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   United State Of America
   Empowering and Helping Families Heal & Prevent Disease Through Holistic Care

2. **Prof. Dr. Mohd Nazil Salleh**
   Malaysia
   Empowerment of IR 4.0 & Society 5.0 in Medical Technology Howards Better Healthcare

3. **Prof. Dr. Ayano Kit, MPH**
   Japan
   Maternity Health in Japan

4. **Madiha Mukhtar RN, RM, BSN, MSN**
   Pakistan
   Holistic Health Care Services in Rural Areas of Pakistan

5. **Assoc. Professor Dr Mohd Fadly**
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DAFTAR ISI

Optimization and Validation of HPLC Method for Determination of Total Alkaloid Contain of Robusta Coffee (Coffea Canephora) Etanol Extract

Abstract— Robusta coffee (*Coffea canephora*) is one of the potential products in Indonesia because it has a variety of active compounds. The purpose of this

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study was to determine the total content of ethanol alkaloids extracted from robusta coffee using a validated HPLC method. Extraction was carried out by maceration method. Analytical method validation of HPLC includes flow rate, wavelength, and mobile phase before method validation. Optimizing HPLC obtained optimal results using methanol: water (70:30) at a wavelength of 272 nm with a flow rate of 1.0 mL/min. These results meet the requirements for the validity of the analytical method which include System Suitability Test (UKS), selectivity, linearity with y = 827.43x + 191.29, correlation coefficient (r) = 0.9986 and result Vx0 of 1.141393%. Results limit of detection and limit of quantization obtained were 3.509845 ppm and 10.635896 ppm. The percentage of RSD in measurements was 0,015012755% for 80% concentration, 0,026568482% for 100% concentration, and 0,02921687% for 120% concentration. Measurements achieved at recovery were 90-110%. The total alkaloid content of the sample was determined 4.46005229 ± 0.441239% (%w/w) of three times replication total alkaloid contain. The conclusion of this study is that the analytical method using the HPLC system is able to determine the total alkaloid contain of the ethanol extract of coffee robusta is validated.

Keywords – Robusta coffee, alkaloids, HPLC, method validation and determination of levels

Abstrak— Kopi Robusta (*Coffea canephora*) merupakan salah satu produk potensial di Indonesia karena memiliki kandungan senyawa aktif yang beragam. Tujuan dari penelitian ini adalah untuk mengetahui kandungan total alkaloid etanol yang diekstrak dari kopi robusta menggunakan metode HPLC tervalidasi. Ekstraksi dilakukan dengan metode maserasi. Validasi metode analitik HPLC meliputi laju aliran, panjang gelombang, dan fase gerak sebelum validasi metode. Optimasi HPLC diperoleh hasil yang optimal dengan menggunakan metanol:air (70:30) pada panjang gelombang 272 nm dengan laju alir 1,0 mL/menit. Hasil tersebut memenuhi syarat validitas metode analisis yang meliputi Uji Kesesuaian Sistem (UKS), selektivitas, linieritas dengan y = 827,43x + 191,29, koefisien korelasi (r) = 0,9986 dan hasil Vx0 sebesar 1,141393%. Hasil limit deteksi dan limit kuantisasi diperoleh sebesar 3,509845 ppm dan 10,635896 ppm. Persentase RSD pada pengukuran adalah 0,015012755% untuk konsentrasi 80%, 0,026568482% untuk konsentrasi 100%, dan 0,02921687% untuk konsentrasi 120%. Pengukuran yang dicapai saat pemulihan adalah 90-110%. Kandungan alkaloid total sampel ditentukan 4,46005229 ± 0,441239% (% b/b) dari tiga kali replikasi total kandungan alkaloid. Kesimpulan dari penelitian ini adalah metode analisis dengan sistem HPLC mampu menentukan kandungan total alkaloid ekstrak etanol kopi robusta tervalidasi.

Keywords: Kopi Robusta, alkaloid, HPLC, validasi metode, dan penetapan kadar

I. INTRODUCTION

Coffee is one of Indonesia's plantation products with a relatively high level of economic value. This is because coffee is suitable for growing in areas with subtropical and tropical climates such as Indonesia [1]. Another thing that proves this is by looking at the role of coffee in Indonesia as the world's fourth largest producer. Coffee has several types, namely Arabica coffee, Robusta coffee, Liberika coffee, and Ekselsa coffee. The most well-known types of coffee in terms of economic value are Robusta coffee and Arabica coffee [2].

Coffee is famous for its caffeine which can stimulate the central nervous system and increase concentration [3]. Apart from having the benefit of relieving drowsiness, coffee also has benefits as an antibacterial, antioxidant, antiviral, hepatoprotective, and also plays a role in antispasmodic activity [4]. In addition, the compounds contained in coffee can also provide pharmacological effects such as hepatitis B antivirus, antihypertensive, antidiabetic, as well as antioxidants and hepatoprotectors which are used as alternatives in the development of new drugs [5]. Based on the benefits of coffee described above, it cannot be separated from the presence of active compounds in robusta coffee (Coffea canephora). The active compounds contained in coffee include alkaloid compounds, tannins, saponins and polyphenols [6]. Caffeine is a derivative of the main alkaloid compound of the methylxanthine group. Alkaloid compounds have molecules that naturally occur in plants as secondary metabolites. Caffeine in humans can be used as a stimulant on the heart [7].

II. METHODS

The method used in the manufacture of robusta coffee bean extract is the maceration extraction method. The ratio used in making the extract is 1:10, with a description of 200 grams of coffee bean powder versus 2000 mL of 96% ethanol. The

process takes 7 days, and every day for 5 minutes the mixture is stirred. The filtrate obtained was identified using Meyer's, Bouchardat's, and Dragendorf's reagents.

Liquid-liquid extraction is carried out using organic solvents such as chloroform [8]. The viscous extract obtained was combined with 1.5 grams of CaCO3 and 25 milliliters of chloroform in a separatory funnel before stirring to form two layers; chloroform solution was added three times. This extraction was carried out three times [9].

A standard stock solution of caffeine is made with a concentration of 500 ppm [10]. Caffeine raw materials are made with concentrations of 10, 50, 100, 200, 300 ppm. Caffeine standard solution of 500 ppm is taken as much as 0.2; 1.0; 2.0; 4.0; 6.0 ml and dissolved with 10 mL of solvent in a measuring flask.

The next step is to validate the method with parameters of linearity, LOD, LOQ, accuracy, presicion, and determination of coffee robusta.

III. RESULT

1. Optimization of condition

    a. Optimization flow rates

Table 1. The Results of The Development of Flow Velocity in HPLC

Water speed	Symmetry	N > 2000	Tr	Rs
1,0	0.87	2006	1.493	2.78
2,0	0.66	1237	1,504	1.07
3,0	0.51	1169	1,203	1.28

    b. Optimization of wavelength

Figure 1. The Wavelength Spectrum of the Caffeine Standart
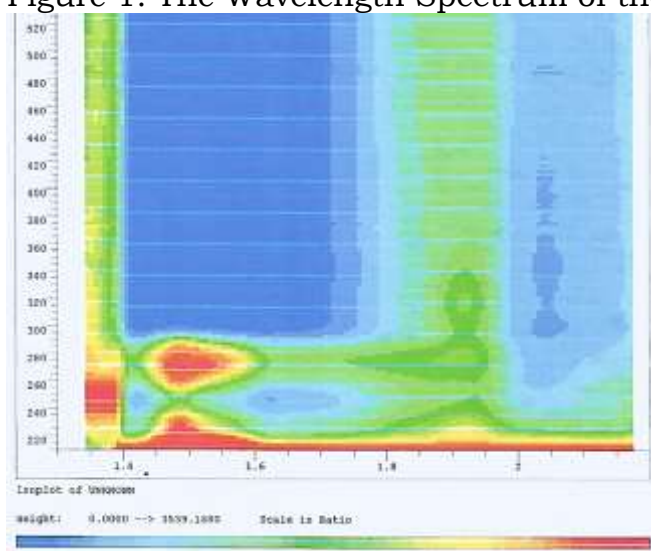
    c. Optimization of mobile phases

Figure 2. Results of Chromatogram with Various Mobile Phases
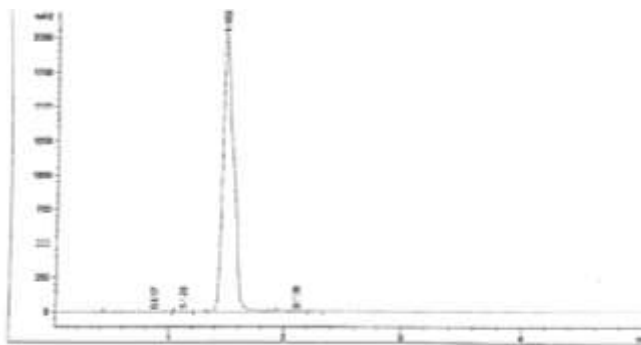
(a) methanol : aquabidestilata (70:30)
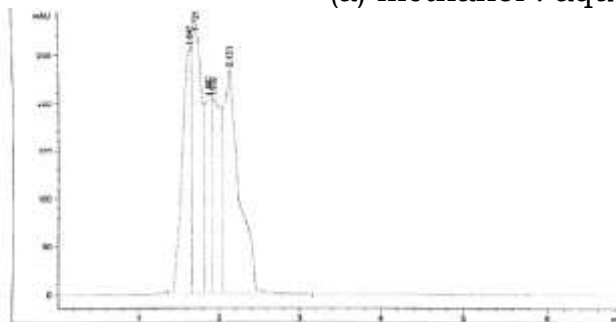
(b) methanol : aquabidestilata (50:50)
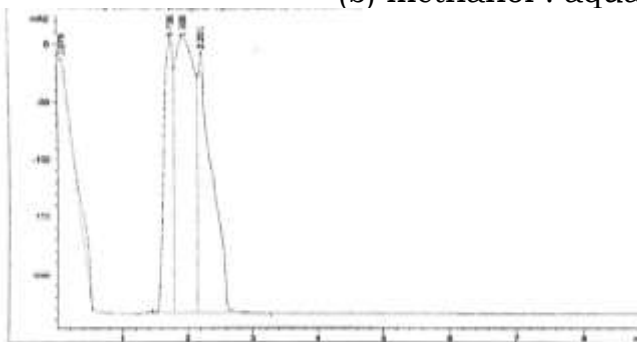
(c) methanol : aquabidestilata (30:70)

2. Validation of method analysis
   a. Selectivity

Table 2. Selectivity Test Resolution data and Purity Factor

Selectivity Test	Rs	Purity Factor
Standart without distraction	-	998.886
Sample without distraction	-	999.693
Standart with other value	2.42	998.192
Sample with other value	1.87	999.080

