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PROCEEDING

THE FIRST ASIA-PASIFIC PARTNERSHIP ON HEALTH AND
NUTRITION IMPROVEMENT (APHNI)
CONFERENCE

**"OVERCOMING GLOBAL HEALTH ISSUES
BY CAPACITY BUILDING OF HEALTH PROVIDERS"**

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PREFACE

Assalamu'alaikum Wr.Wb.

Praise be to Allah SWT who has bestowed His grace and help, so this proceedings entitled “*Overcoming Global Health Issue By Capacity Building Of Health Provider*” can be completed.

This seminar will be the first International Seminar which is going to be conducted by the Faculty of Health Sciences of Alma Ata University on October, 2019 at Grand Dafam Rohan Hotel, Yogyakarta. This International Seminar is organized as an effort to improve our understanding to increase the capacity of health workers in addressing the global health issues. In addition, this international seminar is also a mean to expose researches conducted by many researchers from universities and practitioners in Indonesia and neighborhood countries and to disseminate them to more people.

This Proceeding contains articles resulted from various disciplines researches related to medicine, nutrition and dietetics, pharmacy, nursing, obstetrics and hospital management. This proceeding, hopefully, can be a reference for students, lecturers, and health practitioners. Furthermore, the issuance of these proceedings can be used as a reference in the development of future research, as well as a reference in an effort to improve health services.

Eventually, thank you to all those who have assisted in these articles completion and preparation of this proceeding.

Wassalamu'alaikum Wr.Wb.

Yogyakarta, 3 October 2019

APHNI Committee

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Validation Study of MyFitnessPal App for the Dietary Assessment among College Students non-English Speakers in Indonesia and Taiwan

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ABSTRACT

Background: Dietary assessment using smartphone could solve problem related nutrition especially among college student in Indonesia and Taiwan. College students tend to choose unhealthy food in new environment that increase obesity risk. Dietary pattern in Taiwan and Indonesia were different so the validity of dietary assessment using smartphone application was important among both country. Monitoring dietary intake using smartphone are accurate, not time consuming, decrease burdensome, and low measurement error. MyfitnessPal (MFP) is a smartphone application which very helpful for monitoring dietary intake even though among non-English speaker country.

Objectives: The study aimed to compare the relative validity of smartphone app-based food records (MFP) versus 7-days computer-based food record for assessing energy, macronutrient and micronutrient of Taiwanese and Indonesian College Students.

Methods: Indonesian students (n=17) and Taiwanese students (n=9) volunteered and recorded 7-day dietary intake using MFP and 7-days computer-based food record with additional food picture. The values of energy, macronutrients and fiber from MFP were compared with data from food record, calculated using Taiwan and Indonesia food composition software. Comparisons were made between each data set using the Wilcoxon rank test, paired t-test, linear regression, and the Bland-Altman agreement plots.

Results: Repeated measures Bland-Altman plots showed good agreement for both methods. These finding showed that among Indonesian and Taiwanese, there was a non-significant difference in energy, macronutrients (protein, carbohydrate, fat) and sodium intake between the two methods. Moreover, some nutrients such as fiber and cholesterol found a significant difference between MFP and 7d food record.

Conclusions: MFP showed good relative validity, especially for energy, macronutrients (protein, carbohydrate, fat) and sodium intake.

Keyword: *Dietary Assessment*

INTRODUCTION

Dietary assessment are a necessary tool to study the dietary habit of people with specific condition. Dietary recall can estimate habitual intake individually over several days with appropriate and flexible. For some epidemiological purposes, Food-Frequency Questionnaire offer rank individuals as high, medium, or low consumers of specific foods or nutrients. However, a FFQ developed in one population may not be suitable for use in another because of differences in food habits (1).

Dietary assessment has various methods, depends on cultural, literacy, and cognitive ability of the study population. However, traditional assessment method such as written food record can be expensive with the increasing number of days observed. Furthermore it also could reduce the quality of the records. Errors, either systematic or random, can affect dietary assessment at all stages of collecting and analyzing data. Using standard protocols of dietary assessment and data processing can decrease mistakes, and increasing the number of observations can reduce random errors due to diet variability. But, error associated with the assessment tool and biases introduced by the respondents can be problematic. Under-reporting of dietary intake commonly happened in the obese population and over-reporting occur in children. Social desirability may reverse dietary assessment; respondents may provide the response expected by the questionnaire rather than the true one. The estimation of portion size can be subject to systematic error (2, 3).

Smartphone apps are going to be valuable and low-cost intervention to improve dietary intake and reduce obesity. Participants prefer using smartphone app which are fast and simple so that increase awareness of food intake and weight management. The accuracy of dietary assessment using smartphone app has generally found to be good. Accuracy describes validity of the measure and reliability refers to precision or repeatability. Studies shown that dietary assessment method based on smartphone app can improve reporting of dietary

intake and also improve assessment techniques and reduced the burden on both respondent and interviewer (1, 4-6).

Many mobile-based dietary assessment available in market, either it's free or paid version. More than 200 apps available in Google Play for Android phones. The mobile phone app to record dietary habit for personal use has been studied to be effective, but the validity and feasibility of the apps to be used in research purpose has not been studied yet (7). The aims of this study was to assess the relative validity of MyFitnessPal (MFP) for dietary assessment of non-english speaker college students, against seven 24-h food records

MATERIALS AND METHODS

Study Participants

A total of seven teen Indonesian and nine Taiwanese volunteers were recruited from Taipei Medical University and Alma Ata University by social media advertisement. The participants were men and women students and staff aged 20-35 years from health science faculty. A total 36 participants initially volunteered for the study. Nine participants drop out due to internet network difficulty (Indonesian students). All participants provided written informed consent to participate in the study. The Research Ethics Boards at Taipei Medical University (approval code N201811016) approved the study.

Recruitment and Setting

Study coordinator send informed consent form before the trials using LINE and whatsapp group. The inclusion criteria for this study are student age 20-35 years, owned a smartphone, have access to internet, and record 7-day food record. Participants were excluded if they were pregnant, lactating, and have severe diseases. Study coordinator assist participant every time especially when participants have questions.

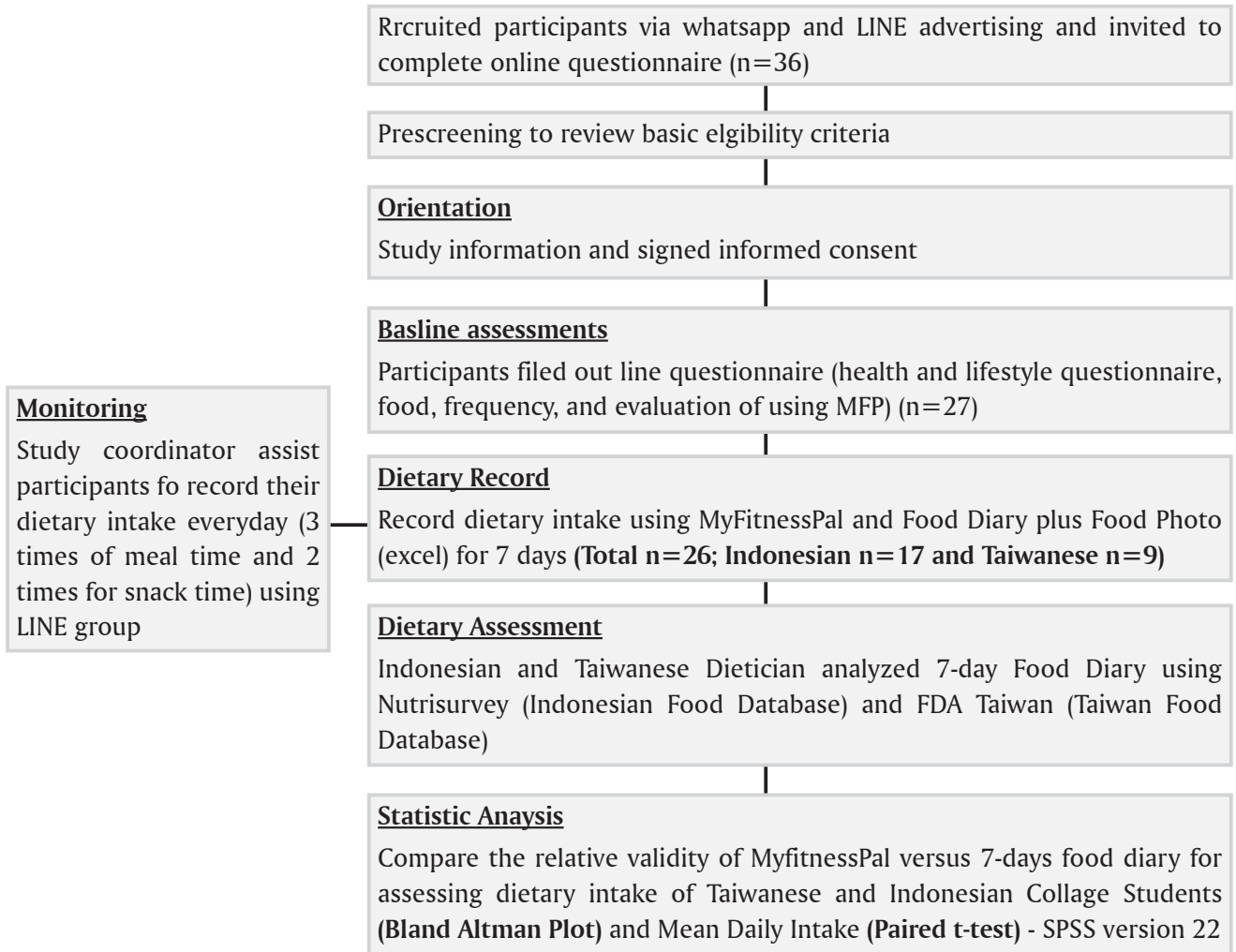


Figure 1. Flow chart

Demographic and Anthropometric Assessment

Participants were asked to complete an online questionnaire on demographics and also report body weight (Kg), height (cm), and waist circumference. Records consisted of measurement results of the scales.

MyFitnessPal Dietary assessment

Study coordinator give the detailed instruction about how to record dietary intake using Myfitnesspal (MFP) and 7-day food dairy, take picture for food, filled out online questionnaire (google form).

Participants record dietary intake within 7 days using both MFP and 7-day food record. Study coordinator reminded participants in every meal time using LINE and Whatsapp group. Participants submit their report every day to study coordinator using LINE and participants will submit complete dietary record in the end of study using excel.



Figure 2. Dietary assessment by 24-h food records

RESULT AND DISCUSSION

Characteristics of study participants

Nine participants did not record any data for the 7-day period because limited access of internet and have a busy work. For the food record conducted during 7 days, one participant was excluded from the analysis because the data is not complete. Of a possible 189d of entry (twenty-seven people multiply by 7d recording), 182 entries were eligible for analysis. Indonesian participants tend to use app in Indonesia and English setting and Taiwanese participants prefer use Chinese. MFP provide language and food database in English, Indonesian, and Chinese. Participants easy to find food based on their dietary habit on MFP. Furthermore, Barcode scanner features on MFP is very convenience for participants to record many foods quickly and easily.

Table 1. Characteristics of the study participants (n=26)

Characteristics of Participants	n=26	
	n	%
Gender		
Male	4	15.4
Female	22	84.6
Marital Status		
Married	1	3.8
Not Married	25	96.2
Major		
Health related fields	22	84.6
Non health related fields	4	15.4
Body Mass Index (Kg/m²)		

Underweight (<18.5 kg/m ²)	3	11.5
Normal (18.5-<23 kg/m ²)	17	65.4
Overweight (23-<27.5 kg/m ²)	5	19.2
Obese (≥27.5 Kg/m ²)	1	3.8

Abdominal Obesity (Male ≥90cm, Female ≥80cm)

Yes	6	23.1
No	20	76.9

Ethnicity

Indonesian	17	65.4
Taiwanese	9	34.6

Smartphone type

Android	20	76.9
iOS	6	23.1

The language setting on the smartphone

English	11	42.3
Indonesia	6	23.1
Chinese	9	34.6

Accuracy of MyfitnessPal compared with 7-day Food Record (FR)

Participants tend to use MFP if they have enough time to record dietary intake. On weekend, participants have difficulty to record dietary intake because some of them ate of lunch or dinner at the restaurant with their friend or relation. Table 2 shows the daily intake of energy (kcal), protein (g), carbohydrate (g), fat (g), fiber (g), cholesterol (g), and sodium (mg) which is recorded by MFP and 7-day food record for the equivalent day.

Table 2. Statistical agreement mean intake between MFP and 7-day food record

Nutrients	MyfitnessPal Mean (SD)	7-Day Food Record Mean (SD)	Mean Difference (SD)	95%CI	p-Value	Correlation between MFP and 7-day Food Record		
						r	95% CI	P
Calorie (Kcal/day)	1408.3 (314.1)	1381.6 (280.4)	26.6 (148.7)	-33.4, 86.7	0.370 ^a	0.881	0.6, 1.0	0.000 ^{bc}
Protein (g/day)	55.6 (15.9)	53.3 (15.0)	2.2 (7.0)	-0.6, 5.1	0.078 ^b	0.899	0.8, 1.1	0.000 ^{bc}
Carbohydrate (g/day)	182.5 (50.7)	154.6 (64.2)	27.9 (74.9)	-2.4, 58.1	0.069 ^a	0.168	-0.2, 0.5	0.413 ^c
Fat (g/day)	46.9 (10.3)	48.0 (14.7)	-1.1 (14.6)	-7.0, 4.8	0.704 ^a	0.358	-0.0, 0.5	0.072 ^c
Fiber (g/day)	7.3 (3.9)	8.6 (2.8)	-1.3 (2.4)	-2.3, -0.3	0.022 ^{sb}	0.778	0.7, 1.4	0.000 ^{bc}
Cholesterol (mg/day)	137.2 (84.0)	233.9 (85.2)	-96.7 (94.8)	-135.0, -58.4	0.000 ^{sa}	0.372	-0.0, 0.8	0.061 ^c
Sodium (mg/day)	992.6 (573.0)	888.8 (740.6)	103.7 (579.3)	-130.3, 337.7	0.328 ^b	0.638	0.2, 0.7	0.000 ^{bc}

All data normally distributed: ^apaired t-test, abnormal data distributed: ^bWilcoxon, ^cLinear regression

All outcome variables excluding fiber ($p=0.022$) and cholesterol ($p=0.000$) met the assumption of normality ($p>0.05$). As the outcome data were found to be normally distributed were analyzed using parametric paired t-test, which show no statistically difference between the mean daily energy intake on energy, macronutrients (protein, carbohydrate, fat) and sodium recorded between MFP and 7-day food record. Other nutrients were analyzed using non-parametric Wilcoxon paired t-test. But, for fiber and cholesterol, there were a statistically difference between MFP and food record.

Repeated measures Bland-Altman plots showed good agreement for both methods. These finding showed that among Indonesian and Taiwanese, there was a non-significant difference in energy, macronutrients (protein, carbohydrate, fat) and sodium intake between the two methods. Moreover, some nutrients such as fiber and cholesterol found a significant difference between MFP and 7d food record.

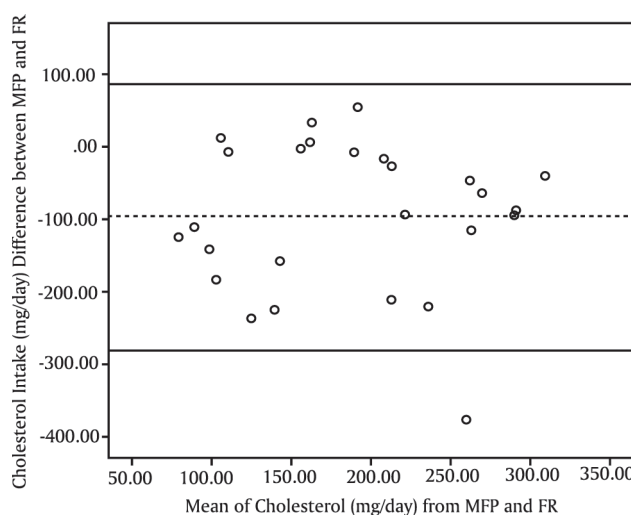
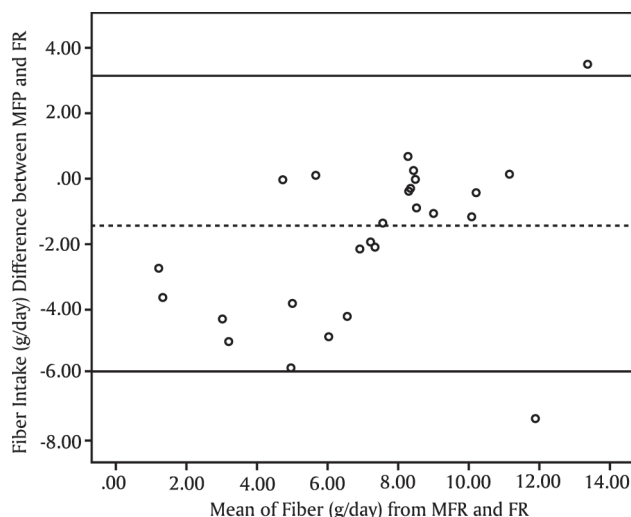
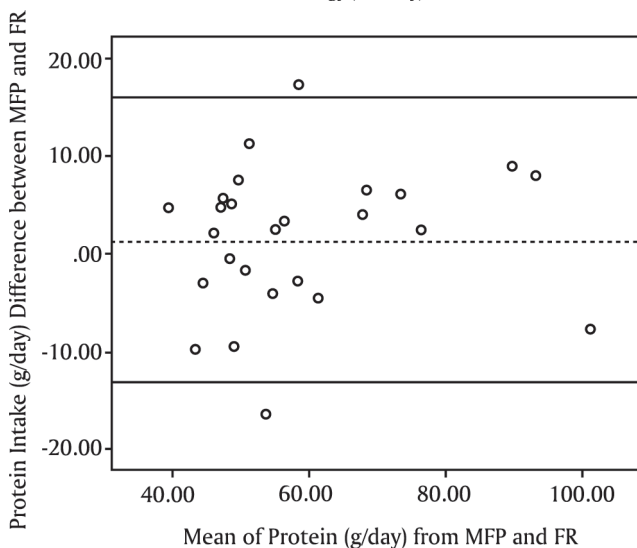
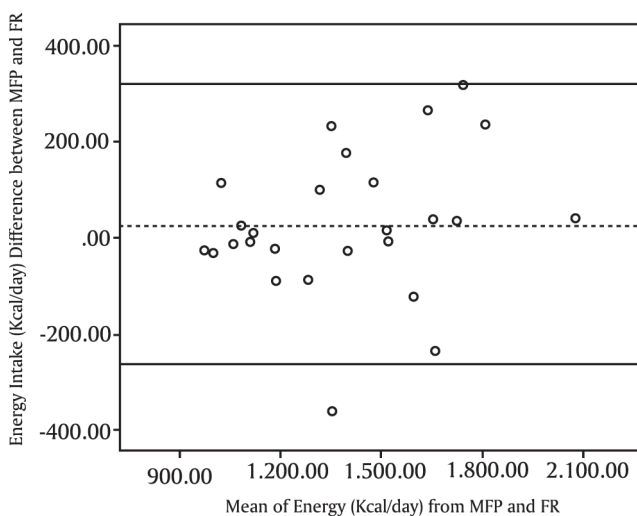


Figure 3. Agreement of energy intake between MFP and FR using Bland-Altman plot

This figure show mean difference (MFP-FR, dotted lines) vs. mean intakes $((MFP+FR)/2)$ between MFP and FR and two standard deviations of the difference (limit of agreement, solid lines), for the following: (a) Calorie (Kcal/day); (b) Protein (grams/day); (c) Fat (grams/day); (d) Carbohydrate (grams/day); (e) Fiber (grams/day); (f) Cholesterol (mg/day).

CONCLUSIONS AND RECOMENDATION

This study showed that Indonesian college students and Taiwanese college students convenience in using MFP. MFP has a variety food database, not only western foods database but also local foods from Indonesia and Taiwan. MFP showed good relative validity, especially for energy, macronutrients (protein, carbohydrate, fat) and sodium intake. Therefore, MFP was a useful tool as an alternative to evaluate daily food intake, particularly for Asian people.

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Association of Major Dietary Pattern With Central Obesity in Bantul Districts

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ABSTRACT

Background: Central obesity is the accumulation of fat in the body of the abdomen due to malfunction of subcutaneous adipose tissue in the face of an imbalance of energy into the body. Central obesity was measured using indicators that a female abdomen circumference > 80 cm, and the man that is > 90 cm. In individuals with central obesity have a tendency carbohydrate consumption level is higher than non-obese individuals central. Excessive consumption of carbohydrates in the body will be converted into fat by the liver. These will be stored body fat in unlimited quantities and will result in the emergence of central obesity.

Objectives: This study aimed to investigate the relationship between patterns of staple food consumption with the incidence of central obesity in Bantul Districts.

Methods: This research is an observational research with cross-sectional study design form. This study was conducted in Bantul district in January-March 2019. The population in this study are households with a large sample of 81 households and 187 respondents of the study subjects. Staple food consumption pattern data obtained by interview questionnaire menggunakan food list, central obesitass dieproleh with abdominal circumference measurement. This study uses bivariate test *Fisher's Exact* p value of <0.05.

Results: From the total 187 most respondents with central obesity and the number of staple foods or less by 70 respondents (44.0%) p value 0.301. From a total of 81 households in this study most households central obesity and the number of staple foods in excess of 53 households or (82.8%) p-value of 0.021. Based on the characteristics of the test sample is known that there are differences in the characteristics of the study sample that physical activity and occupation of household head.

Conclusions: There is no association between the consumption patterns of staple foods with central obesity. Physical activity and occupation of household head can be another factor of central obesity.

Keywords: *Food Consumption Patterns, Central Obesity*

INTRODUCTION

Central obesity is a nutritional problem that exists in the community. The prevalence of central obesity in Indonesia has increased in many years. Based on the results Riskesdas 2007 amounted 18.8% to 26.6% in 2013 and the year 2018 of 31.0% (1). The proportion of central obesity in adults ≥ 15 years in Yogyakarta is 32%, where this number exceeds the prevalence of national central obesity of 31% (1). While in Bantul regency the prevalence of obesity in 2016 amounted to 39.55% (2). Central obesity is measured using the female abdominal circumference indicator > 80 cm, and the man is > 90 cm (1). Central obesity is one of the closest indicators to predict whether there is a metabolic syndrome than obesity in general.

In individuals with obesity has a tendency to consume energy consumption levels of carbohydrates higher than non-obese individuals (3). Excessive consumption of carbohydrates will be transformed into fat by the liver. This fat that will be stored in an unlimited amount of body. This is what can cause the consumption of carbohydrates can increase the amount of fat deposits in the body that will result in the emergence of central obesity. In addition, excess consumption of carbohydrates will cause a person to be exposed to type 2 diabetes mellitus. One of the food sources of carbohydrate is staple food (4).

Therefore, research needs to be done related to the relationship of basic food consumption pattern with the incidence of central obesity in Bantul Districts.

MATERIALS AND METHODS

This research is a quantitative descriptive with a cross-sectional or latitude-related research plan. Cross-sectional Research plan is a data collection activity that is done at a certain time and Lot research body is only done one time data retrieval. This research was

conducted in Bantul Regency precisely in the district of Pity, Sedayu, Sanden, Banguntapan, and Jetis. This research will be conducted in January-March 2019. The population in this study is all households in Bantul regency involving family members in the household. The number of samples in this study was 81 households involving family members ≥ 15 years (1).

The research instrument used is the approval information when requesting the willingness of respondents to participate as a research body. Self-identifying questionnaire for the characteristics of sample research (each gender, age, last education, moderately). Food list questionnaires are used to mengathui the consumption pattern of household staple dishes. Physical activity using GPAQ questionnaire. Food List data obtained hereinafter converted using food photo book and inserted into NutriSurvey. Then the data is processed using UNIVARIIC and bivariate statistics. First conducted normal data distribution normality test using SPSS 16.0 by conducting Kolmogorof-Smirnov test. Bivariate analysis in this study using Fisher's EXACT test was the assumption that the Chi-Square test was not fulfilled.

This research was approved and Kokoro Certificate of Ethics (Ethical clearance) from the University of Alma Ata Yogyakarta Ethics Commission with letter number KE/AA/1/759/EC/2019. And Kokoro Research recommendations recommendation of research permit from BAPPEDA (Regional Development Agency) Bantul Regency with letter number 070/reg/0145/S1/2019. The research team at the time of collecting data on the field were assisted enumerator for 4 people to conduct interviews and abdominal circumference and the filling of questionnaires. With the liquid enumerator criteria of the nutritional student of semester 7 which passed the fundamental matakulia nutritional practice researchers give explanation about the research procedure and equate perception to the enumerator of research.

RESULTS

Univariate Analysis

Sample Research characteristics

Table 1. Distribution characteristics of research samples

Variable	n	%	P (Run Test dan Binomial test)
Gender			
Male	89	47.6	0.559
Female	98	52.4	
Father's Job			
Not working	4	2.1	0.008
Employees	10	5.3	
Self employed	21	11.2	
Farmer/Fisherman/Labour	42	22.5	
Other	3	1.6	
Mother's job			
Not working	37	19.8	0.728
Employees	6	3.2	
Self employed	13	7.0	
Farmer/Fisherman/Labour	17	9.1	
Other	2	1.1	
Family Head Education			
No School	6	3.1	0.198
Not finished SD/MI	0	0	
Graduated SD/MI	16	8.6	
Junior High School/MTS	15	8.0	
Senior High School/MA	32	17.1	
Diploma (D1-D3)/Bachelor, Magister/Doctor	11	5.9	
Mother's Education			
No School	5	2.7	0.307
Not finished SD/MI	3	1.6	
Graduated SD/MI	18	9.6	
Junior High School/MTS	13	7.0	
Senior High School/MA	27	14.4	
Diploma (D1-D3)/Bachelor, Magister/Doctor	9	4.8	
Age of respondents			
13-15 years and above	6	3.2	0.301
16-18 years and above	5	2.7	
19-29 years and above	27	14.4	
30-49 years and above	70	37.4	
50-64 years and above	64	34.2	
65-80 years and above	15	8.0	
> 80 years	0	0	

Variable	n	%	P (Run Test dan Binomial test)
Physical Activity			
Sell	117	62.6	0.001
Enough	70	37.4	

Descriptions of the sample characteristics in this study are presented in **Table 1**. The research sample amounted to 81 households with subjects of 187 respondents. Most of the gender of the respondent is females 98 (52.4%). The work of the family head is largely employed as a farmer/fisherman/labour of 42 (22.5%), while the work of the mother is largely not employed or as a housewife 37 (19.8%). Family head education and maternal education are mostly educated graduate Senior High School/MA. Most of the respondents were 30-49 years old for 70 (37.4%). Most of the respondents were 117 (62.6%) Low activity, while 70 (37.4%) The respondent performs considerable physical activity.

The binomial test and run test are conducted to determine whether there are any differences in the sample characteristics that can affect the dependent variables in this study. Based on a different test Run Test and Binomial Test is known that there are no differences in gender characteristics ($p=0.559$), maternal work ($p=0.728$), education head of the family ($p=0.198$), education mother ($p = 0.307$) and age ($p=0.301$). While on the characteristics of the work of the family head ($p=0.008$) and physical activity ($p=0.001$) there are different characteristics of research samples.

Univariate Analysis o Staple Food Consumption Patterns with Central Obesity.

Tabel 2. Univariate analysis o staple food consumption patterns with central obesity

Variable	n	%
Type of Staple Food		
Cereal	65	34.8
Bulbs	0	0
Cereal & Bulbls	122	65.2
The Amount of Staple Food		
More	28	15
Less	159	85

Variable	n	%
Central Obesity		
Yes	79	42.2
No	108	57.8

Based on **Table 2**, it is known that it is very easy to make the main food of respondents, cereals and tubers of 122 respondents or (65.2%) of a Total of 187 respondents. As for the number of staple food makes it easier for respondents included in the category less than 159 respondents or (85%) of a Total of 187 respondents. The amount of consumption of staple foods is said to be lacking when the adequacy of carbohydrates consumed less than the Nutritional Adequacy Rate (AKG), otherwise it is said more if the carbohydrates consumed more are compared with Nutritional Adequacy Rate (AKG) (5).

According to **Table 2** It is known that the large ease of respondents in the study did not suffer central obesity of 108 respondents or (57.8%) of a Total of 187 respondents in this study. Central obesity is measured by measuring the respondent's abdominal circumference using metlin. Respondents were said to be central obesity when men >90 cm, women >80 cm (1).

Analysis of univariate of basic food consumption pattern and domestic obesity of household.

Table 3. Analysis of univariate basic food consumption pattern and domestic obesity of household.

Variable	n	%
The Amount of Staple Food		
More	60	74.1
Less	21	25.9
Central Obesity		
Yes	62	76.5
No	19	23.5

According to **Table 3** It is known that the large-ease households in this research are included in the Konsumi pattern of staple food of 60 households or (74.1%) of the Total 81 households in this study. The pattern of consumption of household staple food is known by how the Total staple food consumption pattern is compared with the total Nutritional Adequacy Rate (AKG). It is said that less if the total food consumption of tangg houses are smaller than the AKG, otherwise it is said more if the total household food consumption more than AKG (5).

Based on **Table 3** known from Total 81 households in this study made it easier for households to be included in central obesity of 62 households or (76.5%). The central obesity of households is categorized as central obesity when in one household there is a member of the family that has a efficacy into the central obesity category. Instead, households are not experiencing central obesity when in one household there are no snetral obese family members.

Bivariate Analysis

Relationship pattern consumption of staple food with the occurrence of central obesity.

Table 4. Relationship pattern consumption of staple food with the occurrence of central obesity

The amount of staple food	Central Obesity				p	OR (95%CI)
	Yes		No			
	n	%	n	%		
More	9	32.1	19	67.9	0.301	0.602 (1.4-0.2)
Less	70	44.0	89	56.0		

According to **Table 4** It is known that from a total of 187 respondents to this study were mostly with central obesity and the number of staple foods was less than 70 respondents or (44.0%). The same is also the case for most respondents who do not experience central obesity and the amount of staple food is less than 89 respondents or (56.1%). The results of bivariate analysis showed that there is no relation between the consumption pattern of staple food with the incidence of central obesity with the value of P value 0.301 and has a value of OR 0.602 (95% CI 1.4-0.2).

In this research there is no relation between the consumption pattern of staple food and the incidence of central obesity because there is no characteristic difference between central obesity respondents and not central obesity with the characteristic number Staple food. Where the respondents central obesity and not central obesity enter into the category of the number of staple food less.

The test characteristics of research samples with dependent variables

Table 5. Test characteristics of research samples with dependent variables

Category	Central Obesity				p	OR (95%CI)
	Yes		No			
	n	%	n	%		
Physical Activity					0.001	2.825 (5.3-1.4)
Sell Enough	60	51.3	57	48.7		
Gender					0.000	0.154 (0.297-0.080)
Male	18	20.2	71	79.8		
Female	61	62.2	37	37.8		

According to **Table 5** it is known that from Total 187 respondents in this study make it easier for respondents with the characteristics of physical activity Sell and central obesity of 60 respondents or (51.3%). Meanwhile, the respondent with adequate physical activity and not experiencing central obesity amounted to 51 respondents or (72.9%). The results of binomial analysis of Test Products that there is a characteristic differences in the physical activity of the respondent can trigger central obesity with the yield value of Bivarat p of 0001 and Value or 2.825 (95% CI 5.3-1.4).

In this research differences characteristics of physical activity of respondents make it easier to Sell included so that it can trigger central obesity. Results of OR products that respondents with physical activity Sell 2.825 times more risky to have central obesity.

According to **Table 5** it is known that it facilitates large female respondents and central obesity of 61 respondents or (62.2%). While the male respondents made great ease and did not suffer central obesity by 71 respondents or (79.8%). Although based on binomial Test there are no characteristics of respondents, but based on the results of bivariate known female respondents have a higher central obesity risk than male respondents with a value of 0.154.

Relationship pattern consumption of staple food with central obesity of households.

Table 6. Relationship pattern consumption of staple food with central obesity of households

The Amount of Staple Food	Central Obesity				<i>p</i>	OR 95%CI
	Yes		No			
	n	%	n	%		
More	53	82.8	11	17.2	0.021	4.283
Less	9	52.9	8	47.1		(13.56-1.35)

Based on Table 6 It is known that from a total of 81 households in this study mostly central obesity households and the number of staple food was more than 53 households or (82.8%). While households with central obesity and the number of staple foods are less than 9 households or (52.9%). In households that are largely not with central obesity and the number of staple foods is more than 11 households or (17.2%). The results of bivariate analysis showed that there is a link between the dietary consumption pattern and household obesity. Evidenced by the value of P value 0.021 ($p < 0.05$) on the Fisher's Exact test and the value OR 4.283 (95% CI 13.56-1.35).

In this research, there is a relationship between the basic food consumption pattern and household obesity. This is because most households with central obesity and have a number of staple food patterns more than AKG more than households with central obesity and have less staple food than AKG. The OR results show that households with a total staple food of AKG 4.283 times more at risk of snentral obesity, compared to households with less staple food than AKG.

DISCUSSION

Sample Research Characteristics

The subjects used in this study were 187 respondents from 81 households with criteria of inclusion of age ≥ 18 years. Based on the univariate analysis it is known that most of the respondents were females 98 (52.4%). The work of the family head is largely employed as a farmer/fisherman/labour of 42 (22.5%), while the work of the mother is largely not employed or as a housewife 37 (19.8%). Family head education and maternal education are mostly Educated Graduate School/MA. Most of the respondents were 30-49 years old for 70 (37.4%). Most of the respondents were 117 (62.6%) Low

activity, while 70 (37.4%) The respondent performs considerable physical activity.

In this study, tests of characteristics of respondents could affect the dependent variables. Note that there are no differences in gender characteristics ($p=0.559$), maternal work ($p=0.728$), Family head education ($p=0.198$), maternal education ($p=0.307$) and age ($p= 0.301$). While on the characteristics of the work of the family head ($p=0.008$) and physical activity ($p=0.001$) there are different characteristics of research samples.

Based on the results of univariate is known that most types of staple foods are cereals and tubers amounting to 122 respondents or (65.2%) Of a total of 187 respondents. As for the number of staple food most of the respondents belong to the category less than 159 respondents or (85%) Of a total of 187 respondents. Most of the respondents in the study did not suffer central obesity by 108 respondents or (57.8%) Of a total of 187 respondents in this study. Of the total of 81 households in this study it is known that most households in this study included a pattern of consumi staple food of more than 60 households or (74.1%). Most households included in central obesity of 62 households or (76.5%).

Based on the results of the statistical test is known that there is no connection between the dietary consumption patterns of central obesity with the value of P value 0.301 ($p > 0.05$). Whereas, statistical test result of the relationship of basic food consumption pattern with the occurrence of central obesity households showed significant results with the value of P value 0.021 ($p < 0.05$). In addition to the basic food consumption pattern, based on the results of the test Binomial Test and Run Test, there is another factor that can trigger the occurrence of central obesity in a person that is physical activity with the value of p-value 0.001 ($p < 0.05$) and the head work family with a value of p-value 0.008 ($p < 0.05$).

Consumption Pattern of Staple Food with The Occurrence of Central Obesity

Based on the results in this research can be noted that the picture of the consumption pattern of the respondent with central obesity is largely entered into the category of less. It is inversely proportional to the statistical results of the food consumption pattern with the central obesity of households that show that most of the households with central obesity have excess staple food compared to with AKG.

According to **Table 4** it is known that there is no relation between the consumption pattern of staple food with the incidence of central obesity in Bantul regency with the value of p-value 0.301. In this study there was no significant link because the respondents of central and normal obesity had less basic food consumption patterns compared to AKG.

It is unrelated because a person who is experiencing central obesity tends to have excessive carbohydrate consumption. This is because excess carbohydrate that are not converted into energy will be stored in the form of glycogen and fat. Glycogen will be stored in the liver and muscles, while the fats will be stored around the stomach, kidneys and skin that. This is what causes individuals who experience excess karbohidarat will experience central obesity (6). Conversely a person with a staple amount less than 15% of the calories is more likely to experience weight loss than experiencing central obesity (7). Because in someone who is experiencing a carbohydrate deficiency then the existing energy will be used continuously and does not cause a pile of fat in adipose tissue.

This is in line with the research conducted by Sasmito (2015) stating that there is no connection between the intake of carbohydrate substances with central obesity (8). The same results were also reported by Usti (2018) stating that there is no significant link between the intake of karhohydrous with the incidence of central obesity (7). This is because central obesity can be caused by several other factors in addition to the basic food consumption pattern (9). According to Mustamin (2010) The main factor of the central obesity is Ineffective energy use so that it is buried in fatty tissues or adipose tissue. The body will automatically store excess calories in the form of fat, but the excess calories that occur continuously result in increased fat production so that the body is obese (10).

However, this is not in line with some previous studies stating that the consumption patterns of high carbohydrate foods have significant effect on central obesity. According to Handesti (2017) There is a meaningful relationship between the intake of carbohydrates with central obesity (11). The same results are also reported by Aprilia (2017) stating that there is a meaningful link between intake of carbohydrates and obesity (12).

The results of the research also differ from the results of the consumption pattern of basic food with household obesity. Where there is a significant link between the amount of consumption of staple

food with the central obesity of households. In this research the household with more basic food than AKG has the tendency that in the same household there are members of the family who are experiencing central obesity. Where households with the amount of staple food are more risky 4.283 times to have snetral obesity on family members.

This relates to the characteristics of a sample of research in which there are differences in the characteristics of family head work, this difference can cause central obesity in households. This relates to the socio-economic of the household. Household ability to buy, providing up to consume food will depend on household income. Where household income is largely obtained from the family head. It is supported by the results presented **Table 1** where most of the mother's work is not working so it can not generate income, and most of the income in the household is obtained from the head of the family with most Working as a farmer/fisherman/worker. Household income will affect domestic expenditure on choice and purchase of groceries. The high cost of food in households will have an impact on the high consumption of groceries that can cause obesity (13). Households with low socio-economics tend to have more feeding ingredients than healthy (14).

In addition to the family head work, according **Table 1** is known that physical activity can trigger central obesity. Supported by a statistical outcome indicating that a person with low physical activity is 4.283 times more risky to have central obesity. If in one household there is one member Families who lack physical activity and consume excessive carbohydrates will trigger the central occurrence of obesity. In line with the results reported by Pujiati (2010) stating that there is a link between physical activity and central obesity (15). It is also in line with the results of research conducted by Ladabaum (2014) stating that there is a connection between physical activity and the incidence of central obesity in the people of Ayuning (16).

In this research make it easier for household members who are women with enough mothers who do not work. Not working can trigger physical activity of a Sell that can not burn energy when the body has excess booster intake carbohydrate. If it lasts long then it will experience a buildup of fat in adipose tissue. Women will have the risk of having a higher central obesity than men. This is due to the difference between physical activity and amount of energy intake consumed. Housewives are susceptible to having a less healthy Life Style. Where

the activities undertaken by housewives make it easier for the liquid activities to be done indoors and do not need a lot of physical activity (17).

