the cardiometabolic population is a larger population than the metabolic syndrome.

According to the WHO, 17.3 million people die annually from cardiovascular disease, of which 80% are in low-to-medium-income countries per capita. Obesity is associated with various complications both metabolic, endocrinologic, cardiovascular, and even suspected to be associated with malignancy. All this lowers life expectancy. The development of metabolic complications such as increased risk of type 2 diabetes, dyslipidemia, and cardiovascular disease. Currently known as the term cardiometabolic syndrome, which is a collection of interrelated metabolic symptoms that cause patients at risk of cardiovascular disease [5]. The prevalence of cardiometabolic syndrome is increasingly alarming. cardiometabolic have detrimental effects on quality of life, work productivity and health care spending [6]. For decades much effort has been made to prevent cardiometabolic disease [7]. As a result, the prevalence of smoking has decreased in industrialized countries [8]. and the pharmaceutical care of cardiometabolic risk factors has improved [9]. This effort has resulted in a significantly lower mortality rate associated with atherosclerosis, but the increasing prevalence of obesity threatens the NCD Risk Factor Collaboration (NCD-Risc) 2016). Lifestyle interventions to promote

weight reduction reduce the risks of cardiometabolic disease in overweight and obese individuals [10]. Weight loss of at least 5% of body weight reduces risk factors for obesity [11,12,13]. Compliance with a healthier lifestyle can lose weight and reduce Cardiometabolic Risk. Use a monthly counseling program with face to face and by phone [14].

In connection with efforts to reduce the risk of chronic diseases in Indonesia implemented services holistically and comprehensively. Continuing care is the treatment of chronic health problems that require periodic monitoring and care about possible complications. This treatment can be given by the same doctor entirely, or the function of the doctor as a member of the team. The primary requirement is the presence of a treatment plan for the problem. Examples of medical conditions that require ongoing care such as hypertension, diabetes mellitus, and hyperlipidemia [15]. The meaning of health here is the prosperous state of the body, soul and social that enable everyone to live socially and economically productive [16].

To be able to realize the healthy state is a lot of effort to be implemented. One of them is considered to have an important role is the implementation of health services [17]. If health services are unavailable, inaccessible, unreachable, non-integrated, and unqualified, quality is difficult to achieve the healthy state.

The definition of health services referred to here covers a vast field. In general, it can be interpreted as an effort that is held by itself or together in an organization to improve and maintain health, prevent, and cure disease and restore the health of individual, family, group, and or society [18].

From this understanding, it is clear that the form and type of health services that can be held many kinds. In general, can be divided into two types. First, personal health services (medical services) or often referred to as medical services (medical services). Second, environmental health services (public health services) [19]. According to Leave and Clark (1953), these two forms of healthcare have their characteristics. If the health service is primarily intended to cure the disease (curative) and restore health (rehabilitative) called by the name of medical services. Whereas if the health service is primarily designed to improve health (promotive) and prevent disease (preventive) requested by the name of public health services.

The goals of these two forms of health care are also different. The primary targets of medical services are individuals and families. While the primary objective of public health services is groups and communities. Medical function that is the primary target is called family name family doctor service (family practice). Seeing from the target of services conducted by medical in particular researcher intends to analyze continuous education service to cardiometabolic

2. Materials and Method

2.1. Collection of Samples

Types of data collected during the study included name, age, gender, and results of investigations (TB, BB, blood pressure, cholesterol, and blood sugar data). The study was conducted from April to December 2016 in PKM Panambungan and PKM Maccini Sawah Makassar.

This research uses the quasi-experimental method. In the two groups treated differently with different pretest posts. Research subjects were patients aged 41-77 who experienced Cardiometabolic problems in PKM Panambungan and PKM Maccini Sawah Makassar during the study period dated 01 April 2016-30 December 2016 taken with purposive sampling method that is to determine the sample based on the inclusion criteria.The research material is general information of patient (age, sex, TB, and BB) and patient's clinical condition based on Cardiometabolic (Cardiomethometic) investigation results (Hypertension, Cholesterol, and Blood Sugar).

a. Data Analysis

Statistical analysis was performed using SPSS 24 software (SPSS, Inc., Chicago, IL, USA). Data analysis was done by using a statistical test, both descriptive and analytic, i.e., Univariate analysis, Mann-Whitney test, chi-square,

b. Ethical Clearance

Ethical approval for this study obtained from the Research Ethics Committee. Written informed consent was obtained from all research participants and recommendation of ethical approval from Hasanuddin University, Makassar Indonesia).