Figure 3. Results of Chromatogram Selectivity

5
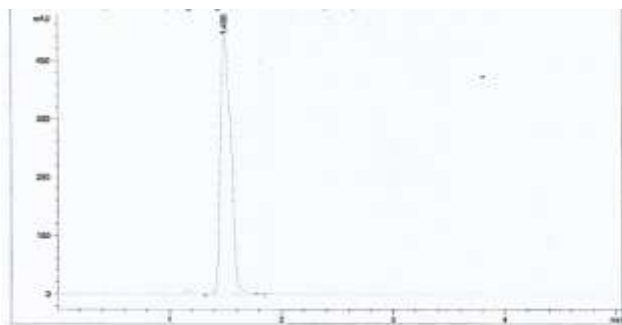
(a) Standart without distraction
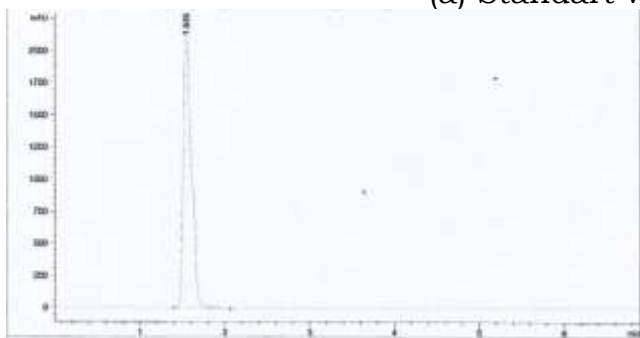
(b) Sample without distraction
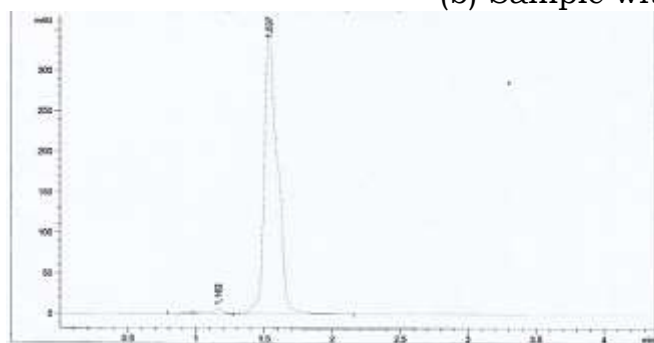
(c) Standart with other value
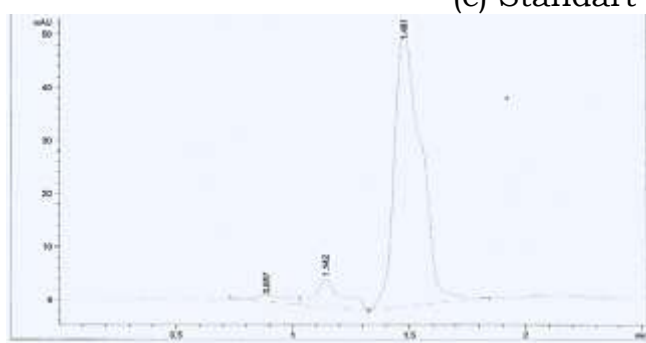
(d) Sample with other value

Conc.	Area	Conc. (x)	%KV
80%	5802.70117	6.812431213	0.015673
	5833.86768	6.851800265	
	5901.81494	6.93763019	
	5943.1167	6.989801933	
	5989.41113	7.048280339	
	6028.64014	7.097833815	
100%	6377.0083	7.537887071	0.02773
	6463.73877	7.647443656	

	Area	Conc. (x)	%KV
	6575.73535	7.788915998	
	6652.63428	7.886053534	
	6826.57422	8.105771768	
	6570.52686	7.782336714	
120%	7326.55470	8.73733934	0.03050
	7393.24365	9.29674657	
	7413.85400	8.84761448	
	7433.03174	8.8718395	
	7516.11570	8.97678989	
	7129.40088	9.19235128	

b. Linierity

Figure 4. Standard Linearity Curve for Caffeine with a Concentration Range of 10-100 ppm
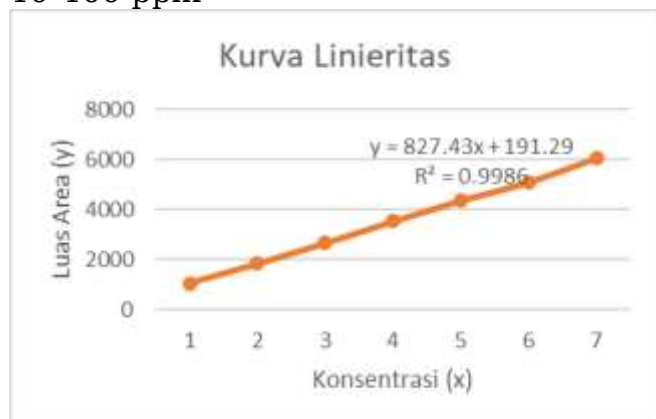
Kurva Linieritas

$y = 827.43x + 191.29$
$R^2 = 0.9986$

c. LOD & LOQ

Table 3. LOD & LOQ Results

Conc.	Area (mAU) (y)
0	0
5,14	413.90451
10,28	1038.09985
20,56	1834.52454
30,84	2149.08472
41,12	3435.10913
51,4	4042.26782
82,24	5965.95068
Y = 773.89x – 1100.5	
r = 0.9941	
SD = 823.1013939	
Vxo = 2.779576876	
LOD = 3.509845843	
LOQ = 10.6358965	

d. Accuracy

Table 3. Accuracy Calculation Results

Conc.	AUC	% Recovery	x̄ % Recovery
80%	5926.61475	100.00524	93.44677
	5803.66375	93.74274	
	5663.28467	86.59233	
100%	6250.80713	93,21193	93.98397
	6278.28613	94.33451	
	6280.02686	94.40548	
120%	7118.47217	107.14147	109.60991
	7129.40088	107.51257	
	7325.62549	114.17568	

e. Presicion

Table 3. Presicion Calculation Results

Conc.	Area	Conc. (x)	%KV
80%	5802.70117	6.812431213	0.015673
	5833.86768	6.851800265	
	5901.81494	6.93763019	
	5943.1167	6.989801933	
	5989.41113	7.048280339	
	6028.64014	7.097833815	

	AUC	x	
100%	6377.0083	7.537887071	0.02773
	6463.73877	7.647443656	
	6575.73535	7.788915998	
	6652.63428	7.886053534	
	6826.57422	8.105771768	
	6570.52686	7.782336714	
120%	7326.55470	8.73733934	0.03050
	7393.24365	9.29674657	
	7413.85400	8.84761448	
	7433.03174	8.8718395	
	7516.11570	8.97678989	
	7129.40088	9.19235128	

3. Determination of alkaloid contents

Table 4. Determination of Sample Caffeine Levels

Sample	AUC	x	Alkaloid level
1	2845.92627	4.1672019	4.12594247
2	3160.00293	4.55548775	4.51038391
3	3312.34961	4.74383049	4.74383049
x̄ Kadar alkaloid ± SD : 4.46005229 ± 0.441239			

IV. DISCUSSION

HPLC optimization is carried out by measuring the parameters of flow rate, mobile phase, and wavelength. Determination of the flow rate was carried out in the HPLC instrument by injecting standard caffeine with variations of 1.0; 2.0; and 3.0 mL/minute. The optimal condition of the flow rate is 1.0 mL/minute because the results obtained from symmetry, resolution and N> 2000 meet the requirements compared to other flow rate variations [11].

The mobile phase was determined using three variations of methanol and aquabidestilata composition. A 50:50 ratio produces a chromatogram that is not sharp, so trials are carried out on other comparisons. The second comparison of 30:70 produces a chromatogram that does not have sharp peaks, so it can be said that it is not optimal. The last comparison tested was 70:30 with more methanol, the results obtained from this comparison the chromatogram has a fairly sharp peak so it can be said to be optimal [12].

The wavelength during optimization is 272 nm. The selection of the maximum detection wavelength using the HPLC instrument aims to facilitate the validation of the method to be carried out. The maximum wavelength of caffeine is around 272 nm [13].

The result of the selectivity test is determined by the resolution value. In this study the resolution value was determined by looking at the chromatogram of the sample and the standard, the resulting resolution for the caffeine compound alone was 0, which means that it is selective for the caffeine compound. As for testing with other analytes, the resolutions were 1.87 and 2.42 respectively, which means that there was a selective separation between caffeine compounds and other analytes. Based on the resolution results obtained, it can be concluded that caffeine compounds can be analyzed using this method. In order to meet the selectivity criteria, a method is required to have a resolution value of >1.5 [14].

The purity factors obtained in the standard and samples without other analytes were 998,886 and 999,693, respectively, while those in the standards and samples with other analytes were 998,192 and 999,080, respectively. A good purity factor value has a value of 95% purity [11].

Based on the results of the study, it was determined that the regression equation y

= 791.65x + 409.64 with a value of r = 0.9986. Linearity displays the capacity of a method to determine the proportionality of the standard curve relationship between response (y) and concentration (x). The standard curve equation is y = bx + a, where b is the slope value, an is the intercept, and r is the correlation coefficient [11].

Next is to determine the accuracy. The accuracy test was carried out by replicating the selected concentrations 3 times at each concentration. The concentrations used in this test were 80%, 100% and 120%. The yield obtained from a concentration of 80% is 93.44677%, a concentration of 100% is 93.98397%, and a concentration of 120% is 109.60991%. The analytical method is said to be accurate if it gives a recovery value ranging from 90-110% with a concentration of 50 ppm. The value obtained has fulfilled the acceptance criteria for the accuracy test because it is within the required range. So these results show that the analytical method has good accuracy [11].

The concentration was determined by injecting the sample solution three times with an average concentration of 50 ppm. The area resulting from the injection of the first sample solution, as determined by research, is 2845.92627 ppm, the area resulting from the second injection is 3160.00293 ppm, and the area resulting from the third injection is 3312.34961 ppm. The alkaloid compound content obtained was 3.106092% (% w/w). The average alkaloid content ± SD obtained was 4.46005229 ± 0.441239.

V. CONCLUSIONS

The optimum conditions for the HPLC analysis method were a flow rate of 1.0 mL/minute, the mobile phase was methanol: aquabidestilata (70:30), and a wavelength of 272 nm. The validation of the analytical method has good validity which meets the parameters of selectivity, linearity, accuracy, precision, as well as LOD & LOQ. Selectivity values obtained by resolution of 2.42 and 1.87, linearity obtained r = 0.9986 and Vxo = 1.141393269, LOD 3.509845843 and LOQ 10.6358965, accuracy obtained average recovery value of 93-110%, and precision obtained %KV of each concentration was 0.015673362, 0.0 27737576 , 0.030502503. The results of the alkaloid assay showed that the ethanol extract of Robusta coffee beans was 3.106092% (%w/b). The average obtained from the alkaloid content ± SD obtained is 4.46005229 ± 0.441239

CONCLUSION

Based on the results of the validation of the analytical method, it can be concluded that the HPLC method used to validate the analytical method and determine the caffeine content in the Robusta coffee samples from the Jember Regency Coffee and Cocoa Research Center is valid.

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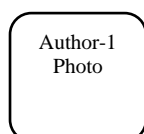
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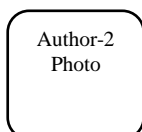
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OPTIMIZING "SALAM COOKIES" AS AN ALTERNATIVE SNACK FOR HYPERCHOLESTEROLEMIA-DIABETES MELLITUS PATIENTS

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Abstract:

Introduction: Diabetes mellitus (DM) and heart disease were diseases that are most often associated with unhealthy eating patterns, namely by consuming fast food that contains a lot of cholesterol and fat. Changes in lifestyle with unhealthy eating patterns are increasing so that many people are at risk of developing diabetes and hypercholesterolemia due to increased levels of fat and cholesterol in the blood. Plants made from natural ingredients, for example, bay leaves contain high flavonoids and hypolipidemic as well as antioxidants that can inhibit oxidative stress. **Objective**: This study aims to optimize the bay leaf snack as an alternative for patients with hypercholesterolemia diabetes mellitus. **Methode:** The optimization of the bay leaf cookies was made on the basis of conducting pre-clinical research, namely from determining the most effective dose to treat DM hypercholesterolemia using experimental animals. The effective dose was converted to human body weight so that it can be used as a ready to eat snack. Cookies were made from bay leaf using a selected formula from the main raw material of bay leaf added with skim milk powder, corn sugar, baking powder, eggs and rice flour as well as other supports. **Results**: Salam cookies were an innovative herbal biscuit that was environmentally friendly and can be used as a snack for patients with DM hypercholesterolemia with attractive packaging. **Conclusion**: The innovation of "salam cookies" from bay leaves was an alternative cookies that can be consumed for patients with DM hypercholesterolemia.
Keywords: cholesterol, cookies, diabetes mellitus, bay leaves.

Biography: The author (apt.Shinta Mayasari, S.Farm, M.Farm, Klin) was born in Jember, April 7, 1989. The author's education was Bachelor of Pharmacy, Pharmacist and Masters in Clinical Pharmacy from Airlangga University. The author

was currently working at dr. Soebandi University from 2016 to the present. The author deepens in the field of Clinical and Community Pharmacy.