In this research the household with the characteristics of education level chief of the family and mother as a large graduated Senior High School/ MA. A person with graduate Senior High School/ MA education is included in the category of higher education (18). The eating consumption pattern of a person or household is closely related to the insight it has. The higher the level of education of a person then the knowledge of nutrition will be higher, moreover, the low education will trigger households get enough less decent (19). So in this research there is no characteristic difference in research samples based on education. So it can not be said that education can trigger central obesity, which is usually central obesity is more likely to be experienced households with the level of education of the head of family and mothers who Sell. Based on low education will cause nutritional knowledge that Sell so choose groceries only to filling.

The increasing age of a person the higher the risk of central obesity. Based on, a person who is older will experience a slowdown on metabolism and physical activity compared to a younger age. However, there are no differences in the research sample characteristics based on age. Where in this study facilitates a large sample of research 30-49 years old. A person with age 15-64 is the liquid age of the resident. The age of note is identified with the age of a person who has enough. So in this research there is no link between age as a trigger or factor of central obesity (20).

CONCLUSION

Based on statistical test results, there is no relation between the food consumption pattern and the central obesity event in Bantul Districts.

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The Role of Schools in Preventing to Sexual Pre Marriage Behavior for Adolescents

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ABSTRACT

Background: Adolescent premarital sexual behavior is risk behavior that can have an impact on the future of adolescents themselves. Abortion, premature birth and low birth weight, and sexually transmitted diseases are the result of premarital sexual behavior. School as a means of education and a second home for teenage students has a vital role in controlling student behavior. However, if the efforts of schools in providing service facilities especially reproductive health are still not optimal, it can have an impact on negative behavior of adolescent students. Therefore, it is necessary to identify more deeply how the efforts that have been made by schools related to adolescent reproductive health can be used as evaluation material.

Objectives: To examine more deeply how school efforts in preventing premarital sexual behavior in adolescent students.

Methods: Research design using a mix methods, conducted from June to August in the Tirenggo Village, Bantul. The study was conducted in SMAN 2 and 3 with a sample of teachers, principals, vice principals in the student field. Research instruments using questionnaires and interview guides.

Results: School programs in the form of counseling guidance services, health checks, and the presence of inhibiting factors still need attention. Counseling guidance services still do not provide private individual counseling. Health checks are still within the limits of providing education, there is no screening on reproductive organs. Students still cannot be open with the Youth Information and Counseling Center (PIKR) organization

Conclusions: Improving the performance of counseling guidance units, conducting socialization and approaching efforts by PIKR to students. PIKR, School Health Unit (UKS), and Puskesmas can carry out collaboration in screening adolescent health related to reproductive health in addition to conducting counseling.

Keywords: *Counseling, Adolescent, School, Premarital Sex*

INTRODUCTION

Premarital sexual behavior is a serious problem because of the various impacts caused, among others, cases of pregnancy unsafe abortion (unsafe abortion) among adolescents. The number of abortion cases in Indonesia each year reaches 2.3 million and 30% of them are carried out by adolescents (1). Government efforts in dealing with adolescent reproductive health issues are regulated in Government Regulation number 61 of 2014 articles 11 and 12 by providing adolescent reproductive health services aimed at preventing and protecting adolescents from sexual behavior risk (2). Law number 36 of 2009 concerning health includes reproductive health in the sixth part of articles 71 through article 77 in article 71 paragraph 3 mandating that reproductive health is carried out through promotive and preventive activities (3). Based on the results of the study mentioned that the school contributed greatly to the behavior of their children (4).

Based on DIY PKBI data in 2016 there were 720 cases of adolescent labor in DIY. Childbirth is highest in adolescents at the age of 16-19 years. One of the causes of childbirth labor is out of wedlock pregnancy (5). In 2015 there were 976 cases of unmarried pregnancy among teenagers in Yogyakarta, 276 cases in Bantul Regency, 228 cases in Yogyakarta City, 219 cases in Sleman Regency, 148 cases in Gunung Kidul and 105 cases in Kulon Progo. Based on data from the Bantul District Health Office the highest incidence of pregnancy outside marriage in 2018 from the January-September period in Bantul 1 District was 24 people. According to the statement of the head of the public and family health department of Bantul Health Office, the cause of pregnancy data outside of marriage is unknown. The results of a preliminary study at the Bantul I Health Center obtained data that the number of pregnancy out of wedlock in the period January - October 2018 as many as 24 people from the number of pregnancy out of wedlock as many as 13 teenagers with ages 15-20 years who experienced pregnancy out of wedlock, one of the many villages pregnancy occurred out of wedlock in adolescents, namely Tlirenggo Village as many as 8 people (33.3%). The data shows that the high number of premarital sexual behavior that must be known to cause in the Tlirenggo Hamlet, Bantul.

The role of peers, incorrect information, inculcation of character and the role of parents who are less than the maximum is a factor causing a teenager to have sexual relations before marriage (6, 7, 8, 9). School as a means of education for adolescents and being a second home for adolescents has a vital role in educating their students. Monitoring, providing accurate information, and establishing good relationships between teachers and students can prevent students from negative behavior, one of which is sexual intercourse before marriage (10, 11). Identification of the role of the school itself in preventing sexual behavior has not been done in depth. Based on the description above, the study aims to get an overview of the role of schools in preventing adolescent premarital sexual behavior.

MATERIALS AND METHODS

This research integrates quantitative and qualitative methods in data collection, with a Sequential Explanory Strategy model consisting of two stages, quantitative data collection methods with survey design through questionnaires, and the second stage uses qualitative research methods through in-depth interviews with research subjects in order to obtain data needed to explain the quantitative data obtained (12). This research was conducted in June - August 2019, in the Tlirenggo district school, Bantul, Yogyakarta, which consisted of SMA N 2 and 3 Bantul.

The sample is part of the number and characteristics possessed by the population (12). In this study, the sample is the teachers at SMA N 2 and 3 who have the following criteria:

Quantitative Research:

Table 1. Sample criteria for quantitative research

Sample	Inclusion criteria	Exclusion criteria
Teacher	a. Teachers or employees registered at SMAN 2 Bantul and SMAN 3 Bantul b. Have a minimum service period of 3 years c. Willing to be a respondent d. Able to communicate well	Having health problems that can obstruct research such as memory disorders

Qualitative Research:

Table 2. Sample criteria in qualitative research

Sample	Inclusion criteria	Exclusion criteria
Teacher	<p>a. Teachers who have a position as Principal / Deputy Principal in the Tlirenggo Village High School, Bantul and who are willing to become participants</p> <p>b. Student sector in SMA N 2 and 3</p> <p>c. Willing to be a partisan</p> <p>d. (Peer educator) Teachers who understand about sex education in high school and who are willing to become participants</p> <p>e. (Peer educator) Students who understand about sex education in Tlirenggo Village High School.</p>	<p>a. Principals who are in high school 2 and 3 are not willing to be participants</p> <p>b. Students who do not understand about sex education in the Tlirenggo Village High School.</p>

Operational definitions are boundaries of the scope or understanding of the variables observed or examined (13). So the scope of the scope of this research is as follows:

Independent Variable is the Role of Schools, which is a form of participation by schools to help the process of preventing risky sex, namely risky sexual behavior in adolescents based on planning and the process of educating students while at school, as measured by using questionnaires and interview guides. Dependent Variable is an effort to prevent risky sexual behavior that is a form of business that has been done by a person or group of people to prevent risky sexual behavior that can cause risk conditions for pregnancy outside of marriage.

RESULTS AND DISCUSSION

This research was conducted in two regional schools in the Tlirenggo Village, Bantul, Yogyakarta. namely SMA Negeri 2 and 3 Bantul. In realizing a health promoting school, the two schools are collaborating with related institutions. Based on the analysis results obtained the following data:

Table 3. Efforts by schools to prevent pre-marriage sexual behavior

	Frequency (n)	Percentage (%)
Attention to adolescent reproductive health		
Yes	55	100
No	0	0
Efforts to prevent premarital sexual behavior		
Yes	55	100
No	0	0

Based on the above table, it is obtained data that the school has given attention to the reproductive health of students at the school and there have been efforts to prevent premarital sexual behavior.

Reproductive Health Services

In accordance with the results of interviews with vice principals in the field of students (P1, P2) and Guidance Counseling (BK) teachers (P1, P2,) that the existence of programs in schools includes programs (health services, BK services, the formation of teachers Information Centers and Youth Counseling (PIKR), collaboration outside of school can help in preventing premarital sexual behavior in the following statements of participants:

"... ada proram PIKR ... penyuluhan seks pranikah.....(P1)" ("... there is a PIKR program ... premarital sex counseling ... (P1)"

"... penyuluhan ... membahas tentang kesehatan reproduksi dimana di dalamnya menyangkut penyuluhan tentang pencegahan perilaku seks pranikah..... (P2)" "... counseling ... discusses reproductive health in which concerns counseling about the prevention of premarital sexual behavior ... (P2)"

From the results of interviews conducted that there have been efforts in the form of youth PIKR programs that are expected to prevent premarital sex. In accordance with the results of interviews with vice principals in the field of students (P1, P2) and Guidance Counseling (BK) teachers (P1, P2,) that the existence of programs in schools includes programs (health services, BK services, the formation of teachers Information Centers and Youth Counseling (PIKR), collaboration outside of school can help in preventing premarital sexual behavior in the following statements of participants:

“... ada proram PIKR ... penyuluhan seks pranikah.....(P1)” “... there is a PIKR program ... premarital sex counseling ... (P1)”

“... penyuluhan ... membahas tentang kesehatan reproduksi dimana di dalamnya menyangkut penyuluhan tentang pencegahan perilaku seks pranikah..... (P2)” “... counseling ... discusses reproductive health in which concerns counseling about the prevention of premarital sexual behavior ... (P2)”

From the results of interviews conducted that there have been efforts in the form of youth PIKR programs that are expected to prevent premarital sex.

BK Service

In accordance with the results of the interview with the Vice Principal for Student Affairs & BK Teachers (P1, P2) that with the BK school service program can help in providing good input for adolescents:

“..Layanan informasi, bimbingan kelompok, konseling kelompok dan layanan konsultasi dengan orang tua (P1) (“... information services, group guidance, group counseling and consulting services with parents ... (P1))

“...Anak mempunyai masalah sendiri harus di tangani sendiri,...(P2) “... Children have their own problems must be handled alone, ... (P2)

In accordance with the results of the interview it was concluded that the school provides services to students for information and provides counseling to students, but it is expected that if a student has his own problems can be solved by themselves.

Outside School Collaboration (Puskesmas, Dinas Kesehatan)

Collaboration between the health sector is carried out by providing counseling on reproductive health, conducting health checks on adolescents, in accordance with the results of interviews P1 & P2:

“Banyak kerjasama, kerjasama dengan dinas kesehatan, puskesmas, rumah sakit atau tergantung dinas kesehatannya.... memberikan penyuluhan....(P1)” “A lot of cooperation, collaboration with the health

department, health centers, hospitals or depending on the health department ... provide counseling ... (P1)”

“..... adanya dari puskesmas.....(P2)” (“... from Puskesmas... (P2)”

In accordance with the results of the interview, it was concluded that the school had collaborated with various outside parties to provide information on reproductive health.

Establishment of PIKR members

In accordance with the results of interviews P1, P2 that there has been the formation of groups that pay attention to reproductive health issues for other female students indicated the existence of statements:

“...ada program PIKR, kelompok PIKR. Didalamnya nanti ada penyuluhan seks pranikah, kesehatan reproduksi remaja..... (P1)” (“... there is a PIKR program, a PIKR group. Inside there will be pre-marital sex counseling, adolescent reproductive health ... (P1)

“Tidak ada bentuk kelompok PIKR Remaja, hanya ada tentang keputrian (menyangkut satu kegiatan untuk siswi putri.....(P2)” (“There is no form of the Youth PIKR group, there is only about the princess (concerning) one activity for female students ... (P2)

Check Health

In accordance with the results of the interview, schools in collaboration with puskesmas always hold health checks but are not specific to reproductive health as indicated by the informants' answers as follows:

“...puskesmas datang untuk mengecek kesehatan anak-anak jadi kami saling membantu.....(P1)” (“... the puskesmas came to check the health of the children so we helped each other ... (P1)”

“...Cuma kaya penyuluhan, adanya pengecekan tentang kesehatan seperti (pemeriksaan karang gigi, tinggi badan, kesehatan mata) dari puskesmas kesehatan reproduksi hanya sekedar penyuluhan. ...P2)” (“... Just like counseling, checks on health such as (examination of tartar, height, eye health) from the health center for

reproductive health are merely counseling. ...
P2) “)

Monitoring and Evaluation Efforts

The results of interviews and schools make monitoring evaluations to find out developments and progress, issues regarding health education given to students for anticipation or prevention efforts. Shown by the results of interviews conducted on P1 & P2 As follows:

“Setiap kegiatan dilakukan evaluasi monitoring jadi setelah selesai kegiatan apakah kegiatan tersebut bisa diterima oleh anak aatau tidak, jadi dari hasil evaluasi kita bisa mengambil tindak lanjut.....(P1)”
(“Every activity is carried out monitoring evaluation so after the activity is over whether the activity can be accepted by children or not, so from the evaluation results we can take follow-up ... (P1)”)

“Pada waktu pembinaan kita juga ikut mencermati, dan kita juga memperhatikan keadaan anak-anak, pada waktu pelaksanaan tersebut anak-anak tertarik tidak pada konsep penyuluhan tsb kalau anak-anak tertarik mereka akan memperhatikan baik-baik kemudian dalam perilaku sehari-hari tersebut akan mengikuti penyuluhan tsb. Itulah evaluasi yang kami laksanakan dan kemudian dari evaluasi tersebut kita buat kesimpulan bersama-sama dengan pembinaan PIKR dan BK.....(P1)”
(“When coaching we also pay close attention, and we also pay attention to the situation of children, at the time of the implementation of the children are not interested in the concept of counseling that if the children are interested they will pay close attention then in daily behavior will be following the counseling page. That is the evaluation that we carried out and then from that evaluation we make conclusions together with the formation of PIKR and BK (P1) “)

“...Evaluasinya tindak lanjut tidak ada, cuma kegiatan keputrian tiap minggu saja lebih bersifat ke preventifnya saja dan akan dilakukan evaluasi pada saat setelah pelaksanaan dan setelahnya tidak ada tindak lanjut....(P2)”
(“.... There is no follow-up evaluation, only weekly princess activities

are more preventive and will be evaluated at the time after implementation and after that there will be no follow-up ... (P2)”)

The conclusion that with the school monitoring evaluation can find out how the process of implementation or implementation carried out by the school in the process of pre-marital sex prevention, can take further action from the results of the evaluation and can be a benchmark for successful implementation.

Supporting and inhibiting factors

In this study, schools have supporting and inhibiting factors in preventing premarital sex, where these factors can affect the smooth running of activities. As indicated by the results of the interviews conducted on P1 P2:

“..adanya hubungan saling percaya dan mendukung satu sama lain, baik dari Pembina PIKR remaja, BK, wakasek kesiswaan, UKS, guru-guru lain maupun anggota kesehatan dari luar sekolah yang bekerjasama dengan SMA kami... P1)”
(“... there is a relationship of mutual trust and support for each other, both from the Adolescent PIKR coach, BK, student vice principal, UKS, other teachers and health members from outside the school in collaboration with our high school ... P1)”)

“Factor pendukung,,semuanya mendukung, dari siswanya tidak ada yang coba bolos, guru-guru mendukung dan tidak ada yang protes, sekolah juga mendukung dan puskesmas ketika diminta untuk memberi materi mendukung.....(P2)”
(“Supporting factors, all support, none of their students try to skip class, teachers support and no one protests, schools also support and puskesmas when asked to provide supporting material (P2) “)

“..Kurang terbukannya siswa-siswi kepada anggota PIKR sebaya, guru BK.....(P1)”
(“... Lack of opening of students to peer members of the PIKR, BK teachers ... (P1)”)

“Kesulitan kepada kepatuhan siswa tersebut, kekurangan narasumber, antusias siswa dalam mengikuti mereka masih merasa hal yang tabu, kurangnya waktu.....(P2)”
(“Difficulties to the students’ obedience, lack

of sources, enthusiastic students in following them still feel taboo, lack of time ... (P2)”)

The mutual trust between structural officials and other units both internal and external is a supporting factor in the program of preventing premarital sexual behavior, but in reality students still cannot openly accept the PIKR group or the BK teacher.

Discussion

The service provided by the school counseling guidance unit is to provide information to students, to report delinquency experienced by adolescents to parents, but if students have personal problems, they are expected to solve it themselves. The guidance and counseling teacher has the task of facilitating the development of a student, and exploring and developing the potential of each student. But the problem is that there is still a long distance between students and counselors who consider BK teachers as someone who is frightening and related to a problem (14). Closeness between a teacher and students can foster a sense that makes students comfortable to discuss and influence student behavior. In addition, a guidance and counseling teacher is a teacher who has competence in solving students' problems and providing guidance and counseling so as to improve the talents of these students. Counseling guidance teacher also not only provides group guidance, but also individual guidance, so that a student who has a personal problem is facilitated to be able to consult with the teacher so that they are not wrong in making problem solving decisions (15). In addition to providing both individual, group guidance, developing potential, talent must also be able to develop a student's personality (16). Not only focus on students, but the relationship between counselors and parents must also be well established because parents themselves have a role related to student behavior, especially premarital sexual behavior of adolescents (17). Formation of a strong character by the school through the cooperation of various parties, will prevent negative behavior in particular is premarital sexual behavior.

Health checks are only in the form of general health of students, whereas in terms of reproductive health only counseling. Adolescents are actually not human beings who are always considered the healthiest in the health cycle, because adolescents have phases in which changes in their reproductive organs can affect their physical and psychological health. Menstruation as an example of signs of changes in reproductive organs in adolescents

(women) that affect the activities and emotions. This teenager needs an assessment of the age at first starting menstruation, how many menstrual cycles, how much blood expenditure during menstruation, whether severe pain occurs when pain. The more early menstruation / menarche age, the more risk of premarital pregnancy, pregnant adolescents, and transmission of sexually transmitted diseases resulting in unsafe abortion, pregnancy complications (risk of premature delivery, low birth weight, stillbirth) and delivery complications (18) . So that not only provide information to adolescents about reproductive health but also give attention to adolescents when reproductive health problems occur (19). Puskesmas as a school partner (18) and as a place of health services at all levels of society can provide reproductive health examination services, or at the School Health Effort (UKS) which is also a target of the puskesmas (20). As mentioned in Republic of Indonesia Government Regulation No. 61 of 2014 concerning Reproductive Health article 12 paragraph 4 one of the reproductive health services for adolescents is medical clinical services in the form of early detection of disease (screening), treatment, and rehabilitation (2). Thus it is important for schools to provide services to reproductive health screening for students.

Students are not yet open to the existence of PIKR, so not many people use this organization. Members of the PIKR itself have an influence on student acceptance in the organization. A positive member attitude towards PIKR will have a good effect on students but if the attitude is negative it will have a bad influence on the existence of the organization (21). In addition, barriers to students' openness to PIKR are the information provided is not varied, inconvenience when telling stories, feels stigmatized when counseling, and feels uninformed about the form of PKPR services (22). Thus the need for commitment from PIKR members in developing their organizations, besides PIKR must get closer to students so that there is not too much distance between PIKR and students.

CONCLUSION AND RECOMMENDATION

Conclusion

Schools have a role in providing good moral values to students including in preventing premarital sexual behavior. Some services have been carried out by schools to facilitate increased knowledge,

improved attitudes about reproductive health but some of these services are still less than optimal. The closeness of teachers and students, the competence and comprehensive role of a BK teacher, complete health services, and the openness of students and PIKR need to be considered.

Recommendation

Improving the performance of the counseling guidance unit by starting from the determination of competent human resources so that they can carry out the role well, in addition to the work program that has been done needs to be re-evaluated to get a good outcome indicator. Conduct comprehensive socialization and approach efforts by PIKR to students so that this organization can provide benefits. PIKR and UKS can carry out cooperation in screening adolescent health related to reproductive health in addition to conducting counseling.

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Family Planning in Unintended Pregnant Younger Age

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ABSTRACT

Background: Early marriage increasing year by year. This happen too in our country that early marriage was 25,71 % in 2017. If we compared by province number, early marriage in Daerah Istimewa Yogyakarta was in 11,07%. Early marriage become a big problem to our health because it could make booming population, jobless, less welfare and school drop out. A young age who did not have a planning about family yet, they lead on their life by low knowledge. Almost of young age early marriage had school drop out there fore they had low education and knowledge. They could not describe their family planning about how many their child they want to have, their occupation, their finance, and health.

Objectives: This research was aimed to identificate family planning related to number of child, occupational, financial and others in early marriage

Methods: This research used qualitative studi which the design was the phenomenology. Indepth interview was taken to 14 informants in Jetis Subdistric of Bantul.

Results: Result of the research showed that early marriage and pregnancy was in unstable emotional and psychological condition therefor they have no family planning. They have school drop out so they have low education and knowledge that could impact to their low occupational. Economic factor could make them in difficulties because they need more cost of living.

Conclusions: early marriage young age have no family planning in their life such as number of child, financial, occupation and health.

Keywords: *Early Marriage, Number of Child, Financial, Occupation*

INTRODUCTION

Early marriage in Indonesia increase year by year. Annual report from Badan Pusat Statistik (BPS) in 2017 nationally was 25,71% for early marriage. The number was twice compared to early marriage in Daerah Istimewa Yogyakarta (11,07%)(1). It was clearly that early marriage would be a big problem for us like health, population and welfare.

The caused of early marriage in Indonesia was complex, such as culture, pregnancy, economic, or education(2). Early marriage had bad impact for adolescent health. Almost of the early marriage because of pregnancy was unintended pregnancy. Unintended pregnancy made adolescent psychological condition depressed, scared, ashamed and almost of them tried to get abortion(3). Unintended pregnancy in adolescent also made them school drop out and jobless. They were in low education therefor could not reach good job(4). This research aimed to investigate family planning in unintended pregnancy in younger age in Bantul District.

MATERIALS AND METHODS

This research was taken by a qualitative study which the design was the phenomenology. This study conducted in July 2015 to Januari 2016 in the public health care of Jetis Subdistrict of Bantul. This research recruited seven informants adolescent mothers (16-19 years old) who have unintended and intended pregnancy. In depth interview was used to collect the information and guided by open ended questions.

Information also collected from key informants such as their mother, husband and midwives in Public Health Service in their area for triangulation. During the interviews, information was recorded by voice recorder and wrote in the field notes. For finding the informant adolescent who marry at the early age, researcher collected data from KUA (Kantor Urusan Agama) which has marital registered and from Public Health Service (Puskesmas) in the subdistrict.

This research was permitted by Ethical Clearance Comitte Faculty of Medicine Universitas Gadjah Mada Yogyakarta with serial number KE/FK/1008/EC/2015 dated 13rd August 2015.

RESULTS

The main informants in this research were seven adolescent mother whose their baby under 6 months old. The informants's age was under 21 years old (range 16-19 years old). Five informants had unintended pregnancy. All the informants become adolescent mothers. Three of seven informants have school dropped out when they were in senior high school. Level of education of the informants were senior high school (three informants) and junior high school (four informants). The informant marital status was five married and two divorced. Information from informants was described by the theme and confirmed by informant's statement quotations and writted by R1 for informant 1; HR for husband of informan, MR for mother of informan.

Theme 1 : Financial and Occupation

The informant could not have a good job caused of low education. Their husband did not have permanent work. There for their parent also provide to their needs such as meal and their need during pregnancy such as their quotation :

"I lived together with my parent, eating together with them. I never asked my husband for money, and I never taken from him" (R7, 21 years)

All the informant lived together with their parents, so their needs be financed by their parent. One informant who had unintended pregnancy said that her husband did not have permanent work. Her parent gived them money monthly.

"...he (husband) was a driver here, he was given money from my mom. Mom also gived me money. He never given me a money for buy our needs (milk for their baby)."

"Mom given money for me buying a milk. My ex husband was not enough money..." (R2, 17 years)

Another informant said that her husband got low income from his work, there for they should divided their income during pregnancy especially for antenatal care (ANC) routinely.

"...His income 15.000 per day. . . I saved 7 thousand, for buying a drug and medical check up. . . and other I saved for buying soap and shampoo." (R5, 20 years)

This statement also be clarified by their husband. One of informant's husband also felt that they could not get high income. They should fulfill their needs such as nutrition uring pregnancy, Ante Natal Care (ANC).

"Ya..(work) for all our daily needs, going obsgyn, midwives, buying milk, yaa all of our needs." (HR1, 22 years)

"Ya I work as labour as Machines technician. Sometimes my parent also gived som money." (HR6, 21 years)

Some of parents hoped that their children could have some course as alternate for their school drop out. Their parent wanted their child having a skill so they could earn some money.

"I asked her to have a course like a tailor for her future. I hoped she could have a job despite when their child (grandchild) was a toodler. Hopefully she have a better future." (PR5, 47 years)

Theme 2 : Health

Informants described that they had low knowledge about health. Some of them did not know what they should do during pregnancy. One informant mentioned that she did not come ANC because of cost and low information about health.

"No (no ANC), I have no money for ANC, , and we could not reach health facilities (I lived in Mother in law's home). I have health assurance (jamkesmas), but Midwives said it could be used there despite no Family Card (KK). So I had to pay.. My condition was no money at that time so I could not ANC." (R5, 20 years)

Some of adolescent's mother also said that her child never think about her pregnancy. For drinking folate acid and iron, they always reminded by her husband or mother.

"It clearly, , if she wanted her pregnancy to be health, she should drink multivitamin. I never looked she drinking completely or not. I just kept positive thinking she used to." (MR5, 47 years)

Being adolescent mother and having low education, they did not know about reproductive health. Informant also mentioned that they were worry about their pregnancy. One informant worried because she

rarely checked her pregnancy up to midwives and drank folate acid and iron.

"...if I did not check up and drink multivitamin, my baby would get sick." (R4, 19 years)

One informant also said that she did not know having second pregnancy. She also tried to abort her baby because they was not ready to have.

"I ever had second pregnancy, for a few weeks.. .then I tried to drink one box of drug for menstruation, and Jamu. I did not know that my husband also bought expired instant noodle. . . Pretend not to know if it was expired. . .Then I was bleeding and getting abortion. ." (R6, 17 years)

This statement also was clarified from the husband that they did not knot if they would have second baby.

"I bought this (expired noodle) my self sist, there was a traditional shop right here, but I did not know if it was expired. She (wife) did not say anything, then she got stomachace, then I brought her to doctor. . .When we just arrived, this (fetus) miscarriage, then doctor decided to curette my wife."

DISCUSSION

Early marriage and pregnancy was susceptible to problems. Unstable emotional and psychological condition caused mother did not accept her pregnancy absolutely, therefore it was effect to her fetus(5). Early married adolescent needed emotional support as motivation for maintaning her pregnancy(6). They could get this support from her family such as husband and parents, or environment such as health worker, their friends, or neighbourhood (7).

Unintended pregnancy made adolescent school drop out and social exclusion. Having no facility and social exclusion was the main reason pregnant adolescent didn't continue her study that would increase school dropout. Starting school dropout also could make adolescent pregnant or married early(8). The study in Imogiri Subdistrict of Bantul found that 77.7% early married adolescent caused of pregnancy and made dropouts from their school(2).

School was the agent of change. Knowledge of reproductive health in adolescent could be given while they were schooling. This aimed to prevent

poor behavior. Health education to adolescent focused to their behavior involving adolescent naughtyness, sexual education, and nutrition(9).

Lack of education made adolescent couple having low labour position, therefore they could not fulfill their needs such as antenatal cost, delivery cost, and everything during their pregnancy(10). Economic dependence in adolescent mother also caused them did not attend antenatal care(11).

Unstable emotional also caused of unready of pregnancy. This made adolescent having poor behavior during their pregnancy such as poor eating like softdrink, instan noodle, high fat consumption even restricting their food. It also made them did not attend antenatal care(12). Attempts to get abortion was also caused by role of their parent(13). Unstable emotional also influenced to their pregnancy (5).

Frequent of attending antenatal care influenced by internal and external factor. Internal factor could be described such as age, education level, and attitude. While external factor involved economic, culture, geographic, and information. The mature age determined their mindset, included of attending antenatal care. Their attitude was a reaction to the information they received(14).

CONCLUSIONS

Early marriage young age have no family planning in their life such as number of child, financial, occupation and health. Adolescent who marry at early age had environmental constraint, and lack of knowledge. Almost of adolescent married because of unintended pregnancy.

RECOMMENDATION

The government should complete the facility of public health care, give health counseling in the school, and give equal accesing in education whom having pregnancy in their school aged. The subdistrict government and public health care should give reproductive counseling, the effect of early marriage on the maternal and perinatal health, therefore adolescent had readiness as mental and physical being a mother.

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The Relationship Between Educational Background and Perception of Pregnant Women and Motivation to Consume Iron (Fe) Tablet in Sedayu, Bantul, Indonesia

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ABSTRACT

Backgrounds: World Health Organization (WHO) says 40% of maternal deaths in developing countries are caused by pregnancy anemia. The main cause is caused by iron deficiency and acute bleeding. Anemia is the biggest public health problem in the world, especially for women of childbearing age.

Objectives: The purpose of this study was to determine the relationship between education level and perceptions of pregnant women with the motivation to consume iron tablets in Sedayu, Bantul Regency.

Methods: This type of research is a quantitative study with a cross-sectional design. The population was 154 respondents with a sample of 85 pregnant women who had fulfilled the inclusion and exclusion criteria. Bivariate data analysis using Kendall's Tau test.

Results: The results of this study there is a relationship between education and perceptions of pregnant women by consuming iron tablets with $p < 0.05$. **Conclusion:** Education level and perception of pregnant women are related to motivation in consuming iron tablets.

Keywords: *Educational background, Perception of Pregnant Women, Motivation, Consume Iron*

INTRODUCTION

World Health Organization (WHO) states that 40% of maternal deaths in developing countries are caused by anemia during pregnancy. The main cause is caused by iron deficiency and acute bleeding. Anemia is the biggest public health problem in the world, especially for women of childbearing age (1). The prevalence of anemia in Indonesia in pregnant women has increased from about 37.1% in 2013 to 48.9% in 2018 (2). The prevalence of pregnant women with anemia in Special Region of Yogyakarta in 2017 decreased to 14.32% from 14.85% in 2015 and 16.09% in 2016 (3).

The increasing need for iron intake during pregnancy puts pregnant women at high risk of developing iron deficiency, a major cause of anemia (McLean *et al.* 2007). Pregnant women with anemia are less likely to have *good pregnancy outcomes* than those without anemia. The *iron-folic acid supplementation* (IFAS) program for pregnant women is the main program in controlling anemia in pregnant women in many countries, where the need for iron supplementation is not possible to be obtained from daily food (4). Maternal iron intake during pregnancy must be increased because, during pregnancy, the body of pregnant women can increase blood volume, so that, iron (Fe) intake is more important to meet the needs of the mother and fetus by supplying food and oxygen through the placenta. Pregnant women who have given iron intake to the fetus through the placenta will give useful intake to the fetus for growth and development needs, including for brain development, as well as reserves stored in the liver until the baby is 6 months old (2).

There have been many efforts made in Indonesia to control the incidence of iron deficiency anemia in pregnant women under WHO by providing iron (Fe) tablets. Providing Iron Tablets to pregnant women is done by midwives or healthcare personnel at the time of the first ANC visit or K1. A person's compliance with a standard or regulation is influenced by individual's knowledge and educational background. The higher the knowledge and educational background, the higher the level of compliance of a person to the applicable regulations/standards (5). The efforts to prevent and control iron deficiency anemia through iron supplementation are prioritized for pregnant women, because the prevalence of anemia is quite high (6). Iron is needed by pregnant women to prevent anemia and maintain fetal growth optimally. The Ministry of Health recommends that pregnant women to consume at least 90 iron pills/tablets

during their pregnancy. To overcome the problem of anemia in Indonesia, the government has launched an equitable distribution of Fe tablets (7).

The low compliance of pregnant women consuming iron tablets and the wrong perception is a factor causing the failure of iron tablet supplementation programs in Indonesia. The main reason for non-compliance of pregnant women in consuming iron tablets is due to they forget to consume the tablet. This factor, based on several studies, reached >47%. The presence of other people such as husband, family or media that can remind pregnant women to consume iron tablets according to instructions, the presence or absence of counseling related to iron tablet consumption during pregnancy (8).

MATERIALS AND METHOD

This study used quantitative-descriptive method with *cross-sectional* design. This study was conducted in Sedayu I and II Community Health Center (Puskesmas) of Bantul Regency. The population was 154 respondents with a sample of 85 pregnant women who met the inclusion and exclusion criteria. The independent variables in this study were the educational background and the perception of pregnant women on anemia, while the dependent variable in this study was motivation to consume iron (Fe) tablet. The data were analyzed using bivariate analysis using *Kendall's Tau* test.

RESULTS AND DISCUSSION

Table 1. Distribution of frequency of education, perception, motivation of pregnant women in Sedayu II Community Health Center

Variable	Category	N	%
Education	High	5	5.9
	Secondary	52	61.2
	Primary	28	32.9
Perception	Good	70	82.4
	Poor	15	17.6
Motivation	High	69	81.2
	Low	16	18.8

Based on **Table 1**, mostly, the pregnant women have a secondary education level, consisted of 52 people (61.2%). Most of the pregnant women have good perception on anemia, consisted of 70 people

(82.4%) and have high motivation to consume iron (Fe) tablets, consisted of 69 people (81.2%).

Table 2. The relationship between perception of pregnant women on anemia and motivation to consume Fe tablet in Sedayu I and II Community Health Center

Education	Motivation to Consume Fe Tablet					
	High		Low		Total	
	N	%	N	%	N	%
High	5	100	0	0	5	100
Secondary	49	94.2	3	5.8	52	100
Primary	15	53.6	13	46.4	28	100
Total	69	81.2	16	18.8	85	100

P = 0.000

Table 2 shows that there were 49 pregnant women (94.2%) with secondary education and high motivation. The higher the education, the higher the motivation of pregnant women to consume iron tablets. Education will have an effect on pregnant women in choosing, evaluating and deciding something that is good for their health and pregnancy. Seeing and hearing will produce knowledge. Knowledge is obtained from the learning process that can form certain beliefs, so that someone behaves based on his/her beliefs. Knowledge is related to motivation, so that, high motivation will have an effect on the compliance of pregnant women in consuming iron tablets because knowledge is a very important domain for shaping behavior. Behavior will last if it is based on knowledge. Knowledge obtained through sensing on health information during pregnancy will have an effect on the behavior of pregnant women in maintaining their health (9). The high level of education will have an effect on a person to have high knowledge and to get information easily about health during pregnancy and its benefits, so that pregnant women are more quickly motivated to improve health during pregnancy (10).

The level of knowledge of pregnant women on iron tablets has an effect on their behavior to be complied in consuming iron tablets. Pregnant women who have a fairly good knowledge on anemia may encourage them to be more obedient to consume iron tablets during pregnancy. Knowledge can also be obtained from direct experience or the experience of others (11).

Table 3. The relationship between perception of pregnant women on anemia and motivation to consume Fe tablet in Sedayu I and II Community Health Center

Perception	Motivation to Consume Fe Tablet					
	High		Low		Total	
	N	%	N	%	N	%
Good	68	97.1	2	2.9	70	100
Poor	1	6.7	14	93.3	15	100
Total	69	81.2	16	18.8	85	100

P = 0.000

Table 3 shows that 68 pregnant women (97.1%) have good perception with high motivation. The better the perception, the higher the motivation of pregnant women in consuming iron tablets.

The perception of pregnant women in consuming Fe tablets is influenced by various factors including their knowledge on Fe tablets, the benefits perceived after taking the tablets, advice from health workers, and encouragement from family members. To improve the perception of pregnant women in consuming Fe tablets, it is hoped that there is information provided about the importance of Fe tablets during pregnancy so that they know the benefits and goals of taking the tablets. It is expected to encourage pregnant women to take Fe tablets regularly (12). According to literature review, the perception of pregnant women on their health status during pregnancy also plays a role in increasing motivation. If they do not think that anemia is a dangerous health problem, it will reduce their motivation (13).

Motivation can have an effect on someone's behavior to carry out certain activities. Motivating pregnant women about anemia is a desire that arises from within pregnant women, so that it can encourage pregnant women to consume Fe tablets. Motivation is seen as a mental impulse that moves and directs human behavior, including learning behavior and also as a direction in behaving (14). Motivation of pregnant women will also have an effect on the low compliance in taking Fe tablets for some reasons, such as, do not feel sick, ignore the symptoms or signs and the effects caused, being negligent during pregnancy or having low motivation to take the Fe tablets every day for a long time and getting the side effects (15).

Encouragement plays a very important role in determining the behavior of pregnant women to be compliance in consuming Fe tablets. Providing correct information and interesting experiences about Fe tablets will provide positive perception. The

noncompliance of pregnant women in consuming Fe tablet and wrong perceptions are factors that cause the failure of iron (Fe) tablet supplementation program in Indonesia. The main reason for the noncompliance of pregnant women in taking Fe tablet is forgetfulness factor. The presence of other people such as husband, family or media that can remind pregnant women to consume Fe tablet according to instructions and provision of counseling related to Fe tablet consumption during pregnancy are also the factors to increase the motivation of pregnant women in consuming Fe tablet (16).

CONCLUSIONS AND RECOMENDATION

Based on the results of this study, it can be concluded that there was a relationship between the educational background and perception of pregnant women and the motivation of pregnant women in consuming iron (Fe) tablets in Bantul Regency. It is recommended to provide health education about the prevention of anemia during pregnancy adjusted to the educational background of respondents and provide appropriate and suitable information to increase motivation in consuming iron (Fe) tablets.

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The Effect of Dance Pregnancy on Abdominal Recti Diastasis in Pregnant Women at BPM Sleman Regency

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ABSTRACT

Background: The condition of rectus abdominis muscle separation can occur in 30% to 70% of pregnant women and the possibility of abdominal recti diastasis condition persists after a period of pregnancy in 35% to 60% of women. Abdominal recti diastasis can be a problem in the abdominal muscles after childbirth such as psychological problems, cosmetic disorders and physical problems such as back pain, protrusion in the abdominal wall, weakness in the abdominal wall and decreased abdominal muscle strength. There are various kinds of mild physical exercise that can be done by pregnant women such as a combination of upright movements, pelvic movements, back massage, and partner support called dance pregnancy.

Objectives: The purpose of this study was to determine the effect of dance pregnancy on diastasis recti in pregnant women

Methods: This research used quasi-experimental design with a non-randomized pretest-posttest group design. The number of samples in the study were 30 respondents with a division of 15 respondents in the experimental group and 15 in the non-experimental group. The sampling technique was accidental sampling. Analysis of the data used the t test.

Results: The T test results $> t$ table ($2,239 > 2,048$) and p values was less than 0.05 ($p = 0.033 < 0.05$), so it can be stated that there were significant differences in rectal diastasis change in the experimental and control groups.

Conclusions: From this study we concluded that the dance pregnancy method has an effect on diastasis recti in pregnant women, where the pregnant women who do dance pregnancy diastasis do not increase as much as in pregnant women who do not do dance pregnancy. Pregnant mothers are expected to be able to do light physical exercises. such as dance pregnancy so that rectal diastasis does not increase in size. So that muscle strength does not decrease during labor later.