3. Results

The number of samples in this study was 57 patients with cardiometabolic divided into two groups, namely a group of patients with cardiometabolic risk with continuous education services and patients with cardiometabolic risk without constant education services. Examination performed is total cholesterol, blood glucose at the time, blood pressure, and BMI. By previous studies that cardiometabolic is a collection of risk factors associated with metabolic syndrome directly to the occurrence of atherosclerotic cardiovascular disease. These risk factors include atherogenic dyslipidemia, increased blood pressure, elevated plasma glucose levels, prototombic conditions, and proinflammation (Semiardji, 2004).The mean age of this study is approximately 61 years in cardiometabolic patients with continuous educational services and 63 years in patients with non-continuous education cardiometabolic and age range for those with constant education services, i.e. age 41-77 years and non-continuing education services aged 52-74 years. More female sex than men.

The mean of IMT from this research is approximately 23,85 kg / m2 in a cardiometabolic patient with continuous education service while inpatient of non-continuous cardiometabolic education service about 23,42kg / m2. The mean systolic pressure of this study was approximately 134,66 mmHg in a cardiometabolic patient with continuous education service while in a non-continuous cardiometabolic patient, continuous education service was 135,55 mmHg. The average diastolic pressure of this research is approximately 83,66 mmHg in a cardiometabolic patient with constant education service while in a patient with non-continuous cardiometabolic education service about 85,55 mmHg. The mean total cholesterol of this study was approximately 213.90 mg / dL in cardiometabolic patients with continuous education service while in non-continuous cardiometabolic patients the constant education service was nearly 214,29 mg / dL. The mean total cholesterol of this study was approximately 164.50 mg / dL in cardiometabolic patients with continuous

educational services whereas in patients with non-continuous cardiometabolic cardiac educational services around 150.70 mg / dL.

Table 1: Demographic and Variable Characteristics of Research Participants

Sample Characteristics	Continuous education services (n=30)	Non continuous education service (n=27)
Age (yr)		
Mean ± SB	61,26±8,01	63,00±6,48
Range (years)	41-77	52-74
Gender (n)		
Male	11	12
Women	19	15
IMT	23,85±2.85	23,42±2.75
Sistolic pressure	134,66±20.63	135,55±13,39
Diastolic pressure	83,66±11,59	85,55±8,47
cholesterol	213,90±41,21	214,29±39,38
GDS	164,50±41,24	150,70±37,40

Table 2: Differences in mean percentage of BMI, Cholesterol, GDS, Systolic Pressure, Diastolic Pressure in Cardiometabolic patients with Continuous Education Service and no Continuous Education Service at Panambungan and Maccini Sawah Public Health Centers by 2017

Variables	**Average ±SB**			
	Continuous education service (%)	Without Continuous education service (%)	Different **(%)**	**P**
velo IMT (Kg/m^2)	-13,19±17.12	1,57±4,693	14.76	.001
velo Pressure sistol (mmHg)	-0,36±13.01	4,32±8,95	-4,68	.116
velo Diastolic pressure (mmHg)	-3,82±12,76	-4,36±12.06	0,54	.871
velo Cholesterol (mg/dL)	-17,72±14,37	-5,72±14.69	-12,16	.003
velo GDS (mg/dL)	-13,81±26,54	4,07±33,41	-17,88	.031

Description: * independent T-test

Comparison of result percentage of IMT examination in continuous education service group decreased 13,19% compared with the group without constant education service there was an increase of 1,57% with difference mean 14,76%. With independent T-Test Comparison of IMT Examination difference results showed this difference was statistically significant (p = 0.001, p≤ 0.05).

Comparison of percentage of results The systolic pressure test in the continuous education service group decreased by 0.36% compared with the group without constant education service increased by 4.32% with a difference of -4, 68%. With independent T-test Comparison of yield difference, Sistol pressure check showed no statistically significant difference (p = 0.116, p≤ 0.05).

Comparison of percentage of results Diastolic pressure examination in the continuous education service group decreased by 3, 82% compared with the group without constant education service also reduced by 4, 36% higher, with a difference of 0, 54% average. With independent T-test Comparison of result difference, Diastolic pressure check did not show this difference statistically significant (p = 0.871, p≤ 0.05).

Comparison of percentage of results Cholesterol examination in the continuous education service group decreased 17.72% higher than the group without constant education service increased 5, 72% with a difference -12, 16%. With independent T-Test Comparison of the outcome difference, Cholesterol examination showed this difference was statistically significant (p = 0.003, p≤ 0.05).

The comparison of the percentage of results of the GDS examination in the continuous education service group decreased 13, 81% higher than the group without continuous education service was increased by 4, 07% with difference average -17, 88%. With independent T-test Comparison of the difference in results, The GDS examination showed this difference was statistically significant (p = 0.031, p≤ 0.05).

Table 3: Relationship of continuous education with body mass index at puskesmas Panambungan and Maccini Sawah in 2017

	Total IMT examination				results		p
	(+) repair		(-) repair				
	N	%	n	%		%	
continuing education services	17	85	13	35.1	30	120,1	
non continuous education services	3	15	24	64.9	27	79.9	
Total	20		37		57		0.000

Description: * chi-square test

There are 17 samples (85%) with continuous education service improvement, while a sample of noncontinuity health education there are 13 samples (35.1%) that undergoing improvement of Chi-Square test show there is a relation between continuous education service with IMT result on the Cardiometabolic patient. (p = 0.000, p <.005).