INTRODUCTION

Diabetes mellitus was a group of metabolic diseases or heterogeneous disorders with characteristics of increased blood glucose levels or hyperglycemia and disorders of carbohydrate, fat and protein metabolism caused by insulin secretion disorders, insulin action disorders or both, which cause various chronic complications in the eyes, kidneys, and intestines. nerves and blood vessels(1).

Cholesterol was one part of fat that needed by the body as a high calorie producer. The components contained in fat are triglycerides, phospholipids, free fatty acids and cholesterol. The function of cholesterol was to build cell walls in the body, besides that cholesterol plays a role in producing sex hormones, vitamin D and plays a role in carrying out nerve and brain functions (2)

Increased cholesterol could caused several complications including stroke and heart disease. Hypercholesterolemia was an increase in cholesterol levels in the blood that exceeds the normal limit, which was more than 200 mg/dl.

Bay leaf was a plant that easy to find and has properties as a lowering fat and sugar levels in the blood. However, there were still many people who don't like bay leaves, so we want to make bay leaf innovations in a new form that is easily accepted by the community (3). Biscuits were foods that are popular in all circles and the method of making them was not difficult, in this study we wanted to make a formulation of bay leaf biscuits that have effectiveness as lowering fat and sugar levels in the blood (4). The purpose of this study was to to optimize the bay leaf snack as an alternative for patients with hypercholesterolemia diabetes mellitus.

The types of biscuits recommended for this research were cookies, as the basic ingredient of flour, namely from flour made from bay leaves as the main ingredient that has been dried, finely blended, and sifted. With the innovation of biscuits from bay leaves, it was hoped that they will serve as snacks (additional supplements) especially for diabetic patients with hypercholesterolemia (5).

METHODS

This research was conducted at the laboratory of the University of Dr. Soebandi. This study aimed to optimize the bay leaf snack as an alternative for patients with hypercholesterolemia diabetes mellitus.

The bay leaves used were obtained from the Jember Regency, East Java Province. Plant determination has been carried out at UAD (Yogyakarta) with number 020/Lab.Bio/B/I/2021, aiming to show that the test material was bay leaf (*Syzygium polyanthum*) (Wight) Walp from the Myrtaceae tribe. This research has obtained ethical approval with the results of ethically appropriate information, namely the number 041/SDS/KEPK/IV/2021 from KEPK Universitas dr Soebandi.

Tools and materials in this study were mixer, round container, analytical balance, wooden mixer, Baking pan, oven, blender, biscuit jar, bay leaf, skim milk, corn sugar, salt, baking powder, mineral water. The optimization of the

bay leaf cookies was made on the basis of conducting pre-clinical research, namely from determining the most effective dose to treat diabetes mellitus hypercholesterolemia using experimental animals (9).

Procedures were making bay leaf flour;

The selection of fresh bay leaves was selected from the Jember Regency area to make simplicia which was done by drying using an oven. After becoming simplicia, the dried simplicia salam was blended to become powder. Salam powder was sieved using a sieve. Salam powder was ready to be stored in a glass-tight container.

Procedures were making bay leaf biscuits

Weigh all the ingredients and prepare them in each of the available containers.

Mix all the ingredients, namely bay leaf powder, skim milk, corn sugar, salt, baking powder.

Put all the ingredients in a bowl and add hot water and stir until a dough forms. The dough was molded using a tool according to the available biscuit molds. Print and place the dough on the baking sheet, the dough was ready to be put on the baking sheet. The baking sheet containing the dough was in the oven at 120 Celsius for about 30 minutes. Cookies type biscuits were ready to be served.

Pictures: Materials and process

RESULTS

From the results of optimization of bay leaf biscuits carried out using bay leaf powder in the amount of 20 grams for the daily needs of adult patients. by making a composition as follows with selected optimization:

Table 1: Optimation "Salam Cookies"

NO	Materials	Amount
1	Margarine	120 grams
2	Wheat flour	30 grams
3	Corn sugar	30 grams
4	Eggs	1 egg
5	Milk powder	15 grams
6	Baking soda	½ tea spoon
7	Bay leaf powder	20 grams
8	Essence vanili	1 sachet
	Amount	250grams

"Salam cookies" were tested on 20 patients with diabetes mellitus hypercholesterolemia by giving the impression that it was acceptable to the community, but for those who like other essences, you can added according to taste.This picture was biscuit innovation from bay leaves at picture 2.

Picture 2: "Salam cookies"

DISCUSSION

Bay leaves had chemical content, namely tannins, flavonoids, and 0.05% essential oil. Bay leaves also contained secondary metabolites that have many

pharmacological activities in overcoming various diseases. Based on research, bay leaves contained alkaloids, saponins, steroids, phenolics, and flavonoids. The methanol extract of bay leaves contains a lot of flavonoids and phenols (6) (10).

Syzygium polyanthum leaves can be used not only as a spice for cooking purposes, but also can be used as medicine. In addition, Syzygium polyanthum leaf extract was usually used to stop diarrhea, gastritis, diabetes mellitus, itching, astringent, and scabies. Based on research (7). Syzygium polyanthum leaves showed the presence of flavonoid, terpenoid and phenolic compounds. Previous research stated that Syzygium polyanthum leaf extract tested on rats with streptozotocin induction with several doses of ethanol extract showed that it has anticholesterol effectiveness comparable to simvastatin (8).

Biscuits were one type of pastries that were currently much favored by the public as snacks or snacks from various economic groups and age groups. Biscuits were consumed by all ages, from babies to adults with different types. However, commercial biscuits on the market have an unbalanced nutritional content. Most biscuits have a high carbohydrate and fat content, while the protein and calcium content was relative (2).

According to Indonesian industry standards, biscuits were divided into four groups, namely hard biscuits, crackers, cookies and wafers. Biscuits were usually made from wheat flour or other types of flour (8). Here we will make biscuits and cookies as a basic ingredient of flour, namely flour made from bay leaves as the main ingredient that has been dried, finely blended, and sifted whose function is to lower blood cholesterol levels and as a snack for DM patients.

From the research (9) conducted that the ethanol extract of bay leaf 1g/kg BW was able to provide optimum anti hypercholesterolemia effects in diabetes mellitus male rats strain Wistar.

The powdered bay leaf used in this study was equivalence with 20 grams according to the dose calculation for adult patients for daily needs. This bay leaf biscuit innovation has been consumed by patients with hypercholesterolemia diabetes mellitus by providing comments that were accepted by the community. Peoples were switched to consuming bay leaf biscuits as an alternative food additive, especially for patients with hypercholesterolemia-diabetes mellitus.

Peoples can used bay leaf cookies that come from environmentally friendly natural ingredients, so they cold control blood sugar and cholesterol.

CONCLUSIONS

From the results of research conducted that the innovation of "salam cookies" from bay leaves was an alternative cookies that can be consumed for patients with hypercholesterolemia diabetes mellitus.

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Profile Of Antihypertensive Use In Hypertensive Patients With Kidney Failure At The Outpatient Installation At Hospital, Jember Regency.

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Abstract
Background:. Hypertension Was A Person With Blood Pressure Of More Than 140 Mmhg Or Diastolic Blood Pressure Of More Than 90 Mmhg. Hypertension Could Caused Various Complications Including Kidney Failure. Patients With Chronic Diseases Such As Chronic Renal Failure Often Require A Combination Of Several Drugs. The Purposed Of This Study Was To Determine The Profile Of Antihypertensive Use In Hypertensive Patients With Renal Failure At The Hospital, Jember Regency.
Methods: In This Study Was Used A Cross Sectional Design With Retrospective Descriptive, The Sample In This Study Was All Outpatients Diagnosed Hypertension With Renal Failure 100 Patients Admitted At Hospital Jember Regency In The Period January - March 2023. In This Study The Total Sampling Technique Used Secondary Data Namely Medical Records. The Instrument In This Study Used A Data Recapitulation Sheet, For Data Analysis Used Univariate Analysis Displayed In The Form Of Frequency And Percentage.
Results: The Results Of This Study Obtained 100 Samples That Fit The Inclusion Criteria. The Results Of This Study Were Obtained In Terms Of The Most Age, Namely 46-55 Years Old As Many As 38 Patients (38%) And In Terms Of Gender, The Most Were Women As Many As 58 Patients (58%), Then From The Drug Used Profile Obtained Showed That The Group Of Drugs That Were Widely Used In The Single Form Of Diuretic Group, Namely Furosemide As Many As 6 Patients (6%) For The Combination Drug, Namely Combination Group, Namely Amlodiplin And Candesartan As Many As 34 Patients (34%).
Conclusion: The Most Widely Used Single Drug Class Diuretic Was Furosemide, The Used Of Hypertension Drugs With A Combination Of Two Drugs, Namely Amlodiplin And Candesartan, The Used Of Hypertension Drugs With A Combination Of Three Drugs, Namely Candesartan, Amlodiplin And Bisoprolol.

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Introduction

Hypertension Was A Person With Blood Pressure Of More Than 140 Mmhg Or Diastolic Blood Pressure Of More Than 90 Mmhg Based On The Joint National Community On Prevention, Detection, Evaluation And Treatment Of High Blood Pressure 7 (JNC -7). Hypertension Often Does Not Cause Symptoms, While Blood Pressure Is Continuously High For A Long Time So That It Can Cause Complications. Controlled Hypertension Can Cause Complications Including Strokes, Heart Attacks, Heart Failure And Increase The Main Factor In The Occurrence Of Chronic Kidney Failure. The Cause Of Hypertension Was Not Yet Known, But Several Factors Have Been Found That Can Increase The Risk Or Tendency Of A Person Suffering From Hypertension, Including Age, Gender And Ethnicity, Genetic Factors And Environmental Factors Which Include Obesity, Stress, Salt Consumption, Smoking, Alcohol Consumption, And Etc.

Hypertension Can Cause Various Kinds Of Complications Including Coronary Heart Disease, Infarction (Blockage Of Blood Vessels That Causes Tissue Damage), Heart Disease (54%), Stroke (36%), And Kidney Failure (32%). Because In The Long Term An Increase In Blood Pressure That Takes Place Chronically Can Lead To An Increase In Various Risks Of Cardiovascular, Cerebrovascular And Renovascular Events.

Patients With Chronic Diseases Such As Chronic Renal Failure Often Require A Combination Of Several Drugs. In General, The Administration Of This Drug Combination Can Have A Very Beneficial Effect On Patients, But Often In Some Cases It Was Found That Drug Interactions Can Result In Ineffective Treatment, Causing Unexpected Events. The Use Of Drugs In Patients With Chronic Kidney Failure Must Also Be Considered, Because The Kidneys Have The Ability To Excrete And Eliminate The Remaining Products Of Drug Metabolism Which Are Reduced So That Interactions With Drugs Can Cause An Increase In Drug Levels In The Blood So That Antihypertensives Are Needed To Control Blood Pressure And Prevent Worsening Of The Disease. In Therapy, Patients Can Receive More Than Two Types Of Antihypertensives Which Affect Adherence To Patient Treatment.

Administration Of Antihypertensive Drugs Is A Pharmacological Therapy, Antihypertensive Drugs Are Divided Into Several Drug Classifications, Namely The Diuretic Group, The Angiostensin Converting Enzyme Inhibitor (ACEI) Group, The Angiotensin Receptor Blocker (ARB) Group, The Beta Blocker Group And The Calcium Channel Blocker (CCB) Group. These Drugs Can Be Used At Hospital, The Drugs That Are Often Used Are In Combination Or Alone, So They Should Be Used To Treat The Majority Of Patients With Hypertension Because It Has Proven That There Are Advantages With This Class Of Drugs. Angiotensin Receptor Blocker (ARB) Was Chosen Because It Is The Drug Of First Choice In The Treatment Of Hypertension, Especially In Hypertensive Patients With Complications Of Type II Diabetes Where

Kidney Function Works Harder, While ARB Class Drugs Work By Blocking Aldosterone As A Result Blood Pressure Can Be Controlled And Blood Flow To The Kidneys Normal So As Not To Exacerbate The Work Of The Kidneys.