Keywords: *Abdominal Recti Diastasis, Dance Pregnancy*

INTRODUCTION

Pregnancy can lead to complications endangering the mother and fetus. Complications of pregnancy can occur in the first, second and third trimester in the form of mild or severe complications. There are about 10-20% of pregnancies with complications (1). During pregnancy, the developing uterus stretches the muscles in the stomach. This can cause two large parallel bands of muscles that meet in the middle of the abdomen (rectus muscles) to be separated by an abnormal distance. A condition called diastasis recti or diastasis recti abdominis. Diastasis recti can weaken the abdominal muscles, causing low back pain and making it difficult to lift objects or perform other daily routine activities (2).

National guidelines recommend that healthy pregnant women should do light physical exercise every day. Most women reduce physical activity during pregnancy and only a few studies found pregnant women doing physical activity during pregnancy (3). There are various kinds of mild physical exercise for pregnant women such as a combination of upright movements, pelvic movements, back massage, and partner support called dance pregnancy. Dance pregnancy with soft music creates a very relaxed environment that will provide comfort to the mother's back area so that the mother will feel a massage (4).

Other research studies have also shown that belly dancing is also an excellent form of exercise to help pregnant women strengthen the muscles used during labor (5). More and more research show that regular exercise has benefits for both mother and baby. Like yoga and tai chi, belly dance is a form of exercise that harmonizes the mind and body which is an important element for pregnant women in facing pregnancy (6).

MATERIALS AND METHODS

This research is a quasi-experimental (quasi experimental) and measures the effect of dance pregnancy on diastasis recti in pregnant women. This study compares between groups given treatment (the intervention group) and those not treated (the non-intervention group). The design used is non-randomized pretest-posttest group. The number of samples in the study were 30 respondents, divided into 15 respondents in the experimental group (with dance pregnancy treatment which was done once a day for 2 weeks) and 15 in the non-experimental

group. The sampling technique used accidental sampling. The instrument of data collection used respondents' form to determine characteristics, observation sheets, mattresses. The tools to check diastasis recti were calipers, dance pregnancy checklist. The data analysis used t test.

RESULTS AND DISCUSSION

Results

This study was conducted at one of the BPM in Sleman Regency in May-July 2019. Data obtained in this study were primary data, data obtained using recti diastasis measurements in 15 pregnant women treated with dance pregnancy (experimental) and 15 pregnant women who were not given any treatment (control). The following are the characteristics of the respondents in this study:

Table 1. Characteristics of respondents respondent

Respondent characteristics	The number n	Percentage %
Umur		
≤ 20 years	6	20
21-34 years	19	63,33
≥ 35 years	5	16,67
Total	30	100
Age of Pregnancy		
28 - 36 weeks	27	90
> 36 - 40 weeks	3	10
Total	30	100
Paritas		
1 time	16	53,33
2 times	6	20
3 times	8	26,67
Total	30	100

Based on table 1 known that the highest frequency of age distribution of respondents is respondents aged 21-34 years as many as 19 people (63.33%), while the most frequent distribution of gestational age respondents is 27 respondents (90%) gestational age 28-36 weeks and the most frequency distribution of parity of respondents is mothers who are pregnant for the first time by 16 people (53.33%).

Table 2. Results of bivariate data analysis with t test

Group	Means	t arithmetic	t table	P
Experiments	3,6667	2,239	2,048	0,033
Control	4,0067			

In the bivariate analysis the t test was used to determine whether there were differences in differential diastasis in the experimental group (who were treated with dance pregnancy) and the control group. The conclusion of the study is significant if $t_{\text{arithmetic}} > T_{\text{table}}$ at a significance level of 5% and a value of $p < 0.05$. The following is a summary of the results of the t-test in the experimental group (treated with dance pregnancy) and the control group.

Based on the calculation t test known to the average increase in the control group at 4.0067, while the average rise in the experimental group amounted to 3.6667, so it is known that the increase in the control group is greater than the experimental group. It is also known from the t value of 2.239 and sig value of 0.033. The value of t table with db 28 is 2.048. So, it can be concluded that $t_{\text{arithmetic}} > t_{\text{table}}$ ($2,239 > 2,048$) and sig values less than 0.05 ($p = 0.033 < 0.05$), so it can be stated that there are significant differences in rectal diastasis changes in the experimental and control groups.

Discussion

One of the factors that can affect diastasis recti is the age factor. Maternal age factor is less than 20 years, reproductive function has not developed perfectly so that the birth canal is more easily torn, the contraction of the muscles is still bad, especially the uterine muscle so it will be prone to bleeding otherwise the age is more than 20-35 years, the condition at this age is at prime vitality so that the contraction of the muscles and the return of uterine devices are also faster because the regeneration process of the uterine cells are very good and the age of the mother is more than 35 years, the elasticity of the muscles at this age has begun to decrease so it will affect muscle recovery, especially the muscles of the uterus that require a longer time (7).

Changes in the musculoskeletal system occur because of the increase in gestational age. These musculoskeletal adaptations include: weight gain, center displacement due to enlargement of the uterus, relaxation and mobility. The center of gravity of the body shifts forward and when combined with stretch of weak abdominal muscles will result in

indentations in the shoulders and chin that hang. There is a tendency for the muscles to shorten if the abdominal muscles stretch that can lead to muscle imbalances around the pelvis, and additional stress can be felt above the ligament. As a result is back pain that usually comes from sacroiliac or lumbar, and can be a long-term back disorder if muscle balance and pelvic stability are not restored after childbirth (8).

Diastasis recti often occurs in multi-parity, large babies, poly hydramnios, abdominal muscle weakness and incorrect posture (9). From table 2 the results of t-test calculations show that the average increase in the control group is 4.0067 while the average increase in the experimental group is 3.6667, so it is known that the increase in the control group is greater than the experimental group. In addition, it is known that $t_{\text{arithmetic}} > t_{\text{table}}$ ($2,239 > 2,048$) and sig values less than 0.05 ($p = 0.033 < 0.05$), so it can be stated that there are significant differences in changes in rectal diastasis in the experimental and control groups.

Dancing is a safe and fun way to exercise during pregnancy. Dance is one of the complementary cares with low risk that can reduce the intensity of labor pain and increase maternal satisfaction (10). Maternal and fetal well-being during pregnancy and childbirth have been pursued in a variety of ways, some of which are physical exercises that can be carried out before, during and after pregnancy. In the third trimester you should avoid the supine position, exercise is focused on strengthening and balancing the muscles around the joints that make it possible to maintain muscle endurance and abdominal support because gravity shifts forward. These exercises basically aim to nourish the mother and the fetus and have a positive impact on both mother and fetus psychophysiology if carried out appropriately. A pregnant woman with a normal pregnancy or without contraindications should be supported to do physical exercise with moderate-intensity to benefit during pregnancy and childbirth.

The results of the study (11) showed that abdominal exercise was very effective in reducing diastasis recti in the early postpartum of women. It helps increase abdominal muscle strength and restore postpartum stomach efficiency. This exercise can be effective in narrowing the distance between recti, supporting an exercise program for the prevention or reduction of diastasis recti in postnatal women and is beneficial in reducing complications of diastasis recti.

Corrective exercise of abdominal rectal diastasis performed by primiparous women with rectal abdominis diastasis in the immediate postpartum period for 6 weeks has proven to be effective in reducing the abdominal rectal diastasis. Postnatal mothers need to be aware of the importance of corrective diastasis exercise in preventing further complications such as altered body posture, navel hernias and low back pain (12).

Chiarello et al (13) conducted a study with the results of the study showing that significant rectal diastasis was present in 90% of the non-exercising group and only 12.5% of the exercise group. The researchers concluded that the incidence and degree of rectal diastasis was significantly reduced in women who exercised compared to women who had never exercised (9).

Posture changes in pregnant women can affect the angle of placement of the pelvic and abdominal muscles. If it continues, diastasis recti abdominis will cause a loss in the muscle strength vector, and this will cause a decrease in muscle strength at the time of contraction so that it will cause labor to be prolonged (14).

CONCLUSION AND RECOMMENDATION

From the results of t-test calculations it is known that the average increase in the control group was 4.0067 while the average increase in the experimental group was 3.6667, so that it was known that the increase in the control group was greater than in the experimental group. For t arithmetic > t table (2,239 > 2,048) and the value of sig less than 0.05 ($p = 0.033 < 0.05$), so it can be stated that there are significant differences in changes in rectal diastasis in the experimental and control groups.

Dance pregnancy is one of the exercises that can be applied by midwives in helping pregnant women who have rectal diastasis. Pregnant women are expected to be able to do light physical exercises such as dance pregnancy so that rectal diastasis does not increase in size. So that muscle strength does not decrease during labor later.

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The Relationship of Massage the Perineum with Ruptur Perineum

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ABSTRACT

Backgrounds: The cause of maternal mortality can directly or indirectly. (1) The number of maternal mortality in DIY years 2014 (40 mothers) decline compared with the years 2013 (46 mothers). In 2015 maternal mortality very significant a decrease in the number of cases to 29. However in 2016 return to 39 cases and 34 in 2017 (2). The cause of Maternal Mortality is most commonly found in DIY is because the heart (10 cases), embolism (1 cases), shock (3 cases), sepsis/infection (5 cases), bleeding (5 cases), eclampsia (1 cases), preeclampsia (3 cases), pneumonia (2 cases), hyperthyroid (2 cases), a seizure hypoxia (1 cases), unknown (1 cases) (3). Still a lot of cases as bleeding one of the bleedings is the birth canal mother her apart (3). Based on research from Lestari, 2016 in Yogyakarta 50% happen rips the perineum on the number of spontaneous delivery (4). Rips the perineum could be problematic because of increased morbidities and mortality postpartum mother.

Objectives: To influence massage the perineum for pregnant women with the perineum rupture.

Methods: Research methodology true-experiment using posttest only control design in community health center Yogyakarta city. The sample is pregnant women 37-42 week gestational age.

Results: Research pregnant women IRT the largest 56 people (70%), Education is high school 51 people (63,8%), had a massage the perineum 56 people (70%) and 42,5 people had not to massage the perineum.

Conclusions: No relationship massage perineum with rupture perineum.

Keywords: *Massage the Perineum, Rupture the Perineum*

INTRODUCTION

Pregnancy is a physiological process for a woman to breed. Pregnancy to be prepared well before delivery. Preparation labor is very important as an undesirable occurrence it is possible that at the time of labor and postpartum. Postpartum can complications like placenta left behind, the rest of the placenta, atonia uteri, and rupture perineum. Rupture perineum is the birth canal mother ruptures when the issuance of the baby either intentionally as well as it not been for the less elastic the birth canal mother who has just given.

Rupture perineum can happen to all the mother in labor, can primipara or a multiparous of degrees I to IV. The factor that affects rupture perineum very much among others of the mother and fetus. Factor the mother of parity, consisting of a distance of the birth of, a way that does not exactly and mother age. A factor of a fetus that consists of weight for newborn infants and presentation. Factor labor of extraction forceps, extraction, vacuum tools, and episiotomy, trauma there the helper labor is the leader of a bad (1).

The mortality rate in Indonesia is still very high. According to WHO years 2015 every day there are 830 cases of maternal mortality. Audit trails maternal perinatal (AMP) found the cause of maternal mortality in 2015 was heavy pre-eclampsia (PEB) as much as 36% (4 cause), case the bleeding as much as 36% (4 cases), case pulmonary tuberculosis 18% (2 cases), embolism water 9% (1 case). Case the fallout death maternal was 50% postpartum, at the time one of the perinea on number increase morbidity and mortality postpartum (3).

Rupture the perineum can be minimize by through preventive measures during pregnancy and showed you kindness and the act of massage the perineum that could be done by for pregnant women began to get a bit pregnancy 34 week or of pregnant women and between the ages of pregnancy 37-42 week pregnant mother and not suffered in the genital and perineum. Based on the research from Demirel and Golbasi in 2015, a decrease episiotomy if do massage the perineum (5).

The number of above high in maternal and child health problems because rupture perineum can improve infection and promote maternal mortality. The city of Yogyakarta in public health has a population density and use antenatal for pregnancy and baby labor so this reason wit researchers interesting of research education pregnant women

to performs massage the perineum. This background of the matter over and found how important this issue be examined with expect to minimize the risk the perineum rupture during labor.

MATERIALS AND METHODS

Design of research that is used is identification pre-experiment using posttest only a fair compensation including on the instrument types academicians as well as national about massage the perineum for pregnant women in the long term the done posttest for pregnant women performs massage the perineum or not. As well as true-experiment by the use of posttest only control group (6) the data used the primary data was need is questionnaire sheets was the implementation of massage the perineum and observation rupture the perineum. While secondary data from the medical record to completeness of the identity of pregnant women, gymnastic activities massage the perineum and observation rupture the perineum using the test and been approved Mann-Whitney and Wilcoxon.

RESULTS AND DISCUSSION

Result Univariate Test

Research is pregnant women more than 36 weeks in the Yogyakarta can be seen several characteristic of such as education and work.

Table 1. A frequency distribution of pregnant women in the city of Yogyakarta

Job	f	%
No job	56	70.0
Corporate	15	18.8
Employee	9	11,2

Based on table 1. The majority of respondents as a housewife or not a job with 56 people (70,0%). On the households, many spent time in a house so many spare time to learn, especially the provision of education us to pregnant women about massage the perineum.

Table 2. A frequency distribution education pregnant women the city of Yogyakarta

Education	f	%
Primary School	6	7.5
Junior High School	13	16.3
High School	51	63.8
College	10	12.5

In **Table 2**. The education in the highest presents is pregnant women with the education level high schools as many as the 51 people (63.8%). Senior secondary education is the easiest to receive information than primary schools or to schools junior high school. With college sometimes had smart and to new receive information. Inline by research Anggaeni most high school graduates study of a number pregnant women.

Table 3. Frequency distribution in order of pregnant women or new in the implementation of the massage the perineum

Massage Perineum	f	%
No massage	24	30
Massage	56	70
Total	80	100

In **table 3**. Pregnant women who perform massage the perineum through education about the perineum highest massage known for pregnant women who performs massage the one as many as 56 people (70%) and perform massage the perineum as many as 24 one pregnant women (30%). the reason does not perform massage pregnant women because they felt fear if the perineum massage will happen contraction and pain on the perineum massage done by pregnant women own the perineum and tone done by her husband from pregnancy more than 36 weeks.

Table 4. Frequency distribution pregnant women that experienced the perineum immediately after giving birth

Rupture Level	f	%
No Rupture	34	42.5
Degree I	19	23.8
Degree II	15	18.8
Degree III	12	15.0

Based on **table 4**. Respondents no highest rupture degrees as many as 34 people (42,5%). This

file with Natami research, most research did not rupture 60% (7).

The results of the analysis bivariate

Table 5. The massage of perineum with ruptur perineum

	Level Ruptur perineum
Mann-Whitney U	670.000
Wilcoxon W	1265.000
Z	-1.373
Asymp. Sig. (2-tailed)	-0.170

Based on **Table 5** result statistic use Mann-Whitney test is significant result -0.170, it's mean no connection implementation of the massage perineum with rupture perineum. Reason this because researches can't control pregnancy women to implementation massage perineum or not. Although was according to the theory massage the perineum can improve elasticity perineum and increase confident mother. This research inconsistent with Damirel that massage the perineum this had an impact on rupture the perineum. From the research Damirel, etc there are 99 participant was only 13 the proportion experienced laceration (4.2%) (4). The result of this research also with the research by Dartiwen about massage perineum primigravida deals with the incident when the town laceration the perineum time of postpartum (13).

Mother doesn't massage the perineum risk a laceration or rupture as much as 11.2227 times (95% CI) compared massage perineum. This research consistent Anggaeni and Martini which is there a connection massage the perineum with rupture the birth canal the research result he declared that mother do not a massage the perineum risk 10,280 times compared with a mother who carried out the massage during pregnancy (15). In addition, the research of any impact Natami, etc also massages the perineum with level rupture perineum. The research was conducted massage of 10 respondents 6 is the perineum (60%) to rupture the perineum and there are 3 (30%) to rupture perineum. level 1(10%) where one respondents who experienced rupture the perineum is level two or two degrees (7). The result of this research not accordance with Kusuwawati, etc, relationship the antenatal visit with perineal massage for primigravida in labour process and was reduce using tolls as vacuum for easy baby labour.

This research result not accordance with Karacam (2016), the massage the perineum decrease the action episiotomy or cutting perineum when baby will born (12) who supported the research

from Savitri, etc in years 2015 which the perineum a massage for pregnant women who first or primigravida leverage with the inscident rupture perineum when will baby born (13).

CONCLUSION AND RECOMMENDATION

The research result from 80 respondents with a job as mother biggest not job or in home 56 orang (70%), in terms of education most high school education 51 people (63,8) and most of them not subjected to rupture the perineum as much massage the perineum to rupture the perineum.

For the health and professional obstetrics is emphasized the massage perineum for pregnant women especially in the examination antenatal care to reduce rupture the perineum and trained him to cadres.

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Effectiveness of Massage Therapy For Preterm Infants: A Literature Review

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ABSTRACT

Background: Preterm birth is associated with significant costs to health systems, and families of preterm newborns often experience considerable psychological and financial hardship. Preterm infants are greater risk of a range of short-term and long-term morbidities. Common complications of preterm infants are high rates of respiratory distress syndrome, sepsis, infections, visual and hearing problems, feeding difficulties and delayed growth. Physical growth restriction has been considered an one of preterm global problem.

Objectives: The aim of this study was to analyze the literature relating to massage therapy in preterm infants and summarize the benefits of therapy.

Methods: The method used in finding articles was a literature review, using the keywords. Search was conducted electronically using several databases, including Pubmed, Science Direct, and Google Scholar

Results: The massage therapy contribute positive impact on preterm development. Massage therapy not only provides comfort but also improve physical growth, sleep quality, physcological strees and another beneficial as for mothers.

Conclusion: Massage therapy has benefits for preterm infants.

Keywords: *Preterm Infants, Preterm, Massage Therapy*

INTRODUCTION

Based on the Global Strategy for Women, Children and Adolescents Health (2016-2030), one of the goals is survival and preventable deaths, which is an effort to reduce neonatal mortality less than 12/1000 live births and deaths in children under 5 years of age less than 25 / 1000 live births.[1] About 73% of under-five deaths occur in two regions in 2017, WHO Africa (49%) and WHO Southeast Asia (24%) (WHO, 2017). The same statement is also from one of the Sustainability Development Goals (SDGs) targets, namely Reducing Infant Mortality (IMR) in 2030. Birth condition of the infants was to be one of various factors that influencing an Infant mortality and morbidity. Preterm infants as all infants was births before 37 completed weeks of gestation, or fewer than 259 days from the first date of a woman's last menstrual period. (WHO) Complications of preterm infants were the leading cause of death in children younger than 5 years of age globally in 2016, accounting for approximately 16% of all deaths, and 35% of deaths among newborn babies.[2]

Preterm birth is associated with significant costs to health systems, and families of preterm newborns often experience considerable psychological and financial hardship.[3] Although the risks of mortality and morbidity are much higher in early gestation (<34 weeks), late preterm birth (34<37 weeks) occurs more often, and newborn babies born late preterm have significantly higher risks of adverse outcomes than babies born at term.[4]

Preterm birth still was a global problem, in South Asia and Africa was occur more than 60% of preterm infants. On average 12% of infants were born too early in the lower-income countries compared with 9% in higher-income countries. Indonesia was in number 5th of the greatest number countries with preterm infants as 675 700. [5] WHO, 2018.

Preterm infants are greater risk of a range of short-term and long-term morbidities. Common complications of preterm infants are high rates of respiratory distress syndrome, sepsis, infections, visual and hearing problems, feeding difficulties and delayed growth.[6] Anthropometric growth restriction has been considered an one of preterm global problem.[7]

In addition to the initial sensory deficiency, prematurity raises other related factors, such as the absence of bonding attachment due to the need to remain in the neonatal intensive care unit (NICU), which has critical exposes infants to chronic stressor,

painful, parental separation, noxious stimuli and frequent of all those associated with unnormally growth and developmental outcomes in infants.[8] [9]

MATERIALS AND METHODS

The method used in finding articles was a literature review, using the keywords of Massage therapy, Preterm infants, Massage for preterm. Search was conducted electronically using several databases, including in Pubmed founded 59 publications about massage therapy, in Science direct founded 241 publications of massage therapy and in Google scholar founded 1.120 of massage therapy.

After screening of titles and abstracts and elimination of duplicates, 60 studies were selected for retrieval of full text. These were excluded if; they were irrelevant to the research question; could not be accessed. The 45 articles selected for retrieval of full texts were subjected to inclusion and exclusion criteria. After reviewed and consensus, 25 studies were excluded and 20 studies were included for this review. Inclusion criteria were; population were preterm infants with gestational age of 32 – 37 weeks and birth weight of \leq 2500 grams; intervention were massage with oil or/and without oil. Study design were included were Systematic review, Meta-analysis, Quasi-experimental studies. Outcome were development as measured in physiological and behavioral responses, weight gain, reduction pain. This research ranging from 2015 until 2019.

RESULTS

Massage therapy is one way of treatment care that is mostly done in preterm infants who are treated in the NICU or/and infants who was stable and home. One of the studies conducted by Choi et al, they showed the massage therapy make a comparisons for physical growth and has the potential effects on gastrointestinal function in preterm infants. The massage in the NICU as long for 28 times on 14 days might be utilized as a part of developmental care. [10] Infants who followed massage therapy have a more constant growth especially their growth gain compared to infants who only follow the NICU procedurs.[11]

The psychology like an activity and behaviour stress were the indicator from infant growth too besides the physical growth. Massage therapy can

reduce behaviour stress and activity of preterm infants that in NICU. This is indicated by stress reduction or pacifying effect. Preterm infants who follow massage therapy with olive oil make a positive effect on their pain scores, pain responses at discharge and mental development long-terms at 12 months.[12] Another research showed that a moderate pressure with sunflower oil massage can increase significant in the fifth-day and average daily weight gain and make the shorter of NICU length stay.[13]

A recent study found that infants who were massaged had higher cognitive score at 12 months corrected age, higher mental development scores at 6 months of age.[14] Another study showed that beside using a sunflower oil, massage for preterm infants can use a virgin coconut oil (VCO), researcher explained the VCO helps in dermal maturity and made a better outcome of neurodevelopmental.[15] Another study showed that a massage in preterm infants made a significantly less awake state ($p=0.003$), crying ($p=0.03$), motor activity ($p=0.001$) and greater mean of sleep states ($p=0.003$).[16]

Massage therapy make a significant benefits as a stabilization of the Autonomic Nervous System (ANS), promotion of development growth and shorter hospitalized.[17] One of an ANS measured was a vagal tone. ANS was quantified by heart rate variability. Another benefits of massage therapy showed the Heart rate variability was increased and suggesting an improved ability to manage NICU related stressors. [18] Preterm infants have a recommendation to relief a stress and pain by a massage as a multisensorial interventions.[17]

Massage for preterm infants not only for the NICU care but the treatment can be continued in home when the infants was stable. Massage can be followed by the mother of infants that have an experienced or trained by nurse in hospital. A recent study showed the H-Hope plus Kinesthetic with VCO that allowed in home and make a greater growth.[19]

DISCUSSION

Massage is the expression of affection between parents and children through touch on the skin that has an incredible impact. The massage for infants are a part of touch or moderate pressure. A massage is a procedural therapy as mechanically and manually act, whereas massage are a process of transferring mechanical energy and the systematic application of tactile stimulation, which can be applied by using a variety of techniques and can be done by

nursing or mothers to obtain certain physiological or psychological effects.[20][21] A massage is one of the non-pharmacological therapies for reducing or relieve pain. Stimulate massage causes a fast moving impulse of the peripheral nerve receptors reach the first gate door of the pain impulse and running more slowly along the pain fibers. Then the brain receives and interpreted in general a massage sensation and does not receive a pain.

Preterm infants are easily to get a complications as long their life. Many treatment were developed to make an intensify their care. Many research showed that massage therapy be one of a part for preterm be better, not only for NICU care but continued when the babies are home too.[19] Preterm infants are more easily to loose the available skin stimulation during intrauterine development through skin contact with the amniotic fluid and the mother uterine wall. Most research on preterm infants were focussed about physical growth and mechanisms the massage.

Stimulation for preterm infants can be like a tactile, kinesthetic, vestibular, auditory and combination each other. Massage therapy in preterm can be explained as the manually technique to superficial soft tissue of the skin, muscles, tendon, ligaments and fascia using the hand by nursing or mother of the baby[6]. A recent study reported that the massage therapy have many beneficial effects for preterm infants like increasing weight gain, height and head circumference with significantly as long for 14 days. Another research that combine a massage with oil showed the mean weight gain on the seventh day was 105 g for the oil massage group, 52 g for the non-oil massage group and 54 g weight loss for the control group. The greater weight gain by the intervention group could be related to the oil being absorbed by the skin. Another study reported the massage with oil used be related to increased vagal activity leading to greater gastric motility resulting in more efficient absorption and the infants will easy to milk.

Somatic and kinesthetic stimulation has beneficial effects on neuromotor development and anthropometric. The stimulation not only make a positive impact to infants, but for their families especially mother and make shorter of hospitalization. [22] Intervention like a massage therapy and kinesitherapy can improve the anthropometric development, reduce growth-related morbidity in the short, medium and long term with a low-cost and easy administer.[22] Weight and hospitalized most commonly reported outcome infants research.

Behind the reports, massage has another beneficial like a reduces pain during painful procedures[12] Another study reoported, the neonatal abstinence syndrome that given a massage alleviated infants symptoms of withdrawal while promoting mother-infant bonding.[23]

The recent study that H-Hope plus Kinesthetic with VCO well be done and showed that their sample, preterm infants who were stable and home that followed the treatment can increasing body weight, height and circumference. The massage were be done by infants mother and make a mothers more intens-caring to their babies.[19] In this research, massage therapy during 14 days showed that have a positive impact and a clearly effective to promote the physcal growth with the value are 2.0 (high effect), 1.3 (medium effect) and 1.8(High effect) on the body weight, height and circumference results. Another study reported that early intervention such as massage by baby-mothers that is relatively easy to administer and has the potential to give insight bonding and positive effects on neurodevelopment. [24]

CONCLUSIONS

Based on analysis done by the authors, massage therapy have a positive impact on preterm development such as massage therapy not only provide comfort but can improve sleep quality, promoting physcal growth, psychological stress that will eventually accelerate the baby's growth.

The present review suggest that a clear benefit is obtained from the administration of both of therapy in premature infants care. Massage therapy can be optimized by developing it into a procedural of premature infants care in the NICU and continued at home. The therapy might be used an effective, safe non-medical intervention and relatively low-cost intervention that can be implemented at preterm infants.

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A Qualitative Study: Implementation of Neonatal Developmental Care

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ABSTRACT

Background: *Neonatal Developmental Care* is the care that facilitates the development of the baby through the management of the nursing environment and observation of behaviors so that babies get adequate environmental stimulus. An adequate stimulus leads to physiological stabilization of the body and decreased stress.

Objectives: To know implementation *Neonatal Developmental Care* on the nurse in the perinatology room RSUD Panembahan Senopati Bantul.

Methods: This research uses qualitative research design with phenomenology approach. Participants in this study were 6 nurses working in the perinatology room. The selection of participants in this study was conducted through purposive sampling technique. Data were collected through in-depth interview using data recording, interview protocol, and field note. Colaizzi method was used to analyze data.

Results: This study identified four themes, that is: implementation of *Neonatal Developmental Care*, benefit apply of *Neonatal Developmental Care*, nurse's responses in applying of *Neonatal Developmental Care* and obstacles in applying of *Neonatal Developmental Care*.

Conclusions: Thus it can be concluded that *Neonatal Developmental Care* already applied in perinatology RSUD Panembahan Senopati Bantul.

Keywords: *Neonatal Developmental Care, Perinatology*

INTRODUCTION

Neonates are babies aged 0 to 28 days, during which time life adjustments occur from inside the uterus to outside the mother's womb. In this condition, babies are very fragile to health problems and the most common cause of neonatal death is Low Birth Weight (LBW) and premature problems (1,2).

LBW is a baby who when born weighs less than 2500 grams; and premature birth is the birth that took place before the gestational age 37 weeks of gestation. See the problems that occur in neonates, then required intensive care as an effort to increasing the quality of life at the beginning of period of life on the baby (3).

Sustainable development goals (SDG's) have some purpose in running the development, one of them is the third good health and well-being that sustains a healthy and encourage welfare for all people all these age in 2030 to reduce maternal mortality 70 per 100.000 birth, reducing infant mortality and baby have preventable death rate neonatal until 12 per 1.000 birth and the birth 25 per child mortality 1.000; reduce / 13 death of premature infants because of diseases not communicable by; prevention and care and support mental health and welfare mother (4).

According to a research conducted by Vivian in 2013 entitled factors influencing the death of neonates, 50% shows that as much as percent of the deaths mostly occurred in neonates in the first months of life (2). This is very important and it should be noted and government hospitals to improve health services especially in infants. The better the health services provided will help reduce and minimize mortality in infants.

Neonatal developmental care (NDC) is the care to improve growth and development the baby was hospitalized. NDC based on a theory that the baby brain will grow to babies born and will continue to the 3 years. Change happens to the brain fetus minggu-minggu last pregnancy. The natural development of the baby brain in-utero stopped when babies born prematurely. Growth the baby brain does not only depend upon the endogenous but it also affected by sensory input and experience (5). As a nurse very should look at once facilitate growth and development baby that the condition of infants stable.

The principles include facilitate sleep, NDC intervention management of stress and, environment,

therapeutic environment at least handling and the provision of proper position in infants (5). Thus nurses need to know the principles NDC to impose for neonates. There are two benefits from the NDC intervention at the hospital that long term benefit and short term. Short-term benefits the NDC is to reduce, occurrences of a disease down for long and lowering the cost of maintaining the (6).

Treatment with NDC principle is one form of professional practice nurse, education and opportunities for research to be done by a nurse to evaluate and improve is available continuously in providing health services in particular neonates. Many variations which appear and develops in the practice of giving health services in neonates. The goal is to continue to provide the same support, structured care support and guide the organization. NDC treatment based on the principles of science and nursing plotted by Florence Nightingale (7).

Based on the study introduction done by researchers obtained from the hospital room perinatologi Panembahan Senopati Bantul that nurses have got socialize the NDC. Nurses also revealed that the problems mostly happens in is LBW neonates, asphyxia and premature. So far the care of nursing given still focusing on neonates with medical piece alone, while still not care of development is of special attention. This problem for researchers to dig even deeper on the implementation of NDC in nurses.

MATERIALS AND METHODS

Type the research is the research qualitative phenomenology. Participants in this research was nurse who worked in chambers rsud perinatologi panembahan senopati bantul. Technique in this study the sample using a technique purposive sampling the six nurses. Data analysis use of Colaizzi with an instrument field notes and interview guidelines.

RESULTS AND DISCUSSION

A. The Analysis Result of the Theme

The analysis using methods Colaizzi there are four themes identified among other: 1) Implementation of Neonatal Developmental Care, 2) Benefit Apply of Neonatal Developmental Care, 3) Nurse's Respons In Applying of Neonatal Developmental Care and 4) Obstacles in applying of Neonatal Developmental Care.

1. Implementation of NDC

In research participants expressing this several measures that were taken in the perinatologi where it is principles neonatal care development as family involvement, : discharging the (nesting), reduce noise, reduce lighting and stress management. **Family involvement** in treating babies are to cultivate ties between an infant with the inner, train skill mother in tending baby esp mother primipara. Participants and statement as follows:

"...ibu bayi masuk ke ruangan ki setiap 3 jam sekali mbak, nek jadwal nyusuni kan ono dewe, dadi ibu bayi nek pas jam e mlebu ruangan yo iso nggendong bayi, nyalini popok pipis opo pas bab ngono..." (P2)

[Mother walked into the bullpen every three hours once mbak , there are nursing own schedule at came in the room mother could will carry , replace infant diapers]

"...ibu bayi bisa memandikan, mengganti popok, nggendong dan menyusui ketika sudah waktu jam masuk ruangan mba..." (P5)

[She can take a bath, change diapers, holding, and lactation when came in the room]

The installation of the nesting movement aimed at minimizing. The participants describes experience of nesting installation are:

"...kan bayi wes dinei gedongan kae to, biasane pinggirane muk dinei kaen-kaen biasa kae ben bayi anget njuk obah e ra seko endi-endi..." (P1)

[Baby with invited and given its perimeter cloth to prevent from moving around]

"...tapi nek di ruang biasa sini kan digedong to mba, jadi koyone raperlu sarang iku mau meskipun semisal e ono bayi sek butuh dinesting kita yo bikin sendiri pakek kain seadane..." (P2)

[In the room, baby invited so unnecessary nesting but if need them our own making a simple]

Reduce noise is malformed management neonates given on the environment:

"...ngeroso kasian gitu mba, nek bayi yang dirawat di sini itu kan bayi yang sakit to jadi nek meh ngomong banter sok melas ngono, wong isine bayi sakit kok banter-banter ngomonge..." (P2)

[I feel sorry for invited because the baby treated by you a sick infant so we are talking not hard]

"...wes bayine tiap jam nangis mba, nek ditambah bengak-bengok engko ndak tambah bisung to ruangan e, jadi yo nek perawat ro perawat ki misal e perlu opo ngono kae yo moro langsung nek uwong e selagi jarak e ora adoh, ngomong e nek pas wes cedak ngono mba..." (P3)

[The baby cry each hour if a room will and talk louder so noisy. So nurse if needs anything approaching just spoken directly to another nurse]

Reduce lighting given by nurses is the effort to provide nursing care especially in it. With the regulation will make a light fitting the baby will be qualified .

"...setiap jam malem lampu ruangan utama dimatiin mba, kan nek malem keliatan terang to, jadi nek bayi istirahat kita matikan lampu di ruang utama..." (P2)

[Every night the lights turned off the main room, invited so babies can rest]

"...nek di ruang sini lampu khusus yang ada di ruang bayi kita pakeknya lampu yang redup itu..." (P4) (In the babies use a special namely a dim]

Stress management done by nurses in providing the care of nursing academies in neonates with the aim that baby do not stress. A newborn will work of life, which is in the womb with life outside of the his mother womb

“...bayi nek bar laer kae kan iseh nyesuaine kehidupan to mba ibarate, jadi nek di sini sek oleh nyekel bayi ki mong ibu ro perawat sek tanggung jawab, setiap ruangan kan jatah e dewe-dewe mba..”(P1)

[Babies just born, will adjust his life that holding a baby only maternal and nurses are in charge of) invited each room]

“...semisal bayi yang baru lahir, tidak sembarang di gendong sana-sini ya mba, apa lagi banyak praktekkan, koas, hanya ibu dan perawat jaganya saja, dan ketika bayi dalam keadaan tidak tidur juga bisa digendong..” (P4)

[A newborn do not haphazardly carry, only mother and orderlies course, and when baby in a state not sleep can also carrying]

2. Benefit Apply of NDC

NDC benefits can be perceived by, baby mother and baby nurse. Participants express advantages when applying ndc as benefits for nurses is to reduce the work done by nurses to provide nursing care to the infant:

“...bayi ra rewel muleh e yo cepet marine to mba, ngurangi tenogone perawat e...” (P3) [Infants who never fussy home, also more quickly so less work for a nurse]

“...dengan begitu kan perawat jaganya jadi bisa santai karena kerjaan sudah sedikit, tinggal yang belum-belum saja...” (P4)

[Workload nurse reduced invited his job a little and which has not done alone]

Besides benefits to nurse the **application of NDC** also provide benefits to a baby. A few advantages by infants among them were the quality of sleep baby be a good, time take care of a baby that the sooner, mobilization of the baby properly and can reduce the stress that happened.

“...nek sek tak rasakne bayi ki turue pules nek lampune remeng-remeng...” (P1)

[I thought i would be crib be long because the light dim]

“...sejauh ini yang saya nilai, bayi tidurnya lebih nyenyak, bayi enggak rewel, bayi enggak nangisan...” (P4)

[So far that i think, invited babies sleep well, no fuss and cry]

Time take care of a baby who became fast also is one of the benefits in the application of NDC.

“...bayi ra rewel dadi muleh e cepet marine yo cepet to mba...” (P1)

[Babies no fuss can go home also more quickly]

Both in terms of an orderly baby also **has been one stead** in the implementation of the NDC. The following are participating states related to exposure to both in terms of an orderly baby

“...bayi ra kakehan obah ketika dinei kaen pinggirane...” (P3)

[Babies do not move as many are cloth on the edge of the bed]

Other benefits the application of ndc was able to **reduce stress** in infant:

“...bayi juga ora rewel ngono lo, nek perawat e selagi bayi ra rewel kan iso istirahat...” (P1)

[Baby do not fussy so nurse can rest easy]

“...turune angler njuk jarang nangis...” (P2)

[his sleep soundly and rarely cry]

Besides benefit nurses and baby, the infants also felt the benefits of the application of is to increase **independence mother** in care for those.

“...ibu e iso mandiri karena diajari mbedong, nyalini popok ngenei susu...” (P3)

[Will be independent because his mother taught, wrapping manner change diapers and lactation]

“...ibu bayi jadi mandiri, dengan begitu kan perawat jaganya jadi bisa santai karna kerjaan sudah sedikit...” (P4)

[Mother baby more independent so that the burden of work nurse lighter]

3. Nurse's Respons in Appling of NDC

Participants will experience in applying NDC give rise to reactions that different on his life. That response could include the physiological response and psychological response. A **physiological reaction** are complained by nurses in applying NDC is **burnout**.

“...nek dari saya pribadi selama menerapkan yang tadi itu segala sesuatu itu diawal itu pasti banyak sambat, ngeluh, susah, tapi lama lama nek dijalani dengan enjoy...” (P3)

[I personally at the beginning of applying feels difficult mbak and complained a lot but for this sort of relaxed when endured]

“...capek ya pasti ya mba misal pas perawat jaga sedikit...” (P4)

[Tired of when the nurse who take care of a little sister]

In addition to the **physiological response**, participating states also revealed the existence of psychological reaction during apply NDC .Participating states **feel happy** during apply NDC.

“...nek seko aku yo seneng-seneng wae to mba, enjoy wae aku mbak selama kerjo...” (P1)

[I am happy and feel enjoy during work sister]

“...yo seneng-seneng wae mba, jeneng e kita kan harus mencintai pekerjaan e kita to bagaimanapun iku bentuk e mba...” (P2)

[I Feel enjoy sister because love our jobs whatever it is the difficulty]

4. Obstacles in appling of NDC

In applying NDC a number of obstacles. It expressed by study participants such as lack of resources .The statement expressed by participants as follows:

“...tapi yo pie mba nek pas tenogo sak itik pasien baru okeh dadi kerjaan dicandak sak-sak e kae lo...”(P1)

[When little nurse and the patient a lot of work carried out optimally]

“...perawat e kan nek di sini sedikit karena banyak yang cuti melahirkan jadi ya begitu lah mba susah diungkapkan dengan kata-kata...” (P2)

[Here a little nurses invited because many on maternity leave]

Not the the main constraints standart of operational procedure also delivered by participants in the whole perinatologi:

“...selama saya di sini SOP untuk teori itu belum ada mbak...”(P3)

[...as long as i am here SOP to the theory that has been not yet]

“...tetapi selama saya disini SOP terkait teori perkembangan di ruangan ini memang belum ada dari pihak atasan...” (P4)

[but during SOP related theory of the development of i am here in this room there has been not yet]

The **geographical area** of the room also one of the obstacles which was conveyed by participating states this research .An expression of participating states are as follow:

“...tapi kebiasaan koyo bengkok-bengok antarane sana sama sana kan beda-beda ruangan misale pas njaluk tulong ro konco liyone ngono mbak...” (P1)

[...when want to ask assistance should talk louder invited because the room]

“...apalagi kan ruangnya jauh to pas kita lagi butuh bantuan otomatis kita

manggil to mba, bebengok an ngono kui..." (P2)

[We reflex talk louder because her room so far]

The habit of nurses also is one of the obstacles of the application of NDC. The following are the exposure of participating states:

"...tapi kebiasaan koyo kulino bengok-bengok..." (P1)

[Customs talk louder in the room]

"...misal e ngobrol ro konco sok keras mba, bengok-bengok..." (P2)

[When he spoke with friends often talk louder]

Besides a lack of human resources, as yet there are SOP, the geographical area of and habits of nurses, obstacles of the application of NDC can also be because the lack facilities.