Table 4: Relationship of continuous education service with systolic blood pressure at puskesmas Panambungan and Maccini Sawah in 2017

	Results of examination of systolic pressure				Total		p
	(+) repair		(-) repair				
	N	%	n	%	n	%	
continuous education services	15	78.9	15	39.5	30	118,4	
non continuous education service	4	21.1	23	60.5	27	81,6	
Total	19	100	38	100	57	100	0.005

Description: * chi-square test

There are 15 samples (78.9%) with continuous education service improvement, while noncontinuous education service sample there are 4 samples (21.1%) that have improved, Chi-Square test shows there is a relationship between continuous education service with the result of examination of systolic blood pressure in a patient of Cardiometabolic. (p = 0.005, p <.005).

Table 5: Continuous education service relationship with diastolic pressure at Panambungan and Maccini Sawah Public Health Centers by 2017

	The result of the examination of diastolic pressure				Total		p
	(+)repair		(-)repair				
	N	%	n	%		%	
continuous education service	13	54,2	17	51.5	30	107,5	
non continuous education services	11	45.8	16	48.5	27	94.3	
Total	24	100	33	100	57	100	0.528

Description: * chi-square test

There are 13 samples (54.2%) with continuous education service improvement,

while a sample of noncontinuity health education there is 11 samples (45.8%) improvement,

Chi-Square test showed no relation between continuous education service with the result of diastolic pressure examination at Cardiometabolic patients. (p = 0.528, p> .005).

Table 6: Relationship of continuous education service with cholesterol level at puskesmas Panambungan and Maccini Sawah in 2017

	Total cholesterol examination				Total		p
	(+) repair		(-) repair				
	n	%	n	%		%	
continuing education service	28	68.3	2	12.5	30	80.8	
non continuous education services	13	31.7	14	87.5	27	129,2	
Total	41	100	16	100	57	100	0.000

Description: * chi-square test

There were 28 samples (68.3%) with continuous education service improvement, while a sample of noncontinuity health education there were 13 samples (31.7%) that improved, Chi-Square test showed no relation between continuous education service with the result of cholesterol level examination at Cardiometabolic patients. (p = .000, p <.005).

Table 7: Continuous education service relationship with GDS levels at Panambungan and Maccini Sawah Public Health Centers by 2017

	Total GDS examination				Total		p
	(+) repair		(-) repair				
	n	%	n	%		%	
Continuing education services	28	71.8	2	9.5	30	81.3	
non continuous education services	11	28.2	16	8.5	27	36.7	
Total	39	100	18	100	57	100	0.001

Description: * chi-square test

There were 28 samples (71.8%) with continuous educational service improvement, while a sample of noncontinuity health education there were 11 samples (28.2%) that improved, Chi-Square test showed there was a relation between continuous education service with the result of examination of GDS level in patient Cardiometabolic. ($p = 0.001$, $p < .005$).

4. Discussion

Continuous education services play an important role in monitoring the potential for cardiometabolic events. Five variables studied as a marker of cardiometabolic event risk factors after examination showed better improvement in samples with continuous educational services compared with no continuous education service which statistically got differences with significance value of IMT ($p = 0.000$), cholesterol ($p = 0.010$), GDS ($p = 0.020$), diastolic pressure ($p = 0.698$), systole pressure ($p = 0.028$). Although this difference is significant only BMI, GDS, cholesterol, systolic pressure, while diastolic pressure is not significant,

Significant improvements in samples with continuous education services reflect the benefits of monitoring 5 variables (BMI, GDS, diastolic pressure, systolic pressure, and cholesterol) in the prevention of cardiometabolic events.

To cope with the increasing incidence in Indonesia performed by family doctors is Continuing care is the treatment of chronic health problems that require periodic monitoring and care about complications that may arise. This treatment can be given by the same doctor entirely, or the function of the doctor as a member of the team. The primary requirement is the presence of a treatment plan for the problem. Examples of medical conditions that require ongoing care such as hypertension, diabetes mellitus, and hyperlipidemia [7].

5. Conclusion

In general, it can be concluded that the results of this study informed that significant improvements in samples with continuous education services reflect the benefits of supervision with constant education services to 5 variables (BMI, GDS, diastolic pressure, systolic pressure, and cholesterol) to prevent the occurrence cardiometabolic

the variables studied as a marker of risk factors for cardiometabolic events were found there were 4 variables of the examination results improved in samples with continuous education service, i.e., IMT, GDS, cholesterol, systolic pressure, compared with no continuous education service with diastolic pressure did not change significantly with statistical tests.

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6. Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare

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