Materials And Methods

This Study Used A Cross-Sectional Design Using Retrospective Descriptive, This Type Of Research Used Qualitative. The Sample In This Study Were All Outpatients With A Diagnosis Of Hypertension With Kidney Failure, 100 Outpatients Were Treated At Jember Regency Hospital In The Period January - March 2023. In This Study, Using Total Sampling Technique Using Secondary Data. Instruments In This Study Used Data Recapitulation Sheets. Furthermore, For Data Analysis Using Univariate Analysis Which Is Displayed In The Form Of Frequency And Percentage. Samples Obtained In The Medical Record Book Of Hypertensive Patients With Kidney Failure Were 100 Medical Record Data Of Patients Who Met The Inclusion Criteria. This Research Has Obtained An Ethical Feasibility Permit Issued By KEPK Dr. Soebandi University With Number: 022/KEPK/UDS/II/2023.

Results

Table 5.1. Characteristics Of Hypertensive Patients With Kidney Failure In The Outpatient Installation Of Citra Husada Hospital, Jember Regency Based On Gender.

No	Jenis Kelamin	Jumlah (N)	Presentase (%)
1)	Laki-Laki	42	42%
2)	Perempuan	58	58%
	Total	100	100%

Table 5.2. Characteristics Of Hypertensive Patients With Kidney Failure In The Outpatient Installation Of Citra Husada Hospital, Jember Regency Based On Age.

No	Rentang Usia	Jumlah Pasien (N)	Presentase (%)
1)	18-25	0	0%
2)	26-35	5	5%
3)	36-45	26	26%
4)	46-55	38	38%
5)	56-65	18	18%
6)	>65	13	13%
	Total	100	100%

Table 5.3. Use Of Antihypertensive Drug Classes In Patients With Hypertension With Kidney Failure In The Outpatient Installation Of Citra Husada Hospital, Jember Regency.

Golongan	Frekuensi (F)	Presentase (%)
Tunggal		
Diuretik	6	6%
ACEI (*Angiotensin Cinverting Ezymeinhibitor*)	1	1%
ARB (*Angiotensin Reseptor Blocker*)	1	1%
CCB (*Calcium Channel Blocker*)	1	1%
Total	9	9%
Kombinasi		
Diuretik+BB (*Diuretik +Beta Blocker*)	6	6%
ARB+BB (*Angiotensin Reseptor Blocker+ Beta Blocker*)	5	5%
CCB+ARB((*Calcium Channel Blocker+ Angiotensin Reseptor Blocker*)	34	34%
CCB+BB(*Calcium Channel Blocker+ Beta*	3	3%
	2	2%
	2	2%
	11	11%

Terapi	Nama Obat	Jumlah (N)	Presentase (%)
	Blocker)	16	16%
	Diuretik+CCB(*Diuretik+Calcium Channel Blocker*)	2	2%
	ARB+Diuretik(*Angiotensin Reseptor Blocker+ Diuretik*)	2	2%
		6	6%
	CCB+ARB+Diuretik*(Calcium Channel Blocker+ Angiotensin Reseptor Blocker+ Diuretik)*	2	2%
	CCB+ARB+BB(*Calcium Channel Blocker+ Angiotensin Reseptor Blocker+Beta Blocker*)		
	ARB+CCB+ACEI(*Angiotensin Reseptor Blocker+ Calcium Channel Blocker+ Angiotensin Cinverting Ezymeinhibitor*)		
	Duretik+BB+CCB(*Diuretik+ Beta Blocker+ Calcium Channel Blocker*)		
	ARB+Diuretik+BB(*Angiotensin Reseptor Blocker+ Diuretik+ Beta Blocker*)		
	ARB+CCB+Diuretik+BB(*Angiotensin Reseptor Blocker+ Calcium Channel Blocker + Diuretik+ Beta Blocker*)		
Total		100	100%

Table 5.4. The Use Of Antihypertensive Drug Names In Hypertensive Patients With Kidney Failure In The Outpatient Installation Of Citra Husada Hospital, Jember Regency.

Terapi	Nama Obat	Jumlah (N)	Presentase (%)
Tunggal	Furosemid	6	6%
	Captopril	1	1%
	Candesartan	1	1%
	Amlodiplin	1	1%
Total		9	9%
2 Kombinasi	Furosemid +Bisoprolol	6	6%
	Candesartan+Bisoprolol	5	5%
	Amlodiplin + Candesartan	31	31%
	Amlodiplin +Valsartan	3	3%
	Candesartan +Furosemid	4	4%
	Amlodiplin + Bisoprolol	3	3%
	Furosemid +Amlodiplin	2	2%
Total		54	54%
3 Kombinasi	Amlodiplin + Candesartan+Furosemid		
	Amlodiplin + Candesartan+ Bisoprolol	9	9%
	Candesartan+ Amlodiplin+ Lisinopril	16	16%
	Furosemid+ Bisoprolol+ Amlodiplin	2	2%
	Candesartan+Furosemid+ Bisoprolol	1	1%
		6	6%
Total		34	34%
4 Kombinasi	Valsartan+Amlodipin+ Furosemid+ Bisoprolol	1	1%
	Amlodipin+Bisoprolol+ Candasartan+Furosemid	2	2%
Total		3	3%
Total		100	100%

The Results Of The Study On The Sex Profile Of Hypertensive Patients With Kidney Failure Who Used Antihypertensive Therapy Drugs In The Outpatient Installation At The Jember District Hospital Can Be Seen In Table 5.1. Based On The Sex Characteristics Of Patients Suffering From Hypertension With Kidney Failure, The Proportion Of Women Is More Than The Number 58 Patients (58%) Compared To Men With A Total Of 42 Patients (42%).

The Age Profile In This Study Was Categorized Into Six Groups According To WHO Age Classification. Age Characteristics Of Hypertensive Patients With Kidney Failure Who Use Antihypertensive Drugs In The Outpatient Installation Of Citra Husada Hospital, Jember Regency Can Be Seen In Table 5.2. Based On The Age Range Obtained In This Study, Patients Suffering From Hypertension With Kidney Failure Were Most Susceptible To Age 46-55 Years With A Total Of 38 Patients (38%).

In This Study Patients Used Drugs With Antihypertensive Therapy Class In Hypertensive Patients With Kidney Failure In The Outpatient Installation Of Citra Husada Hospital, Jember Regency Who Received Single And Combination Therapy Drugs Which Can Be Seen In Table 5.3. Diuretic Single Drug Class Was 6 Patients (6%), While Patients Who Received Drug Therapy With Drug Class 2 Combination Of CCB + ARB (Calcium Channel Blocker + Angiotensin Receptor Blocker) Were 34 Patients (34%).

In This Study, Patients Used Antihypertensive Drugs In Hypertensive Patients With Kidney Failure In The Outpatient Installation Of Citra Husada Hospital, Jember Regency In The Period January - March 2023 Can Be Seen In Table 5.4. Based On The Name Of The Antihypertensive Drug Used In Outpatients At Citra Husada Hospital, Jember Regency In The Period January - March 2023, Most Used Furosemide As A Single Therapy With A Total Of 6 Patients (6%). While The Use Of Antihypertensive Drug Therapy Was The Lowest By Using 4 Drug Combinations In 3 Patients (3%).

Discussion

Based On The Results Of The Research And Discussion Regarding The Profile Of Antihypertensive Use In Hypertensive Patients With Kidney Failure At The Jember Regency Hospital Outpatient Installation. The Most Gender Is Female.

The Profile Of The Use Of Antihypertensive Drugs At Citra Husada Hospital, Jember Regency, Was Mostly In The Diuretic Group, Namely Furosemide For The Single Drug Use Category, While For The Category Of Combined Drug Use The Most Was A Combination Of CCB And ARB, Namely Amlodiplin And Candesartan.

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Literature Review: The Urgentcy Needs of Occupational Health Nurses Profession for SMK3 Implementation to Workers at Indonesian Company

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Abstract— Occupational Health Nursing (OHN) is a special branch of community nursing which is the application of concepts and frameworks from various disciplines (nursing, medicine, public health, social and behavioral sciences, and management) aimed at improving and maintaining health status. worker groups protect workers from work accidents and risk factors for hazards in the workplace in the context of a healthy and safe work environment. In Indonesia, most graduates from Diplomas and Bachelors to Nursing Professions (Ners) only work in clinics, laboratories and hospitals. There is still a lack of student knowledge that Nursing Graduates can also work in Companies such as in Factories, Mines, Ports, Oil Refineries, Plantations, Forestry, even Offices in Companies. The occupational health nurse profession currently has the Indonesian PERKESJA association which was inaugurated by the DPP PPNI in 2016. Attached to the 2022 National K3 Profile there is still a high number of PAK and KK based on global data released by the International Labor Organization (ILO), that the number of cases of KK and PAK in the world reaches 430 million per year consisting of 270 million (62.8%) cases of KK and 160 million (37.2%) of cases of PAK, and causes the death of 2.78 million workers each year. Meanwhile, 40% of cases of KK and PAK occurred in young workers. August 2019 BPS totaled 135.61 million workers from 144.01 million workforce, or around 50% of the total population of 270.2 million people, (BPJS) Employment total work accident insurance in 2019 s.d. 2021 recorded 210,789 people (4,007 fatal people), 221,740 people (3,410 fatal people) and 234,370 people (6,552 fatal people). Compensation costs incurred from 2019 s.d. 2021 namely: IDR 1.58 T, 1.56 T and IDR. 1.79 T. This data certainly does not reflect national representation because it only comes from a total of 30.66 million workers (who are participants in the BPJS Employment program), the increase in cases of KK and PAK is dominated by young workers so that K3 should then become the main stream program in For national development in the aspects of human resources, education and culture of OSH, OSH should have been introduced from an early age through the world of formal and informal education and on an ongoing basis according to the level of education. Guidelines for Clinics at Work/Companies DIRJENKESMAS DEPKES RI 2009 Occupational Health Nurses are a requirement for human resources in the Procurement of Occupational Health Services as in Regulation of the Minister of Manpower and Transmigration No. Per. 01/Men/1979 Concerning the Obligation of Company Hygiene Training and Occupational Health (HIPERKES) based on the data above shows that the importance of the need for nurses in the workplace to support the National K3 program and support the Government's program to achieve the Golden Generation of Indonesia in 2045

Keywords – Occupational Health Nursing: SMK3: HIPERKES: PAK and KK.

I. INTRODUCTION

Based on the 2022 National OHS Profile there is still a high number of PAK and KK based on global data released by the International Labor Organization (ILO), that the number of KK and PAK cases in the world reaches 430 million per year consisting of 270 million (62.8%) cases KK and 160 million (37.2%) cases of PAK, and caused the death of 2.78 million workers. every year. Meanwhile, 40% of cases of KK and PAK occurred in young workers. August 2019 BPS numbered 135.61 million workers out of 144.01 million workers, or around 50% of the total population of 270.2 million people, (BPJS) Employment total work accident insurance in 2019 to 2019 s.d. In 2021, 210,789 people were recorded (4,007 fatalities). the increase in cases of KK and PAK is dominated by young workers so that OSH should then become the mainstay program in For national development in the aspects of human resources, education and cultural OSH, OSH should have been introduced early on through formal and informal education and on an ongoing basis according to the level education. Based on this incident, it can be concluded that there is still a lack of SMK3 implementation in the workplace, there are several factors that hinder the implementation of SMK3 in Indonesia, along with several factors that cause Barriers in Occupational Safety and Health. constraints. Some of these obstacles are macro (at the national level) such as the government, technology, and arts and culture and some are micro (within the company) such as awareness, support and involvement, limited capabilities of occupational safety officers and standards, code of practice. [1] Referring to the Guidelines for Clinics at Work/Companies DIRJENKESMAS DEPKES RI 2009 Occupational Health Nurses The presence of nurses who already have HIPERKES certification in company clinics is one of the requirements for human resources in the Procurement of Occupational Health Services [2] as in the Regulation of the Minister of Manpower and Transmigration No. Per. 01/Men/1979 Concerning the Obligation of Company Hygiene and Occupational Health Training (HIPERKES) for Company Nurses/Paramedics [3] based on the data above shows that the importance of the need for nurses in the workplace to support the National K3 program and support the Government's program to achieve Indonesia's Golden Generation year 2045[4].