"...nek di NICU ono mba, tapi nek men nek ruangan biasa koyo ngene aku urung tau nemoni mba..." (P1)

[If in the NICU there sister, but in this room has been not yet]

"...inkubatornya sudah usia lama mba, jadi ya kondisi pintu atau tutupnya itu meskipun kita sudah hati-hati..." (P4)

[an incubator has long been so condition is inappropriate]

B. Discussion

NDC is the care that facilitates the development of environmental management through treatment and observation behavior so babies get a stimulus adequate environment (1). There are five NDC nuclei in principle, that is facilitating sleep, stress and pain management, at least handling, the care that focuses on family and environmentalists who support healing (7). Physical contact between an infant with parents increase of emotions and improve the delivery of breastfeeding. Benefits the skin between skin contact with infants and parents to the old baby, show more movement less movement of flexion and extension, an infant slightly

cry, status behavior quieter and less increase heart rate and a little show a response at the time of the pain treatment (1). In this research participants mention some a thing done by the in take care of an infant in the perinatologi as replace diapers, the presence of family, do kangaroo mother care, feeding, holding her and washing baby.

The installation of the nesting aims to minimize the baby. The change can retain its right and functions in neuromuscular osteo-articular and provide opportunities for the development and motor function in premature infants (8). Participants in this research stated that in the perinatologi bedong uses a nesting in the provision on the baby; reduce noise and lighting is a modification environment teraupetik aimed at reducing excessive sensory goes from noise and not adekuat lighting. In the hospital in perinatologi Panembahan Senopati Bantul organized therapeutic environment among other: speaking softly with fellow nurses, use a sleep, turned off the lights at night, closing with a crib a neon and use with low quality.

LBW and premature having a lane that mature, pain perception so has the ability to feel pain. But because the pain not matur, and premature infants experienced pain longer. A neurotransmitter that hinder stimuli pains not working in premature babies to 6 to 8 weeks after birth (7). Stress and pain management conducted exposure in infants according to participants of this research is at least handling and physical contact can only be achieved by parents and nurses responsibility in a medical room.

NDC is a form of nursing care focusing and given to infants with age 0 28 until the (1). One of the advantages is the increased quality of sleep in infants. This is supported by the results of research conducted by Bertelle indicating that there are significant differences in the intervention of sleep, than the control group the total sleep time increase ($p = 0,002$) with increases in active sleep ($p = 0,024$), quite sleep ($p = 0,015$), and reduced to sleeping beds latency ($p = 0,0005$). Based on the research we can conclude that the NDC to raise a nap on neonates (9).

In addition to a baby, the benefit of the application of NDC can also be perceived by the baby mother, for example the baby mother

will be more skilled in caring for a baby. Based on research about the application of the family centered care (FCC) as a program the success of the care of premature infants mentioned that level of knowledge and attitude there is a significant difference; skills while there is no significant difference. Education and health in older people premature infants with care focusing on the family should be done sustainably so as to change the behavior of parents in caring for premature babies (10). Research on the impact of parental involvement in the treatment of premature infants also mentioned that the difference in patient long on the control and intervention group. The FCC program it can be used as one of forms of intervention nursing program in the process of the family empowerment perinatologi (11).

Response is an attitude closed an individual to a stimulus certain involving the opinion and emotions. concernedA response from some participants is felt exhaustion because poor working conditions. This is supported by research conducted explained that stated that there was a correlation between working conditions with the performance of the nurses at the hospital Manado based on the analysis Chi Square obtained p-value of 0,009 (12).

The obstacles in applying NDC can be caused by type of hospital. The hospital type a facilities will be more complete compared with hospitals type B and C. The research is a statement from participants or associated with obstacles in the implementation of the NDC, is the lack of human resources lack of standard operating procedures (SOP), habits of nurse, geographical location and inadequate facilities.

CONCLUSION AND RECOMMENDATION

The application of NDC in the hospital covering: family involvement, the nesting, reduce noise, reduce management and lighting stress and pain. Benefit the application of NDC can be perceived by infants, child mother and nurses. Not have a NDC implementation reaction including a physiological and psychological reaction. Obstacles found in applying NDC one is a shortage of human resources, as yet there are SOP, habits of nurse, the neighborhood not strategic and lack of existing facilities in the hospital. Recommendation at research is expected the governing management hospitals can

make SOP, arrange the socialization and training for staff especially nurses children about NDC.

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The Impact of Health Education About Stunting Towards Mothers' Self Efficacy and Toddler Development

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ABSTRACT

Background: Stunting is a chronic condition that shows the growth delay due to long-term mal-nutrition. Stunting relates to morbidity, mortality rate and mental and motoric growth obstruction. The delay of motoric development can cause the delay in children's motoric ability on their group age. Based on the basic health research data, stunting rate in Sleman Region is 11.9%. The importance of health education to community is expected to be continued from exclusive breastfeeding period to complementary food.

Objectives: The aim of this study was to understand the impact of health education about stunting towards mothers' self efficacy and toddler development.

Methods: Research subjects were determined toddler with stunting on weight and height. The number of the subjects were determined by hypothesis different test of two groups with 62 subject each to be measured their development using KPSP and given the health education to their parents and then to be observed. The sampling technique used simple randomized. This research was descriptive research. Anthropometry measurement were done twice a week by trained worker. Energy absorption measurement and eating frequency used food record method and food frequency questionnaire.

Results: The result showed the positive impact and statistically significant between health education to mothers with toddler with stunting who had been given companionship and toddler with development problem. The statistic showed $p=0,002$. The result also show the significant difference between self efficacy before and after health education was given with p value $<0,05$. Mother's self efficacy affects the toddler development. This research is expected can reduce the number of stunting and able to empower mothers to be more concern about toddlers' development and their nutrition needs.

Conclusions: No relationship massage perineum with rupture perineum.

Keywords: *Health Education, Stunting, Self Efficacy, Toddler development*

INTRODUCTION

Stunting is a condition that reflects stunted growth due to malnutrition. According to WHO (World Health Organization) Child Growth Standards, stunting is based on body length index based on age (PB / U) or body height compared to age (TB / U) with a limit (Z-score) of less than -2 SD (1).

Toddlers with stunting has risk of decreasing in intelligent, productivity, and increasing the risk of disease in the future (2). Toddlers with stunting are also more susceptible to infectious diseases, furthermore this impacts on their quality of learning in school (3).

One of the health indicators to achieve the Millennium Development Goals (MDGs) is the nutritional status of children under five. Based on data from the DIY Health Office in 2015, the prevalence of malnutrition in DIY in 2014 was already less than 1% in all districts / cities. The prevalence of malnutrition toddlers in 2014 in DIY is 8.45%. This figure has decreased compared to the prevalence in 2013 (10%) (4). While the prevalence of over nutrition in DIY in 2013 was 2.89%, which means higher expected. Yogyakarta City, Sleman and Bantul Regencies reach prevalence between 2.5 to 4.9% (4).

Based on the data from national basic health research, stunting still shows a high rate of around 37.2%. Special Region of Yogyakarta (DIY Province) is a priority area for children with stunting intervention. Whereas in Sleman regency is 11.9%. A number of stunting sufferers in five districts in Sleman namely, Minggir, Sayegan, Moyudan, Prambanan and Kalasan. This condition may become worse and gives bad impact to the toddlers' health condition in Sleman. The socialization is an effort to increase public understanding of early stunting prevention. By collaborating between sectors at the Sleman district level, both in the village sub-district level and subsequently increasing the involvement of health and non-health practitioners and development partners in reducing stunting. The purpose is to find problems early so it can be treated early to prevent other impact.

This study aims to analyze the impact of health education on maternal self-efficacy and the development of toddlers in Sleman.

MATERIALS AND METHODS

This research was conducted in the form of pre-experiment with one group pre-post test design. Measurements are taken before receiving the treatment. And then after receiving the treatment, a measurement is repeated to determine the effect of the treatment.

Research locations were conducted in 3 Puskesmas Areas, including Moyudan, Sayegan and Minggir Puskesmas in April 2019 with consecutive sampling techniques, where all respondents who met the criteria were invited and collected in one location until the required number of samples were met and used secondary data to match the data. The subjects in this study were toddlers who fit the inclusion and exclusion criteria so as many as 62 respondents were collected in the study.

The dependent variable in this study is toddler development and the independent variable is mothers' self efficacy. Data was collected through interviews with parents or caregivers using the Self Efficacy Scale. Measuring development used Denver and nutritional status used anthropometry with measurements of body length and weight. Researchers had previously been trained to avoid errors in measurement Data were analyzed univariately and bivariate by using paired t-test parametric analysis.

RESULTS AND DISCUSSION

The results of the study in Table 1 shows that the total respondents of toddlers were 62 people, which consists of 34 girls and 32 boys. Characteristics of the respondent's family the majority are mothers at the age of 20-35 years as many as 51 respondents (82,4%), not working mom as many as 26 respondents (16,1%), high school educated mom as many as 35 respondents (56.5%), income of Rp 1,600,000-2,000,000 as many as 32 respondents (51,6), children aged 25 months-5 year were 46 respondents (74,2%).

Table 1. Characteristic of the respondents characteristic frequency

Characteristic	Frequency (f)	Percentage (%)
Mother's age		
<20 years old	0	0
20-35 years old	51	82,3
>35 years old	11	17,7
Mother's work		

Employee	36	58,1
Unemployee	26	16,1
Mother's level of education		
Junior HS	16	25,8
Senior HS	35	56,5
College	11	17,7
Income (Rupiah)		
<Rp. 1.500.000	7	11,3
Rp. 1.600.000-2.000.000	32	51,6
Rp. 2.100.000-2.500.000	18	29,0
>Rp. 2.600.000	5	8,1
Number of Children		
1	14	22,6
2	37	59,7
3	11	17,7
Children's age		
1-12 months	2	3,2
13-24 months	14	22,6
25 months – 5 year	46	74,2
Weaning		
Yes	28	35,7
No	34	64,3
Total	62	100

(Source: Analysed data, 2019)

Table 2. Mothers' self efficacy before the treatment of health education about stunting

Classification	Frequence	Percentage (%)
Low Self Efficacy	16	25,8
Average Self Efficacy	37	59,7
Good Self Efficacy	9	14,5
Total	62	100

Table 2 shows that self-efficacy of nursing mothers before being given the treatment shows that most categories are sufficient as many as 37 respondents (59.7%).

Table 3. Mothers' self efficacy after the treatment of health education about stunting

Classification	Frequence	Percentage (%)
Low Self Efficacy	13	21,0
Average Self Efficacy	34	54,8
Good Self Efficacy	15	24,2
Total	62	100

Table 3 shows that self-efficacy of nursing mothers after being given treatment shows that most categories are sufficient as many as 34 respondents (54.8%).

Bivariate Analysis

Differences in Self Efficacy Before and After Providing Health Education About Stunting

Table 4. T test analysis of self efficacy before and after obtained health education about stunting

Groups	Self Efficacy			
	Mean	Min	Max	SD
Pretest	46,62	38	56	5,118
Posttest	58,14	48	68	5,225
Paired t-test ($\alpha=0,05$) $p= 0,000$				

Table 4 shows the average value of self efficacy in the pretest group 46.62 ± 5.118 and in the posttest group 58.14 ± 5.225 so there is a difference between before and after health education. The results of the analysis test using paired t-test sig: 0,000 means <0.05 so that H_0 is accepted so there is a difference between before and after health education is given.

Table 5. Relation between stunting and toddler development

Variable	Development measurement				p	RP (95% CI)
	Good		Poor			
	n	%	n	%		
Stunting without treatment	28	71,8	11	28,2	0,002	11
Stunting with treatment	21	91,3	2	8,7		(1,47-82,03)

The results analysis in Table 5 shows that the development of children who are stunted without being given more treatment is less (28.2%) when compared to children who are stunted are treated with health education to their mothers (8.7%). In addition, the proportion of children who developed well was 19.5% higher in stunting children given treatment. The statistical test results obtained p value = 0.002, then it can be concluded that there is a significant relationship between stunting with toddler motor development.

The value of self efficacy is measured using the Self Efficacy Scale (SES) with a maximum score of 56 and a minimum of 38 out of 14 statement items that have a range of 1-5 scores for each question item. Score 1 is not confident at all, score 2 is not very

confident, score 3 is sometimes confident, score 4 is confident, and score 5 is very confident. The minimum value of the BSES shows that the mother is not confident while the maximum value means the mother is very confident. If categorization is made, 16 respondents (25.8%) have less confidence (in the range of grades 38-42) before treatment, 37 respondents (59.7%) have sufficient self-confidence (in the range of values of 44-50), and 9 respondents (14.5%) were confident (in the range of values 51-56).

Respondents who have enough confidence as many as 37 respondents (59.7%) seen from the characteristics of the most high school educated. The higher the level of one's education, the higher the desires and expectations (5). High school education can be assumed to be classified as a fairly easy level of education in understanding and increasing knowledge. Knowledge can determine or influence the confidence of mothers in breastfeeding in accordance with the results of research by (6) showing there are differences in the value of breastfeeding self efficacy in mothers who have different knowledge. Mothers who have higher education and knowledge will be more confident in breastfeeding than mothers who have lower knowledge. Parental education is one of the important factors in children's growth and development. Good education allows parents to receive all information from outside, especially about how to take good care of children, maintain children's health, education, and so on (7).

The number of children can be related to the mother's experience. The number of children and breastfeeding experience are the dominant factors towards maternal self-efficacy (8). Of respondents with sufficient confidence, as many as 9 respondents had at most 2 children. The experience of success and achievement has an important influence on self-efficacy because it is based on the experience of the individual in carrying out an action or habit. The experience of success can increase self-confidence, confidence, and strong desires in individuals during the process so that it can reduce the risk of failure (9). Mothers who already have 2 children already have experience in dealing with problems related to the child's growth and development process so that it is easier to solve existing problems (10).

Child's growth and development is influenced by the frequency and intensity of children's interactions with their environment. Quality and effective interactions will have a good impact. The attitude of parents is crucial to the child's growth and development. Parents who are willing to accept

the child's condition, provide support, and create an environment that is conducive to growth and development, will optimize the child's growth and development. Conversely, parents who are frustrated, stressed, feel guilty or reject children, can hinder children's growth and development (7).

Self Efficacy of Breastfeeding Mothers After Being Given Health Education About Stunting

The self efficacy value measured using the Self Efficacy Scale has a maximum value of 68 and a minimum of 48. The minimum value indicates that the mother is not confident while the maximum value means that the mother is very confident. If categorization is made, then after health education treatment is obtained 13 respondents (21%) have less confidence (in the range of values 48-54), 34 respondents (54.8%) have sufficient self-confidence (in the range of grades 55-61), and 15 respondents (24.2%) were confident (in the range of 62-68). Respondents who have enough self confidence as many as 34 respondents (54.8%) viewed from the characteristics of the most high school educated. Mothers with formal high school education have better knowledge of breastfeeding and more easily receive information about breastfeeding from various sources. At this time information about the growth and development of infants can be easily accessed from various media both print and electronic. Most of the mothers with sufficient self-confidence have a family income of 1.6-2 million, namely 32 respondents (51.6%). Family income is related to the fulfillment of nutrition in nursing mothers. Nutritional intake in nursing mothers is directly related to nutritional status during lactation, which influences the success of breastfeeding. Malnourished mothers at risk of unsuccessful breastfeeding 2.26-2.56 times greater than mothers with good nutrition (11). Most respondents aged in the range of 20-35 years were 51 respondents (82.3%). The age range at that age, where in theory has entered the age with physical and psychological maturity so that they have more confidence in caring for toddlers.

Self Efficacy Before and After Providing Health Education About Stunting

Table 4 shows the average value of self efficacy in the pretest group 46.62 ± 5.118 and in the posttest group 58.14 ± 5.225 so there is a difference between before and after health education. Analysis test results using paired t-test sig: 0,000 means <0.05 so that H_0 is accepted so there is a difference between before and after health education. Health

education about stunting provided shows that the average value of self efficacy is higher than before health education was given. Research by (12) which concluded that there were significant differences in the group of mothers who were given training or education on maternal self-efficacy. Health education provided is carried out for 15 minutes in the form of lectures and questions and answers. Health education provided in this study was also accompanied by the provision of leaflets containing the material provided. Respondents are allowed to bring home Leaflets so they can be read again when the respondent forgets the material that has been submitted. Booklets and leaflets are equally effective in increasing changes in respondent attitudes but booklets are more effective in increasing respondent knowledge (13).

The level of maternal self-efficacy is a matter that influences the habits performed (14). There was an increase in self-efficacy in the good category, namely before treatment there were 9 respondents (14.5%) in the good category, and after health education it increased to 15 respondents (24.2%). This is due to the fact that mothers who have a high level of comfort and confidence that they can care for make their condition more relaxed when doing activities. Feeling relaxed will naturally have an impact on more toddler monitoring so that toddler needs are met. Unlike conditions with mothers who have low self-efficacy, they may already understand the importance of monitoring the growth and development of infants. However, because of their level of confidence and comfort, finally when they encounter difficulties when monitoring, they tend to ignore it.

Relationship between stunting and child development

Based on the results of measurements of child development by the Denver II method, data on cognitive development, language, adaptive / fine motoric and social personal are obtained. The analysis showed that there was a significant relationship between stunting and toddler development ($p = 0.002$). The results of this study are in line with research in Banda Aceh in 2011 which showed there was a significant relationship between stunting and gross motor development in children aged 3-5 years (15). In addition, other studies in Pakistan also show that there is a relationship between fetal growth and stunting at birth with gross motor development in infants (16). The results of this study are consistent with the opinion that stunting children experience slow and short order growth. This condition is the

result of a long period due to unmet food needs that increase morbidity, and is usually found in countries with poor economic conditions (17). Nutrition plays an important role in the first two years of life. Growth and development of brain cells requires adequate nutrition. Adequacy of nutrients at this time will affect the process of growth and development of children in the next period. The quality of a child's future is determined by the child's optimal development and growth, so the detection, stimulation, and intervention of various growth or development deviations must be done early. Motor development is often ignored by doctors and parents as a very influential factor in the future. Good motor intelligence can improve one's quality of life in the future (18).

CONCLUSION AND RECOMMENDATION

There is a difference in self-efficacy between before and after the treatment of health education from the results of the analysis test using paired t-test sig: 0,000 meaning <0.05 so that H_0 is accepted. Families should pay attention to food intake from pregnancy until the baby is 5 years old to prevent malnutrition and infectious diseases that have an impact on stunting. To anticipate the disruption of growth and development in infants, puskesmas staff assisted by posyandu cadres should be more active in providing counseling and consultation on the importance of monitoring the growth and development of infants. In addition, it is necessary to carry out monitoring of growth and development of infants, so that it can be known of growth and development problems as early as possible. Furthermore, the need for good care from the family such as providing stimulation and support for children in achieving optimal growth and development.

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Teacher's Perspectives on School Bullying and Its Effects on Student's Mental and Emotional Well-being

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ABSTRACT

Backgrounds: *Bullying defines as aggressive behavior involving power imbalance and occur repeatedly within a certain period of time that places youth at risk. It is considered a public health problem. As bullying that happened in schools, then teachers are the one of main resource in efforts to prevent, or intervene in, bullying situations.*

Objectives: *This study exploring teacher's point of view as teacher-counselor about bullying phenomenon in their school and their interventions toward bullying issue.*

Methods: *This study used a qualitative design with a phenomenological approach. The samples were recruited by using purposive sampling. We obtained 7 participants to join this study. The data were collected through interviews with semistructured interviews and analyzed using the content analysis technique.*

Results: *We identified 3 related themes, including: teacher perspective on (1) bullying awareness, (2) occurrence of bullying in school and (3) teacher intervention to deal with bullying.*

Conclusions: *It is needed multidisciplinary profession to work together to deal with bullying in broader area not only within school but also family even community. also establish an integrated professional action can promote school-based interventions*

Keywords: *School Bullying; Teacher-Counselor; Mental-Emotional Well-Being.*

INTRODUCTION

Recently, the phenomenon of bullying among student has got attention by researchers, the media, and policy makers are being noted. Based on UNICEF for Indonesia report in 2015, about 40 % children experienced bullying in school, 32 % got physical bullied and 72 % being witness of bullying (1). Bullying defines as aggressive behavior involving power imbalance and occur repeatedly within a certain period of time (2). Bullying behavior is phenomenon that places youth at risk and is a manifestation of their high-risk status (3). It is considered a public health problem. Bullies and their victims have been shown to have high risk of having mental health problem (4).

When bullying occurs in schools, learning process can be interfered which cause by an unsafe environment and it can cause behavioral and emotional difficulties (5). As bullying that happened in schools, then teachers and school personnel are key to any long-lasting intervention efforts. Teacher as counselor has great understanding and responsibility of the effectiveness of the program. Bullying prevention program shows that a teacher can engage by giving students opportunities to explore bullying and learn defensive bullying strategies in nonthreatening ways (6).

A study found that students reported that teacher involvement during bullying situation were effectively when the situation got critical (7). Therefore, the teacher as teacher counselor's perspective of bullying is important being understood. This study tried exploring teacher's point of view as teacher-counselor about bullying phenomenon in their school and their interventions toward bullying issue.

MATERIALS AND METHODS

This study used a qualitative design with a phenomenological approach. The data were collected form July to August 2019. The population included teacher who has role as teacher-counselor in their school. The samples were recruited using a nonprobability sampling with purposive sampling technique. Seven participants were recruited based on the inclusion criteria, which included having work experience of more than 1 year as teacher-counselor and being a voluntary participation as evidenced by signing an informed consent prior to the study. Meanwhile, the exclusion criteria those

who refused to participate or expressed refusal to have next interview sessions. The data were analyzed using a content analysis technique, which included transcribing the interviews, determining meaning units to search for relationships between words, sentences or paragraphs, and performing data abstractions to form several themes.

RESULTS AND DISCUSSION

Seven participants were involved in this study. Two participants are from private school while five participants come from public school. This study revealed three themes, describing **the teacher perspective on bullying awareness, teacher perspective on occurrence of bullying in the schools and teacher's intervention in school bullying.**

The Teacher Perspective on Bullying Awareness in School

The first theme was the teacher perspective on bullying awareness in school which consists of two sub themes; The teacher perspectives on bullying occurrence in school *and* teacher perspective of student understanding on bullying.

The teacher perspectives on bullying occurrence in school

All participants agreed that bullying is serious problem in Indonesia. Five participants expressed bullying is in moderate level seriousness in their schools. While two participants mentioned no cases within a year being reported so they concluded bullying in their school catagorized as light of seriousness.

"of course bullying is a serious issue in young generation. Though there is no cases of bullying at school within a year. Then it considers as minor issue.(P2)

"the case that I consider quite serious was several years ago, parents came to school because the son got bullied by his friends (in a group of 4 students). The parents asked to investigate the issue."(P5)

"In my opinion, bullying need to pay more attention from government. It seriously can affect student learning process. In our school, the bullying incident is moderate level. There cases less than five being reported to teacher counselor this year.."(P7)

Student Understanding on Bullying

Participants mentioned students that bully are thought to not fully understand their actions and the effects that they have on others. Yet students' understanding about bullying concept is still poor.

"when we asked the student for their behavior the answers almost same that they don't mean it, it just for fun or jokes....Doesn't have intention to harm their friend.." (P1)

" their reason simply out of curiosity toward their friend who is quite, passive and being overly sensitive.." (P3)

"..When we asked student about definition of bullying the answer is hitting or punching others.." (P4)

"Sadly, even student who likely be a victim doesn't aware that she is a victim.." (P5)

The first sub theme showed how the seriousness of bullying issue in teacher point of view which can be concluded bullying that happened in their school in range light to moderate. The indicators to categorize by how many cases reported to teacher counselor. Previous study found , teachers compared to education support professionals were more likely to witness students being bullied, more likely to view bullying as a significant problem at their school, and were more likely to have students report bullying to them (8).

While the sub theme students knowledge of bullying issue only limited to physical type of bullying, characteristics students who got "picked up" because they are different or odd. They don't even know if they are bully or bullied. Research found student perceived victims as having low self-esteem, having no friend and being different (physically) while students perceived of bully as troublemaker, bad manner and always try to seek a trouble in class (9).

Occurrence of Bullying in School

This theme has two sub themes below which are bullying type and the effect of bullying on health status.

Bullying Type that Common Happened in School

The participants revealed that most of bullying type that happened in school was verbal bullying. Physical bullying and social bullying were considered rare. Verbal bullying such as name-calling, threatening

and insulting were reportedly common. It supported by past research that has consistently found that verbal type of bullying less serious than physical bullying (7).

"...the boy was being called by his father's name and his job which is a parker in shopping center." (P1)

"she told that she was very upset over her classmates often made a joke on her mother's job who was selling snacks in front of our school gate..." (P2)

"the student was threatened by her male senior if she doesn't want to date him by spreading her embarrassed photo." (P7).

The Effect Bullying on Health Problem

The most of participants mentioned students who got bullied experience both physical and psychological problem but still in light level.

"He did not attend the class for several day without confirmation. When we visited his house, he said that he didn't wan to go to schol because he felt insecure when he was at school" (P1)

" Last month we got information from psychologist counselor in Public Health Care that our student might experience as a bullying victim because all the physical examination were done and none of illness can be found but she was still complaining feeling unwell..." (P3)

" A week ago, I just happened to witness students teasing their friend physical during breaktimr by playing her chair and the victim is crying".(P04)

"the student came to counseling room cried and told me that she got frustated, she is sad ang angry but unable to defend herself by telling her friend that she does't like being topic of their jokes"(P06)

Past study found that teachers were concern of physically type of bullying that has serious effect and easy to observe (10). In the present study, it can found that the teachers noticed that verbal bullying is more common in the occurrences of bullying. Similarly, a study related to teacher perceived of bullying in Pesantren that the most frequent form of

bullying is that teasing, mocking or name calling is occurring among students' interactions within the pesantren (11). The trend is changing that can be assumed that student are aware of school regulation of strict sanction about violence behavior. While verbal bullying is quite easy to do and it is not easy being detected and observed.

This present study found that students complains e.i crying, sad, angry as short effect of being bullied and manifestation most likely to be physiological effect of bullying such as feeling unwell. it supported by previous study that student who experiencing as victims had emotional impact and short and long-term psychological (12). In addition, the previous study mentioned Victims of bullying reported poor mental and physical health, more symptoms of anxiety, depression; feeling sad, being loneliness; vomiting; sleep disturbance; nightmares; body ache; a headache; abdominal pain, and frequent illnesses (12). Those complains can lead to other problems if doesn't get appropriate treatment. Depression and violence behavior are known as mediating factor between bullying and suicide (13). According to WHO, suicide is the one of the causes of death among student aged 15–29 (14). This study was conducted in middle schools where the students age around 13-15. Students who became victims here had light signs and symptoms of psychological effects. if those symptoms don't get appropriate treatment it may get worse and potentially leading to depression and suicidal attempt.

Teacher's Intervention to Deal With Bullying Occurrences in School

Regarding participants intervention, it revealed that as teacher counselors often use scoring method even though schools don't have specific policy or regulation in bullying. Participants also mentioned their strategies when they encounter bullying situation. We divided this theme into three sub themes; teacher intervention by referring school policy and teacher method when facing with bullying situation and barriers of implementing intervention.

Teacher Intervention By Referring School Policy

"We do have home visit program for student who has certain problems i.e having sickness, absent from school for quite some times etc. we had one case, visiting student who didn't want to go to school because he got bullied by his friends. we identified the effect and gave motivation to continue attending school". (P1)

"We don't have specific policy regarding bullying behavior. We often use scoring method or give a point same as violation. The scoring various but depend whether it is same as light or severe violation. We record it onto student's journal and they can check their scores." (P5)

"Although scoring method is quite common adopted to deal with bullying behavior, it became a dilemma for us as teacher-counselor because we aren't in the right position to judge student by giving score" (P6)

Teacher method to deal with bullying situation

"I invite them one by one to go to counseling room then question them to get more understanding the core problem from both sides then I give a time for then to interact and express their concern regarding bullying behavior" (P3)

"I will intervene immediately when i found a bullying situation. I call students who involve both bully and victim separately, give them understanding and make them reconcile. Involving parents and other school personnel will be the last option" (P4)

"I personally doesn't like to involve parents to solve the problem because they might cause the situation more complicated..Of course they will defend their children. I prefer to solve by involving students" (P5)

"If it is still in light to moderate situation then I just work with student but if the situation is getting worse that I have to report it to school especially the headmaster and other administrator" (P6)

Barrier to implement intervention

"..Unfortunately, despite bullying matter is quite serious, we don't have certain policy about punishment..". (P1)

" it is rarely student who are bullied report to us, they may be afraid it getting worse, so it is not easy to react only by observation evidence without students complain" (P3)

"i work as teacher-counselor alone for the whole school. My responsibilities isn't only to

deal with students problems. Honestly, it is quite difficult to deal with bullying situation” (P5)

” most of the behavior happened outside of the school environment so it is not easy to monitor. Students are good behaved during the school hours because they aware of school regulation but once they walk off school gates, everything can be happened” (P7)

Based on participants answered on sub theme teacher intervention by referring school policy, it showed that intervention by employing school policy is not enough to prevent bullying because it doesn't have certain or specific regulation regarding punishment or procedure to deal with both bully and victim.

Basically, the intervention by mediation is quite effective to reduce bullying problem. Because by having the mediation a bully student is able to know how the victim's feeling is. By knowing it, the bully can reflect himself and imagine if he were the victim. It is expected that the bully will stop bullying others after knowing the suffering of the victim.

A theory mentions five reactive approaches to intervene bullying behavior that have been applied in school; direct sanction, restorative practice, mediation, the support group method and the method of shared concern (15). According to the theory, in this present study, participants were likely to use restorative practice the followed by mediation approach which students identified as bullies are asked to join a meeting with the presence of a victim as well (15). Basically, the intervention by mediation is quite effective to reduce bullying problem. Because by having the mediation a bully student is able to know how the victim's feeling is. By knowing it, the bully can reflect himself and imagine if he were the victim. It is expected that the bully will stop bullying others after knowing the suffering of the victim.

As mentioned by previous study that mediation is quite effective intervention to reduce bullying problem. Because, it can give the perpetrator an understanding of victims feelings as bullied. It is expected that the bully will stop bullying after learning the suffering of victims by reflecting himself and imagine if he were the victim. As for the victim can express discomfort and helps them to defend themselves (11).

The findings showed that the barriers for implementing teacher intervention can be concluded such as within teacher themself, peer, the victim

themself, school, and surrounding environment. Bullying as a complex social phenomenon which affected by many social variables surrounding the children such as; school, parents, peer, and community environments (16). To prevent and intervene bullying cannot be done by school or teacher counselor. It really needs an integration of school, students, teachers, parents even community to work together.

CONCLUSION AND RECOMMENDATION

Results of the study indicated that teacher counselor awareness of bullying in their schools were moderate. While we found students understanding of bullying issue is still poor. Bullying type which common happened in middle schools was verbal bullying. The risk of health problem also presented as light signs and symptoms both physical and psychological. Teachers faced barriers that prevent them to implement intervention to bullying problem. It is needed multidisciplinary profession to work together to deal with bullying in broader area not only within school but also family even community.

Further study is needed to evaluate teacher counselor method dealing with bullying situation, perspective of school administrator, parents, community and cultural roles on bullying issue. We also suggest an integrated professional actions is established in order to promote school-based interventions, considering characteristics of individuals, family, school and the community, that can related to bullying manifestations in the school.

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Effectiveness of Affirmation Stress Management on The Quality of Life Among Caregiver of Shizophrenia Patients

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ABSTRACT

Backgrounds: Schizophrenia patients are highly dependent, especially on their caregivers. Burden on caregivers patient appeared while caring patient with schizophrenia. It can reduce quality of life in caregivers. Affirmation stress management is an intervention can be used to improve their quality of life.

Objectives: Aim this study was to understand the effect of stress management: affirmations on the quality of life among caregivers of Schizophrenia patients in Puskesmas Sedayu 2.

Methods: This research was quasi-experimental with one group pretest-posttest without control. Subjects of this study were 29 caregivers of schizophrenia patients. Subjects selection technique used purposive sampling. Measuring instruments used WHOQOL-BREF. The technique of data analysis used correlation of Wilcoxon Signed Ranks.

Results: Characteristics subject are female, age range 35-45 years, working as a housewife and being the mother of a Schizophrenia patient. Based on the results of data analysis, it was obtained the value of correlation *p-value* 0.025 (<0.05), that means affirmation Stress Management effective to improve the quality of life among caregiver of Shizophrenia patients.

Conclusions: Affirmation stress management could improve quality of life caregiver of schizophrenia patients.

Keyword: *Affirmation Stress Management, Quality of Life of Schizophrenia Patients*

INTRODUCTION

Schizophrenia is a chronic mental disorder that affects all aspects of a patient's life characterized by hallucinations, delusions, violent behavior and so on. The process of schizophrenia a long time so that it can affect all aspects of a patient's life so that it indirectly creates a global disease burden (1). Daerah Istimewa Yogyakarta (DIY) is a province with the highest number of mental disorders (2). Patients with Schizophrenia can't do their activities so they need someone who takes care (caregiver) (3,4).

The treatment of schizophrenia patients requires a long time so it makes the caregivers burnout such as uncomfortable feeling, can't socialize with another person, marriage is not harmonious (4,5). Caregivers feel depressed because increased financial burden, social burden, discrimination and can't socialize⁶. It caused their quality of life lower, so recovery so the patient's recovery is disrupted. Affirmation stress management is one of the interventions to improve the quality of caregiver's life. Affirmation stress management can reduce stress levels on students (7).

Someone who have high positive emotions are able to be seen and are constantly seen as an individual who is happy, enthusiastic, confident, and more passionate in doing everything activity compared to individuals who have low positive emotions. On the other hand individuals who have high negative emotions tend to show nervous individuals, full of guilt, fear, compared to individuals who have emotions low negative. This research was conducted in area of Puskesmas Sedayu 2. Puskesmas Sedayu 2 already have programme with caregivers to discuss about patients or their problems. Caregiver's patients schizophrenia feeling sad, not excited, shy. The purposes in this research to prove effect the Quality of Life Among Caregiver of Shizophrenia Patients.

MATERIALS AND METHODS

This research is a pre-experimental research with one group pretest posttest without control design but researchers have done the pretest first. Subjects of this reseach is on caregivers of schizophrenia patients. Subjects this study were 29 caregivers of schizophrenia patients. Subjects selection technique used purposive sampling. Measuring instruments used WHOQOL-BREF. The technique of data analysis used correlation of Wilcoxon Signed Ranks. This research in June-August 2019 in area of Puskesmas

Sedayu 2. Independent and dependent variable in this research is affirmation stress management and quality of life on caregivers of schizophrenia patients. Intervention was carried out 3 times.

RESULTS AND DISCUSSION

Tabel 1. Characteristics of schizophrenia patients in Puskesmas Sedayu 2 (n = 29)

Karakteristik Responden	Frekuensi	Prosentase (%)
Age		
25-35 years old	1	3.4
36-45 years old	8	27.6
45-55 years old	12	41.4
55-65 years old	3	10.3
> 65 years old	5	17.2
Sex		
Girl	27	93.1
Male	2	6.9
Occupation		
Housewife	22	75.9
Farmers	2	6.9
Retired	1	3.4
Labor	3	10.3
Entrepreneur	1	3.4
Relationship with Patients		
Father	2	6.9
Mother	10	34.5
Son	1	3.4
Wife	3	10.3
Sister	4	13.8
Other people	9	31

Primary data, 2019

Based on **table 1.** it is known that the characteristics of the respondents in this study were early adulthood (41.4%), female (93.1%), as housewives (75.9%), and were patient mothers (34.5%).

Table 2 Quality of life before and after stress management: affirmations

Quality of Life	Pre		Post	
	n	Mean	n	Mean
Poor	16 (55.2%)	58.69	9 (31%)	63.23
good	13 (44.8%)		20 (69%)	

Tabel 3. Wilcoxon Signed Ranks Test Results

	N	Mean Rank	Sum of Ranks
Post test - Pre test			
Negative Ranks	8 ^a	14.25	114.00
Positive Ranks	21 ^b	15.29	321.00
Ties	0 ^c		
Total	29		

a. Post test < Pre test

b. Post test > Pre test

c. Post test = Pre test

Test Statistics^a

	Post test - Pre test
Z	-2.239 ^b
Asymp. Sig. (2-tailed)	.025

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

The results of statistical tests using the Wilcoxon Signed Rank Test, the Asymp.Sig value was obtained. (2-tailed) is smaller than 0.05 so it can be concluded that stress management: affirmation can improve quality of life in the caregiver of Schizophrenia patients.

RESULTS AND DISCUSSION

Based on **Table 1**, the characteristics subject in this research were and not working⁹. Schizophrenia patients are treated more by people closest to them like parents, they are always struggling to provide services and provide support to patients (10); The burden that appears on the caregiver were poor quality of life, depression. Based on **Table 2**, it is found that the schizophrenia caregiver has a poor quality of life (mean 58.69) and the quality of life after intervention more better. The quality of life of caregiver patients with schizophrenia tends to be poor, one of which is due to the low level of social support received (11). The burden of care felt by the caregiver can cause symptoms of depression even not only to the primary caregiver but also affects the mental health of other family members (12). The burden of care experienced and felt by the caregiver such as psychological (feelings), physical health, social, economic and others (13).

The higher the burden of care perceived by the caregiver, the lower the quality of life (14). However, the high and low quality of life is influenced by

many factors including self efficacy, personality type, income level¹⁵. Quality of life consists of 4 dimensions were psychological, environmental, social and physical dimensions. The physical domain is influenced by the level of education, gender, sex of the patient, length of patient care, medication, and community stigma. The psychological domain is only influenced by income, while the environmental domain is affected by the level of education, length of patient care, level of patient knowledge about symptoms of the disease (16). The quality of caregiver life of Schizophrenia patients is the key to successful recovery of patients (17).

The results there is an influence between stress affirmation management with the quality of life of caregiver patients with Schizophrenia. Affirmations are a combination of verbal and visual techniques that are liked in a person's mind. Strong affirmations can be strong and can be used by someone in achieving their goals (18). Positive thoughts and affirmations will increase positive energy in their lives, negative thoughts will have a negative influence. Good thoughts affect all members of the body outside and inside (organs in the body) to be good. Affirmation techniques can change negative thoughts to become more positiv2 (19,20). This affirmation stress management can affect a person's physical, social, mental and psychological health. someone who does stress management affirmations has more confidence (21). the success of stress affirmation management according to Clark (1991) if there is an increase in the ability to carry out tasks and change attitudes and behavior (22). Optimistic schizophrenia caregivers can improve their self efficacy. It have an impact on improving their quality of life (15).

CONCLUSION AND RECOMMENDATION.