The Occupational Safety and Health Management System (SMK3)

is listed in the Government Regulation of the Republic of Indonesia Number 50 of 2012 Implementation of the Occupational Safety and Health Management System Occupational Health is part of the company's overall management system in order to control risks related to work activities in order to create a safe, efficient and productive workplace [5].

HIPERKES (Company Hygiene and Occupational Health)

As the name suggests, Hiperkes focuses on 3 things, namely hygiene, ergonomics, namely the relationship between workers and the environment and their health. In addition, Hiperkes is a discipline regarding hygiene and is related to the assessment and measurement of factors in the work environment. For example, in terms of biology, ergonomics, physics, chemistry, and psychology. The measurement and review of Hiperkes itself aims to find out what factors will cause work interruptions, so that companies can take preventive action more quickly. The importance of occupational health certification or hyperkes for company doctors and nurses is regulated by the government through PERMENAKERTRANS No. 01 of 1976 concerning Mandatory Hyperkes Training for company doctors and PERMENAKERTRANS No. 01 of 1979 concerning mandatory Hiperkes Training for company paramedics [6] The function

of a hyperhealth nurse is very dependent on company policy in terms of the extent of the scope of the health business, the composition and number of health workers employed in the company [7].

The working population is one of the vulnerable groups

experiencing a decline in health status due to illness or experiencing work accidents. The workplace has heathhazards that have an impact on high worker morbidity and mortality. One study conducted by the National Institute of Safety and Health/NIOSH (2006) showed that 137 workers die every day in America as a result of work-related illnesses originating from health hazards[8].

Data on the Condition of Workers in the World and Indonesia

Data Pekerja Secara Global		
ILO, 2021	2,3 Juta orang meninggal/tahun	Kecelakaan dan penyakit akibat kerja
	> 270 Juta	Korban Cidera Kerja
ILO,2020	2,7 Milyar (81%)	Pekerja Terdampak COVID19 secara global
Dampak COVID19 : Pengurangan jam kerja, dirumahkan, cuti tanpa gaji, pemotongan upah, hingga PHK (Pemutusan Hubungan Kerja)		
Terutama pada sektor perdagangan ritel dan grosir, manufaktur, real estate, transportasi dan restoran		
ILO & UNICEF, 2020	160 Juta (2000-2016)	Pekerja dibawah umur, bertambah 8,4 juta dalam 4 tahun terahir
ILO,2021	79 Juta	Pekerja Anak usia 5-17 tahun (2020),
WHO & ILO, 2019 (2000-2016)	3 Juta	Kematian (80% penyakit, 19,3% injury ditempat kerja, 0,7% paparan jam kerja > 55 jam/minggu)
Penyebab Kematian : Karena Papara terhadap partikel, gas, asap, dan cidera kerja.		
Penyakit : PPOK, Stroke, dan Cardiovascular		
World Employment and Social Outlook (WESO, 2022)	207 Juta	Pengangguran Secara Global, lebih tinggi (186 juta tahun 2019)

Data Profil Pekerja		
BPS, 2021	140,15 Juta	Angkatan Kerja di Indonesia, lebih besar 138,22 juta (2020)
	131,05 Juta	Pekerja (Agustus,2021), berkurang 10 ribu orang (0,01%) di Februari 2021
	9,10 Juta	Pengangguran (Agustus 2021) mengalami peningkatan (8,75 Juta Februari 2021)
BPJS Ketenagakerjaan, 2020	123.040 kasus	Kecelakaan Kerja (2017)
	173.415 kasus	Kecelakaan Kerja (2018)
	182.835 kasus	Kecelakaan Kerja (2019)
	177.000 kasus	Kecelakaan Kerja menurun (2020), karena kondisi pandemi (WFH dan PHK)
	203 kasus	Meninggal karena PAK, Meninggal Kecelakaan Kerja, dan Cacat total (Januari, 2020)
	403 kasus	Meninggal karena PAK, Meninggal Kecelakaan Kerja, dan Cacat total (Februari, 2020)
	603 kasus	Meninggal karena PAK, Meninggal Kecelakaan Kerja, dan Cacat total (Maret, 2020)
	Mayoritas terjadi pada kelompok usia muda 20 - 25 tahun, Laki-laki 74,7%, sisanya pekerja Perempuan, dan PAK mayoritas pada usia 25-40 tahun	

(ILO, 2021b) , 2021b) 2019a)(ILO Indonesia, 2017) (BPS, 2021), (International Labour Office, 2022) (Kemenaker RI, 2021) (BPJS Ketenagakerjaan, 2020)

Many disciplines and professions related to OSH, Occupational Health and safety professionals have been implemented by companies and industries in 49 countries, including: Occupational Health physicians, Occupational health nurses, Occupational hygienists, Safety Engineers, Ergonomists/Physiotherapists, and Psychologists (International Labor Office, 2018) [5], We all need to know that nurses also have a role in implementing occupational health in a company agency, or what is often referred to as an Occupational Health Nurse. The occupational health nurse profession is part of the Community Nursing discipline. Occupational health nursing (OHN) is a special branch of community nursing which is the application of concepts and frameworks from various disciplines (nursing, medicine, public health, social and behavioral sciences, management principles) aimed at improving and maintaining the health status of workers and protecting workers from work accidents and health hazards in the context of a healthy and safe work environment (American Association of Occupational Health Nursing/AAOHN [8][9].

Occupational Diseases (PAK), Work Accidents (KK), and Disabilities

1. RI Manpower Regulation No. 5 of 2021 Work Accidents (KK) are accidents that occur in a work relationship, including accidents that occur on the way from home to the workplace or vice versa and illnesses caused by the work environment.

2. Occupational Diseases (PAK) are diseases caused by work, work tools, materials, processes and work environment. In accordance with Presidential Decree No. 7 of 2019 concerning Occupational Diseases (PAK), a diagnosis must be made by a Hiperkes doctor / Occupational Health Specialist (Sp. OK) who is competent in the field of occupational health, including the following types of diseases:

a. Caused by exposure to factors arising from work activities;

b. Based on the target organ system;

c. Occupational cancer; And

d. Other specifics.

3. Disability is a state of reduced or loss of bodily functions. limbs that directly/indirectly result in a reduction

or loss of the worker's ability to carry out his work.

a. Anatomical partial disability: the condition of reducing or losing a part of the body

b. Partial functional disability: reduced state or partial loss of limb function

c. Permanent total disability (CTT): a disability that results in a person's inability to do work

Role and Function of the Occupational Health Nurse

Nurses play an important role in implementing comprehensive OSH in achieving optimal worker health status. Nurses who are in industrial scope mostly act as clinicians, educators, managers/advisors, consultants, and case managers[10]. , at this time the roles and functions of OHN have become more extensive and complex identifying 8 roles of OHN. The eight roles are: (1) Giver

health services ; (2) case finders; (3) Health educators; (4) Nurse educators; (5) Counseling service providers; (6) Case management; (7) Consultants, and (8) Researchers. Based on this role, the OHN functions are: (1) Supervise the health of workers; (2) Conduct surveillance of the work environment; (3) Prevent work accidents; (4) Prevent occupational diseases; (5) Management of diseases both related and not related to work, accidents at work, as well as basic health services; (6) Organize and coordinate first aid efforts at work; (7) Carry out health promotion and disease prevention in the workplace; (8) Conducting counseling for workers; (9) Carry out rehabilitation efforts for workers who return to work after experiencing an accident or being hospitalized; (10) Recording and reporting occupational health; (11) Manage the management of occupational health services including establishing planning, policy development, funding, staffing and; (12) perform administrative tasks in available health units or health clinics as well; (13) conducting occupational health nursing research [8]

Theories and models that can be applied in Occupational Health Nursing Services

The practice of occupational health nursing services is carried out by applying theories and models related to occupational health nursing. These theories and models include: (1) Epidemiological Model, (2) Occupational Health Nursing Model from Rogers (1994), (3) Health Promotion Model for Workers from Downie and Tannahill (1996). The Epidemiological Model has been described at the beginning of this paper. In this section the author will only discuss the "Occupational Health Nursing Model" model from Rogers (1994). Rogers (1994, in Stanhope & Lancaster, 2004), designed a model of occupational health nursing by focusing on worker health which is influenced by five factors directly related to worker health. These five factors are:

1. OHN service practice which consists of 8 elements. The eight elements are an overview of the roles and duties of OHN, namely: establishing policies related to occupational health nursing services, establishing planning programs related to the management of occupational health nursing services, conducting direct nursing services, conducting surveillance of health hazards in the workplace, doing work together with existing sources in the community when providing services, providing occupational health nursing services based on ethical and legal aspects, conducting occupational health nursing research;

2. Occupational health and safety team consisting of occupational health specialist doctors, general practitioners, environmental health experts, nutrition consultants, physiotherapists, psychologists, occupational hygienists;

3. The third factor is work and health hazards in the work environment;

4. Sources in the community, whether in the form of referral health services for workers such as hospitals, government organizations and non-governmental

organizations (NGOs) that pay attention to the working population; as well as

5. The vision and mission of the company or work institution which includes the goals, policies and regulations set by the company both related to business, economic aspects and those related to occupational health and safety including company policies that facilitate or do not facilitate the improvement and maintenance of workers' health [8].

Occupational health nurses have access to personal and medical information relating to company employees. The nurse is responsible for protecting and safeguarding the patient's interests in a professional clinical manner. If there are special conditions that require review and make confidential documents, the nurse must obtain permission from the person concerned, in terms of goals and mutual agreement in prioritizing health [10][9].

Conditions of Occupational Health Nurses in Indonesia

Although there are no exact figures for the number of nurses working in companies or industries, data from the Ministry of Manpower and Transmigration shows that more than 7,000 nurses have attended HIPERKES (Corporate Hygiene and Occupational Health) training. This figure has not been added by other occupational health activists such as academic nurses and policy makers. this figure is estimated to double in number in line with the increase in the number of small-scale companies in Indonesia by 141,894 (83.70%), medium-scale industries by 14,970 (8.83%) and the number of large-scale industries by 12,660 (7.47%), so that the total number of industries in Indonesia is 169,524 company. Seeing the current condition of occupational health nurses, their duties, roles and functions as well as occupational health nurses above the occupational health nurse professional organization (PERKESJA) which is already a member of the Indonesian Network of Occupational Safety and Health Professionals (INOSHPRO) 2022 which was founded by Prof. Dr. Tan Malaka, MOH Dr. PH. Because basically the Occupational Health Nurse profession is specific, with the scope of duties, authorities and responsibilities having specificities that cannot be replaced by other professions. Strengthening HR competencies in the diagnosis and implementation of occupational health and institutional strengthening as well as several model and pilot activities. As for the efforts of the government regarding the empowerment of occupational health programs in health centers and UKK posts, 1,034 health centers have implemented occupational health efforts, exceeding the set target of 576 health centers in 2013[11]. but in reality the number of OHN nurses in Indonesia is relatively rare and the number of OH nurses is still very limited due to the unavailability of nursing education institutions that organize OHN specialization programs, OHN teaching staff are not yet available, there is also no OHN training at universities in Indonesia (Tukayo et al., 2021). According to WHO (2012), the roles of OHN nurses include doctors, nursing managers, advisers, educators, researchers and coordinators [12]. whereas occupational health nurses play an important role in handling the occupational health and safety of industrial workers. Nurses can also provide recommendations to related parties in policy making to improve worker welfare as an effort to reduce physical and material losses due to work accidents [10] whereas at the Royal College the Occupational Health Nursing Association in England estimates that there are 7500 nurses working in England in occupational health settings in 1996 (Bagley, 2002). The OHN's role as a specialist practitioner with important developmentally appropriate post-registration qualifications and experience. Philosophically, the basic principles of OH nursing practice remain

unchanged; namely to improve health in the workplace and to protect the health of workers[13].

II. METHODS

This literature review uses comprehensive methods such as finding sources from research theses, training modules, journals, training materials, ministry websites and laws and regulations by means of skimming, namely quick review, paragraph statements or core sentences in a paragraph and document statements, namely reading the main statement. in object documents that are useful for helping readers understand the overall theme, using Google Shoolar with the keywords "Occupational Health Nurse" and Occupational Health and Safety "Occupational Health Safety Environment" 47 article sources used as databases, database searches used include: from SAGE's, ScienceDirect, MDPI, PubMed, ResearchGate, Springer (Occupational Health Science), Taylor & Francis, American Journal of Epidemiology, International Journal of Advanced Health Science and Technology (IJAHST), IJOSH, Journal of Nursing Science News, JNK, International Journal of Environmental Research and Public Health, Occup. Med., www.eerp.usp.br/rlae,http://oem.bmj.com/ (Occup Environ Med), https://www.redalyc.org/journal/3240/324049855011/html/ , Journal of Nursing UMM, Indian Journal of Occupational & Environmental Medicine (IJOEM), JAN Leading Global Nursing Research, American Association of Occupational Health Nurses, Nursing Theses and Capstone Project, and WHO Regional Office for Europe. A search for articles and research journals found 10 articles cited from journals from various countries analyzed through analysis of objectives, topic suitability, research methods used, and findings from each article, which is sufficient to show the need for Empowerment of the occupational health nurse profession.

III. RESULT

According to the International Labor Organization (ILO), the number of workers in the world reached 3.3 billion people in need of occupational health services, during the past US coronavirus disease 2019 (COVID-19) outbreak many companies focused on individual biology and behavior, regardless of the centrality of the environment work on the spread of the virus. minimize the effect of occupational exposure on ill health and thereby minimize the financial exposure of related industries [14]. Workers in the industrial sector need the health services offered by occupational health nursing (OHN). OHN nurses in Indonesia are called 'Paramedics' at work, in the journal above the role of OHN in construction companies can be as a mediator and counselor where OHN is able to conduct hearings between managers and workers regarding cases of PAK and KK in the work environment [22] OHN teaching needs to identify

future challenges of information technology, in order to be able to adapt to the times.

roles and functions of occupational health nurses (OHNs) in Brazil and compare them with those in the United States. that most Brazilian OHN spend more time in managerial roles, followed by consultant and educator responsibilities, while in the United States, OHN spend significantly more time in educational/advisory roles[19], In Japan, there are over 30,000 cases commit suicide years, from 1997 to 2011. Suicide by a working adult accounted for 60% of the total. OHN has skills that can support both physical and mental health for individuals, groups and organizations [20]. Finland was a pioneer with separate laws for OH Services from 1978 and then 2001, which required employers to regulate OH. OH Service Coverage varies widely across countries, in Finland it is 92%. The current number of OHN in Finland is 2000. Occupational Health 2025 – Strategic Guidelines was recently published in Finland. The challenge for the future of OH services is to support employability and work disability prevention. OHN's role is critical in delivering cost-effective services for small companies. Future OH challenges in Finland support workers' employability and prevention of work disabilities[20] [21].

OH nurses are in high demand and their IT competency plays a large role in the continuity and quality of work. IT interventions will simplify the OHN educational system, providing OH a more effective and efficient nursing practice in the workplace[15]. Apart from being in the company, OHn also has a role in the hospital conducting infection risk surveillance such as hospital environmental factors, hospital infection control, and organizational factors [16]. OHN promotes health holistically. Motivating and encouraging customers, such as companies, employers and employees, continues to be a key aspect

of OHN's work, and requires a broad range of competencies, a flexible approach, and good interpersonal skills. Of the OSH professionals, OHN is often the person closest to the community and their employer, and their skills and activities will also be needed in the future[18]. Development of OHN specialist nursing education still lacking or not yet available in Indonesia (Efendi et al., 2018). According to (Jurun et al., 2020) the relative number of OHN nurses in Indonesia rare. This rarity is evidenced by its absence scientific work on OHN (Tukayo & Hardy, 2020). Even though the industry continues to grow and requires

latest health services including nurses work in the industrial sector (Tukayo IJH & Hardy,2020). Number of global nurses up to 2018 reached 27.9 million, of which 19.3 million was professional nurse (WHO Region, 2018). This the shortage decreased to 5.9 million nurses in 2018 (Efendi et al., 2018). About 5.3 million (89%) of these deficiencies are in the low and lower middle class country revenue (WHO Region, 2018). At the moment Indonesia has only met 60% of the need for nurses according to world standards (Media Indonesia, 2020). But in Indonesia there is no such nursing campus never held an OHN program and there were no campus leaders used as an example (Tukayo IJH & Hardy, 2020). This statement is supported by Efendi's findings et al. (2018) where the number of OHN postgraduate specialization education yet available in Indonesia [12] [17]

IV. DISCUSSION

There is still a lack of education for occupational health nurses in educational institutions while the growth rate of industry in Indonesia is increasing and there are many nursing graduates each year, so teaching staff must immediately implement a program/curriculum for occupational health nurse courses so that job opportunities for nursing graduates, so far Many nurse graduates work in

clinics, health centers, and hospitals and then only attend training at their own expense, considering that the occupational health nurse profession is very promising in terms of welfare. No less important is the group of workers who are a risk group where workers are wage earners in a family, of course, if they don't even get occupational health services, it will certainly cause comprehensive problems for the workers themselves and their families. We can all know from the citations of the 10 journals above that OHN's role in the work environment is very complex, apart from maintaining and elevating the physical and mental health of workers, but has a managerial role in an organization in a company to make decisions that can increase the productivity of groups of workers.

V. CONCLUSIONS

From the explanation of the literature review in this it can be concluded that it is clear that the urgency of the role and function of the occupational health nurse for companies and workers is clear. As we know that we spend 1/3 of our time a day at work, so we really need to get occupational health services, both from a promotive, preventive, curative and rehabilitative perspective, in order to minimize company costs and workers' medical expenses. And creating healthy and productive workers, and implementing a culture of safety in all aspects of our lives.

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AUTHORS PROFILE

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Profile of the Use of Antidiabetic Drugs in Type 2 Diabetes Mellitus Patients at Hospital

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Abstract:

Background: Diabetes Mellitus was where serious illness characterized by an increase in blood sugar levels. DM was the highest caused of death in the world, because nearly 17 million people die from DM. There were 4560 (14.7%) DM sufferers at hospital. Therefore, the aimed of this study was to determine the profile of the use of antidiabetic drugs in type 2 diabetes mellitus patients at hospital.

Methods: In this study used a cross sectional design used descriptive analytic non-experimental, the population in this study were all inpatients with a diagnosis of Type 2 DM at hospital for the period September-October 2022. Data source were from medical records. The total sample used all members of the population of 108 patients in the inpatient installation at hospital. This study used a total sampling technique. Data analysis used univariate analysis in the form of percentages.

Results: The results of this study indicated that only 70 samples were included in the inclusion criteria. The results of this study indicated that the most widely used single drug was the sulfonylurea (glimepiride) class (23%), the combination of two drugs namely biguanide drugs with a sulfonylurea (metformin + glimepiride) (8%), and the sulfonylurea class with thiazolidinediones (glimepiride + pioglitazone) (6%), a combination of three drug namely biguanide drugs, sulfonyluras with thiazolidinediones (metformin+glimepiride+pioglitazone) (2%).

Conclusion: The most used single drug was the sulfonylurea group with the drug name glimepiride, the combination of two drug were the biguanide and sulfonylurea groups (metformin + glimepiride), the three drug most common combinations were the sulfonylurea class and thiazolidinediones (glimepiride + pioglitazone) administration according to patient characteristics DM type 2.

Keywords: Antidiabetes, Type 2 Diabetes Mellitus, Hospital

I. INTRODUCTION

Diabetes Mellitus, also known as DM, is a serious disease characterized by an increase in blood sugar levels or also known as hyperglycemia, because the body cannot produce insulin (Webber, 2021). DM is a non-communicable disease (PTM), the highest cause of death in the world, because nearly 17 million people die from diabetes [3]. DM itself is often known as a disease that can kill silently, because this disease is often not known or realized by sufferers, and when it is known it has become a complication [9]. According to PERKENI (2021), complications that occur due to DM disease are in the form of disturbances in the blood vessel area both macrovascular and microvascular, and also occur in nervous system disorders or neuropathy, where macrovascular blood vessel disorders often affect parts of the heart, blood vessels, and brain. Meanwhile, microvascular disorders often affect the eyes and kidneys [15].

The International Diabetes Federation (IDF) (2021), explained that there were 537 million adults with DM who were aged 20-79 years, Indonesia was ranked 5th as a country with 19.47 million DM sufferers, and stated that Diabetes cause of death in 6.7 million. In East Java alone, the East Java Health Service (2021), states that there are a total of 867,257 cases of diabetes mellitus. DM sufferers in Jember Regency in 2020, there are 35,951 people. In hospitals, there will be 4,560 people with DM in 2022 from January to October or 14.7% who will suffer from DM. According to the ADA (2020), the type 2 diabetes that often occurs is DM with an incidence of around 85%. Type 2 DM occurs due to 2 factors, namely the occurrence of insulin resistance, reduced sensitivity to receptors in liver, fat, muscle tissue, and also a progressive decrease in insulin, which occurs in the production of insulin hormone in β cells that cannot meet needs. This can lead to a buildup of sugar in the blood (hyperglycemia) [17].

Type 2 DM management is carried out to reduce morbidity and mortality. Reducing the severity of DM with complications can be done by modifying lifestyle and administering antidiabetic drugs to control blood sugar. The administration of antidiabetic drugs is adjusted according to the therapy algorithm starting with oral antidiabetic monotherapy, if it has not been able to reduce blood sugar levels, a combination of two antidiabetic therapies can be given, both oral and insulin [14]. The use of DM drugs can use a choice of drugs from the sulfonylurea class, the biguanide group, the meglinitide group, the thiazolidinedione group, and the α-glucosidase inhibitor group. This group

can be used as monotherapy or combination therapy, in controlling blood glucose levels [8]. Management of DM has the ultimate goal, to maintain plasma glucose levels within the normal range, and prevent the possibility of acute complications [15].

Pharmaceutical services are one of the important health services, both in terms of accessibility and drug availability. At present, pharmaceutical services have shifted their orientation from drugs to patients, where pharmaceutical services, which were originally focused on drug processing, have become a form of service that aims to improve the quality of life of patients [12]. In this study, the role of pharmacy is very important in monitoring diabetes treatment therapy in type 2 DM patients, in order to improve the quality of life of these patients [16].

Patients who have been diagnosed with type 2 DM for a long time and their blood sugar levels are not well controlled can cause complications. Complications that occur due to DM disease can be in the form of microvascular disorders such as eye disease, neuropathy, and nephropathy, while macrovascular complications include coronary artery disease, peripheral artery disease, and cerebrovascular disease [15]. Therefore, this study aims to determine the profile of antidiabetic drug use in type 2 DM patients in the hospital.

II. METHODS

In this study used a cross sectional design, the population in this study were all inpatients with a diagnosis of Type 2 DM at hospital for the period September-October 2022. The sample in this study is medical record data for inpatients for the period September-October 2022 that has met the inclusion and exclusion criteria. with inclusion criteria, namely patients receiving antidiabetic treatment therapy, patients with the main diagnosis of type 2 DM along with complicated diseases, patients aged > 18 years, patients with GDA blood sugar levels of 100-400 mg / dl.

III. RESULT

Data in this study obtained retrospectively showed that the number of patients suffering from Type 2 DM using antidiabetic drug therapy during the period September-October 2022 was 70 samples. The characteristics of Type 2 DM patients who use antidiabetic drug therapy in the inpatient installation of hospital can be seen in (table 1) The most patients suffering from Type 2 DM are vulnerable at the age of 56-65 years with a number of 39 patients or as many as 56%. Gender in patients suffering from Type 2 DM who use antidiabetic drug therapy in the inpatient installation of hospital can be seen in (table 2) The

gender of patients suffering from Type 2 DM who suffered more sufferers was women with 44 patients or as many as 63%. Complications in patients suffering from Type 2 DM who use antidiabetic drug therapy in the inpatient installation of hospital can be seen in (table 3) Complications in patients suffering from Type 2 DM who experience more hypertension with 26 or as much as 26% and kidney failure with 13 or as much as 13%.