This research explains affirmation stress management can improve the quality of life among caregiver of schizophrenia patients. This affirmative stress management technique can be used to reduce the negative feelings. This intervention can be used as one form of intervention to improving the quality of life in a hospital or community. For further the researcher can add the number of subjects and compare with control groups.

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Comparison of Reduction Fasting Blood Glucose (GDP) by Giving *Amorphophallus Onchophyllus* and *Strobilanthes Crispa* on Type 2 Wistar Rat (*Rattus Novergicus*) Induced by Streptozotosin

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ABSTRACT

Background: From the Riskesdas data in 2018, the number of people with diabetes mellitus increased to 8.5% from 6.9% in 2013. In its handling there were four pillars, namely education, physical activity, pharmacology and diet or food regulation, but the approach that was available to the community namely pharmacology and diet. In addition to setting schedules and quantities, choosing food types also determines changes in blood glucose levels. One of the plant types that have benefits for reducing blood glucose levels are porang flour and vile leaves.

Objectives: To determine the differences of reduction in fasting blood glucose levels (GDP) in type 2 DM wistar rats (*rattus novergicus*) by administering porang flour (*amorphophallus onchophyllus*) and keji beling leaf extract (*strobilanthes crispa*).

Methods: This study was an experimental pre-post test control group design approach. The number of samples was 36 male wistar rats which were divided into 6 treatment groups. Data were analyzed by Paired T-test with a significant degree of p-value <0.05.

Results: Dose porang flour 0.5g / 200gBB reduced blood glucose levels 102.47 mg /dL in rat, dose 0.75g/200gBB reduced blood glucose levels 124.54mg/dL, dose 1g/200gBB reduced blood glucose levels 144.27mg/dL and keji beling leaf extract dose 0.3g/200gBB reduce blood glucose level 140.08mg/dL.

Conclusion: There were significant differences in reduction fasting blood glucose levels in type 2 DM male wistar rats of in porang flour doses of 0.5g/200gBB and 0.75g/200gBB. Statistically, the porang flour dose of 1g/200gBB was not significantly different from the keji beling leaf extract 0.3g/200gBB.

Keywords: Porang Flour, Keji Beling, Fasting Blood Glucose

INTRODUCTION

Diabetes mellitus is a metabolic disorder that occurs for many years due to the pancreas not being able to produce enough insulin or the body is unable to use insulin that has been produced by the body itself effectively. The number of people with diabetes in the year has increased. Indonesia is ranked seventh highest in the world with the highest number of people with diabetes mellitus with an estimated 10 million people who suffer from diabetes mellitus (1).

From research data conducted by Indonesia every 5 years or called *Riskesdas* in 2018, the number of people with diabetes mellitus has increased 6.9% to 8.5%. Factors causing diabetes mellitus are hereditary or hereditary factors, environmental factors, and lifestyle factors. According to WHO (2017), type 2 diabetes mellitus is the group with the highest prevalence of 90% of all diabetes. Decreased insulin secretion that occurs in the pancreas causes blood sugar level to rise, so this is what triggers type 2 diabetes mellitus (2,1).

In dealing with diabetes mellitus can be taken with various steps such as providing anti-diabetic drugs, but it can also be taken by providing a diabetes mellitus diet that is 3J (type, amount, schedule). In the management of diabetes mellitus there are four pillars namely education, nutrition, pharmacology and physical activity. However, there are two ways in the community approach, with drugs and nutrition or by using herbal plants (3).

One of the good herbs or plants that have health benefits is the *keji beling* and porang bulbs (13). *Keji beling* or *Strobilanthes crispera*, contains micromineral nutrients such as potassium, calcium, and sodium and many other micromineral contents. The *Strobilanthes crispera* leaves can also treat degenerative diseases such

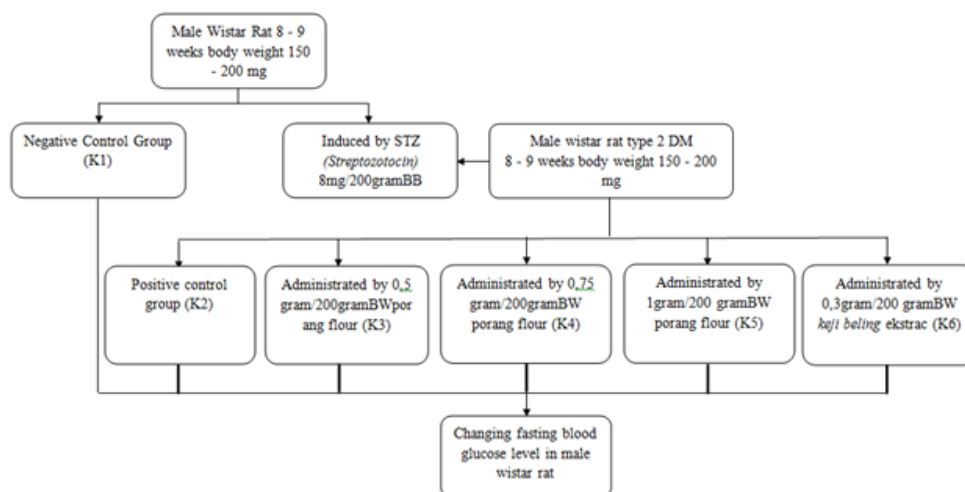
as diabetes or often called diabetes mellitus. It can be eaten directly or as fresh vegetables consumed regularly every day (4,5).

Porang bulbs containing 15% - 64% glucomannan (dry basis), can be used in raw materials for the food and health industry. Porang bulbs contain high fiber and do not contain fat so that it can be used in helping to lower blood cholesterol levels and also prevent obesity, and suitable for consumption for someone who has hypertension and diabetes. This type of bulbs contains high concentrations of micromineral nutrients including potassium, phosphorus, trace elements, selenium, magnesium, zinc and copper so that it is beneficial for metabolism (6).

In a previous study it was said that porang flour with maceration of *Strobilanthes crispera* leaf extract was the best method for reducing fasting blood glucose levels, but it is not yet known exactly how big the role of *Strobilanthes crispera* in lowering blood glucose levels. From this background, the researchers intend to continue previous research with different independent variables but can still reduce blood glucose levels significantly.

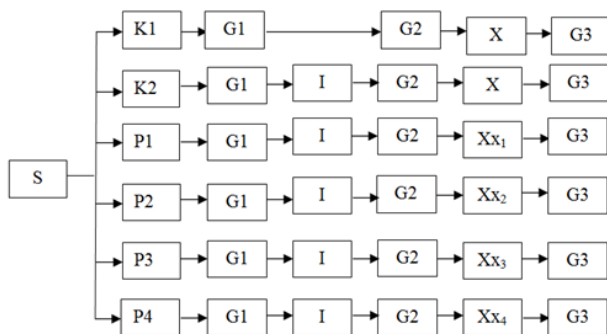
MATERIALS AND METHODS

This research is True Experiment by using a Pretest and Posttest with Control Group research design. This research was conducted at the Center for Food and Nutrition Study Laboratory (PSPG) of Gadjah Mada University Yogyakarta. The research subjects were wistar rats (*rattus norvegicus*) with inclusion and exclusion criteria. Inclusion criteria include: type of wistar rat (*rattus norvegicus*), male sex, age 8 - 9 weeks (2-3 months) and body weight 150 - 200 mg. While the exclusion criteria were rat that died before the study was completed or posttest.



Picture 1. Research skema

The brief description of the research is that rats are adapted for three days first, it is intended that rats can recognize their environment well so as to minimize the existence of unexpected things such as stress and end in death. After that, the first fasting blood glucose was taken in the morning and the rats have been fasting for 8 hours. The purpose of this analysis was to ensure that the rats used in the study were really in good health and had not been exposed to or had diabetes mellitus. In the afternoon, rats were induced by NA (Nicotinamide) before finally being induced by STZ (Streptozotocin) to make the rats have better endurance because NA can protect beta cells of the pancreas and inhibit apoptosis without triggering bacterial resistance so that to minimize the existence of death in rats (18). When the rats had been induced NA and STZ, then the rats were adapted again for three days and fasted again before blood samples were taken to check the fasting blood glucose levels of the second. After that, the intervention of pure porang flour and keji beling extract were carried out for 14 days respectively according to their respective groups. Research design of this research shown by picture bellow.



Picture2. Research design

- S = sample
- K1 = negative control
- K2 = positive control
- P1 = intervention 1
- P2 = intervention 2
- P3 = intervention 3
- P4 = intervention 4
- I = induced by Streptozotocin (STZ)
- G1 = 1st blood glucose level measure
- G2 = 2nd blood glucose level measure
- G3 = 3rd blood glucose level measure
- X = standard feeding AIN – 93
- x₁ = administrated by 0,5 g/200gBW porang flour
- x₂ = administrated by 0,75 g/200gBW porang flour
- x₃ = administrated by 1 g/ 200gBW porang flour
- x₄ = administrated by 0,3g/200gBW keji beling

RESULTS AND DISCUSSION

This study used 36 male Wistar rats as samples divided into six groups with an average initial body weight of 180.3 grams and an average final weight of 191.8 grams. The feed used is the standard feed AIN-93 given daily 15 grams/200 gramsBW. While the feed consumed every day on average is 13.5 grams. Changes in glucose levels between samples that have been adapted or that have not been induced by STZ (Streptozotocin) and those that have been induced by STZ (Streptozotocin) can be seen in **Table 1**.

Table 1. Blood Glucose Level After Induced by STZ (Streptozotocin)

Group	Blood Glucose Level After Induced by STZ (Streptozotocin) mg/dL			
	Before Induced STZ (Streptozotocin) Mean ± SD	After Induced STZ (Streptozotocin) Mean ± SD	p - value	Σ Delta
K1	70,96 ± 2,04	70,26 ± 1,43	0,400	-0,70
K2	71,59 ± 1,51	255,08 ± 1,96	0,000	+ 183,49
P1	70,75 ± 1,02	253,97 ± 1,96	0,000	+ 183,22
P2	70,32 ± 1,52	254,71 ± 2,05	0,000	+ 183,96
P3	70,60 ± 1,88	253,22 ± 1,78	0,000	+ 182,62
P4	72,01 ± 1,96	255,08 ± 4,47	0,000	+ 183,07

NB : Paired T-test *Difference if p – value < 0,05. (K1: negative group, K2: positive group, P1: adimintrated 0,5gram/200 gramBW porang flour, P2: adimintrated 0,75gram/200gramBW porag flour, P3: administrated 1 gram/200 gramBW porang flour, P4: adimintrated 1,8mL/200 gramBW keji beling extract).

From paired T-test analysis, it was found that in the groups K2, P1, P2, P3 and P4 induced by STZ (Streptozotocin) have an increase in fasting blood glucose levels. In rats, it is said that diabetes mellitus rat when blood glucose levels > 135 mg/dL (7). It can be said that induced STZ succeeded in making rat having diabetes mellitus. Analysis Paired T-test statistically obtained p-value = 0,000 < 0,05 so it can be concluded that there is a significant difference between blood glucose levels before and after STZ induction.

STZ works by inhibiting insulin secretion and causing necrosis of pancreatic beta cell. As one of the endocrine glands, the pancreas is responsible for regulating blood glucose levels. If the pancreas is disturbed, blood glucose levels that should be running in balance are also impaired (8). In type 2 diabetes mellitus, the pancreas can still produce insulin but the body cells cannot use insulin efficiently so that blood sugar cannot enter the body's cells and accumulate in the blood and cause hyperglycemia or diabetes mellitus.

Table 2. Blood Glucose Level After Intervention

Group	Blood Glucose Level After Intervention (mg/dL)			
	Before Intervention Mean ± SD	After Intervention Mean ± SD	<i>p</i> – value	Σ Delta
K1	70,26 ± 1.43	72.43 ± 2.01	0.015	+2.17
K2	255.08 ± 1.96	257.54 ± 2.48	0.004	+2.46
P1	253.97 ± 1.96	151.50 ± 2.34	0.000	-102.47
P2	254.71 ± 2.05	130.17 ± 2.32	0.000	-124.54
P3	253.22 ± 1.78	108.95 ± 3.03	0.000	-144.27
P4	255.08 ± 4.47	115.00 ± 2.61	0.000	-140.08

NB: Paired T-test * Difference if *p*-value < 0.05. K1: negative group, K2: positive group, P1: administered 0.5gram/200 gramBW porang flour, P2: administered 0.75gram/200gramBW porang flour, P3: administered 1 gram/200 gramBW porang flour, P4: administered 1.8mL/200 gramBW keji beling extract).

Differences in Fasting Blood Glucose Levels of Type 2 DM Rats without Intervention with Group of Type 2 DM Rats Given Porang Flour

The difference in blood glucose levels in the group of DM rats that were given porang flour and those who were not given porang flour was seen so clearly. The DM rats that were not given porang flour had blood glucose levels that remained high with an average blood glucose level of 257.54 mg/dL from the previous is 255.08 mg/dL. This increase in blood glucose levels can be caused by a number of factors such as stress caused by the lack of space in the cage. While blood glucose levels in DM rats intervened with porang flour decreased blood glucose levels between 102-144mg/dL, depending on how much dose was given. This is because there is glucomannan in porang flour which is a water-soluble fiber.

Water-soluble fibers can form a gel in the form of bubbles in the stomach, so that it will lengthen the emptying period of the stomach. In addition, fiber can also inhibit the absorption of glucose and cholesterol into the intestinal lumen which can then reduce blood glucose levels and cholesterol in the blood. As for fiber that is difficult to digest, it will be fermented by bacteria that are sent so that it can produce fatty acids such as acetic acid, butyric and propionate, where the fatty acids will later return to the bloodstream and will inhibit the use of glucose in a longer time. This can increase sensitivity to peripheral insulin and can reduce blood glucose levels in rats (9).

The Most Effective Dose of Porang Flour to Reduce Fasting Blood Glucose in Rats With Type 2 Diabetes

It can be seen that the administration of porang flour with a dose of 1gram/200 gramBW has the best effect in reducing blood glucose levels, which is around 144.27 mg/dL. This is because, the more amount of porang flour is given means the greater the fiber that enters the body which will make the stomach feel fuller in a longer time and blood sugar levels will run more stable. Even though the dose of flour of porang 1gram/200 gramBW is the best dose in reducing blood glucose levels, it does not mean that if the dose is raised spontaneously it can reduce blood glucose levels more quickly.

From previous studies, the administration of high doses of porang flour can cause toxicity. At a high dose of 2grams/200 gramsBW given for 72 hours or three days causes inflammation and congestion in the rat kidney. Whereas at a dose of 5grams/200 gramsBW given for 72 hours or three days, hemorrhage occurs in rat kidneys (10). In addition, the dose given to rats will later be converted to humans with a nutraceutical form of food or medicine. So that when converted into human body weight, the dose given is so large and can endanger the human kidney organ. In porang flour there is Ca oxalate which if consumed continuously will cause kidney stones which is in 100grams of porang flour containing 2.11% Ca oxalate (11).

Differences in Fasting Blood Glucose Levels of Type 2 DM Rats without Intervention with Group of Type 2 DM Rats Given Keji beling Extract

Keji beling have the benefit of reducing blood glucose levels because it contained flavonoids that work as antioxidants that can reduce oxidative stress in diabetes mellitus. When someone has diabetes mellitus, the oxygen and antioxidants in the body are not balanced. This causes oxidative stress, and oxidative stress has a role in the development of type 2 diabetes mellitus. Antioxidant mechanism in treating diabetes mellitus is by improving mitochondrial function in pancreatic cells so that it will improve insulin production (12).

Differences in Blood Glucose Levels of Fasting DM Type 2 Rats with Giving Porang Flour and Keji beling Extract

The final blood glucose level in the DM type 2 rat group either given by porang flour or given *keji beling* significantly decreased. This can be seen from the results of the Paired T-test where the results

p-value <0,05, which showed differences in blood glucose levels between pre and post test.

In the group with porang flour administration, the most effective dose in reducing fasting blood glucose levels in rats was the dose of 1gram/200gramBW on average it could reduce blood glucose levels by 144.27. It has similar effect with the administration of *keji beling* extract 0.3grams/200 gramBW which on average can reduce blood glucose levels by 140.08. Besides having the same effect in reducing blood glucose levels in rats, the Independent Sample T-test was resulted p-value=0.06 (> 0.05) and it can be concluded that there were no significant differences.

Glucose can oxidated before or after binding to proteins that produce Reactive Oxygen Species (ROS). People with diabetes mellitus have higher lipid peroxide levels compared to normal people. The combination of glycation with glucose oxidation can produce oxidative stress by releasing O₂ (12). From this explanation it can be concluded that the antioxidant mechanism possessed by the *keji beling* in reducing blood glucose levels is by reducing oxidative stress and improving pancreatic beta cells in producing insulin. Porang flour containing glucomannan as a water soluble fiber and make emptying of the stomach with a longer period so that the body will feel full for a long time, so that food absorption will also run stable (9).

CONCLUSION AND RECOMMENDATION

Giving porang flour and *keji beling* extract was proven to significantly reduce fasting blood glucose levels in male wistar rats. The most effective dose of porang flour in reducing blood glucose levels in rats is 1gram/200 gramBW. The administration of *keji beling* extract by 0.3gram/200 gramBW has the effect of decreasing blood glucose levels which is the same as the administration of porang flour dose of 1gram/200 gramBW which can reduce blood glucose levels for about 140.08 mg/dL.

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Antioxidant Activity of Ethanolic Extract of Green Algae (*Ulva Lactuca* Linn.) From Sepanjang Beach Gunung Kidul with DPPH Method

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ABSTRACT

Background: Cancer is one of the health problems in the world with the number of sufferers that continues to increase. Based on IARC (International Agencies for Research on Cancer) during 2008 there were 12.7 million cancer cases and 7.6 million cancer deaths. The role of free radicals against damage to human body tissue is known to be a fairly high causative factor. If the number of free radicals increased, the body's defense system against free radicals becomes inadequate. One of the plants that functions as an antioxidant and also as an anti-cancer originates from marine algae, it is green algae (*Ulva lactuca* L.). Green algae showed the presence of antioxidant compounds that were analyzed qualitatively using thin-layer and quantitative chromatography with DPPH using a UV-VIS spectrophotometer. In the liver of CCl₄-induced mice, ethanol extracts of green algae have antioxidant activity by reducing levels of malonylaldehyde (MDA) and increasing the activity of the enzyme superoxid dismutase (SOD).

Objective: Conduct Antioxidant Activity Tests on the ethanolic extracts of green algae (*Ulva lactuca* Linn) obtained from Sepanjang Beach, Gunung Kidul

Method: Antioxidant Activity Test was carried out by DPPH (1,1diphenyl-2-picryl hydrazyl) method

Results: IC₅₀ value of Ethanolic Extracts of Green Algae is 17,25 µg/ml and Ascorbic acid is 28,9 µg/ml

Conclusions: Antioxidant activity of the ethanolic extract of green algae is better compared to Ascorbic acid

Keywords: Green Algae, Antioxidant Activity

INTRODUCTION

The role of free radicals against damage to human body tissue is known to be a fairly high causative factor. If the number of free radicals increases, the body's defense system against free radicals becomes inadequate (1). There are many types of free radicals, including hydroxyl radicals (-OH), superoxide anions (O₂⁻), singlet oxygen and hydrogen peroxide (H₂O₂). Free radicals that accumulate in cells cause several pathological reactions such as myocardial infarction, atherosclerosis, rheumatoid arthritis, neurodegenerative disorders, and cancer (2). Cancer is one of the health problems in the world with the number of sufferers that continues to increase. Based on IARC (International Agencies for Research on Cancer) during 2008 there were 12.7 million cancer cases and 7.6 million cancer deaths (3). One of the plants that function as an antioxidant and also an anti-cancer originates from marine algae, it is green algae (*Ulva lactuca* L.) which is a type of sea lettuce with the species of the genus "ulva". Research conducted by Febriansah et al (4) showed the presence of antioxidant compounds that were analyzed qualitatively using thin-layer and quantitative chromatography with DPPH using a UV-VIS spectrophotometer. In the liver of CCl₄-induced mice, ethanolic extracts of green algae have antioxidant activity by reducing levels of malonylaldehyde (MDA) and increasing the activity of the enzyme superoxid dismutase (SOD) (5).

MATERIALS AND METHODS

This research is an experimental research. The material used in this study is green algae from the Special Region of Yogyakarta. The compound 2,2-diphenyl-1-picrylhydrazil (DPPH), a reagent for preliminary tests. The tools used are maceration vessel, rotary evaporator, buchner funnel, electric balance, porcelain cup, separating funnel, filter paper, oven, flask, glassware, UV-Vis spectrophotometer.

1. Extraction of Green Algae (*Ulva lactuca* Linn.)

Extraction of Green Algae with Maceration. 250 gram of green algae powder was added ethanol 96% to the dissertation with stirring for 3 hours. Maserat is filtered using a Buchner funnel and the maceration process is repeated 2 times. Then the Maserat was evaporated using a rotary evaporator at 40°C until a thick extract was obtained and the yield was calculated (5).

2. Preliminary Test

a. Preliminary Test With DPPH method

As much as 1,0 ml of the sample solution was reacted with 1.0 ml of a 0.15 mM DPPH solution. Color changes occur from purple to yellow (6)

b. Phytochemical Screening

Identification of chemical contents in extracts was carried out on alkaloids, flavonoids, steroids, triterpenoids

3. Antioxidant Activity Test

The antioxidant activity test was carried out by the DPPH method (7). One ml of a 0.3 mM DPPH methanol solution is added to 1 ml of the extract (1000 µg / ml) and allowed to stand at room temperature. After 30 minutes the absorbance value was measured at a wavelength of 517 nm. Methanol solution was used as a blank and DPPH solution as a negative control. Ascorbic acid (1000 µg / ml) as a positive control. The ability to scavenge radical DPPH is calculated :

$$\% \text{ inhibition} = \frac{A_{\text{control}} - A_{\text{test}}}{A_{\text{Control}}} \times 100\%$$

RESULTS AND DISCUSSION

1. Preliminary Test

In the preliminary test using DPPH obtained the results of ethanolic extract of green algae containing compounds that are as antioxidants. This is indicated by the change in DPPH solution from purple to yellow after adding the extract solution. The color change of this solution occurs when DPPH radicals are scavenging by antioxidant compounds that release hydrogen atoms to scavenge stable DPPH (8).

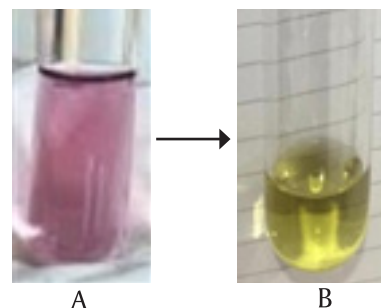


Figure 1. Preliminary test with DPPH (a) before and (b) after added ethanolic extract of green algae (*ulva lactuca* linn.)

From the results of phytochemical tests, ethanolic extracts of green algae showed positive presence of alkaloids and saponins.

While flavonoids, terpenoids, steroids were not detected.

Table 1. Phytochemical screening ethanolic extract of green algae (*ulva lactuca* linn.)

Test	Result
Alkaloid (pereaksi mayer)	+
Alkaloid (pereaksi dragendorf)	+
Flavonoid	-
Saponin	+
Steroid	-
Terpenoid	-

Ket : (+) Terdeteksi , (-) tidak terdeteksi

2. Antioxidant Activity of Ethanolic Extract Green Algae (*Ulva lactuca* Linn) with DPPH method

In this study, The method used to determine the antioxidant activity of ethanolic extracts of green algae (*Ulva lactuca* Linn.) is DPPH (2,2 Diphenyl-1 picrylhydrazil) radical scavenging In this study was the method of scavenging DPPH free radicals (2,2 Diphenyl-1 picrylhydrazil). This method was chosen because it is fast, simple and easy and does not require a large fee (9). The results of the antioxidant activity test of green algae extract compared to the standard (Ascorbic acid) can be seen in table 2 and figure 2. To get the amount of inhibition concentration (IC₅₀) from the extract or standard (Ascorbic acid), the percentage inhibition was calculated first. Percentage of inhibition shows how much the ability of a substance to free radicals scavenging. In table 2 it can be seen that the ability to free radicals scavenging will be

greater along with the increasing concentration of both ascorbic acid or ethanolic extracts of green algae. This is in accordance with the pharmacodynamic principle where the dose / concentration is directly proportional to the response of the drug (10).

The IC₅₀ value of the ethanolic extract of green algae is 17.25 µg / ml and the standard (ascorbic acid) is 28.9 µg / ml. Antioxidant activity is strong if the IC₅₀ value is less than 200 µg / ml, less active if the IC₅₀ is 200-1000 µg / ml, and very weak if the IC₅₀ value is more than 1000 µg / ml (11). Based on these results, both green algae and standard ethanolic extracts have very strong antioxidant activity. But Ethanolic Extract of Green algae is better than Ascorbic acid. This result is also supported by a statistical test using a different independent sample T-test obtained a significance value of 0.042 which means that there is a significant difference in the IC₅₀ value of ethanolic extracts of green algae compared with the standard.

The ability to scavenge free radical activity from the ethanolic extracts of green algae is associated with compounds contained in this plant. One of them is melatonin which is an alkaloid. Based on research conducted by Rodriguez et al (11) melatonin can affect antioxidant enzymes such as glutathione peroxidase, superoxide dismutase and catalase and also affect cellular mRNA levels. In addition, ethanolic extracts of green algae may have phenolic hydroxyl groups that can scavenge free radicals such as hydroxyl radicals (6).

Tabel 2. Free radical scavenging activity of ethanolic extract of green algae (*ulva lactuca* linn.) and standard (ascrobic acid)

Standard (Ascorbic acid)				Ethanolic Extract of Green Algae (<i>Ulva lactuca</i> Linn)			
No	Concentration (µg/ml)	Percentage of Inhibition (%)	IC ₅₀	No	Concentration (µg/ml)	Percentage of Inhibition (%)	IC ₅₀
1	4	17,88	28,9 µg/ml	1	4	29,52	17,25 µg/ml
2	8	20,89		2	8	32,22	
3	12	26,3		3	12	45,43	
4	16	31,19		4	16	48,96	
5	20	39,71		5	20	52,59	

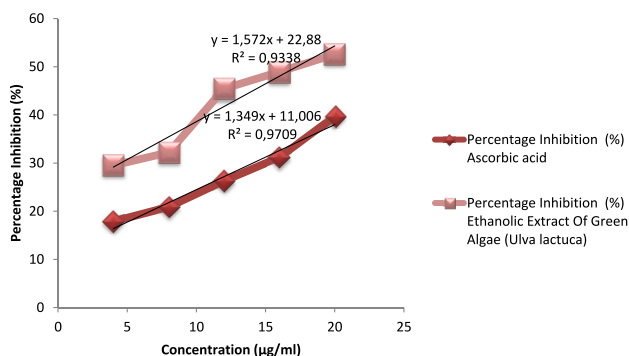


Fig. 2. Graphic of Percentage Inhibition Ethanollic Extract of Green Algae (*Ulva lactuca* Linn) compare with standard (Ascorbic acid)

CONCLUSION AND RECOMMENDATION

Ethanollic Extract of Ganggang Hijau (*Ulva lactuca* Linn.) from Sepanjang Beach Gunung Kidul Has ability DPPH free radical scavenging better than standard (Ascorbic acid) with IC_{50} values respectively 17,25 µg/ml and 28,9 µg/ml

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Ciplukan Leaf Extract (*Physalis Angulata* L.) as Anemia Therapy of Adolescents in the Period of Menstruation in Pamekasan

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ABSTRACT

Backgrounds: Anemia or lack of blood is a condition of weakness, fatigue, lethargy due to lack of iron in the blood. A survey showed that anemia is higher affected to women than men. If anemia affected in girls, the impact is not only short term but will affect the life cycle.

Objectives: This study aims to determine the use of *Ciplukan* leaf extract on the increase of iron in the blood, is there influence on increasing levels of hemoglobin (HB) in the blood, so that it can be used as a therapy for anemia experienced by adolescents during menstruation.

Methods: This study uses an experimental analytical method, a study based on the level of nature (setting) place of research to survey research and naturalistic (qualitative).

Results: In essence the Experimental research is examining the effect of treatment on behavior that arises as a result of treatment. Where in this study also uses the control group besides the experimental group. From the samples that have been given *Ciplukan* leaf extract, on average there is an increase in HB levels.

Conclusion: *Ciplukan* leaf extract can be used as a therapy for anemia in young women during menstruation.

Keywords: *Ciplukan Leaf Extract, Therapy, Anemia, Adolescence.*

INTRODUCTION

Ciplukan is an American plant that was distributed in tropical regions of the world. In Java it grows in the gardens, fields, roadsides, bushes, light forests, forest edges. *Ciplukan* is one of the wild plants in the form of shrubs which is a position is lower. The height is usually only one meter and the age of this plant is approximately one year. This plant usually lives well in the lowlands. The content of the plant is a chemical compound in the form of citron and fission. In addition, it plants also contain malic acid, alkaloids, tannins, cryptoxanthines, vitamin C and sugar.

The shapes of *Ciplukan* plants is small and have a green color that will turn yellowish when ripe, and has a mixture of sour and sweet. Basically, this fruit is often left and ignored, but now this fruit is in great demand by all people at large because it contains many benefits to the health.

Anemia is a condition when the body loses blood cells that contain hemoglobin to spread oxygen to all organs of the body. With this condition, sufferers will usually feel tired and tired, so they cannot carry out activities optimally. Anemia can occur in the short or long term, with mild to severe severity. The treatment for this condition is varieties, depending on the cause. Anemia can be treated by taking supplements regularly or special treatment procedures.

Anemia is often associated with conditions of weakness, fatigue, lethargy due lack of iron content in the blood. Not only in adults, children and even toddlers can be affected by anemia. In Indonesia the number of anemia sufferers who come from the group of school-age children (6-18 years) reaches 65 million people. In fact, when combined with anemia patients under five, teenage girls, pregnant, women of childbearing age, and the elderly, totally reaches 100 million. It means that one in two Indonesians suffer of anemia. The survey also showed that anemia is higher affected in women than men. If anemia affects a girl, the effect is not only on the child but also to the next generation. Remembering the girl will conceive and give birth.

Anemia can be caused by a condition of the body requiring iron in high amounts, such as during pregnancy, breastfeeding, the growing period of children and toddlers and puberty. Or when the body loses a lot of blood such as during menstruation and in patients with hemorrhoids and hookworms. Those who follow a poor iron diet or poor diet are also

prone to anemia. Another reason is the disruption of iron absorption in the body.

Actually, anemia can be prevented easily. But, because the society think easy, and considers it to be just weak, tired, lethargic. In fact, the effects of anemia are very dangers and even cause death.

MATERIALS AND METHODS

This research uses the experimental method with the design of a true experiment. The populations of this study were young women at Junior and Senior High School of Bustanul Muhtadiin. The research of data uses primary obtained from Hemoglobin test results in young women during menstruation. Unvaried analysis in this study is independent variable that will be described, Utilization of *Ciplukan* Leaf Extract. While the dependent variable described as anemia.

The analysis of the data uses inductive analysis. The data analysis process begins by examining all the data of respondents who experience menstruation and is declared anemic. After knowing the hemoglobin levels in the blood, the researcher given treatment by giving fruit and *Ciplukan* leaf extract in accordance with the predetermined composition stages.

After the data collected, the researcher conducts a univariate analysis on each variable of the research results. In general, this analysis only uses the distribution results and the percentage of each variable. This research conducted on April until August. The place of this research is at Junior and Senior High School of Bustanul Muhtadiin.

RESULT

- a. The Distribution Frequency Of Respondents Based On Adolescents

Table 1. The distribution frequency of respondents based on adolescents during menstruation at Pamekasan in 2019

Age (month)	Frequence	Percentage(%)
12-15	13	17.34
15-18	30	40.00
18-21 Tahun	32	42.66

- b. The Distribution Frequency Of Respondents Based On Education.

Table 2. The distribution frequency of respondents based on adolescent education during menstruation at Pamekasan in 2019

Education	Frequency	Percentage (%)
SD	0	0
SLTP	13	17.34
SLTA	30	40.00
PT	32	42.66

From the results of data collection as in Table 2. showed that the majority of respondent education is Institution which is 32 people (42.66%).

- c. The Distribution Frequency of respondents based on the socioeconomic

Table 3. The distribution frequency of respondents based on the socioeconomic during menstruation at Pamekasan in 2019

Socioeconomic status	Frekuensi	Persentase (%)
Menengah ke Atas	32	42.66
Menengah Ke bawah	43	57.33
Atas	0	00.00

From the results of data collection in Table 3. showed that most of them are teenagers with middle to lower socioeconomic status (57.33%).

- d. The Distribution Frequency Of Respondents Based On The Incidence Of Anemia

Table 4. The distribution frequency of respondents based on the incidence of anemia in adolescents during menstruation at Pamekasan in 2019

Anemia	Frekuensi	Persentase (%)
Anemia	75	65.21
Tidak Anemia	40	34.78

- e. The Distribution Frequency Of Respondents Based On The Results Of Observation Giving *Ciplukan*leaf Extract

Table 5. Frequency distribution of respondents based on the results of observations giving *ciplukan* leaf extract to adolescents during menstruation in pamekasan regency in 2019

Peningkatan Kadar HB	Frekuensi	Persentase (%)
Mengalami Peningkatan	52	80.0

Tidak Mengalami Peningkatan	13	20.0
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CONCLUSSION AND RECOMENDATION

The Utilization of *Ciplukan*leaf extract as a treatment for anemia in adolescents during menstruation, it can be concluded that can be increase of Hemoglobinlevels in the blood and be able to overcome complaints such as dizziness, weakness and frequent drowsiness caused by anemia in adolescents during menstruation. The suggestions of this result are:

For related institutions can give more attention to the FE therapy program for adolescents during menstruation as an effort to reduce the incidence of anemia especially in young women. In this case, nutritional adequacy screening is also necessary, so that it can diagnose the cause of anemia, which can also be caused by poor diet or lifestyle. Where in this case is able to support the level of accuracy of the causes of anemia and accuracy in the handling or prevention of anemia, especially in adolescent girls.

In this study, further research is also needed to determine the benefits of *Ciplukan*leaf extract for treatment or prevention of other health problems as an addition to the basic ingredients of medicines in the world of health and the need to do a plant test as a reference that *Ciplukan*leaf has a content that is safe enough to be consumed by people who have a history of diseases such as degenerative diseases, metabolic diseases, allergies and others.

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Effectiveness of Bibliotherapy and Snake and Ladder Game's Therapy Combination Towards Hospitalization Stress in School Ages

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ABSTRACT

Background: The stress of hospitalization in school-age children affects the child's care and healing process. Stress hospitalization shown by children is individual, depending on the stage of development of the child's age, previous experience of illness, available support systems, and coping abilities possessed. Play therapy helps children to express emotions, conflicts within children, and feelings experienced during treatment. The combination of Bibliotherapy and Snake and Ladder Game's Therapy is used as play therapy to reduce the stress of hospitalization in school-age children.

Objectives: This study aims to identify the effectiveness of a combination of Bibliotherapy and Snake and Ladder Game's Therapy on stress hospitalization in school-age children.

Methods: The design of this study used Pre experimental with the One Group Pretest-Posttest approach. The sampling technique used is simple random sampling. The study was conducted on children aged 7-12 years, as many as 20 respondents. The statistical test used is a paired t-test.

Results: The results showed that there was a significant effect (p value <0.001) a combination of Bibliotherapy and Snake and Ladder Game's Therapy on the stress of hospitalization in school-age children.

Conclusions: Researchers recommend providing a combination of Bibliotherapy and Snake and Ladder Game's Therapy into the Standards Operational Procedures of Hospitalization to reduce the stress of hospitalization in school-age children.

Keywords: *Bibliotherapy, Snake and Ladder Game Therapy, Stress hospitalization*

INTRODUCTION

Hospitalization is a process of treating children in a hospital. According to Wong, et al, hospitalization is a planned (emergency) process, requiring that children stay in the hospital, undergo therapy and care until return home (1). Hospitalization is the entry of an individual into a hospital as a patient for a variety of reasons such as diagnostic examinations, surgical procedures, medical care, administration of drugs, stabilizing or monitoring body conditions (1,3).

Nationally, of all children who have been hospitalized in the past year, most have been hospitalized in government hospitals (39.33 percent) and private hospitals (38.47 percent).¹⁴ Research Lemos et al, shows the percentage of school-age children (7–11 years) who are hospitalized at 47.62%.¹⁵

The impact of hospitalization risks disrupting the child's growth and development and the healing process. The stress of hospitalization in school-age children affects the child's care and healing process. The short-term effects of anxiety and fear that are not immediately treated will make the child reject the actions of care and treatment given.¹³ Long-term effects of stress hospitalization that are not immediately addressed will result in difficulties and poor reading skills, language disorders and cognitive development, decreased intellectual and social abilities and immune function.¹³ Stress hospitalization shown by children is individual, depending on the stage of development of the child's age, previous experience of illness, available support systems, and coping abilities possessed.

Hospitalization stress management can use several techniques, such as: drawing, coloring, music, medical play, and play therapy. Play therapy helps children to express emotions, conflicts within children, and feelings experienced during treatment. Playing helps children reduce stress, develop a sense of humor, and the media express feelings of anxiety, fear, pain and guilt.

According to research, bibliotherapy is therapy using literature to support the needs of children to process difficult or painful personal experiences, the child's opportunity to explore events that are almost the same as events experienced with different versions so that children are not too focused on events. The literature used is not limited to books, poetry, or creative writing, but games, short stories, novels, essays, magazine articles, sections from

textbooks (3,9,10) According to Vries, bibliotherapy helps children identify and validate feelings, help children realize that other children have problems similar to those they experience, stimulate discussion, cultivate thoughts and self-awareness, find solutions, and decide constructive coping (9,10).

Snake And Ladder Game's Therapy facilitates the need for games with peers that occur in the development of school-age children. (12,15) The game is modified according to the child's needs for positive self-concept during hospitalization, thus forming constructive coping with stress. The combination of Bibliotherapy and Snake And Ladder Game's Therapy is used as play therapy to reduce the stress of hospitalization in school-age children.

MATERIALS AND METHODS

The design of this study used Pre experimental with the one Group Pretest-Post test approach. The sampling technique used is simple random sampling. The study was conducted on school-age children, as many as 20 respondents. The inclusion criteria of this study were children were treated for the first time in a hospital and the first or second day of hospital admission; children aged 7 - 12 years; lacks physical disabilities, cognitive and language disorders; have sufficient physical ability to take part in the game; Parents and children who are willing to be respondents and follow the research until the end. The exclusion criteria for this study were that children had been treated > 2 times in the same or different hospitals; Children experience conditions: severe pain, high fever, moderate to severe dehydration, or get therapy through NGT. The statistical test used in this research is paired t-test.

RESULTS AND DISCUSSION

The results of the study were in the form of Respondents characteristics tables and analysis table of the effectiveness of the combination of Bibliotherapy and Snake and Ladder Game's Therapy to Reduce Stress Hospitalization in School Age Children in Regional Hospital in Yogyakarta.

Characteristics of School Age Respondents hospitalized by Children Ward Regional Hospital in Yogyakarta

The majority of respondents aged 7-9 years as many as 12 children (60%), male sex as many as 12 children (60%). Most were hospitalized because of

febris as many as 7 children (35%), with the most nursing care being administered drugs by infusion of 13 children (65%), with a length of stay of at most 3 days (45%), and partly the large waiters were 15 respondents (75%). The characteristic of the respondents are presented in Table 1.

Table 1. Characteristics of school-age respondents hospitalized by children ward regional hospital in yogyakarta (n = 20)

Characteristics	Frequency	Percentage (%)
Age (years old)		
7 – 9	12	60
10 -12	8	40
Sex		
Male	12	60
Female	8	40
Medical diagnosis		
Febris	7	35
Fracture	3	15
Typhoid	2	10
DHF	1	5
Asthma	1	5
Diarrhea	1	5
Appendicitis	1	5
others	4	20
Nursing Intervention		
plug infusion	13	65
dressing and casts	3	15
nebulisation	1	5
wound care	1	5
others	2	10
Length of stay (days)		
3	9	45
4	8	40
5	3	15
Caretakers / Parents waiting		
Mother	15	75
Father	5	25

Source: Primary Data (2019)

Based on table 1 the results show that the majority of respondents aged 7-9 years were 12 people (60%). Research Lemos, et al, shows the percentage of

school-age children (7–11 years) who are hospitalized at 47.62%. (7) Stress during hospitalization was found more in the age group ≥ 10 years while less in the 8-10 year age group.⁴ During hospitalization the child experiences separation from family, is in a foreign environment, and must undergo several nursing or medical procedures. Many reactions that arise due to these conditions. Broadly speaking the reactions that arise are influenced by age of development, previous experience with illness, separation, hospitalization, coping skills possessed, severity of diagnosis, and the existing support system (5).

Based on table 1 the results show that the majority of respondents were male as many as 12 people (60%). Boys tend to be more prone to stress from hospitalization due to several factors, including: attachment to high peer groups or limitations in movement and play. Stress levels in boys (30.4 ± 3.7) are higher than girls (29.6 ± 2.7) but there is no significant relationship between stress levels and gender (6, 15).

Based on table 1 the results showed that most of the medical diagnoses of febrile respondents were 7 people (35%), fracture 3 (15%), typhoid 2 (10%). Commodari's Research determined that respondents who were divided into 55% of patients had respiratory disease, 30% by gastrointestinal pathology, 9% by allergic reactions and 11% by other temporary pathologies (7).

Based on table 1 the results show that the majority of respondents received nursing care in the form of drug administration through infusion of 13 people (65%), dressing and casts 3 (15%), and nebulisation 1 (0.5%). This is in line with A'dillah's research that the second visit was the administration of storytelling therapy for three minutes using tools in the form of animal shaped hand puppets (4). After that, the nurse gives action (in this case the administration of drugs through an IV line) to the respondent and the researcher observes the respondent's anxiety score and records it on the observation sheet.

Based on table 1 the results show that the majority of respondents had the longest stay of 3 days (45%). More than half of children (65.2%) are hospitalized <3 days.⁶ The length of stay of a child has an influence on the child's anxiety score. The longer he is treated, then the anxiety score will be lower (4).

Based on table 1 the results showed that most of the parents or caregivers of female respondents who were respondents were 15 (75%). Based on

the Commodari's research states that as many as 179 caregivers are mothers of children who live in hospitals, 18 are fathers, 5 are brothers or sisters, 17 are other siblings (grandmothers or aunts) (7).

The Effectiveness Of The Combination Of Bibliotherapy And Snake And Ladder Game's Therapy On The Stress Of School-Age Hospitalization In Children's Ward Regional Hospital In Yogyakarta

Table 2. Paired t-test analysis(n=20)

Variabel	Pre-test	Post-test	p-value
Hospitalization stress	47,6±8,33	67,4±7,54	<0.001

The results of statistical analysis showed a significant difference between before and after the intervention of combination of Bibliotherapy and Snake and Ladder Game's Therapy on the reduction of stress hospitalization in school-age children hospitalized in the Children's Ward Hospital of Yogyakarta. After two times interventions, there was a significant increase (p value <0.001) on stress of hospitalization of children. This shows that the intervention in the form of combination of Bibliotherapy and Snake and Ladder Game's Therapy can effectively reduce the stress of children hospitalized in the Children's Ward Hospital of Yogyakarta. The combination of Bibliotherapy and Snake and Ladder Game's Therapy can be an alternative problem solving technique in dealing with stress hospitalization in children that can be done by nurses and parents.

Based on Yuan et al, bibliotherapy was significantly more effective than the control conditions in reducing the symptoms of depression or anxiety (standardized mean difference, -0.52; 95% confidence interval [CI], -0.89 to -0.15).¹⁰ Bibliotherapy CBT had significantly more all-cause discontinuations than some psychotherapies and control conditions (range of odds ratios, 2.48-9.32) (11).

Bibliotherapy can identify and explore children's emotions that are difficult to express. Similar studies are limited to only one pediatric diagnosis of respiratory disease, suggesting that the level of development has a significant impact on a child's response to hospitalization. School-age children are better able to cope with inpatient pressures than younger children because of their ability to reason, understand verbal explanations, communicate needs, express feelings about their experiences, and

tolerate separation from family. According to Piaget's theory, the concrete operational stage begins at the age of 7 years. At this age, children begin to develop logical reasoning skills and to understand causal relationships. This developing cognitive ability determines how children perceive situations such as medical experiences (8).

Based on Bhama et al, after the play session (Snake And Ladder Game's Therapy), reaction was reduced to a moderate level among 31.8%(14) of children than before the intervention, all children 100% (44) showed severe reaction to hospitalization (12). Games based on child psychotherapy can give children the opportunity to identify and express feelings.

The approach needed to overcome the stress of hospitalization for school-age children with specific handling according to the stages of physical-motor development, cognitive, language, emotions, social, and religion. Good communication and educational techniques that are packaged in appropriate play therapy are expected to reduce the stress of hospitalization in school-age children.

CONCLUSION AND RECOMMENDATION

The combination of Bibliotherapy and Snake and Ladder Game's Therapy significantly reduces the stress of hospitalization in school-age children. The researcher recommends providing a combination of Bibliotherapy and Snake and Ladder Game's Therapy into Standard Operating Procedures Operational to reduce the stress of hospitalization in school-age children.

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Differences in Customers Satisfaction Level Towards Online Registration System and Direct Registration System at RSUP Sardjito Yogyakarta's Outpatient Ward

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ABSTRACT

Background: The development of technology and information affects various aspects, one of them is health service, the so-called e-health. One of the ways of e-health implementation is the online registration, that is applied along with direct registration. The aim of this service is customer satisfaction, which is according to the minimum standard of service; the level of satisfaction is more than 90%. It is expected that with the use of an effective and efficient registration system, and a minimum wait time, patients' satisfaction level will be increased.

Objectives: To determine the differences in customers' satisfaction level towards online registration system and direct registration system at Dr. Sardjito General Hospital Yogyakarta's Outpatient Ward.

Methods: This is a quantitative research with a cross sectional approach. The samples in this research were 100 respondents who were divided into two groups, namely online registration group and direct registration group, each consists of 50 people, the samples were selected using an accidental sampling technique. The data collected were analyzed using a chi-square statistics test.

Results: In terms of satisfaction level, the online registration group achieved 62% satisfied respondents and 38 unsatisfied respondents. In the direct registration group, there were 46% customers who were satisfied, and 54% respondents unsatisfied. The chi-square test results showed a p value = 0.108 ($p < 0.05$).

Conclusions: There were no differences in customers' satisfaction level towards online registration system and direct registration system.

Keywords: *Customer Satisfaction; Online Registration System; Direct Registration System; E-Health*

INTRODUCTION

The development of information technology influences and supports changes in various aspects, one of which is health (1). The development of information technology is an opportunity that provides convenience in strengthening and developing health information systems, known as e-health (2).

The implementation of e-health in several countries cannot be implemented optimally. Research in the United States explains that from countries in America that implement national e-health policies there are only 26.3% of entities that oversee the quality, safety and reliability of regulations for e-health (3). The application of e-health in Indonesia, under the auspices of the Minister of Health of the Republic of Indonesia No 97 of 2015. There are 8 applications available in e-health including medical records, laboratory information, pharmaceutical information, patient registration system, tracking system, patient evaluation and monitoring, clinical decision support systems, patient reminder systems, data collection / research systems (4).

The Ministry of Health's Data and Information Center (PUSDATIN) in 2018 mentioned that of 2776 hospitals in Indonesia, there were only 370 hospitals recorded or only 13% had provided online registration services (5,6). Special Region of Yogyakarta (DIY) itself, of the 81 hospitals there are 15 hospitals or 18% that have done online registration services, one of which is the Central General Hospital (RSUP) Dr. Sardjito (5,7).

Online registration, especially those registering through the website and application have gone through the verification process through online, thereby reducing the waiting time of the queue. This will have an impact on the level of patient satisfaction, in line with a study entitled "The relationship between waiting time for registration and patient satisfaction at the outpatient registration place (TPPRJ) Sukoharjo Regional Hospital", the results suggest that the fast waiting time for registration makes patients satisfied with service (8).

Based on the preliminary study, the Medical Record Installation (ICM) data, from the average number of visitors each month at the Outpatient Installation (IRJ), was 62190 people. The number of IRJ patients who registered online in May 2018 was 3340 people, in June 2642 people, and in July there were 3890 people. The data shows the high demand for users of online registration service facilities,

however, the number of these user needs to be evaluated already satisfied with the service or even experiencing disappointment.

Evaluation of the success of a service delivery, can be measured by the level of satisfaction of service recipients (9). As a new service, online registration at RSUP Dr. Sardjito has never done an evaluation of customer efficiency and response. In fact, evaluation will be needed as a basis for the development and improvement of the program. Based on the background of the exposure, the researcher is interested in examining the different levels of customer satisfaction with the online registration system and the direct registration system at the Dr. Outpatient Hospital Dr. Sardjito Yogyakarta.

MATERIALS AND METHODS

The type of research used is observational research with a cross sectional study design, which is a type of research that emphasizes the measurement or observation of data at one time at a time carried out on the dependent variable and the independent variable. (10). The population is all patients who visited the Outpatient Installation Dr. Sardjito number 62190 with non probability accidental sampling technique.

The sample size calculation is determined based on the calculation according to Slovin, obtained as many as 100 samples divided into 2 groups, namely the online registration group and the direct registration group, the inclusion criteria were old patients with at least 3 visits using online registration and at least 3 visits by direct registration, can read and write, good awareness and are willing to take part in research, while exclusion criteria are social health insurance patients.

The type of data collected includes data on the characteristics of research subjects and the level of satisfaction measured using a structured questionnaire. The data obtained is then processed using univariate and bivariate statistics. Chi square analysis was conducted to see differences in the level of satisfaction between the online registration group and the direct registration group. This research was conducted for 8 days, January 15-24, 2019.

RESULTS AND DISCUSSION

Characteristics of Research Subjects

Table 1. Frequency distribution of respondent characteristics in the outpatient installation of RSUP Dr. Sardjito Yogyakarta

Characteristics of Respondents		Registration Type			
		Online Registration		Direct Registration	
		n	%	n	%
Age (years)	17 - 25	8	16	6	12
	26 - 35	17	34	11	22
	36 - 45	8	16	15	30
	46 - 55	10	20	12	24
	56 - 65	5	10	5	10
	>65	2	4	1	2
Gender	Female	25	50	32	64
	Men	25	50	18	36
Education Level	S2	2	4	0	0
	S1	19	38	15	30
	D3	7	14	5	10
	SLTA	21	42	23	46
	SLTP	0	0	6	12
	SD	1	2	1	2
Family Relationships	Patient	24	48	15	30
	Family	26	52	35	70
Address	Foreign D.I Yogyakarta	24	48	21	42
	D.I Yogyakarta	26	52	29	58
Type of Online Registration	Application	32	64	0	0
	Website	11	22	0	0
	WA	7	14	0	0
	Phone	0	0	0	0
	SMS	0	0	0	0

Source: Primary data for 2019

The results showed that the characteristics of respondents in the online registrar group for sex were as many as between male and female respondents each totaling 25 people or 50% percent, while in the direct registration group 32 people or 64% women and 18 people or 36% Male. This is because researchers took samples with non-probability accidental sampling techniques, based on the samples found and were willing to become respondents without assessing sample search by sex.

Gender has an influence on views or satisfaction with the services rendered. Women see more appearance in detail and critical, while men ignore it (11). Satisfaction in the direct registration group where the respondents were more female showed more dissatisfaction. This result contradicts Budiman's research which found that more women expressed satisfaction than men (12).

In terms of age characteristics, the largest percentage of online registrants aged 26-35 years was 17 people or 34%, while in the direct registrar group the largest percentage was aged 36-45 years at 15 people or 30%. The age difference will affect the level of satisfaction, because someone who is more mature has a perception and meaning of satisfaction that is better than younger (13). In contrast to the results in this study, the majority of respondents in the direct group were late adults, compared to the online registration group which was dominated in early adulthood, but the level of satisfaction in online registration was more satisfied than the direct registration group.

This phenomenon is supported by Budiman who said that age cannot be a benchmark for determining satisfaction, because in reality someone who is younger can be more experienced and more satisfied than someone who is older (12). This contradicts Gunarsa's theory and the results of Resmisari's study which states that older patients have lower expectations so they are more satisfied (11,14). Respondents to the online registrar group were more satisfied because at this age they understood technology more so they felt made easier with the online registration system (12).

At the highest level of education, namely senior secondary education, in the online enrollment group there were 21 people or 42%, and in the direct registration group 23 people or 46%. However, in the online enrollment group there were more respondents with a tertiary education, where education would influence lifestyle and mindset (15) in line with Nurus Sa'idah's research which said the experience, IT skills and knowledge variables significantly influenced the use behavior of online registration (16).

In the category of relationships with the majority of patients as a family of 26 people or 52% in the online registration group and 35 people or 70% in the direct registration group. At this age, individuals begin to ignore their personal desires or rights that may be a necessity, but sometimes put family first (17). There are more dwellings in the D.I. region. Yogyakarta totaling 26 people or 52% in the

online registration group and 29 people or 58% in the direct registration group. This is in accordance with research by Dewi who concluded that in utilizing health services people will consider factors including: transportation costs, distance to the nearest health center, medical expenses, and physical access (8). Respondents from outside Yogyakarta are referral patients who for some reason cannot get services in their area of origin, so to get further services they are referred to Dr. Sardjito as type A national referral hospital.

The largest type of registration respondents use application facilities in the amount of 32 people or 64%. Dr. RSUP online registration application Sardjito can be downloaded on a smart phone, so registration can be done anywhere, at any time. Registration using the application, the registration process can be done until the verification process is complete, and is not influenced by other users who are accessing the website.

Table 2. Differences in customer satisfaction levels by type of registration

Type of Registration	Satisfaction				ΣN	X ²	P
	Satisfied		Not satisfied				
	n	%	n	%			
Online Registration	31	62	19	38	50	2,57	0,108
Direct Registration	23	46	27	54	50		

Source: Primary data for 2019

Based on the table above shows that respondents with online registration more satisfied (62.0%), while direct registration more dissatisfied (54.0%). Chi square test results, namely $p = 0.108$, indicate that a value > 0.05 , which means that the difference in the level of customer satisfaction using online registration and direct registration is not significant. This is because the respondent is an old patient who has repeatedly utilized the services at the hospital. Sardjito so that they feel comfortable with the direct registration system that they are accustomed to. Customer dissatisfaction with direct registration is more in the long registration process, but this can still be understood because of the customer's awareness of the large number of patients who must be served.

Online registration system is still in the stage of evaluation and improvement. Some customers complain that verification code notification and input error notification facilities are too long, often

approaching the check day. This reasoning was stated by several online customers who finally decided to switch back to the direct registration system, if this was not immediately dealt with, then online registration users had the risk of being reduced. Some customers also complained about the queue of APM machines in the morning, which is because there are still many customers who come in the morning because they expect to get an initial queue number to get a doctor's examination. This is due to the administration of the doctor's queue number based on the patient's arrival time.

CONCLUSION AND RECOMMENDATION

Based on the research results, the following conclusions can be drawn:

1. Demographic characteristics of respondents in the online registration group, majority aged 26-35 years, high school education level, same sex ratio, as a family and residing in the D.I area of Yogyakarta. The most widely used type of online registration is the online application Dr. Sardjito.
2. Demographic characteristics of respondents in the direct registration group, majority aged 36-45 years, high school education level, female sex, as family and resides in the D.I area of Yogyakarta.
3. Customer satisfaction online registration system 62% expressed satisfaction, 38% dissatisfied. Direct registration system customer satisfaction 46% expressed satisfaction, 54% expressed dissatisfaction.
4. Based on the chi square test results obtained $p = 0.108$ ($p < 0.005$), this shows there is no difference in customer satisfaction online registration system and direct registration system.

RECOMMENDATION

1. Alma Ata University
The results of this study serve as library information media for students and additional study material in learning and research related to hospital management information systems (SIMRS).
2. RSUP Dr. Sardjito
To improve services so that Dr. Sardjito:

- a. Applying the queuing number of doctor services according to the order of registration on the online registration, so that there is no buildup of registrants who register on the APM machine.
 - b. To socialize the policy of medical hospital-based medical service provider, the service provider doctor is the consultant doctor and the student specialist and prospective counselor under the responsibility of DPJP.
 - c. Increase the speed of verification services and provide information on the occurrence of errors / lack of input data on online registration.
 - d. So that all members of the hospital community actively socialize to customers regarding the effectiveness of using the online registration system directly or through social media.
3. For Respondents
The results of this study can provide input to customers about the effectiveness of the online registration system so that it can be taken into consideration in determining the registration system to be carried out.
 4. For Further Researchers
The results of this study can be used as consideration and further research is developed on the factors that influence the low use of online registration systems.

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Evaluation of Implementation Occupational Health and Safety (Use of Personal Protective Equipment) in Panembahan Senopati Hospital

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ABSTRACT

- Background:** Hospitals are required to provide services that prioritize safety for patients and health workers as a step to provide assurance to patients, visitors to hospitals and protect themselves from hospital work-related accidents. at present Hospital employees are still at high risk of experiencing. There are around 337 million workplace accidents and 160 million work-related illnesses every year. Fatalities related to work are around 1.95 million per year. The government, represented by the ministry of health seeks to ensure the quality of services in hospitals through accreditation and one component of the accreditation assessment is through the implementation of OHS.
- Objectives:** This study aimed to investigate OHS is one of the important components for assessing the quality of hospitals. Seeing this phenomenon, researchers are interested in knowing the implementation OHS in Panembahan Senopati Bantul Hospital.
- Methods:** This research is observasional survey design. The sample used 86 respondents then sampling the fraction cluster.
- Results:** The results were obtained by employees using personal protection 75.40% of health workers, 100% in medical technology, other health workers and non-health workers. Nearly 22.95% incidence of injuries to health workers, 27.27% to medical technicians, 20% to other health workers 11.11% to non-health workers.
- Conclusions:** The incident OHS in 2017 amounted to 12. Until now the implementation of OHS was in the good category except that the staff in the hospital still had the potential to incidents.
- Keywords:** *Occupational Health and Safety of the Hospital*

INTRODUCTION

The hospital is one of the health facilities that provide services to the community. Hospitals are required to provide services that prioritize safety for both patients and health workers as a step to provide guarantees to patients, hospital visitors and protect themselves from hospital workers from work-related accidents (1). Supported (2) hospital efforts required to implement and Safety so that the risk of occupational diseases can be prevented as well as in avoiding. The results of research conducted by (3) at Salewangang General Hospital in Maros Regency using a sample of 83 nurses obtained from occupational accidents in terms of work units, most accidents occur in child care installations which 12 people (14.4%) of 16 respondents, in terms of age, the most frequent occupational accidents are nurses aged between 21-26 years, namely 21 people (25.3%) out of 45 respondents, in terms of work accidents work more frequently among nurses who work between 1-5 years namely 34 people (40.9%) of 66 respondents. Although the results of this study have not been able to provide a real picture of the problems that occur in Indonesia, at least these results can be used to provide an illustration of how health gas, including nurses, are very vulnerable to work safety incidents. The results of the study showed that the risks recognized by health workers (4) were 64% of health workers experiencing at least one needle stick injuries (NSIs) during work, 73% reported NSIs twice or more. The results of this study support the results of previous studies that the magnitude of the risk of health workers working in hospitals experiencing accident. Supported by the results of previous studies the overall pattern of hazard exposure is similar across workplace types but respondents who work in public hospitals have greater exposure, on average, to hazards such as blood pathogens and other infectious agents, radiation, chemical agents and cytotoxic drugs (5).

Efforts made by the hospital in carrying out prevention of work accident according to (2) hospitals must meet the requirements one of which is human resources, pharmacy and equipment as well as implementing occupational safety and health management systems. In 2010 Indonesia in collaboration with the International Labour Organization (ILO) issued a manual on ergonomics due to data throughout the world, there were around 337 million work-related accidents and 160 million work-related diseases each year. Fatal illnesses are work-related about 1.95 million per year

(6). In Indonesia, including the Panembahan Senopati Hospital in Bantul, they have tried to implement Occupational Health and Safety Management Systems (OHSMSs) known as the Hospital Occupational Safety and Health Team. The Team always carries out the task of trying to prevent work accident, with various efforts, one of which is OHS training as well as implementing promotive, preventive, curative and rehabilitative programs for hospital employees. It's just that the evaluation of the implementation of occupational health and safety is very important to ensure employee safety.

Data from Panembahan Senopati Bantul District Hospital from a preliminary study obtained data on the number of employees totaling 577 employees and 70.88% or as many as 409 consisting of health workers at risk with various Occupational illness. Hospitals including Panembahan Senopati Hospital Bantul have the majority of health workers in the hospital. Data from the World Health Organization (WHO) shows health workers 3 million were exposed to blood pathogens 2 million of which were exposed to the HBV virus and 0.9 million were exposed to the HBC virus and 170 thousand were exposed to the deadly HIV/AIDS virus (1).

Based on the above background the researcher is interested in researching with the title Implementation of the Implementation of the Occupational Safety and Health of the Hospital at Panembahan Senopati Hospital. The purpose of this study was to determine the description of the implementation of occupational safety and health in Panembahan Senopati Hospital Bantul by health workers, medical technicians, other health workers, non-health workers and safety and occupational health incidents.

MATERIALS AND METHODS

This type of research is a quantitative study with a cross sectional survey design that is taking research data in one particular time each research subject is only one data collection for all variables studied during the study (7). The location of the study was conducted at Panembahan Senopati Hospital Bantul, which was conducted in July 2018 until September 2018.

Population (8) in this study were employees at Panembahan Senopati Bantul District Hospital who worked as health and non health workers, as many as 577 employees. The sample was then divided into 4 groups. Namely health workers (doctors, nurses,

midwives, pharmacists, pharmaceutical analysts), medical engineering (radiographers, electromedics, health analysis, medical records, blood transfusion technicians), other health workers (Sanitation, Environmental health, Speech therapy, Nutrition, Dietisation en, Occupational Therapy Physiotherapy) and non health workers. The minimum sample size is determined using the Slovin formula (8) of 85.22 (rounded up to 86 people). For proportional samples Researchers will calculate the sample size of each group using the fraction cluster sampling formula.

Table 1. Proportional sample for each group (ni)

Group	Ni	N	fi	n	ni
Health workers	409	577	0.71	86	61
Medical engineering	74	577	0.13	86	11
Other health workers	35	577	0.06	86	5
Non health workers	59	577	0.10	86	9
Total sample					86

RESULTS

Table 2 . Implementation of OHS personnel or employees at Panembahan Senopati Hospital Bantul

Group Employee	Following Periodic Checks		Use Of Personal Protective Equipment (PPE)		The Incident Was Almost Injured	
	n	%	n	%	n	%
Health workers	39	63.93	46	75.40	14	22.95
Kete knisian medical	10	90.90	11	100	3	27.27
Other health workers	2	40	5	100	1	20
Non health workers	6	54.54	9	100	1	11.11

Table 2. shows the implementation of OHS personnel or employees in Panembahan Senopati Bantul District Hospital in training activities, conducting periodic inspections, the use of PPE as well as data during work having experienced near-work injuries.

Table 3 List of incidents of OHS Panembahan Senopati Bantul 2016-August 2018

Year	Incident	Number of cases
2016	OHS incident	7
2017	OHS incident	12

2018 OHS incident 4

Source: primary data of Panembahan Senopati Bantul OHS Team.

Table 3 is a list of OHS incidents that have been documented by the Panembahan senopati OHS team in Bantul. This value is a sign that hospital employees are very at risk of experiencing incident. The hospital through the OHS Team mentioned that the number was just that for the occurrence the type of detail was not disclosed. The data shows how important the application of OHS is to prevent and reduce accidents and occupational diseases (9) .

DISCUSSION

Occupational safety and health incidents during the last 1 year in 2017 there were 12 cases and from 2018 to August there were 4 cases of OHS incidents. Hospitals in Indonesia are places that should be made for employees (9,10) . Hospitals in Indonesia are still at risk from the health of their workers as evidenced by the results of previous studies in the hospital laboratory at work accidents in the clinical pathology laboratory in Aceh RSUZA in 2009 amounted to 69.6% (11) .The implementation of occupational safety and health in Panembahan Senopati Bantul District Hospital by health workers.

The results of this study obtained the results of health workers attending training as many as 60 (98.36%), conducting periodic examinations as many as 39 (63.93%) using PPE as many as 46 (75.40%) had an almost injury incidence of 14 (22.95%). (3) mentioned that in Salewangang General Hospital, Maros Regency using a sample of 83 nurses obtained from occupational accidents in terms of work units , most accidents occurred in child care installations, namely 12 people (14.4%) of 16 respondents, in terms of age the most work accidents are nurses between the ages of 21-26 years, namely 21 people (25.3%) out of 45 respondents, in terms of work accidents more often occur in nurses who work between 1-5 years, namely 34 people (40, 9%) of 66 respondents. Although the results of this study have not been able to provide a real picture of the problems that occur in Indonesia, at least these results can be used to illustrate how health workers are very vulnerable to work safety incidents. Including in panembahan senopati hospital with OHS Incident cases in 2017 totaling 12 cases. Including in this research, there was

a result that there was a near miss injury experienced by nurses, namely finding a needle in an infectious trash should be put in a safety box that is at risk of almost injury.

To ensure the implementation of occupational safety and health at the hospital, it is necessary to carry out the company's OHS, including hospitals, must carry out OHS management, among others (9) : leadership and administration, training for management, planned inspection, job analysis and work procedures, investigation of events and occupational accidents, work observation , emergency response, company regulations, analysis of events and accidents, employee training, personal protective equipment, health control, program evaluation systems, technical control, individual communication, group meetings, public campaigns, appointment and assignment of employees, control purchasing and safety outside of work.

The implementation of occupational safety and health in Panembahan Senopati Bantul District Hospital by medical technicalities participated in training 8 (72.72%), conducted periodic checks of 10 (90.90%) using PPE as many as 11 (100%) had nearly 3 injuries (27.27%). From 11 medical techniques, it turns out that the results of this study indicate that while working in a hospital it turns out that as many as 3 respondents who experienced injury. For the use of PPE by medical engineering is very good.

Every employee has the same right to get protection, especially safety at work (2,10). One of the technical personnel, namely research radiographers (12) mentioned that as many as 11 people were all permanent radiographers of the Dr. Radiodiagnostic Hospital. Soetomo Surabaya. The results of the study showed the radiographer's behavior in the diagnostic radio installation at Dr. Soetomo Hospital, Surabaya 100% in the safe category. This is because management has used good behavioral intervention efforts, by applying activators and consequences to direct and motivate the radiographer's behavior. External factors of radiodiagnostic installation are known to support radiographers to behave safely. From this research, the results show that good management will bring behavior in a safe direction to employees and is supported by (12) .

The implementation of occupational safety and health in Panembahan Senopati District Hospital by other health workers, Other health workers conduct periodic examinations as many as 2 (40%) using PPE as many as 5 (100%) have incidents of almost injury as much as 1 (20%). Implementation of occupational

safety and health at Panembahan Senopathic Hospital in Bantul by non-health workers, do periodic checks 6 (54.54%) using the PPE as much as 9 (100%) experienced a near-miss incidents of injury as much as 1 (11:11%). The process of organizing OHS is the implementation of OHS activities such as employee health checks conducted routinely every year for employees in high-risk units such as laboratory, nutrition, pharmacy, and radiology units. Activity OHS form of implementation of work safety dibukti right by the availability of personal protective equipment in each unit, there is a fire protection systems such as fire extinguisher, hydrants, sprinkel, fire alarm, and the assessment of identification and control of hazards in each unit and there is a response team darura t in each units as an effort to prevent and combat fires and standard operational procedures (SOP) on OHS in each work unit (13) .

Added by (13) Dissemination to employees is carried out during morning apple, through routine training, and outreach to work units in hospitals. The training is realized by having routine training held once a year by the OHS team in cooperation with the hospital training section on fire disaster management as well as facilities provided by hospitals such as fire extinguisher, hydrant, field, room and stretcher and for the OHS team to be sent outside to conduct OHS training.

CONCLUSION

Implementation of safety and occupational health at Panembahan Senopati Hospital Bantul by health workers: attended 60 training (98.36%), conducted periodic checks of 39 (63.93%) using PPE as many as 46 (75.40%) experienced almost 14 injuries (22.95%). The implementation of occupational safety and health in Panembahan Senopati Bantul Hospital by medical technicalities: attended 8 training (72.72%), conducted periodic checksof 10 (90.90%) using PPE as many as 11 (100%) had incidences of 3 injuries. (27.27%) . The implementation of occupational safety and health in Panembahan Senopati Bantul Hospital by other health workers: attended 5 (100%) training, conducted 2 (40%) periodic examinations using PPE as many as 5 (100%) experienced almost 1 incident (20%) .

Implementation of occupational safety and health in Panembahan Senopati Bantul Regional Hospital by non-health workers: attended 6 (66.67%) training, conducted 6 (54.54%) periodic examinations using Occupational illness as many as 9 (100%)

experienced almost 1 incident of injury (11.11%) . Occupational safety and health incidents during 2017 until 2018 still occur incidents.

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The Relation Between Gymnastics Elderly With Elderly Stress in Village of Polaman Argorejo District Bantul Yogyakarta

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ABSTRACT

Background: Physical activity on elderly can be a mechanism of dealing with stress to increase wellbeing. However older people are rarely engage in the physical activity. The purpose of this study to know the relationship between gymnastics elderly with the level of stress on seniors in village of Polaman Argorejo, District of Bantul Yogyakarta.

Objectives: The purpose of this study to know the relationship between gymnastics elderly with the level of stress on seniors in village of Polaman Argorejo, District of Bantul Yogyakarta.

Methods: This study is an analytic quantitative research with cross sectional design. The population in this study was elderly live in village of Polaman which totaled 90 people. The sample used in this study who as many as 90 people taken using total sampling techniques. The data collected were analyzed using a chi-square statistics test.

Results: The results showed the seniors actively participate in gymnastic and not subjected to stress is 16 respondents (76.2%), while seniors actively participate in exercise and subjected to stress is 5 respondents (23.8%). Based on the analysis Chi Square obtained the result of the value of $p=0.000$. It shows there is a significant relationship between gymnastic seniors with the level of stress.

Conclusions: There is the significant relationship between gymnastics for the elderly with the stress level on elderly in village of Polaman Argorejo Bantul Yogyakarta.

Keywords: *Gymnastics Elderly, Stress, Elderly*

INTRODUCTION

Human growth into old age is part of the growth stage of human life that could not be avoided. Healthy despite entering old age is everyone's hope. Various attempts were made to keep the body healthy and avoid all diseases. The elderly are both male and female individuals aged between 60-69 years (1).

The number of elderly people worldwide is currently estimated at 500 million with an average age of 60 years and it is estimated that by 2025 it will reach 1.2 billion. In developed countries such as the United States, aging increased to 1.000 per day in 1985 so the term baby-boom in the past changed to an explosion of elderly population (2).

The development of the elderly population in Indonesia is interesting to observe, from year to year the number tends to increase. In general, based on the results of the 2010 population census, the number of elderly residents in Indonesia is 18.04 million people or 7.59 percent of the total population of Indonesia. The population of elderly female (9.75 million people) is greater than the population of elderly male (8.29 million people). It is far more in rural areas (10.36 million people) than in urban areas (7.69 million people). The largest elderly population is in the province of Special Region of Yogyakarta with an elderly population of 448.223 people or 12.96 percent of the total population, consisting of 249,784 elderly female population and 198.439 elderly male population (2). In 2020-2025, Indonesia will rank in the country with the structure and number of elderly population after China, India and the United States, with life expectancy above 70 years (1).

Elderly is often perceived negatively, is considered a burden on the family and surrounding community. This fact encourages the development of the notion that growing old is synonymous with the increasing number of health problems experienced by the elderly. Negative perceptions like that are of course not all true, because there are also elderly who play an active role not only in their families, but also in the surrounding community. Lack of attention to the elderly group, can cause complex problems for the elderly, given that health is a very important aspect that needs to be considered in elderly life (4).

In the course of elderly experience changes in the body system. These changes include physiological changes, functional changes, cognitive changes, and psychosocial changes (5). Further explained that psychosocial changes during the aging process will

involve the process of life transition and loss. The longer a person's life, the more transitions and losses they face. This can cause stress in the elderly and the possible risk of suicide (5).

Stress is a body response that is not specific to any demands or burdens on it. Based on this understanding can be said to be stressful if a person experiences a heavy burden or task but the person cannot cope with the assigned task, then the body will respond unable to the task, so that the person can experience stress. Conversely, if a person with a heavy workload but overcomes the burden with a good body response, then that person is not experiencing stress (6).

Research shows high levels of stress in the elderly, with 21.25% showing severe complaints and 18.75% showing moderate complaints. While the factors that cause stress in the elderly include changes in daily activities, changes in family gatherings, death of spouses, death of family members, and changes in sport quantity and changes in work (7). Based on the results of the research described above it can be seen that one of the problems often faced by the elderly is stress due to natural changes in the elderly. The elderly who live at home and who live in elderly homes are also at risk for experiencing stress, whether severe, moderate, or mild. To overcome this, the elderly need a way to deal with stress.

Sports activity is one mechanism to deal with stress in the elderly. Sports activities will help the body stay fit and fresh because it keeps the bones strong, encourages the heart to work optimally, and helps eliminate free radicals in the body. The most appropriate type of exercise for the elderly is gymnastics exercises that are accompanied by strength exercises plus rhythmic movements and stretching (1). Elderly gymnastics including low impact aerobics (avoiding jumping movements), mild to moderate intensity, is comprehensive with movements that involve most of the body's muscles. The benefits of movements in elderly exercise are expected to increase muscle strength and endurance and can reduce psychological disorders such as stress in the elderly (1).

Based on the background of the problems that have been stated above, the formulation of the problem studied is whether there is a relationship between elderly gymnastics with stress levels in the elderly in Polaman Argorejo Hamlet, Sedayu 2 Subdistrict, Bantul Regency, Yogyakarta. The purpose of this study is to determine the elderly gymnastics in the Polaman Hamlet, to find out the stress levels of

the elderly who are active and not actively following the elderly gymnastics in the Polaman Hamlet, and to identify the relationship between the elderly gymnastics with the stress level in the elderly living in the Polaman Hamlet, Argorejo Yogyakarta.

MATERIALS AND METHODS

This type of research is quantitative analytic research with cross sectional design. The population in this study is the elderly who live in the hamlet of Polaman, amounting to 90 people. Sampling in this study uses a total sampling technique that is taking all members of the sample into a sample that matches the inclusion and exclusion criteria living in Polaman Hamlet, amounting to 90 people.

Data analysis using univariate and bivariate analysis with Chi-Square test. In addition, this independent research variable is elderly gymnastics, while the dependent variable is the stress level of the elderly.

RESULTS AND DISCUSSION

Characteristics of research subjects

Table 1. Frequency distribution of respondent characteristics in the Polaman Argorejo District Bantul Yogyakarta

Characteristics	F	%
Gender		
Male	41	45,6
Female	49	54,4
Age (Years)		
60-65	47	52,2
66-70	30	33,3
>70	13	14,4
Occupation		
Trader	15	16,7
Farmer	40	44,4
Retired employees	6	6,7
Unemployment	29	32,2

Education Level		
No Formal School	6	6,7
Primary School	46	51,1
Junior High School	24	26,7
Senior High School	8	8,9
College	6	6,7
The activity of elderly gymnastics		
Active	21	23,3
Not Active	69	76,7
Stress Level		
Not Stress	22	24,4
Stress	68	75,6
Total	90	100

Source: Primary data for 2015

Based on the results of the analysis of **Table 1** shows that the elderly gymnastic activities in the Polaman Hamlet area are mostly followed by female respondents (32.7%), because many female respondents who are not working, only stay at home doing household activities, so they still have plenty of time to follow gymnastics activities. The number of female respondents in the Polaman Hamlet area was higher than that of male respondents, namely 49 female respondents (54.4%). This is in accordance with one theory that life expectancy in female is higher than life expectancy for male, so many elderly people are female. Elderly female are more involved in gymnastics activities than elderly male because they are still working to support their family, there are also elderly male who feel reluctant to do these activities (8). Most of the elderly male in the Polaman Hamlet area have livelihoods as farmers, traders, and some have retired as civil servants. Samples obtained were 90 respondents aged ≥ 60 years due to elderly gymnastics shown at the elderly. Someone referred to as the elderly because it has more than 60 years of age and above.

In the distribution of the education level of the elderly shows that most of the elderly have a low level of education, namely Elementary Schools, amounting to 46 respondents (51.1%) while the elderly who arrive at tertiary education are only 6 respondents (6.7%). The data explains that the large number of elderly who do not attend formal school and have low education is because in earlier times when the elderly were at school age, schools were still rare and only certain people could attend formal school (9).

Elderly gymnastics activities in the Polaman Hamlet area are not followed by the elderly who are more than 70 years old because many elderly people cannot participate in activities such as elderly gymnastics, some are not permitted by families for fear of unwanted things happening. One theory explains, the older a person's age there are several processes of change in which sensitivity increases or the limit of adaptation becomes reduced which is often known as geriatric giant, where the elderly will experience problems namely impaired immobilization, instability (easy fall), intellectual disorders (dementia), isolation (depression), immunodeficiency, constipation, and impairment in vision, hearing, taste, smell, and communication (10).

The study also showed that 21 respondents (23.3%) actively participated in the elderly gymnastics, while 69 respondents (76.7%) did not actively participate in the elderly gymnastics. Respondents with active categories following the elderly gymnastics are respondents who took the elderly gymnastics for 4 times in a row for 4 weeks without any pauses, while the elderly with inactive categories were respondents who did not follow the elderly gymnastics for the elderly for 4 times in a row take part in 4 weeks or there is a break not following the elderly gymnastics.

The results of this study are supported by one of the data that shows that most of the elderly in the four Posyandu areas of the elderly are not actively participating in elderly gymnastics. Inactivity of respondents in participating in gymnastics is due to respondents who reside far from gymnastics place, busyness or because of physical conditions that are not possible (11). Poor physical or fitness conditions can also be influenced by age, sex, smoking habits, and exercise (12). This research also shows that most of the elderly who live in the hamlet of Polaman have busy working as farmers and traders, and more than 65 years of age reach 47.7% of the total population. The theory reveals, as a person ages there are several processes of change wherein sensitivity increases or the limits of adaptation become less commonly known as geriatric giants, where the elderly will experience problems namely impaired immobilization, instability (easy fall), intellectual disorders (dementia), isolation (depression), immunodeficiency, constipation, and impaired vision, hearing, taste, smell, and communication (10).