The use of antidiabetic drugs is a group of drugs used to control blood sugar. The use of antidiabetic drugs in this study can be seen in (table 4) the use of antidiabetic drugs in Type 2 DM patients who were most widely prescribed for single drugs were sulfonylureas as many as 33 prescriptions (28%), with the name glimepiride drugs as many as 27 prescriptions (23%), As for the two most widely prescribed combination drugs are the biguanide group with sulfonylureas with the drug name metformin with glimepiride as many as 10 prescriptions (8%), and the sulfonylurea and thiazolidinedione groups with a total amount of 9 prescriptions (8%), with the name glimepiride drugs with pioglitazone as many as 7 prescriptions (6%). The use of the combination of three drugs most widely prescribed in this study was the biguanide group, sulfonylureas, with

thiazolidinedione as many as 4 prescriptions (3%), with the drug name metformin, glimepiride, with pioglitazone as many as 3 prescriptions (2%).

The characteristics of Type 2 DM patients who use antidiabetic drug therapy in the inpatient installation of hospital can be seen in (table 1) The most patients suffering from Type 2 DM are vulnerable at the age of 56-65 years with a number of 39 patients or as many as 56%. Gender in patients suffering from Type 2 DM who use antidiabetic drug therapy in the inpatient installation of hospital can be seen in (table 2) The gender of patients suffering from Type 2 DM who suffered more sufferers was women with 44 patients or as many as 63%. Complications in patients suffering from Type 2 DM who use antidiabetic drug therapy in the inpatient installation of hospital can be seen in (table 3) Complications in patients suffering from Type 2 DM who experience more hypertension with 26 or as much as 26% and kidney failure with 13 or as much as 13%.

Based on the results of the study profile of the use of antidiabetic drugs in Type 2 DM patients in (table 4) the most widely prescribed single drug administration is the Sulfonylurea group as many as 33 prescriptions (28%), In this study, glimepiride drugs were more widely prescribed because the drug has a

mechanism of action by encouraging the pancreas to produce insulin in the body and can help the body use insulin more efficiently [1]. Research conducted by Osman (2021) states that glimepiride drugs are effective in reducing blood sugar for 7 days with an average percent of 22.59%. Glimepiride drugs can also stimulate beta cells to release insulin, and are able to reduce cardiovascular complications [4]. Based on the results of this study, the use of a single drug of the sulfonylurea group (glimepiride) at hospital is in line with the theory from the research of [4], while according to PERKENI (2021) guideline antidiabetic treatment for type 2 DM patients uses metformin as the first line. However, according to research by [5], stated that metformin has contraindications with kidney function, liver function disorders, and heart failure which have the potential to occur at risk of lactic acidosis, while at hospital, which has complications of kidney failure and heart failure, it is also among the most complications suffered by type 2 DM patients.

The prescribing of two combinations at hospital that was most widely used in the results of this study was the biguanide group with sulfonylureas with the name metformin and glimepiride drugs as many as 10 prescriptions (8%). Metformin with glimepiride is a very common combination prescribed by doctors, because according to PERKENI 2021 metformin with glimepiride is a first-line combination for type 2 DM patients The combination of metformin with glimepiride is a combination that is quite effective in controlling blood sugar, the combination of the two drugs is quite potent and safe as the first choice compared to other oral antidiabetics because glimepiride has a better effectiveness in controlling blood sugar levels and metformin has the least side effects on hypoglycemia than other antihyperglycemic so it is safe to combine with glimepiride because it does not add to the side effects of hypoglycemia [10].

The number two most combination drugs are Sulfonylurea and thiazolidinedione groups with a total of 9 prescriptions (8%), with the name glimepiride drugs with pioglitazone as many as 7 prescriptions (6%), According to PERKENI 2021, the combination of glimepiride is given when patients are contraindicated with metformin with the addition of other drugs that have a different mechanism of action by using 2nd line drugs, namely the alpha-glucosidase inhibitor group (acarbose), if they have contraindications with acarbose, they can be given the three line, namely the thiazolidinedione group

(pioglitazone). In this study acarbose was not prescribed because according to the results of research Chang et al (2015) showed that acarbose does not have a cardioprotective effect, where type 2 DM patients who use acarbose are higher in cardiovascular events, heart failure, and ischemic stroke. Meanwhile, at hospital, cardiovascular complications are the most common complications suffered by type 2 DM patients. Therefore, in research using the prescription combination of glimepiride with pioglitazone. Glimepiride with pioglitazone is effective in correcting HBA1c, FPG and Fast Plasma Insulin (FPI), and can also lower albumin or creatinine levels by a ratio of 15%, therefore the combination is safe for Type 2 DM patients with impaired renal function. The combination of glimepiride with pioglitazone can also reduce the risk of cardiovascular in Type 2 DM patients, because the effect of the combination can improve blood fat profiles, and also improve systolic and dystolic blood pressure [11].

The three most widely used combinations are the biguanide sulfonylurea group, and thiazolidinedione with the drug name metformin, glimepiride, with pioglitazone as many as three prescriptions (2%), Glimepiride has a mechanism of action by encouraging the pancreas to produce insulin in the body and can help the body use insulin more efficiently [1], while pioglitazone has a mechanism of action by increasing insulin sensitivity in the liver and in adipose tissue so that it can reduce glucose levels in the blood [11].

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The Effect Of Using Antihypertensive Drugs In Hypertensive Patients With Kidney Failure In Outpatient At Hospital

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Abstract

Introduction: *Hypertension was a condition where systolic blood pressure was more than equal to 140 mmHg and diastolic was more than equal to 90 mmHg after two separate measurements. Hypertension was a disease with a high incidence rate worldwide and caused of death, around 1.13 billion people in the world had hypertension and its complications, therefore the aim of this studied was to determine the effect of using antihypertensive drugs in hypertensive patients with kidney failure in outpatient at hospital*. **Methods:***This type of research used a type of quantitative research study using a cross-sectional design, the population in this studied were all hypertensive patients with kidney failure who were outpatients at the hospital in the period December 2022-March 2023. The number of samples used probability sampling with the proportionate stratified random sampling technique as many as 100 patients in at hospital. Data sources in research used medical record. Data analysis used chi-square test.* **Results:** *The results of this study indicate that there wa an effect of using antihypertensive drugs in hypertensive patients with kidney failure. For drug classification, the most common single drugs were diuretics in 5 patients (5%), the combination drug groups were calcium channel blockers and angiotensin receptor blockers in 27 patients (27%). The results of the statistical analysis used the chi-square test showed that there was a significant effect of the use of antihypertensive drugs in hypertensive patients, which was marked with p value < 0.05.* **Conclusion:** *From the results of this studied, there was an effect of the used of antihypertensive drugs in hypertensive patients with kidney failure.*

Keywords: *Antihypertension, Hypertension, Kidney Failure*

I. INTRODUCTION

The increasing flow of globalization has brought many changes to people's behavior and lifestyle, as well as the environmental situation, namely changes in food consumption patterns. These changes have unknowingly affected the epidemiological transition with the increasing cases of non-communicable diseases. One of the non-communicable diseases that has a relatively high morbidity and incidence and has a major impact on the morbidity, mortality and socio-economic conditions of the community due to the relatively high cost of treatment, namely kidney failure [1]. Kidney failure is also related to hypertension, a person is more at risk of developing kidney failure if they have high blood pressure or it is called hypertension. Hypertension is a disease with a high incidence rate worldwide and is a cause of death, most of the causes of hypertension are unknown (essential hypertension / primary hypertension), a small proportion of hypertension is caused by acquired diseases (secondary hypertension). Hypertension can be prevented by therapeutic treatment, namely pharmacological therapy and non-pharmacological therapy.

The use of drugs in patients with kidney failure who have hypertension must also pay more attention, because the ability of the kidneys to excrete and is needed to support the success of therapy so that it fits the patient's main goals [2]. Antihypertensive drugs have a route of elimination through the kidneys. In conditions of kidney failure, antihypertensive drugs can cause accumulation in the kidneys so that it can worsen kidney prognosis. Therefore special attention and action are needed, especially choosing antihypertensive drugs that are comfortable for the kidneys [3].According to the ESC/ESH Guidelines, kidney failure with hypertension can be treated by using antihypertensive drugs from the CCB class, ARB, beta blockers, ACE-inhibitors, and diuretics [4]. But it turns out that the use of antihypertensive drugs in patients with kidney failure has a detrimental effect on several groups. In previous studies the use of β-blockers actually requires special attention, especially in patients with kidney failure. This is because hypertension therapy with ß-blockers in patients with chronic renal failure has been reported to cause decreased kidney function, this effect may be due to a reduction in renal blood flow and glomerular filtration rate due to reduced cardiac output and decreased blood pressure by drugs. Therefore it is necessary to conduct research on the effect of treatment in hypertensive patients with kidney failure.

In treatment it is very important to see the effect in administering the drug because it affects the patient's recovery. The effect of using a drug is said to be irrational if the possible negative impact received by the patient is greater than the benefits. If during treatment the patient has not recovered, it could be because the treatment is not optimal or the patient is using the drug incorrectly and is not compliant. In this study the effect of drug use was measured by the decrease in blood pressure after being given antihypertensive therapy.

Data (WHO) for the 2020 period shows that around 1.13 billion people in the world have hypertension, meaning that 1 out of 3 people in the world is diagnosed with hypertension. The number of people with hypertension continues to increase every year, it is estimated that by 2025 there will be 1.5 billion people affected by hypertension, and it is estimated that every year 9.4 million people die from hypertension and its complications [5]. In 2020 there will be an increase of 14.10% in people with hypertension in East Java Province who will receive health services according to standards in 2021 of 51%. In hospital Citra Husada Jember Regency in 2022 as many as 861 people or around 3.17%.

The impact of hypertension with kidney failure can damage the kidney blood vessels and make these organs unable to function properly. The kidneys play an important role in removing toxic substances such as urea, creatinine and ammonia. Creatinine is one of the end products excreted by healthy kidneys, high levels of creatinine in the blood can indicate weak kidney function. Uncontrolled hypertension will lead to complications and can worsen the health of other organs including the kidneys, with terminal renal impairment as much as 26.8% and 50-75% experiencing chronic kidney disorders [6].

The existence of a pharmacist is very important in order to be able to monitor and assess the effectiveness of drugs in patients with kidney failure. The solution to this problem as pharmacists in terms of monitoring drug therapy in hospital pharmacy service standards, in this case, is to play an active role in the management of hypertension therapy through Pharmaceutical care (PC) services by conducting assessments, preparing treatment plans, implementing and monitoring, reducing risk factors for the occurrence of hypertension by conducting PIO and counseling. Starting a healthy lifestyle, reducing salt and fat intake, diligently taking medication and taking medication are ways for pharmacists to be able to reduce patient risk factors every time they come to the pharmacy.

In a preliminary study conducted at Citra Husada Hospital, hypertension with kidney failure was included in the top 10 diseases in 2022 and found 893 patients or 3.25%. Antihypertensives that are often used at Citra Husada Hospital in patients with kidney failure are CCB and ARB groups. The group that was used the most was the CCB group, namely amlodipine, the group that was used the second most was the ARB group, for example, candesartan, and the third most used valsartan. And there are also those who use beta blockers, namely atenolol, bisoprolol, carvedilol, and nadolol. While the beta blocker group itself can make kidney function decrease.

Based on the description above, it shows that there is a high prevalence of hypertensive patients with kidney failure and there are many risk events for choosing drugs, inaccuracies in drug selection, from this the researchers are interested in conducting research on "The Effect of Using Antihypertensive Drugs on Hypertensive Patients with Kidney Failure Outpatient Hospital. Citra Husada Jember".