The stress level of the elderly shows that as many as 68 respondents (75.6%) experienced stress while the other 22 respondents (24.4%) did not experience

stress. The results of this study are supported by research data showing that elderly people who experience severe stress as much as 81.25% and moderate stress levels as much as 18.75%. Factors that cause stress in the elderly include changes in daily activities, the death of a spouse, death of family members, the quality of sports and recreation, as well as changes in work (13). This is in accordance with one theory that the disorder that often occurs in old age is stress (6).

Stress as a demanding stimulus where the higher or greater the pressure experienced by someone, the higher the stress experienced (6). Stress experienced by individuals has several stages including, first stage stress, second stage stress, third stage stress, fourth stage stress, fifth stage stress, and sixth stage stress (14). One theory says that the occurrence of stress due to the stressor is felt and perceived by the individual as a threat giving rise to anxiety which is a general and initial sign of physical and psychological health disorders (15). Stressors are any conditions or events that can cause changes in a person's life (children, adolescents, adults, and parents), so that the individual is forced to adapt or cope with stressors that arise (14).

Tabel 2. Relation between gymnastics elderly with elderly stress in the Polaman Argorejo District Bantul Yogyakarta

Elderly gymnastics	Stress Level		Total	P Value
	Not Stress	Stress		
Active	16 76,2%	5 23,8%	21 100%	0,000
Not Active	6 8,7%	63 91,3%	69 100%	
Total	22 24,4%	68 75,6%	90 100%	

Source: Primary Data 2015

In Table 2 the results of the analysis illustrate that respondents who experienced stress mostly came from respondents who did not actively follow gymnastics while respondents who did not experience stress were respondents who actively participated in elderly gymnastics. From these results we can conclude that the more inactive respondents follow the elderly gymnastics, the higher the level of stress experienced.

The results of this study also illustrate that elderly gymnastics is stated to be statistically related to stress levels as indicated by the Chi-Square statistical test obtained p value of 0.000 < 0.05, so it

can be concluded that there is a relationship between elderly gymnastics with elderly stress levels, while the closeness the relationship is moderate because the contingency coefficient value is 0.553. This can be influenced by other factors that can reduce stress such as recreation, regulation of nutrition, rest and sleep, dietary arrangements, and social and family support (6). The results of this study are supported by research data that show the results of statistical tests using Wilcoxon which is p-value 0.000 ($p < 0.05$), and it can be concluded that there is an influence of elderly gymnastics on decreasing the level of stress (16). This study is also supported by research data with the result that physical activity can reduce stress in the elderly by exercising at the fitness center for 60 minutes for 3 times a week in 8 weeks (17).

Sports in this case elderly gymnastics will help the body stay fit and fresh because it keeps the bones strong, encourages the heart to work optimally, and blood flow more smoothly. Besides regular exercise such as gymnastics will pump Endorphin production in the brain which will give the effect of feeling happy and comfortable. One of the benefits of this hormone is controlling stress and increasing immunity. Endorphins in the body can be triggered by the emergence of various activities such as sports, deep breathing, relaxation, and meditation. In addition, regular exercise allows the body to control stressful situations.

Elderly gymnastics provide benefits in the formation of better mood conditions so that elderly who regularly participate in sports activities will always be in a comfortable feeling condition. Comfortable feeling conditions make individuals able to optimize the functioning mental processes and also affect the individual's ability to deal with any problems that can cause stress. Especially because elderly gymnastics is done in groups and is usually accompanied by music so as to provide a feeling of comfort and security, as well as creating a joy and togetherness among fellow elderly people. Therefore, sports in this case the elderly gymnastics still provides a role in changes in individual stressful situations even though there are still other factors that influence.

CONCLUSIONS

Based on the research results, the following conclusions can be drawn:

1. Most of the respondents who live in Polaman Hamlet are not actively participating in the elderly gymnastics
2. Most respondents who do not actively follow the elderly gymnastics experiencing stress.
3. There is a relationship between elderly gymnastics with stress levels in the elderly as indicated by the results of the chi-square statistical test obtained p value of $0.000 < 0.05$ with moderate relationship closeness and the direction of positive correlation (+) which indicates more inactive respondents follow the elderly gymnastics the higher the stress experienced.

RECOMMENDATION

1. Universitas Alma Ata
This research can be an additional reference in library of Universitas Alma Ata of Yogyakarta as well as reference materials to improve Evidence Based Practice, especially regarding stress management in the elderly.
2. Health Agency
It is hoped that will always be able to increase routine activities for the elderly so that the elderly can take advantage of the available time with useful activities and remain active as they age.
3. Respondents
Elderly people need to increase physical activity according to their ability with one of the ways to participate in elderly gymnastic activities that will improve fitness. Elderly gymnastics itself can be a good coping strategy in dealing with stress.
4. Further Researchers
Requires further research that is similar to more complete research variables such as in-depth research about other factors that affect stress levels in the elderly.

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Effectiveness of Health Cadres and Video Towards Knowledge About HIV/ AIDS Prevention In Balecatuur Village, Sleman, Yogyakarta

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ABSTRACT

Background: HIV (Human Immunodeficiency Virus) / AIDS (Acquired Immune Deficiency syndrome) is a global emergency problem. In the world, more than 20 million people died while 40 million people were infected. HIV/AIDS is one of the biggest threats to the socioeconomic development and stability of developing countries. In an effort to improve one's knowledge and attitudes, it is necessary to carry out health promotion activities to increase knowledge and preventive efforts in the community.

Objectives: The purpose of this study was to determine the effectiveness of health cadres and video toward knowledge about HIV/AIDS in Balecatuur Village, Sleman.

Methods: The design of this research is a quasi-experimental study with a pretest-posttest two group design consisting of two groups, i.e. groups that are treated with health promotion with video media and groups that are treated with health promotion by cadres around HIV / AIDS (38 respondents). Data collection using a questionnaire and data analysis using univariate and bivariate with Paired T Test.

Results: There were differences in the average knowledge of the assistance group by cadres before and after the intervention (12.01) and the difference in average knowledge of the video group before and after the intervention was 8.56. The results of the statistical test of the knowledge with mentoring group by cadres with p-value = 0.001, it means that there are significant differences in the knowledge of respondents before and after cadre mentoring. The statistical test results of group video knowledge with p-value = 0.001, it means that there are significant differences in respondents, knowledge before and after video intervention. Conclusion: The mother's knowledge has improved after good health promotion through cadre assistance and with video media.

Conclusion: Health promotion can be carried out by using media and optimizing the quality of resources (cadres) in the community in order to increase knowledge about HIV/AIDS prevention.

Keywords: Cadres, HIV/AIDS, Video, Knowledge

INTRODUCTION

HIV (Human Immunodeficiency Virus)/AIDS (*Aquired Immune Deficiency syndrome*) is a global emergency problem. Worldwide more than 20 million people died while 40 million people were infected. HIV/AIDS is one of the biggest threats to the socioeconomic development, stability of developing countries. HIV / AIDS problems such as the phenomenon of the iceberg must be overcome through various aspects. Promotive efforts as part of Sustainable Development Goals (SDGs) must be implemented. In 2015, 36.7 million of the world's population were affected by HIV and 1.1 million were affected by AIDS. Around 5700 people get HIV every day (1). In Indonesia, HIV/AIDS first discovered in Bali Province in 1987. The Ministry of Health of the Republic of Indonesia has stated that as of December 2010, there were 24.131 AIDS cases in Indonesia in 300 districts / cities in Indonesia (2). Indonesia is a country with a high incidence of HIV/AIDS. In 2015, the incidence of HIV in Indonesia was 30.935 people and AIDS was 7.185 people (3). Based on 2018 data from the Head of the Section of Prevention and Control of Infectious Diseases, the Disease Management Division of the Yogyakarta District Health Office recorded the highest number of HIV cases in the local area compared to regencies / cities in the Special Province of Yogyakarta. namely reaching 915 cases, Yogyakarta City with 859 cases and Bantul District with 857 cases, and the fewest in Kulon Progo District which only 201 cases.

Based on Astuti's research, 2012 (4) along the Wates road is a hotspot for sexual services under the guise of salons and massage parlors. Indirect sex workers are a key population in the spread of HIV/AIDS because they often change partners and do not use protective condoms. The results of the study stated that there were 2 sex workers who were HIV positive and underwent antiretroviral (ARV) treatment.

Implementation of activities in health promotion requires health promotion media, that is, by what means used by health promotion actors to deliver health messages, provide or enhance knowledge and attitudes about health or transform health behavior to the target (5). Cadres and video media have been proven in previous studies to have influence in knowledge, attitudes or behavior. The purpose of this study was to determine the effectiveness of HIV/AIDS cadres and video media with knowledge of HIV/AIDS in Balekatur Gamping Village Sleman DIY.

MATERIALS AND METHODS

The design of this research is a quasi-experimental study with a pretest-posttest two group design consisting of two groups, i.e. groups that are treated with health promotion with video media and groups that are treated with health promotion by cadres around HIV/AIDS (38 respondents). Data collection using a questionnaire and data analysis using univariate and bivariate with Paired T Test.

RESULTS AND DISCUSSION

The characteristics of the research responses are explained in the following table.

Table 1. Characteristics of the research responses

Characteristic	F	%
Education		
Elementary School	5	26.3
Junior High School	2	10.5
Senior High School	8	42.1
University	4	21.1
Marriage status		
No Married	1	5.3
Married	13	68.4
Widowed	5	26.3
Occupation		
Not working	5	26.3
Working	14	73.7

Based on **Table 1** the majority of education at the senior secondary or high school level were 8 respondents (42.1%). Characteristics of cadre marital status showed that 13 respondents (68.4%) were married, while for the majority of work they worked for 14 respondents (73.7%).

A study in five provinces conducted by the Ministry of Health showed a comprehensive increase in knowledge about HIV and AIDS among young people (aged 15-24 years) in the general population, from 11.4% in 2010 to 20.6% in 2011, with the same proportion for men and women. More than half of young people know that AIDS cannot be transmitted through food sharing, and two-thirds answer correctly that people who look healthy can be infected with HIV. In another 2011 study, only 22% of junior high school students in grade 2 of high school had comprehensive knowledge about

HIV transmission, and 64% still had misconceptions about HIV (6).

Table 2. Average of cadre and media assistance group

Variabel	N	Min	Max	Mean	Δ Mean	SD
Knowledge of Assistance Group by Cadre						
Before	19	37.5	87.5	73.51	12.01	12.02
After	19	78.13	93.75	85.52		4.3
Video Group Knowledge						
Before	19	59.38	96.88	81.57	8.56	8.89
After	19	71.88	100	90.13		7.48

The difference in average knowledge of the assistance group by cadres before and after the intervention was 12.01. The difference in average knowledge of the video group before and after the intervention was 8.56.

Univariate Analysis

Knowledge of Assistance Groups By Cadre

The results of the study showed that the average difference in knowledge of the assistance group by cadres before and after the intervention was 12,01. Health cadres were workers who came from the community, were chosen by the community themselves and worked voluntarily to become the organizer of the posyandu (8). Increased knowledge in groups accompanied by mobile cadres because of the two-way communication given by cadres about HIV / AIDS information so that it can affect the increase in information held by mothers.

Group Knowledge with Video Media

The results obtained differences in the average video group knowledge before and after the intervention of 8.56. Audiovisual media health education is considered effective for delivering messages to the public compared to health education without the media or only by media lectures and discussions that are still conventional in nature. This is in line with the “Edgar-Dale learning experience cone” which says that learning experiences gained by viewing videos and demonstrations will be absorbed in memory by as much as 50%, if added again with participant participation for discussion and questions and answers then the material will be absorbed in memory as much as 70%. Audiovisual media is able

to stimulate the senses of hearing and vision so that the results obtained are more optimal 7.

Increased knowledge is also influenced by the level of education. Education influences knowledge because a person’s level of education will influence the response coming from outside. Educated people will think about the benefits they might get from the idea. Highly educated mothers more easily absorb information so that they have a better perception than those with secondary or basic education (8).

Table 3. Knowledge of group assistance by cadres and video media

Variabel	p-value
Knowledge of Assistance Group by Cadre	0.001
Video Group Knowledge	0.001

The statistical test results of knowledge of the group assisted by cadres with p-value=0.001 smaller than the value of $\alpha=0.05$ means that statistically there are differences in the mean knowledge of respondents who are accompanied by cadres who are meaningful before and after one cadre mentoring. Statistical test results of group video knowledge with p-value=0.001 smaller than the value of $\alpha=0.05$ means that statistically there are differences in the mean knowledge of respondents who intervened in videos that were significant before and after one intervention with video.

Bivariate Analysis

Effectiveness of Mobile Cadre Health Promotion Media on HIV / AIDS Knowledge in Balecatu Sleman Yogyakarta

The results of statistical tests found that the health promotion of mobile cadres statistically influences knowledge. This is because the cadres are members of the community so it is easy to carry out their duties. Health cadres who are active in the community will bring a change in behavior in the community. The facilitator plays an active role as an agent who provides positive and directive input based on his knowledge and experience and exchange ideas with the knowledge and experience of the community he is assisting, raise public awareness, convey information, conduct confrontations, conduct training for the community.

Knowledge is also statistically influential due to age maturity. The more mature enough, the level of maturity

and strength of a person will be more mature in thinking and working. In terms of public trust a person who is more mature is trusted from someone who is not yet of high maturity. Age is very influential on a person's knowledge and awareness, the more age someone has, the maturity level and strength of a person will be more mature in thinking and acting. There is a physiological process that causes certain changes, both qualitative and quantitative that are physiological and psychological. This is as a result of the maturity of his soul and influences his knowledge (9).

Effectiveness of Video Health Promotion Media with HIV / AIDS Mobile Cadres on HIV / AIDS Knowledge in Balecatan Sleman Yogyakarta

Media that can be used in providing information about efforts to prevent the spread of HIV / AIDS is video playback. Video learning media is an educational media that contains audio and visual elements, so as to provide clear information on the messages conveyed. The advantage of video media is that it can show back movements, messages using certain effects so as to strengthen the learning process. The weakness of video is that it uses electricity, requires expensive and complex equipment, audience attention is difficult to master, participation is rarely noticed (10).

Statistical test results obtained mean differences in the knowledge of respondents who intervened in a meaningful video before and after one intervention with video. This result proves that the provision of health education with audiovisual media has more effect on increasing knowledge than those who do not use audiovisual media. Harginson explained that learning by seeing can absorb 50%, and hearing 10%, so that providing health promotion using video media students can understand 60% of the material delivered (11). The results of this study are in line with the relationship between providing counseling about HIV / AIDS with knowledge of Banjarbaru Midwifery Academy students on the incidence of HIV / AIDS. Students who received counseling about HIV / AIDS had 4.206 times better knowledge than female students who did not receive counseling. The provision of health education affects favorably on knowledge related to individual health (12). Counseling with audio visual and conventional media can affect the increase in knowledge (13).

Health promotion through mobile cadres is more effective supported by Wroblewska, L. et al (2016) (14) that mentoring using Mentors is considered to be an appropriate, acceptable, and sustainable training method for capacity building.

This assistance is very relevant for arrangements with HIV prevalence because it does not require expensive costs. Research Nabunya et al (2015) (15) mentions that mentoring has the potential to increase HIV / AIDS knowledge by dispelling HIV myths and increasing desired HIV / AIDS beliefs and prevention attitudes towards HIV. Other research that supports that mentoring is very influential in Shroufi et al, which states that the mother to mother mentoring program is very useful in providing a lot of information so that it brings beneficial behavior changes.

CONCLUSION AND RECOMMENDATION

The mother's knowledge has improved after good health promotion through cadre assistance and with video. As a suggest health promotion can be carried out by using media and optimizing the quality of resources (cadres) in the community in order to increase knowledge about HIV/AIDS prevention.

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Appropriate Nutrition for Stunting Cases In Indonesia: Literature Review

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ABSTRACT

Background: Nutritional problems, especially stunting in infants, are caused by inadequate food intake and diseases which are direct causes of nutritional problems in children. The risk of stunting can also be obtained from maternal health and nutrition conditions before and during pregnancy and after delivery which can affect fetal growth. If the nutrition of adolescent girls in Indonesia is currently not improved, then on the future there will be more and more expectant mothers who have short body postures and lack of chronic energy. This will have an impact on the increasing prevalence of stunting in Indonesia.

Objectives: This literature review explains the fulfillment of nutrition in stunting cases of Indonesia.

Methods: The articles discussed in the literature review were taken from Google Scholar, SpringerLink, ScienceDirect, Sage Journals Online, and IJSR databases, within 2015-2019. Then an article is assessed until the literature review stage is made from 4 selected article titles according to the authors' inclusion criteria. The inclusion criteria in this review are based on PICO (P: stunting in Indonesia; I: nutrition fulfillment; C: physical condition of stunting sufferers; O: effectiveness of nutritional content).

Results:

Conclusions: Fulfillment of nutrition for toddlers does not only depend on the diversity of the types of food consumed and the nutritional content, but also depends on processing how to cook and serve

Keywords: *Indonesia, Nutrition, Stunting*

INTRODUCTION

The condition of malnutrition in children or often called stunting is a global problem, including in Indonesia. Stunting problems is multidimensional problems including improper feeding practices, recurrent infectious diseases, poor hygiene and care behavior, use of unclean water, unhealthy environments, low incomes, and limited access to food (1). Stunting can have an impact on children's survival, micro and macro impacts can occur. In the micro impact there will be an increase in mortality and morbidity, decreased cognitive, motor and language development. While the macro effects include short stature, increased risk of obesity, decreased reproductive health, decreased learning achievement and decreased work capacity (2).

In Indonesia, the national prevalence in 2013 was 37.2%, an increase compared to 2010 which was 35.6% and in 2007 it was 36.8% (3). The prevalence of stunting decreased in 2018 but still showed a significant figure. very high, which is 30.8 (4). This means that one in three toddlers in Indonesia is stunted. Although this figure has dropped compared to the prevalence of stunting in 2013 (37.2 percent), it is still higher than the stunting tolerance limit set by WHO, which is a maximum of 20 percent.

Women of childbearing age (WUS) and pregnant women who experience chronic energy deficiency (KEK) will give birth to babies with low birth weight (LBW). This LBW will continue to be a nutrient-deficient toddler (stunting) and continue to the age of school children with various consequences (5). Stunting is more commonly found in children that not given exclusive breastfeeding, this can be explained because breastfeeding as an anti-infection has the potential to reduce the risk of stunting (6).

Various studies in the field of nutrition and health show that to be able to live a healthy and productive life, humans need around 45 nutrients that must be obtained from the food consumed, and not one type of food is able to meet all the nutritional needs of humans. By consuming a variety of foods every day, the lack of nutrients in one type of food will be complemented by the superiority of the composition of other types of nutrients, so that a balanced input of nutrients is obtained (7). The purpose of the preparation of this review is to be able to understand the results of a review of nutrition fulfillment in the case of stunting in Indonesia based on literature 2015-2019.

MATERIALS AND METHODS

The method used in this Literature Review begins with topic selection, then keyword determination to search for articles using English and Indonesian through several databases including Google Scholar found 164 articles, SpringerLink found 248 articles, ScienceDirect found 16 articles, Sage Journals Online found 9 articles, and the International Journal of Science and Research (IJSR) found no articles. Search for this article is limited from 2015-2019. The English keywords used are "appropriate nutrition", "stunting", "Indonesia", for the Indonesian language use the keywords "fulfillment of nutrition", "stunting", "Indonesia". The article was chosen for review based on the inclusion criteria, namely the fulfillment of nutrition in the case of stunting in Indonesia. All articles obtained were adjusted to the inclusion criteria based on PICO (P: stunting in Indonesia; I: nutrition fulfillment; C: physical condition of stunting sufferers; O: effectiveness of nutritional content). A search using the above keywords found a total of 437 articles, and adjusted to the inclusion criteria to obtain four articles in the form of journals. All four articles are then observed and performed with Critical Appraisal.

RESULT AND DISCUSSION

This literature review uses 4 research articles with case study methods. This article is sourced from research conducted in Indonesia with the distribution of 2 articles from Yogyakarta province, 1 article from West Kalimantan province, and 1 other article from Lampung province.

In the first article discusses the relationship between the level of diversity of food consumption of the incidence of stunting in infants in Sleman, Yogyakarta, Indonesia. This type of observational study uses a cross sectional design with a sample of 39 toddlers. The instrument used was the PPH (Hope Food Pattern) score form and a 24-hour recall form to see diversity, the incidence of stunting was obtained using the TB / U index from TB anthropometric measurements. The distribution of the expected food patterns of the aspect of food diversity was found to be 18 children under five (46.2%) and 21 children under five (53.8). While the incidence of stunting in toddlers there are 11 people (28.2%) and normal toddlers as many as 28 people (71.8). In the diverse food consumption category there are 21 toddlers, including 20 toddlers with normal nutritional status,

and only 1 toddler in the stunting category. In the non-diverse food consumption group there were 28 toddlers, including 8 toddlers with normal nutritional status and 10 stunted toddlers. The conclusion of the research article is that there is a relationship between the level of diversity of food consumption of the incidence of stunting in infants (8).

The second article about the relationship of feeding patterns of stunting cases of toddlers aged 36-59 months in Wonosari, Yogyakarta, Indonesia. This type of correlation study research with cross sectional approach, using a sample of 30 respondents mothers and toddlers. The research tool uses questionnaire feeding patterns and metlin with data analysis using Kendall know. The study found 11 mothers (36.7%) with good feeding patterns, 12 mothers (40%) with adequate feeding patterns, and a total of 7 mothers (23.3%) with poor feeding patterns. Whereas found 24 toddlers (80%) categorized as short, and 6 toddlers (20%) categorized as very short. These results are in line between the pattern of feeding given by the mother and the physical condition of the toddler with stunting. The conclusion of the research article is that there is a relationship between feeding patterns and stunting in children aged 36-59 months (9).

In the third article discusses the intake of protein, calcium, and phosphorus related to the incidence of stunting at the age of 24-59 months in the city of Pontianak, Indonesia. Analytic observational research with cross sectional design, using a sample of 90 toddlers. The prevalence of stunting in the low protein intake group was 1.87 times greater than in the adequate protein intake group. The prevalence of stunting in the low calcium intake group was 3.625 times greater than the adequate calcium intake group, and the stunting prevalence in the low phosphorus intake group was 2.29 times greater than the adequate phosphorus intake group. The study concluded that the intake of protein, calcium, and phosphorus was significantly lower in stunting children than in non-stunting children aged 24-59 months in Pontianak (10).

In the fourth article discusses the lack of food intake as a cause of the incidence of stunting in Bandar Lampung, Indonesia. The study design was used analytic observational with cross sectional approach. The sample of this study is a pair of mothers and children aged 2-5 years of 48 people, and the measuring instrument using a food frequency question, check sheet and microtois list. The study produced several explanations related to vitamin A, protein, and iron in relation to the incidence of

stunting. Toddlers who lack vitamin A intake will be 17.5 times more at risk of suffering from stunting when compared to toddlers who have enough vitamin A intake. Toddlers who lack protein intake are 10 times more at risk of suffering from stunting when compared to toddlers who have enough protein intake. Toddlers who lack iron intake 4.54 times more at risk of suffering from stunting when compared to toddlers who have enough iron intake. In that study mentioned several nutritional intake that has nothing to do with the incidence of stunting including calories, carbohydrates, and zinc (11).

IMPLICATIONS FOR NURSING PRACTICE

Literature review has implications for nursing practice, in this case especially the pediatric nursing. Toddlers with diverse food intake will have better nutritional status. Food diversity will complement the lack of nutrients from one type of food and supplemented by similar nutrients from other foods. This should be arranged properly so that toddlers also do not get bored quickly with certain types of food. Knowledge and ability to manage healthy food for toddlers is also important, various ways of cooking can affect the nutritional content in cooked food. Mother of toddlers often insert vegetable ingredients before boiling vegetable broth, this shows a lack of understanding in how to cook so that it affects the nutritional content in cooked food. Food processing will provide several benefits, for example improving nutritional value and digestibility, improving taste and aroma, and extending shelf life (12).

Food given to toddlers is not only full, but also must contain nutrients both macronutrient and micronutrient needed by the body. Various nutritional content including protein, calcium, phosphorus, vitamin A, and iron. The habit of children consuming milk contributes protein to stunting children at 7.67 g / day and in children not stunting at 16.73 g / day. Protein intake provides the amino acids the body needs to build bone matrix and influence bone growth (13). Milk and milk products are also a major source of calcium, besides fish and seafood sources also contain more calcium than beef or chicken. During growth, demands for bone mineralization are very high, very low calcium intake can cause growth retardation (14). In the long run, high intake of phosphorus can cause low bone quality, especially if calcium intake is inadequate (15). Vitamin A functions in the maturation of cells new. Vitamin A deficiency can cause impaired growth function which

causes toddler height is lower than normal (stunting). Besides the function of iron is useful for carrying oxygen and nutrients to cells throughout the body. If iron intake is reduced, it will cause iron deficiency anemia which affects the disruption of activity and growth hormone (16).

The results of this review will add to our knowledge that the community, especially the aggregate of mothers, plays an important role in the development of toddlers. Nurses can act as educators in an effort to increase maternal knowledge related to food management and nutritional content that must be met during infancy. As a facilitator, nurses facilitate supplementary feeding through the toddlers posyandu program. As an advocate, nurses can play a role in monitoring the development of infants and protecting the rights of the community related to nutritional needs to be met through participation in government programs.

CONCLUSION

After conducting a review of the four journals, the conclusions that can be delivered include:

1. Foods can be categorized as meeting the nutritional needs of toddlers if they consist of a diversity of energy, builders, and regulators.
2. Fulfillment of toddler nutrition does not only depend on the nutritional content, but also depends on processing how to cook and serve.
3. Nurses can act as educators, facilitators, and advocates in efforts to meet the nutritional needs of toddlers.

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Nutrition Status Related to Diabetic Ulcer

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ABSTRACT

Background: Diabetes Mellitus (DM) patients often have wounds on the feet called diabetic ulcers. Pathologically diabetic ulcers undergo changes due to an infection that causes ulceration. This ulceration is associated with abnormalities in the neurological system and peripheral diseases to varying degrees. Body Mass Index (BMI) was used to measure the nutritional status. A balanced of BMI has an effect on the wound healing process.

Objectives: Knowing the nutrition status (BMI) related to the degree of diabetic ulcers in the Internal Medicine Polyclinic.

Methods: The research method used was observational analysis with a cross sectional study approach using purposive sampling technique and Spearman rank statistical analysis. The sample in this study were 24 respondents who were outpatient in the internal medicine clinic.

Results: The results showed the value = 0.003 means that $p < 0.05$. The results showed significant relation between nutrition status (BMI) and the degree of diabetic ulcer with a correlation coefficient of 0.588 with a moderate correlation strength of 0.4-0.6. The results showed that most respondents were female with age between 50-64 years, most worked as farmers. Nutrition status (BMI) shows that most of the pre-obesity with the highest degree of ulcer is grade 2.

Conclusion: Nutrition status (BMI) related to ulcer diabetic degree.

Keywords: BMI, Diabetic Ulcer

INTRODUCTION

Complications of Diabetes Mellitus are diabetic ulcers that occur in the legs, called diabetic ulcers in DM patients because they experience pathological changes due to infection, giving rise to ulcerations associated with neurological abnormalities, and peripheral diseases of varying degrees (1). In 2017 the prevalence of diabetic ulcers in Indonesia was 15% of the total DM patients and 23% was the cause of amputation (2).

Previous research by Irwan (2016) mentions that one of the risk factors for diabetic ulcers is the poor diet of DM patients (3). DM patients with complications of diabetic ulcers need nutrition management so that glucose levels go down and be maintained properly, so that the wound healing process becomes fast. Maintaining nutrition in patients with diabetic ulcers is important by regulating a balanced diet, the right composition and the correct amount of food portions, regularly, so that glucose levels can be controlled (4).

The description of nutritional status can be known through nutritional prevalence based on Body Mass Index Indicators (BMI). In adult women the weight is heavier than in adult men. At the age of 35-59 years men and women gain an average weight gain (2). The prevalence of obesity in the average population is influenced by lifestyle, because there are many instant food choices and unhealthy lifestyles, thus causing an increase in the number of DM diseases, so it is necessary to adjust the eating schedule (5).

Based on preliminary studies conducted at the Internal Medicine Polyclinic that the visit of diabetic ulcer patients in the last three months was an average of 75 patients. This means that every month on average 25 patients. Based on a preliminary study, the researcher intends to find out the relationship between nutritional status and the degree of diabetic ulcer.

MATERIALS AND METHODS

This type of research is a correlative quantitative study (Correlational Studies), using observational analysis methods with a cross sectional study approach. The purposive sampling technique uses the Spearman Rank statistical test. This research was conducted in 2018 at the Internal Medicine Polyclinic with a total of 24 patient respondents

RESULT AND DISCUSSION

Respondents' characteristic

Table 1. Respondents' characteristic distribution based on sex, age and occupation.

Respondents' characteristic	Freq	Presentation(%)
Sex		
male	8	33.3
female	16	66.7
Age		
very productive 15- 49	7	29.2
productive 50-64	17	70.8
Occupation		
IRT	6	25.0
farmer	10	41.7
worker	1	4.2
entrepreneur	4	16.7
not working	3	12.5

Premier data 2018

Table 1 shows that the characteristics of respondents are mostly female with a total of 16 people (66.6%), productive ages 50-64 years with a total of 17 people (70.8%), most of them work as farmers, 10 people (41.7%)

Univariate analysis

Nutrition Status (BMI)

Tabel 2. Nutrtition status frequency

Nutrition status (BMI) (kg)	Freq	Presentation (%)
Underweight : < 18,5	0	0
Normal : ≥ 18,5 – 24,9	10	41.7
Overweigh ≥ 25	0	0
Pra – obesitas ≥ 25,1- 29,9	12	50.0
Obesity grade 1 ≥ 30,0 - 34,9	2	8.3
Obesity grade 2 ≥ 35,0 – 39,9	0	0
Obesity grade 3 ≥ 40	0	0

Premier data 2018

Based on Table 2 that most respondents nutritional status (BMI) in the pre-obesity category were 12 (50.0%) with nutritional status level 1 obesity as many as 2 (8.3%) and in the normal category were 10 people (41.7%), which means that nutritional status (BMI) affects pre-obesity

Ulcer Diabetic Degree

Tabel 3 Frequency distribution of the degree of diabetic ulcers in diabetics in DM patients

Degree of Ulcer Diabetic	Freq	Presentation (%)
Degre 0	0	0
Degre 1	7	29,2
Degre 2	12	50,0
Degre 3	5	20,8
Degre 4	0	0
Degre 5	0	0
Total	24	100

Premier Data 2018

Based on **Table 3** shows that the highest number of diabetic ulcers is grade 2 diabetic ulcers with the number of patients 12 people (50.0%) means that the most frequent dipole clinic in diabetics is from degree 2 of the number of respondents as many as 24 patients

Bivariat analysis

Nutrition status (BMI) related to with the degree of diabetic ulcer with the Spearman rank test on both variables with an ordinal scale

Table 4. Nutritional status (BMI) is related to the degree of diabetic ulcer

Nutrition status (BMI)	Diabeticum Ulcer Degree												p-value	Corelation					
	D0		D1		D2		D3		D4		D5				total				
	n	%	n	%	n	%	n	%	n	%	n	%			n	%			
Underweight < 18,5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.003	0.588
Normal ≥ 18,5 – 24,9	0	0	6	25,0	3	12,5	1	4.2	0	0	0	0	0	10	41.7				
Overweight ≥ 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Pra – obesity ≥ 25,1 – 29,9	0	0	1	4.2	9	37.5	2	8.3	0	0	0	0	0	12	50.0				
Obesity stage 1 ≥ 30,0 – 34,9	0	0	0	0	0	0	2	8.3	0	0	0	0	2	8.3					
Obesity Stage 2 ≥ 35,0 – 39,9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Obesity Stage 3 ≥ 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

Premier data 2018

Based on **Table 4** shows that respondents with nutritional status (BMI) in the normal category amounted to 10 with presentations (41.7%) the highest average number of degrees of ulcer level 1 with a total of 6 patients (25.0%). In the nutritional status (BMI) mostly occurs in pre-obesity with a total of 12 respondents in the category of ulcer degree 2 with a total of 9 respondents (37.5%).

Based on the cross table of statistical tests using the Spearman Rank obtained $p\text{-value} = 0.003$, meaning that the $p\text{-value}$ is less than 0.05, it can be concluded that there is a significant relationship between nutritional status (BMI) with the degree of diabetic ulcers with Spearman correlation coefficient values A rank of 0.588 means that the direction of the positive correlation means that the worse the nutritional status, the higher the degree of the ulcer. The correlation strength is in the 0.4-0.6 category

DISCUSSION

Respondents' character

Sex

In **Table 1** shows that the characteristics of respondents based on female sex is the most with the number of 16 respondents (66.7%), compared with male respondents number 8 (33.3%). This means that DM is often found in the sexes of women compared to men.

DM often occurs in women because women have higher LDL or bad triglyceride cholesterol compared to men. Besides the amount of fat in adult men between 15-20% of total body weight, while women between 20-25%, meaning that increased levels of lipids (blood fat) in women are higher than men, so the risk factors for DM occur in females are higher than males (6). The results of previous studies

conducted by Purwanti (2013) said that diabetic ulcer sufferers were more common in the sex of women with frequency (64%) compared to men.

Other studies say that women at the age of menopause (40-45 years) have decreased estrogen production and insulin resistance, so hormonal changes in menopausal women will increase the risk of developing DM. Hormonal changes can affect the body's sensitivity to insulin, so menopause can increase blood sugar levels and can cause DM (7).

Based on research conducted, it can be concluded that women with an age range between 40-45 years with lifestyles and poor nutrition are vulnerable to the occurrence of diabetic ulcers.

Age

The results of research conducted on respondents with diabetic ulcers show that the average age of respondents at the most productive age is 50-64 years, namely as many as 1 respondent (70.8%) Human physiological changes will decrease after the age of 45 years. Increasing age of a person suffering from DM risk of diabetic ulcers due to decreased glucose homeostatic function resulting in insulin retention in the blood, this is caused by 4 factors namely a decrease in the composition of blood in the body, decreased physical activity resulting in a decrease in the number of insulin receptors, changes in diet and changes neurohormonal insulin (8).

Previous research said that there were 23 respondents (79.3%) aged = 50 years suffering from diabetic ulcers and there was a significant relationship between age and the occurrence of diabetic ulcers with an 18 times greater risk (9).

Based on the results of research conducted, it can be concluded that a person with a productive age range of 50-64 years has a high risk of diabetic ulcers, because with age, the physiological function of the body decreases such as decreased pancreatic function, so blood glucose control becomes unbalanced and causes complications like diabetic ulcers.

Occupation

Based on the results of the study showed that the respondents most employed as farmers were 10 respondents (41.7%), Works as IRT which is 6 respondents (25.0%), Working self-employed 4 respondents (16.7%), did not work as many as 3 respondents (12.5%), and working as a worker was 1 respondent (4.2%). The results of previous research suggested that the sufferer of diabetic ulcer is the

type of work that works as a farmer (33.3%) (10). Other research results show that respondents who work as civil servants are more organized in foot care compared to farmers (11). The results of research conducted by researchers are respondents who have jobs as self-employed more routinely do foot care and control of blood sugar, so that diabetic ulcers that they suffer on average are at 1 degree and have Nutritional status (BMI) in the normal category. Based on the results of the study can be concluded that the more established in the work of a person then they will have the ability to improve their health especially in the prevention of occurrence of diabetic ulcers By going through regular check of leg injuries to health workers or purchasing special footwear tailored to the shape of the legs.

Nutrition Status (BMI)

The indicator for measuring nutritional status in this study is BMI. Nutritional status (BMI) in this study was predominantly in the pre-obesity category (≥ 25.1 - 29.9 kg) of 12 (50.0%), normal nutritional status (BMI) category (18.5 - 24 , 9 kg) is not much different from pre-obesity which is 10 (41.7%), while the nutritional status (BMI) level 1 (≥ 30.0 - 34.9 kg) is 2 (8.3%), nutritional status (BMI) underweight (< 18.5 kg as much as 0 (0%), obesity level 2 (≥ 35.0 - 39.9 kg as much as 0 (0%), obesity level 3 (≥ 40 kg as much as 0 (%).

Body Mass Index (BMI) is an indicator that can be done to assess fat reserves in the body. Increased BMI shows an increase in body mass proportion. Obesity occurs due to an imbalance between the entry and exit of energy from the body and due to a decrease in physical activity, causing fat accumulation in adipose tissue (12). Based on previous research shows that there is a significant relationship between obesity and the incidence of diabetic ulcers ($p = 0.034$), obesity is a risk factor for diabetic ulcers because obesity has a risk of diabetic ulcers of 2.8 times compared to non-obese (13). The results of this study are reinforced by the theory that the risk factors of type 2 diabetes mellitus are obesity / obesity factors that experience lifestyle changes from traditional to western lifestyles, for example: overeating, and relaxed living (lack of exercise) (4).

Nutritional status (BMI) in the normal category is not much different from the amount of pre-obesity nutritional status (BMI) which is as much as 10 (41.7%) because researchers limit the age of respondents 64 and below. Respondents with normal nutritional status (BMI) are found at very productive

ages, namely ages 15-49, where respondents can still control their nutritional status (BMI).

Ulcer Diabetic Degree

The degree of ulcer in this study was measured using the classification of ulcer degrees according to Wagner. Most of the diabetic ulcer degrees in this study were respondents who were in the 2nd degree ulcer category with a total of 12 respondents (50.0%). Diabetic wounds are a type of wound found in people with DM. Predisposing factors for diabetic ulcer formation are minor trauma, local infection, or local action (eg nail extraction) (14).

This theory is reinforced in a study conducted by Veranita (2016) that most respondents were in the degree of diabetic ulcer of degree 2 and diabetic degree 3. Diabetic ulcer is a chronic wound that is not easy to heal due to wound healing that is disturbed by several factors, one of which is the sufferer with more body weight and high blood glucose levels which results in a decrease in the ability of blood vessels to contract or relax so that the tissue perfusion of the distal part of the limbs becomes poor and if there is a diabetic ulcer then it becomes a fertile environment for the proliferation of pathogenic germs that are anaerobic, because blood plasma of people with diabetes mellitus that is not controlled and has a high viscosity so that the diabetic ulcer becomes inflated (15).

When the study was conducted several respondents with a degree of diabetic ulcer 2 - the average nutritional status (BMI) in the pre-obesity category who had a bad diabetic ulcer wound condition before treatment measures were taken for diabetic ulcers. Some respondents who control diabetic ulcer treatment but the condition of diabetic ulcers do not improve but get worse because they feel bored with long-standing illnesses, disobedient to take medication, irregular diet, irregular blood sugar control and disorderly conduct in treating ulcers diabetic.

Based on the results of the study it can be concluded that in maintaining the condition of diabetic ulcers so that there is no increase in the degree, patients with diabetic ulcers must pay attention in controlling nutritional status, diet, blood sugar control, regular treatment of diabetic ulcers, regular consumption of drugs so that the healing process of diabetic ulcers become faster.

Relationship between Nutritio Status (BMI) with diabetic ulcer degree

Based on the analysis conducted in this study that the majority of respondents nutritional status (BMI) are in the pre-obesity category that is 12 respondents or (50.0%), and the degree of diabetic ulcers on the average respondent is in the category of degree 2 ulcers with the number of respondents 12 respondents (50.0%). The Spearman Rank correlation coefficient value of 0.588 shows that the direction of the correlation is positive, which means the worse a person's nutritional status (BMI), the higher the degree of ulcer. The strength of the correlation between the two variables is moderate which is in the 0.4-0.6 category. BMI is a simple way to monitor the nutritional status of adults, especially those related to underweight and overweight. Maintaining a normal weight is a way to reach a longer life expectancy. Someone who is overweight is one of the causes of degenerative diseases and if you have less weight it will become susceptible to infection (16). DM sufferers will experience complications if they are not obedient in implementing the diet program so that they may be obese and increase blood glucose levels (1). In this study it was found that the average respondent had nutritional status (BMI) in the pre-obesity category. The results of previous studies show that obese patients have a 6 times higher chance of experiencing diabetic ulcers in the legs compared with patients without obesity conditions (3).

The results of this study were strengthened by the Shon study which showed patients with a Body Mass Index (BMI) > 25 kg / m² or more body weight had a higher risk of having diabetic ulcers in the legs than patients with normal BMI. (17). The results of the cohort study shows that the main factor for DM is overweight or fat. People with more weight have excessive calories because of the consumption of food which causes a lot of accumulation of fat tissue under the skin. Insulin resistance will arise, where fat tissue builds up will inhibit the action of insulin in the body's tissues and muscles so that glucose cannot be transported into cells and accumulate in blood vessels, and glucose will increase so that it will affect healing of diabetic ulcers (18) In this study respondents the most is in the 2nd degree category which is 12 respondents or (50.0%). This study is in line with research that mentions the majority of diabetic ulcer respondents on average with second-degree injuries, as many as 17 people (54.84%) (19). Based on the results of the study it can be concluded that someone with nutritional status (BMI) in the obesity category has a great chance of developing diabetic ulcers and affects the degree of diabetic ulcers. In patients with DM so that diabetic ulcers do not occur, care must be taken to maintain normal nutritional status, maintain adherence to therapy, wound care, control blood sugar, and take medication regularly.

CONCLUSION RECOMMENDATION

Based on the results of research and discussion, it can be concluded that:

Female respondents are the most respondents with a number of 66.7% or 16 respondents, the age of most respondents ranged from 50-64 years as many as 17 respondents or (70.5%), respondents worked more as farmers, as many as 10 respondents (41.7%). The most nutritional status (BMI) is pre-obesity as many as 12 (50%) respondents. The highest degree of diabetic ulcer is degree 2 with 12 (50%) respondents. There is a significant relationship between nutritional status (BMI) and the degree of diabetic ulcer, where the value (P value: 0.003), is smaller than the value of α (0.05), with a correlation value of 0.588 which means that the direction of the positive correlation with moderate correlation strength.

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The Use of Lavender Aromatherapy as A Stimulant To Increase Pre-School Children's Appetite

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ABSTRACT

Backgrounds: Pre-school age is a period in which children experience very rapid growth and development. Therefore, adequate nutrition is needed both in terms of quality and quantity. One of the problems that often arise to meet the nutritional needs is children's eating difficulty. One of the treatments as an action to handle that problem is by using aromatherapy.

Objectives: To find out the effect of lavender aromatherapy on increasing pre-school children's appetite.

Methods: The type of this study was quasi-experimental research using a pretest-posttest design group approach to find out the effectiveness of the use of aromatherapy to increase pre-school children's appetite. This study was conducted at PGTK Jogja Kids Park with 21 respondents as samples taken using total sampling technique. The data were analyzed with univariate and bivariate statistics using the paired t-test.

Results: The percentage of pre-school children's appetite, before being given lavender aromatherapy, was 81% which was in the high category, then, after being given lavender aromatherapy, it increased to 95,2%. The result of paired t-test showed that giving lavender aromatherapy had an effect to increase pre-school children's appetite with the p-value of $0.009 < 0.05$.

Conclusion: Giving lavender aromatherapy can increase pre-school children's appetite effectively.

Keywords: *Lavender Aromatherapy, Appetite, Pre-School Children*

INTRODUCTION

The growth and development of children is a topic which needs to get major attention (1). Children aged 1–5 years are a group which easily gets affected by nutritional problems. In the present days, children are experiencing rapid growth and development so that they require sufficient nutritional intake. Pre-school children aged 3–6 years are in a period for playing and a golden period for receiving various stimuli. At this time, children can easily be given various stimulations following the stages of growth and development. One of the efforts which parents need to do to optimize children's growth is to meet their children's nutritional needs in which the pre-school children need the nutritional intake of 1,800 calories per day (2).

The fulfillment of nutrition for children does not always go according to plan. During the pre-school age, children often experience a lack of nutritional fulfillment due to children being more active for outdoor activities so that they often forget the time to eat (3).. Inadequate nutritional intake is caused by the lack of appetite for children. Appetite is a condition which drives someone to satisfy his/her desire to eat instead of being hungry. Appetite disorder on children can cause children to not get proper nutrition. This condition may cause children more susceptible to diseases, especially infectious diseases, and worm infections. Moreover, for a long time, it may cause nutritional deficiency which leads to malnutrition condition for children (3).

Every child must have experienced the decreased appetite condition, especially when the child's age is over 1 year. The decreased appetite condition for children is generally a natural condition because children's appetite will tend to decrease when they have aged 1–6 years old, especially when they stop suckling and start walking. Along with their ability to be able to move, such as walking, the condition will increase the children's activity. This will cause the interest of children on food to decrease (4).

Handling children's appetite problem is needed to be completed early by parents to avoid the adverse effects caused by the lack of nutrition. One of the treatments which can be done by parents is by using aromatherapy. In the last few decades, aromatherapy with essential oils has been popular again because many people consider that synthetic medicine therapy has a bad impact on the human body due to the accumulation of synthetic substances in human main organs such as kidney and liver.

The use of aromatherapy is also currently being developed in complementary midwifery services (5). Aromatherapy with essential oils which give a fresh and fragrant sensation does not only provides extensive benefits to the body but also can stimulate the brain which then stimulates clients' appetite who is in ill or weak condition (6).

Based on several studies, plants around us which contain lots of essential oils which can be used as aromatherapy to increase the appetite are lemongrass leaves, temulawak, ginger, temuireng, lemon, jasmine, rosemary, and lavender (5). Currently, the lavender essential oil is available in the market, but its usage has not been optimally utilized. Therefore, this study aimed to find out whether the use of lavender aromatherapy can increase pre-school children's appetite so that the food intake and nutritional needs could be met properly.

MATERIALS AND METHODS

The type of this research was the quasi-experimental method using the pretest-posttest group design. This study had been approved by the Ethics Committee of Respati University of Yogyakarta. The population in this study was 21 pre-school children aged 3–6 years at PGTK Jogja Kids Park. Aromatherapy which was used in this study was lavender aromatherapy which could be easily found on the marketplace (having BPOM permission). This aromatherapy was given to the subject by inhalation using a diffuser for 1 month.

The data were analyzed quantitatively using univariate analysis to descriptively analyze research variables by presenting data in the form of frequency distribution tables and explanation to elaborate the data on the tables. In addition, the data were also analyzed using bivariate analysis to find out the differences of appetite before and after aromatherapy was given by utilizing paired t-test analysis.

RESULTS AND DISCUSSION

The result of the data analysis was presented in the following table.

Table 1. Respondents' characteristics

Variable	Frequency (N=21)	Percentage (%)
Age 3 years	7	33.3

	4 years	4	19.1
	5 years	8	38.1
	6 years	2	9.5
Sex	Male	12	57.2
	Female	9	42.8

Primary data, 2019

Table 1 showed that respondents were mostly children aged 5 years, namely 8 children (38.1%), and were male, namely 12 children (57.2%).

Table 2. Frequency distribution of Respondents' Appetite in Pre-test and Post-test

Variable	Pre-test		Post-test	
	N	%	N	%
Appetite				
High	17	81.0	20	95.2
Low	4	19.0	1	4.8

Primary data, 2019

Table 2 showed that there were 4 children (19%) in the pre-test group who experienced low appetite, meanwhile, in the post-test group after being given lavender aromatherapy, respondents who experienced low appetite dropped to 1 child (4.8%).

Table 3. The Effect of Lavender Aromatherapy on Pre-School Children's Appetite

		N	C	p-value
Appetite	Pre & post test	21	.519	.009

Primary data, 2019

Table 3 showed the result of the paired t-test in which the p-value was $0.009 < 0.05$ so that H_0 is rejected. It meant that giving lavender aromatherapy had an effect to increase pre-school children's appetite with the closeness of 0.519 (sufficient).

This result showed that, before being given lavender aromatherapy, there were 4 children (19%) with low appetite, and, after being given aromatherapy for one month routinely, there was an increase in the children's appetite in which children with low appetite dropped to 1 child (4.8%). This result was in line with research conducted by Ekawati who stated that children nutritional intake was getting better after being given aromas jar game therapy (7)..

Aromatherapy is an alternative treatment from the volatile plant material and is better known

in the form of essential oils in which the essential oils which are evaporated as the main component in aromatherapy can give effects such as anti-inflammatory, antiseptic, stimulation for blood circulation, and appetite booster.

According to Soedjiningsih, some children with the lack of appetite tended to reject food in various ways such as stalling for meals, picking out the food menu, and closing their mouths when being fed. Based on the analysis of questionnaire items from children with low appetite, almost all of them refused food by closing their mouths and dismissing the food given (4). This appetite disorder was an important clinical disorder but was often ignored by parents. Therefore, parents were expected to overcome this children's eating disorders as early as possible because children who have an appetite disorder were more likely to fail to meet the food and drink intake so that nutritional needs were not fulfilled properly (3).

Aromatherapy as an additional therapy is a therapeutic action because it has benefits to improve physical and psychological conditions (8). The use of aromatherapy provides many benefits to the body. Giving lavender aromatherapy regularly will encourage children's interest in food through sensory stimulation.

Koensomardiyah said that the aromatherapy which was inhaled will enter the nose and touch cilia or the fine hairs in the nose. Inside the cilia, there were receptors associated with olfactory bulges which located at the tip of the olfactory duct and were connected to the brain. The smell of aromatherapy would be converted by cilia into electrical impulses that were transmitted to the brain through the olfactory system. These impulses would reach the limbic system and then converted into electrochemical compounds that secreted the serotonin so that the body would feel relaxed and refreshed and could reduce the intensity of nausea and vomiting (9).

Based on the results of the paired t-test analysis, it indicated that giving lavender aromatherapy had an effect to increase pre-school children's appetite with sufficient closeness. This was in line with the research conducted by Fatmawati which stated that there was an effect of giving aromatherapy to a child's appetite (5). The result of a research conducted by Santi indicated that aromatherapy could give effects of calming, refreshing, and reducing nausea and vomiting in which the effect of refreshing and

reducing nausea would have an impact on increasing appetite (10).

CONCLUSION AND RECOMMENDATION

1. The pre-school children's appetite before being given aromatherapy lavender was 81% which was in the high category.
2. The pre-school children's appetite after being given aromatherapy increased to 95.2% which was in the high category.
3. The result of paired t-test showed that there was an effect of giving lavender aromatherapy to the increase the children's appetite in which the p-value was $0.009 < 0.05$.

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Continuum Of Promoting Interprofessional Education In Nursing Students

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ABSTRACT

Background: One of the field that highly requires interprofessional education (IPE) approach is health sector, which the final purpose is to achieve high quality of patient outcome. However there are various obstacle faced to meet the goal, for instance usually some health care diciplines have different curriculum schedule to allow their students joint in IPE.

Objectives: To identify strategy of promoting interprofessional education in health sciences students.

Methods: Searching method was conducted using EBSCO, ProQuest, Pubmed, Science Direct, Scopus database and found 323 studies. Search limitation included peer-reviewed article, article's are not more than 10 years, article have to written in English language and found ten articles.

Result: A total ten articles, which consist of eight articles describe an IPE promotion strategy and two remain articles explain IPE promotion steps. This combination provides adequate relation between IPE strategies and its promotion steps. The review found a continuum of engagement in IPE. Recognition of IPE philosophy to organization or faculty members is the basic step to integrate IPE accross faculty system and activity.

Conclusion: Engagement in IPE continuum will guide the organization or faculty to step-by-step in implementing IPE and learning approach to their students. Faculty's readiness to perform IPE curriculum accompanied by clinical acceptance to interprofessional and collaborative practice will lead the healthcare professional to deliver safe and quality care in attempt to improve patient outcome.

Keywords: *Interprofessional Education*

INTRODUCTION

Interprofessional education (IPE) has been known for more than 30 years and spread broadly in most of country in the world. This approach addresses to facilitating two or more professions learn together in certain concern and building readiness for interprofessional collaboration. One of the field that highly requires this approach is health sector, which the final purpose is to achieve high quality of patient outcome. Interprofessional education process can happen at the education or workplace stage, in many setting such as classroom or laboratory setting, clinical area, and involve a range of different health and social professions. Furthermore, IPE have to be introduced not only in education and workplace stage but also to stakeholders so that appropriate policy can be arranged to recognize IPE practices broadly (1).

World Health Organization (2) publishes health and education systems schema to visualize the corellation between IPE and patient outcome. This schema describes that if IPE practices are implemented in present and future workforce, it will provided health care readiness to performing collaborative practice. Collaborative practice will enhance optimal health services, strengthen health system, and the final goal is improvement of patient health outcomes and quality of life. The key message of the WHO health and education systems schema is that implementation of IPE and collaborative practices have to be adapted with local health needs. By considering local needs, will help policy makers to determine IPE and collaborative practice's strategies that will be most beneficial in their own jurisdiction (2).

In attempt to applying IPE and collaborative practice, some promotion strategy have been introduced and showed its significancy. Barnsteiner et al (3) study found that within promoting and conducting IPE, there are essential to faculty to recognize a continuum of engagement in IPE that can start from asking students to read other

profession's roles, to a wholly integrated, co-created curriculum that embeds and designs IPE philosophy appropriately. When the faculty fully engagement in IPE, the further step has been arranged to facilitate broader and active involvement. Five strategies to getting started are first, find out if the faculty has iniciatives or has become a part of larger collaborative that promote IPE. Second, join together with other health profession to work together, recognize other responsibilities, and solve the problem in interprofessional consideration. This step can be performed with case study have to solved by teams that consist of multi profession. The third strategy is involved in meetings that support to interprofessional education practices. Fourth, actively read and subscribe interprofessional journals and can be accessed by students. And the final step is actively involve in policy level, working with nursing council and other professions (3). This literatur review aims to identify strategy of promoting interprofessional education in health sciences students.

MATERIALS AND METHODS

Searching method in literature review of promoting interprofessional education (IPE) to nursing students was conducted using several data base, there are EBSCO, ProQuest, Pubmed, Science Direct, and Scopus. To find specific articles, the writer used Bolean terms: "IPE" AND "nursing students" and using some limitation such as peer-reviewed article (except Pubmed and Science Direct), article's are not more than 10 years, and article have to written in English language . The result of literature searching, will be described in the schema below.

Figure 1. Article Selection

Eight articles are used to complete description about interprofessional education promotion strategy, two remain articles used to explain IPE promotion steps, so that obtained aduquate relation between IPE strategies and IPE promotion steps in nursing students.

RESULTS

Table 1. Article Selection

Author	Year	Method	Participant	Intervention	Key Finding
Titzer et al.	2012	Clinical simulation	Four health profession programs, consist of : 79 nursing, 15 radiologic technology, 27 occupational therapy, 10 respiratory therapy students	<p>The simulation was did four times and was identified by faculty members. The activity included:</p> <ul style="list-style-type: none"> • Video presentation to introduce each profession's role. • Seven students from all profession were choosen to involved in each simulation, included 2 nursing ,2 radiologic, 2 occupational therapy, and 1 respiratory therapy students • The similation was provided with scenario and a high-fidelity phantom as a patient. • Some remaining student participated as observers in the simulation, consist of 20 nursing, 2 radiologic, 5-8 occupational therapy, 1-2 respiratory therapy students. • The last remaining students viewed the simulation from classroom video recorded the simulation process. • After simulation process completed, debriefing provided in two sessions. First session was conducted for each specific profession. Second session was conducted for IPE discussion among all students and faculty members. • When debriefing finished, students were asked to complete 2 questionares, consist of the Educational Practices in Simulation Scale (EPSS) and the Healthcare Provider Priority Survey (HPPS). 	<ul style="list-style-type: none"> • The students expressed that the simulation taught them about other health professional's role, interprofessional teamwork, and safe practical environment. • IPE simulation provided opportunity to share knowledge, perform critical thinking, effective communication skills, smart decision making, and could be part of educational curriculum. • Student who participated in IPE activities usually had better preparation to face real healthcare professional setting.
Bolesta,S & Chmil, J.V	2014	IPE clinical laboratory	One hundred twenty students consist of 69 pharmacy and 51 nursing students	<p>Interprofessional education clinical laboratory practice was designed with a scenario about acute-care patient with heart failure developed weakness and new onset of shortness of breath. The sequence was:</p> <ul style="list-style-type: none"> • Participants working in groups, consist of 2 nursing and 2-3 pharmacy students 	<ul style="list-style-type: none"> • Score of RIPLS showed that students were more ready after did practice. • The practice helped them to think positively about other professions and their roles.

				<ul style="list-style-type: none"> • The same information about the scenario was provided to both discipline students 1 week prior and during the laboratory practice time. They also were given homework to read on various cardiovascular disorder. • Human patient from high-fidelity simulator was used as a patient • The practice room divided into 3 rooms, consist of patient room, room for IPE debriefing, and 2 separate rooms for discipline-specific debriefing. Every room was assigned with 2 facilitator, 1 pharmacy and 1 nursing faculty member, and 1 addition facilitator to control the simulation portion, so that 7 facilitators were provided. • In the day of the clinical laboratory practice, students took 20 minutes to complete simulation continued with debriefing IPE case, and the last session for discipline-specific debriefing.. • The outcome was evaluated with prelaboratory and postlaboratory survey using a modification of the readiness of interprofessional learning scale (RIPLS). 	<ul style="list-style-type: none"> • the human patient simulation design improved student's communication skill.
Stewart,M., Kennedy, N., & Grandider, H.C.	2010	Simulation workshop	The participant of Interprofessional Education- Pediatric Simulation (IPE-PS) are 46 medical and 49 children's branch nursing students.	<p>Every group consist of 3-4 students with one scenario for 20 minutes simulation workshop.</p> <ul style="list-style-type: none"> • The workshop was continued with debriefing session followed by participants and educators to reflect their performance, discuss scenario, and demonstrated some clinical skill, such as BLS. • After finished workshop, students were given questionnaire included quantitative and qualitative statements 	<ul style="list-style-type: none"> • Participants expressed that the workshop allowed them to learn patient management and problem solving in a safe risk-free environment. • The study suggested that needed sufficient prior knowledge related to scenario and required long- term follow up to better improvement.
Williams et al.	2010	Mix methods simulation	The total participant was 394 undergraduate students, consist of 97 paramedics, 19 occupational therapies, 87 physiotherapies, 191 nursing students.	The intervention on the study was DVD simulation with 11 topics (e.g. burn, intracerebral haemorrhage). The arrangement of intervention was:	<ul style="list-style-type: none"> • All student stated positive perception and attitude toward the DVD simulations.

				<ul style="list-style-type: none"> • Participants completed written consent • They viewed 2 or more DVD simulations and were asked to complete 25-items self-report questionnaire. • Four weeks after intervention, 24 students were involved qualitative data completion, in 3 weeks full-time clinical practice and asked to respond qualitative questionnaire. 	<ul style="list-style-type: none"> • The DVD simulation was useful supplement tool prior clinical work placement and strengthened understanding about professional roles, multidisciplinary teamwork and their learning objectives. • This strategy might be a cost-effective tool to facilitate student clinical knowledge and skills.
Dahmen et al.	2016	Self-assessment role play.	The total participant was 54 consist of medicine, physiotherapy, and nursing students	<p>The study was purposed to provide recommendation in an innovative constructivist educational concept. The interventions to achieve this purpose were:</p> <ul style="list-style-type: none"> • Exploring student's prior knowledge about the clinical scenario and an interprofessional treatment should be done. • All of the participant discussed and shared their work together. • The participants did the role play and filmed it. • After the role play finished, they continued with a structured self-assessment by reflecting on one's own actions. • All participant asked to semi-structured questionnaire. 	<p>The recommendations were:</p> <ul style="list-style-type: none"> • Appropriate simulation situation would provide equal opportunity in role play. • Needed early coordination regarding the group selection, schedule, and conducting policy to recruitment across all profession. • Self- assessment approach showed successfull result in supporting and strengthening the development of IPE.
McDonnell et al.	2016	Examination simulation	The study was followed by five diciplines, consist of 120 fourth-year nursing students, 121 second-year medical students, 120 third professional- year PharmD students, 48 second-year graduate students in social work, and 34 second-year doctor of physical therapy students.	<p>The workshop intervention assessed students perception of teamwork and evaluated student ability to identify domestic violanve throught standardized patient interview.</p> <ul style="list-style-type: none"> • The team contained of minimum 1 student of each dicipline • Teams performed exercise to assess history of patient disease, perform physical examination, compose diagnosa, and plan intervention 	<ul style="list-style-type: none"> • The student expressed improvement in abilities, competencies, and understood each participant's role. • The workshop provided opportunity to teams in direct patient care and share decision-making effectively.

				<ul style="list-style-type: none"> In the last activity, students were asked to complete Student Perception of Physician-Pharmacist Interprofessional Clinical Education –Revised (SPICE-R) questionnaire and could be compiled in 20 days after the workshop. 	
Meffe, F., Moravac, C.C. & Epsin, S.	2012	Qualitative study of workshop	Nine students, consisted of 3 midwifery, 3 medicine, and 3 nursing students	<p>The study was conducted with six workshops and two clinical shadowing experiences.</p> <ul style="list-style-type: none"> The students were invited to the workshops and obtained nine students. Each participant was on rotation in labor & delivery or postpartum care at hospital during the study period Each participant followed multiple interview sessions The interview was conducted for 30-60 minutes per session with semi-structured questionnaire. Interviews were completed at 2nd week post-program, 3rd week and until twenty-five semi-structured interviews completed 	<ul style="list-style-type: none"> This qualitative study found that the student perceived effectiveness of the program related to the use of small group learning techniques, mixed teaching strategies, group directed learning by exposure to IPE in faculty and shadowing experiences
Judge et al.	2016	Joint simulation intervention	30 students from community college and 20 students from university	<p>This study described methods to developing IPE between two type of nursing school with joint simulation intervention.</p> <ul style="list-style-type: none"> This study was begun with one simulation developed by each campus (community college and university). Location setting used laboratory and high-fidelity mannequins. All of the student has received education in both medical surgical and mental health nursing. Students were paired in 4 members, that consist of 2 students from each campus 	<ul style="list-style-type: none"> Students described that working with students from another school was beneficial. The simulation developed faculty trust and relationship among the colleagues to find the higher IPE methods for all nursing student, regardless on the degree of the program.

- Roles in simulation were reversed for each campus which the BSN (Bachelor of Science in Nursing) students acting as a team leader at the community college, and the ASN (Associate of Science in Nursing) students was acting as team leader at the university.
- At the end of the simulation day, the student were given an evaluation form to express their experiences.
- The final joint meeting was held to evaluate simulation been done.

The ultimate goal of IPE is improvement of patient health outcome receiving safe and quality care. In attempt to bridging this goal, several provision is needed such as heathcare understand in other profession's role and able to communicate and work effectively together. However there are various obstacle faced to meet the goal, for instance usually some health care diciplines have different curriculum schedule to allow their students joint in interprofessional education. Currently, many study have designed various strategies to overcome the obstacles and implement interprofessional education effectively. Barnsteiner et al (3) introduces a continuum of engagement in IPE, that begin with recognition of IPE philosophy to organization members, up to permeates and integrated IPE accross faculty system and activity. Continuum for full engagement of IPE Barnsteiner et al (3), included :

1. Introduce philosophy of IPE to the organization, in order to well-known, observable, and measurable.
2. Co-creating learning experiences that involve different professions.
3. Provide opportunities to students to learn collaboration, teamwork, and how it relates to patient safety and quality care delivery (4; 5).
4. Embed IPE learning experiences in the curricula and part of the required course for students.
5. Facilitate students to demonstrate competence with a single set of interprofessional competencies, such as clinical simulation (4); IPE clinical laboratory (6); simulation workshop (7); Mix methods simulation (8); Self- assessment role

play (9); Examination simulation (10); Qualitative study of workshop (11); Joint simulation intervention (5).

6. Facilitate organizational infrastructure that fosters IPE, such as support for faculty time to develop IPE options, incentive systems for faculty to engage in IPE, and integrated activities across school and professions for students and faculty.

In the first and second step of the continuum are the introduction of philospiphy IPE to faculty members nad how to creating learing experience accross different professions. The philosophy have to reflects IPE's outcome, safe and quality care. In the beginning of IPE introduction, faculties have to held discussion together and reveal intention to applying IPE in their students. This discussion can include strategy arrangement to deliver IPE in effective and creative way (3). Many study have described strategies and its effectiveness to improve IPE implementation. Some strategy such as problem based learning (PBL), case study, simulation and video simulation have been mixed into more creative strategy to improve students from different healthcare dicipline in understanding and readiness to implement IPE in future real workplace (4,5,6,7,8,10).

Bolesta et al. (6) implement IPE clinical laboratory to nursing and pharmacy students in a structured and creative way. The study designed with well preparation, started from voluntary participant recruitment and gave the specific topic to be learned before the of clinical laboratory practice. In execution day, the student was given a scenario and have to passed three rooms such as standard patient's room adapted to scenario, IPE debriefing's

room, and discipline-specific debriefing's room. The students were given opportunity to practicing IPE. The key finding state that IPE clinical laboratory practices improve students understanding in other's role, enhance communication skills, and students readiness to interprofessional collaboration.

Different strategy was explained. Dahmen and colleagues (9) designed self- assessment role play to provide recommendation in an innovative constructivist IPE concept. Self- assessment role play was done by providing students with specific clinical scenario that reflect equal opportunity in role play. The students discussed scenario together and performed role play. When the role play finished, they continued with self-assessment by reflecting on one's own actions. Key result from this approach was self-assessment role play supporting and strengthening the development of interprofessional skills.

The third step for continuum engagement in IPE with giving opportunities to the students in learning collaboration and teamwork safe to achieve safe and quality care. When the joined faculty have designed strategy, the following step is let their students to implement it, for instance simulation or self-assessment role play as described above. Step four is embedding IPE in the curricula and part of the required caseload for students. previous studies (4,5,6,7,8,10) have proven that all strategy tested show the effectiveness of IPE and enhance students readiness to interprofessional collaboration. Based on this result, they suggest to cultivate IPE in the educational curriculum to prepare their students encounter real-clinical setting. The last step is administrative recommendation. The faculty members who joint in IPE implementation have to improve the learning infrastructure, such as time and facilities adapted to IPE strategies developed. When all of the continuum in IPE engagement has fulfilled, meaning the faculty is ready to take a part in patient outcome, patient safety and quality of care. The faculty engagement in IPE can be expanded until get participation in policy level (3,12).

Interprofessional education has been applied in several healthcare professional faculty in Indonesia, both state and private university. However, it is still limited in health science faculties. Creative strategy from various literature above can be adapted correspond to faculty resources.

CONCLUSION

Interprofessional education will prepare students to perform collaborative practice in real workplace and patient care. This approach can be delivered by various strategy, such as simulation, self-assessment role play, case study, video simulation, and many kind other creative strategy. These various strategy has taught the students to understand their professional role and other profession's roles. This approach also prepares students readiness by their acquisition in communication skill effectively, smart decision making to performing interprofessional collaboration in real clinical setting.

Engagement in IPE continuum will guide the university or faculty to step-by-step in implementing IPE and learning approach to their students, so that the students more ready to face their professional workplace. Faculty's readiness to perform IPE curriculum accompanied by clinical acceptance to interprofessional and collaborative practice will lead the healthcare professional to deliver safe and quality care in attempt to improve patient outcome.

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Cytotoxic Activity of Ethyl Acetate Fraction Of Ethanolic Extract Green Algae (*Ulva LACTUCA* Linn.) On Mcf-7 Cells

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ABSTRACT

Background: Based on data from the GLOBOCAN International Agency for Research on Cancer (IARC), in 2012 there were \pm 14 million new cases of cancer and \pm 8 million deaths from cancer worldwide. Various treatments were taken to overcome this type of cancer. One of the treatments for breast cancer is herbal medicine. The herbal medicine that are currently being discussed are plants that come from the sea (marine biota), one of which is green algae (*Ulva lactuca* Linn.). It is not yet known whether the ethanolic extract form and extract fraction also has antioxidant and cytotoxic abilities.

Objectives: Conducted a cytotoxic test of the ethyl acetate fraction of green algae extract (*Ulva lactuca* Linn.)

Methods: The method used is MTT Assay

Results: IC₅₀ value of Ethyl acetate fraction of ethanolic Extracts of Green Algae is 1489,3 μ g/ml and Ascorbic acid is 13,99 μ g/ml

Conclusions: The Ethyl Acetate Fraction of Green Algae Extract (*Ulva lactuca* Linn.) Have an IC50 value greater than the standard (Doxorubicin).

Keywords: *Green Algae, Cytotoxic Test, MTT Assay*

INTRODUCTION

Based on data from the GLOBOCAN International Agency for Cancer Research (IARC), in 2012 there were ± 14 million new cases of cancer and ± 8 million cancer deaths worldwide. Breast cancer is one type of new cases with a high percentage of 43.3% and is the highest cause of death from cancer (1). Various kinds of treatment are done to overcome this type of cancer. One of the treatments for breast cancer is herbal medicine. The herbal medicines that are currently being discussed are plants that come from the sea (marine biota), one of which is green algae (*Ulva lactuca* Linn.). Plants that are currently being discussed are plants that come from the sea (marine biota), one of which is green algae (*Ulva lactuca* Linn.). Research conducted by Thanh et al (2) shows that green algae water extract has anti-cancer activity. From the results of cytotoxic tests on hepatocellular cell carcinoma ($IC_{50} 29.67 \pm 2.87 \mu g / ml$), human breast cancer ($IC_{50} 25.09 \pm 1.36 \mu g / ml$) and cervical cancer ($IC_{50} 36.33 \pm 3.84 \mu g / ml$) (3). It is not yet known whether the ethanol extract form and extract fraction also have antioxidant and cytotoxic abilities.

MATERIALS AND METHODS

This research is a Quasi Pre-Post experimental research type experimental with Control Group. The material used in this study is green algae from the Special Region of Yogyakarta, MTT reagent, reagent for preliminary test. The equipment used are maceration vessel, rotary evaporator, buchner funnel, electric balance, porcelain cup, separating funnel, filter paper, oven, flask, glassware, UV-Vis spectrophotometer, wellplate.

1. Preparation of Extract

Extraction Of Green algae (*Ulva lactuca* Linn.)

Extraction is done by immersion method. 250 grams of green algae powder was added with 96% ethanol as much as 1 L, stirring for 3 hours. Furthermore, soaking is continued for up to 24 hours. After that the material is evaporated using a rotary evaporator at 40°C until a thick ethanol extract is obtained. Maceration process is repeated 2 times.

Fraksinasi and Purifikasi Ekstrak etanolik ganggang Hijau

Ethanol extract obtained from the results of evaporation, then carried out fractionation

and purification. The method used follows the research conducted by Srijanto et al. (4) by the liquid-liquid extraction technique. Ethyl acetate with a certain volume is put into the erlenmeyer flask and then heated at 35°C. A total of 500 ml of ethanolic extract of green algae is taken and put into an erlenmeyer flask containing ethyl acetate for purification. Extraction is done 3 times. In this process, 100 ml of mineral-free water is added to clarify the two-phase separation process. After that the separation is done by using a separating funnel. The ethyl acetate phase obtained was then evaporated until a thick extract was obtained which was purified extract.

2. Kultur Sel and Sitotoksik test

The cells that will be used in this study are MCF-7 cells. MCF-7 cells were cultured on DMEM high glucose (Gibco) or RPMI-1640 culture media containing 2mM L-glutamine, 1.5 g / L sodium bicarbonate, 4.5 g / L glucose, 10 mM HEPES, 1.0 mM sodium pyruvate and Fetal Bovine Serum supplement 10%. Medium MCF-7 was added with 0.01 mg / ml bovine insulin. Cell subculture carried out for 3-5 days was incubated at 37°C, 5% CO₂ and 100% humidity.

Cytotoxic tests were carried out by the MTT 3- (4,5-dimethylthiazol-2-yl) method -2,5-diphenyltetrazolium bromide (Sigma Aldrich, USA). Cell culture was added 10 μ L MTT remand in PBS in each well. MCF-7 cells were incubated for 4 hours at 37°C (5% CO₂ flow), then 50 μ L SDS (Sodium Dodecyl Sulphate) solution was added in 0.01 N HCl and incubated for 1 night at room temperature. Then the absorbance reading on the ELISA reader [1; 2 0]. To determine the presence or absence of cytotoxic effects, a linear regression analysis was performed between the concentrations of the test compounds with % viability with Microsoft Excel to obtain IC₅₀ values.

$$\% \text{ viability Cells} = \frac{\text{Absorbance of Sample} - \text{Absorbance of Medium Control}}{\text{Absorbance of Sel Control} - \text{Absorbance of Medium Control}} \times 100\%$$

RESULTS AND DISCUSSION

Cytotoxic tests were performed using the MTT-Assay method. MTT (3- [4,5-dimethylthiazol-2-yl] -2,5 diphenyl tetrazolium bromide) is the method of calculating cell viability by inserting it into a well (96-well plates) without the need for complex cell counts. The principle of the MTT test is based on the

conversion of MTT into formazan crystals in living cells that determine mitochondrial activity detected by Optical Density (OD) using a plate reader at 540 and 720 nm (5). MTT assay is suitable for measuring drug sensitivity in cell lines and primary cells. The decrease in cell count reflects the inhibition of cell growth and drug sensitivity which is usually determined as the concentration of the drug needed to achieve 50% growth inhibition compared to the control (IC_{50}) (5).

In this study sample treatments were given for 3-5 days then the MTT reagent was added. After the addition of the MTT reagent, it will form formazan

crystals. Then the stopper reagent is added in the form of SDS. SDS functions to stop and degrade enzymes. After that the absorbance is measured using an ELISA reader. The principle of reading an ELISA (Enzyme-linked Immunosorbent Assay) reader is an analysis of interactions between antigens and antibodies that are passively adsorbed using conjugate antibodies or antigens assisted by enzymes. This enzyme will react with the substrate and produce color. The color that arises can be determined qualitatively by eye view or quantitatively by reading the absorbance value on the ELISA plate reader. The more formazan crystals that are formed, the more living cells (figure 2).

Table 1. Cytotoxic test results of ethyl acetate fraction of green algae extract compared with standards (doxorubicin)

Doxorubicin			Ethyl Acetate Fraction of Green Algae			
Concentration ($\mu\text{g/ml}$)	Viability of Cells (%)	IC_{50}	No.	Concentration ($\mu\text{g/ml}$)	Viability of Cells (%)	IC_{50}
200	0,70	13,99 $\mu\text{g/ml}$	1	2000	42,23	1489,3 $\mu\text{g/ml}$
100	2,09		2	1600	39,21	
50	18,51		3	1200	62,41	
25	46,17		4	800	73,55	
12,5	58,71		5	400	79,58	
6,25	68,47					
3,125	73,59					

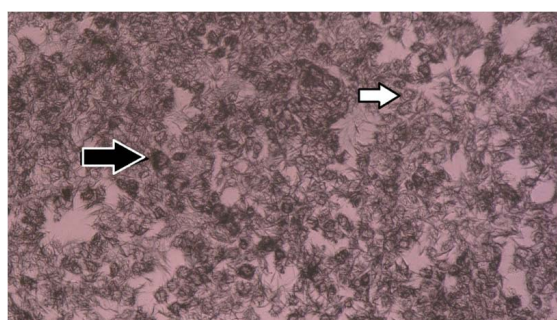
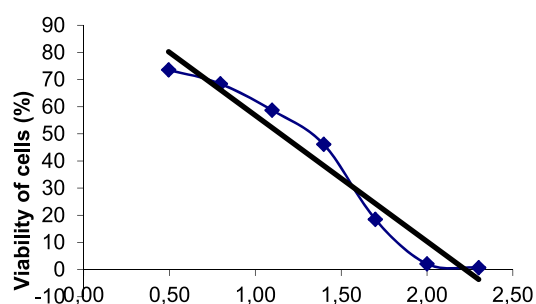
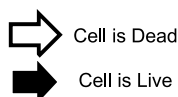
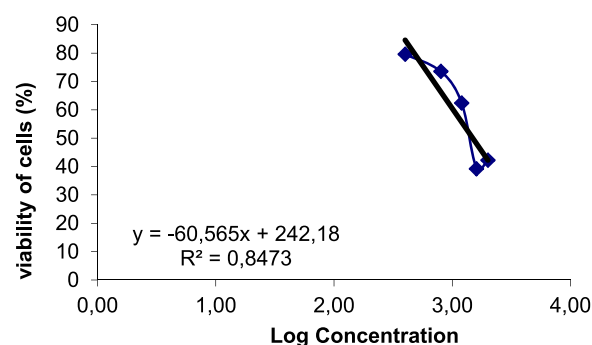


Figure 2. Formazan crystal formation in mcf-7 cancer cells



$$y = -46,464x + 103,27$$

$$R^2 = 0,9525$$



$$y = -60,565x + 242,18$$

$$R^2 = 0,8473$$

B

Figure 3. Graphic of viability cells of mcf-7 (a) standard and (b) ethyl acetate fraction of ethanolic extract of green algae (ulva lactuca linn.)

Cytotoxic tests were carried out on MCF-7 cells. In the cytotoxic test the parameters used are IC₅₀. IC₅₀ or 50% inhibitory concentration is a parameter to determine the 50% inhibitory concentration of living cell populations. The concentration used in this study is 200; 100; 50; 25; 12.5; 6.25; 3,125 $\mu\text{g} / \text{mL}$. (Table 1).

From table 1 and figure 1 it can be seen that with an increase in the concentration of fractions and standards there is a decrease in the percentage of the viability of MCF-7 cells. Percentage of MCF-7 cell viability is the number of living cells in the treatment divided by the total number of cells (number of living cells plus the number of dead cells). The IC₅₀ value of the ethanol extract of green algae (*Ulva lactuca* Linn) Was 1489.3 $\mu\text{g} / \text{ml}$ and doxorubicin 13.99 $\mu\text{g} / \text{ml}$. According to Ueda et al. (6) a compound is said to be potential as an anticancer if the IC₅₀ value is $\leq 100 \mu\text{g} / \text{ml}$. From these results it can be said that the ethyl acetate fraction of green algae extract has no better activity compared to doxorubicin. This can be made possible by the use of concentrations of fractions that are too small so that the effect produced is also small. It is also possible that compounds which have anticancer activity are not present in the ethyl acetate fraction of ethanolic extracts of green algae (*Ulva lactuca* Linn.).

CONCLUSION AND RECOMMENDATION

The Ethyl Acetate Fraction of Green Algae Extract (*Ulva lactuca* Linn.) Has an IC₅₀ value greater than the standard (Doxorubicin). Further research needs to be done on the cytotoxic test of ethyl acetate fraction of ethanolic extract of green algae (*Ulva lactuca* Linn.) By using higher concentrations and can also with other types of fractions.

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