II. MATERIALS AND METHODS

This study was designed to meet the inclusion criteria and has obtained ethical eligibility permits issued by KEPK Dr. Soebandi University with Number: 026/KEPK/UDS/II/2023. Data obtained from research conducted experimentally showed that the number of patients suffering from hypertension with kidney failure using antihypertensive therapy during the period December 2022 - March 2023. The target population of the study were hypertensive patients with kidney failure who were hospitalized outpatients. Citra Husada, Jember Regency for the period December 2022 - March 2023. The research sample was outpatient hypertension patients with kidney failure. Citra Husada Jember Regency for the period December 2022 - March 2023 which meets the inclusion and exclusion criteria. With the inclusion criteria, namely patients with a diagnosis of hypertension with kidney failure treated outpatient hospital. Citra Husada, Jember Regency, patients for the period December 2022- March 2023, hypertensive patients receiving antihypertension, patients aged over 18 years. Data were processed using the SPSS type 25 program. In this study the chi square test was used and the statistical analysis used was correlation analysis to show whether each variable influenced the other.

III. RESULTS

Based on the results of research conducted on hypertensive patients with kidney failure in hospital outpatients.

Citra Husada Jember Regency said (<120 mmHg/<80 mmHg) that is normal blood pressure, not present in the study sample. Blood pressure was said to be (120-139 mmHg / 80-89 mmHg) namely pre-systolic hypertension in 7 patients (7%). Blood pressure was said to be (140-159 mmHg / 90-99 mmHg) namely grade 1 hypertension in 27 patients (27%). And blood pressure is said to be (> 160 mmHg / > 100 mmHg) namely grade 2 hypertension in 66 patients (66%).

Based on the results of research on drug classes that are often used for outpatient therapy at Citra Husada Hospital, it can be seen in table 2 that the most commonly used drug is in a single combination, namely diuretics in 5 patients (5%), the two most common drug class combinations, namely Calcium Channel Blockers + Angiotensin Receptor Blockers in 27 patients (27%), the three most common combinations of drug classes, namely Calcium Channel Blockers + Angiotensin Receptor Blockers + Beta blockers in 19 patients (19%), and four combinations of drug classes, namely Calcium Channel Blockers + Angiotensin Receptor Blocker + Beta blocker + Diuretic in 2 patients (2%).

Based on the results of research conducted on hypertensive patients with kidney failure in hospital outpatients. Citra Husada Jember Regency can be seen in table 3 that found 52 patients stated that there was an effect of using antihypertensive drugs, and 48 patients stated that there was no effect of using antihypertensive drugs. From these data, data analysis tests can be carried out using certain formulas. Data analysis was carried out to see the effect of achieving the target of blood pressure therapy through measurement on the last day carried out by conducting statistical tests of systolic and diastolic blood pressure between day 1 and day 30 to see whether or not there was an effect of using antihypertensive drugs in hypertensive patients with renal failure in outpatient hospital. Citra Husada, Jember Regency, through the patient's medical record and looking directly at the patient. From this data, it can be calculated using the McNemar formula (which is based on the Chi-square distribution) as follows:

$$X2 = \frac{{(|b-c|-1)}^2}{b+c}$$
$$= \frac{{(|52-48|-1)}^2}{52+48}$$
$$= 0.16$$

IV. DISCUSSION

Based on the proportion of blood pressure in hypertensive patients with kidney failure in the hospital outpatient installation. Citra Husada can be seen in table 1 that the most patients are patients with hypertension level 2 blood pressure (> 160 mmHg / > 100 mmHg),

namely 66 patients (66%). In patients with kidney failure who have hypertension, the higher the blood pressure, the more severe the complications, especially in the kidneys, because a prolonged increase in blood pressure in the arterioles and glomeruli will cause sclerosis in the blood vessels and nephrosclerosis, causes glomerular damage and tubular atrophy, so that the nephrons are damaged, which causes chronic kidney failure (Cahyo et al., 2021). Checking blood pressure in patients is important because it is the driving force for blood to circulate throughout the body to provide fresh blood containing oxygen and nutrients to the organs of the body (Solitaire, Lintong, 2019). According to JNC 7 normal blood pressure for hypertensive patients with kidney failure is <130 mmHg / 80 mmHg. Once the blood pressure is established and stable, follow-up visits can usually be made at 3 to 6 month intervals because co-morbidities such as kidney failure affect the frequency of visits.

Based on drug classification, hypertensive patients with kidney failure used more drug combinations compared to using a single drug, and the highest percentage was patients with two drug combinations, 27 patients (27%), namely amlodipine and candesartan (Calcium Channel Blockers + Angiotensin Receptor Blocker). Amlodipine works by inhibiting the influx of calcium into smooth muscle cells and blood vessels and myocardial cells, this causes a decrease in peripheral vascular resistance. The dose of amlodipine as an antihypertensive drug is 5 mg/day with a maximum dose of 10 mg/day [7]. Candasartan has a mechanism of action by inhibiting the binding of compounds that have the effect of constricting blood vessels called Angiotensin II. This Angiotensin II binding is inhibited to the receptor so that the blood vessels will dilate and blood flow will be smoother and blood pressure will decrease. The dose of candesartan as an antihypertensive drug is 16-32 milligrams/day [8].

The combinations used are in accordance with recommendations according to JNC 7, namely the selection of drug combinations from one of the different drug classes [9]. In the use of 2 combinations, if the use of a single drug does not reach the blood pressure target within one month of treatment, then the initial drug dose is increased by adding a second drug from one of the classes (diuretics, CCB, ACE-I, or ARB). Physiologically, the use of 2 drug classes is quite logical because the response to a single treatment is often limited by counter activation mechanisms. If the target blood pressure cannot be achieved using the 2 combinations of

antihypertensive drug classes in the recommendations above because of contraindications or 3 or more drug classes are needed to achieve blood pressure, other classes of antihypertensive drugs can be used. The JNC VII Guideline in Chobanian recommends a combination of ACE-I, ARB, or diuretics [10]. The use of antihypertensive drugs in hypertensive patients with kidney failure to lower blood pressure in order to achieve the target of therapy.

From the chi square table, the critical area for a significant level of 0.9 with db=2 is 0.10. Because the value of $X2 = 0.16 > X2 (db,\alpha) = 0.10$, then H0 is rejected. It can be concluded that there is a significant influence between the independent variables on the dependent variable simultaneously or together. Antihypertensive therapy can be used in patients with chronic kidney failure, namely to lower blood pressure and can slow the progression of the disease in patients with or without hypertension.

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THE EFFECT OF INDIVIDUAL REAL-TIME VIDEO COUNSELING ON IMPROVING PREVENTION ATTITUDE OF DIABETES MELLITUS COMPLICATIONS

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ABSTRACT
Introduction: *Diabetes Mellitus is a chronic disease that requires proper and serious handling efforts, so as to prevent complications from DM, one of which is with video counseling. The purpose of this study was to determine the effect of Individual Real Time Video Counseling on Increasing Attitudes to Prevent Diabetes Complications.* **Methods:** *The research design used the Pre-Experiment PreTest-PostTest Design, group selection used the Purposive Sampling technique. Prior to the treatment (pre-test) the group will carry out an assessment of complications of DM and measurement of blood sugar, then after that an intervention is given in the form of counseling and health education with Individual RealTime Video Counseling (post-test).* **Results:** *Based on the results of statistical tests using the SPSS 16.0 application with the Wilcoxon sign rank test, the results showed that the DM compliance prevention attitude was ρ = 0.005 and the Z value was -2.828 which means it is smaller than the significance level ρ <0.005.* **Conclusion:** *Individual Real Time Video Counseling is an effective and efficient method of health education as an effort to improve attitudestowards preventing DM complications. This increase in attitude can be influenced by knowledge, self-awareness, will, and ability.*

Keywords: Video Counseling, Prevention Attitude, Diabetes Mellitus Complication

I. INTRODUCTION

Diabetes Mellitus is a degenerative disease that must be treated properly and seriously. If not addressed properly, it might lead to major issues. Chronic hyperglycemia and diabetes metabolic problems cause organ tissue damage, including the eyes, kidneys, nerves, and vascular system [3]. Diabetes Mellitus (DM) affects around 531 million persons globally, and it is one of the top ten causes of mortality in Indonesia (Center for Disease Control and Prevention [CDC], 2021). Diabetics can acquire a variety of problems that might aggravate their condition, one of which is neuropopathy, which puts them at risk of getting diabetic foot ulcers [2].

Programs to improve the attitude of preventing complications in patients with Diabetes Mellitus are very important to prevent the emergence of complications. According to the findings of Sulistyo, Sae-Sia, and Maneewat (2011), patients who have a positive attitude toward diabetes prevention have a higher chance of avoiding complications. Health education that requires regular attendance of patients to health care centers can be an obstacle. Although many attitude improvement programs in DM patients have been carried out, effective and efficient approaches still need to be reviewed periodically. Comprehensive and technology-based health education efforts regarding the prevention of DM complications need to be carried out in order to maintain optimal health and improve the quality of life of the community (10).

Prevention of Diabetes Mellitus complications can be done through digital education interventions, namely learning or education by utilizing online technology. Digital education can be carried out through interventions (video calls) from the official WhatsAp application from the account of each patient who has diabetes mellitus. The use of virtual meeting zoom has several advantages, namely ease of use, reducing distance limitations between participants, can be carried out in all situations with supporting transmission and signals. [10]

The COVID-19 pandemic situation has had its own impact on health services and an increase in cases of non-communicable disease at the global level, especially in developing countries experiencing problems with managing hypertension services (53%) and health services for complications of diabetes (49%) [*20*]. As a result, PROLANIS has suspended certain routine consultation and monitoring programs on the condition of DM patients. Because instructional and consultative vehicles are so important for DM patients, researchers are interested in developing consultation ways that are successful, efficient, and safe.

Individual Real Time Video Counseling, is a program modification that is expected to save costs and have a wider scope. The combination of education and telephone consultation is expected to provide effective education and monitoring to improve the attitude of DM patients. Moreover, patients with weak conditions will be greatly facilitated by this telephone consultation.

II. METHODS

In this study, the researcher employed the Pre-Experiment Pre Test-Post Test Design, or the research plan that would be carried out by the researcher by means of the researcher administering treatment to one group, group selection using the Purposive Sampling technique. Assessment of knowledge and attitudes about preventing complications of DM was

done using questionnaires and observation sheets for measuring blood sugar before the group treatment (pretest), and the same assessment was done after the individual real-time video counseling treatment (post-test).

Table I. Research Design

Subjek	Pre-test	Intervention	Post-test
K-A	O	1	OI-A
	Time	Time 2	Time 3

Note :
K-A   : research subject
O   : Observation of preventive attitudes prior to intervention
I   : Intervention
OI-A : Observation of preventive attitudes after intervention

Population

The population in this study were diabetes mellitus patients who were active in the Bojonegoro Public Health Center's PROLANIS as many as 29 respondents

Sample

The sample used in this study was DM patients at the Bojonegoro Public Health Center's PROLANIS as many as 15 respondents

Sampling

Sampling in this study using nonprobability sampling with purposive sampling technique. Purposive sampling is a technique for determining research samples with certain considerations that aim to make the data obtained later be more representative.

Data Collection and Data Analysis

This study collected data using a questionnaire that was first evaluated for validity and reliability. This study's Complication Prevention Attitude Questionnaire was created using references from the Registered Nurses' Association of Ontario, the Indian Health Diabetes Best Practice Foot Care, and the Registered Nurses' Association of Ontario. The paired t-test statistic was utilized in this study's data analysis to examine the effect of the intervention.

III.   RESULT

The results of this study contained several general characteristics of the respondents that related to the research variables, including: age, education, occupation and results of the last blood sugar check.

Figures and Tables

Table II. Characteristics of respondents based on age.

No.	Age	Total	Prosentase
1.	30-40 years Old	1	6,7%
2.	41-50 Years Old	2	13,3%
3	51> Years old	12	80%
	Total	15	100%

Based on table II it can be explained that the majority of respondents aged 51> years old, namely as many as 12 respondents (80%), some of the respondents aged 41-50 years old were 2 respondents (13.3%), and the number of respondents aged 30-40 years old was 1 respondent (6.7%).

Table III. Characteristics of respondents based on education

No.	Education Level	Total	Prosentase
1.	Elementary	3	20%
2.	Junior HS	4	26,7%
3	Senior HS	5	33,3%
4	Diploma	2	13,3%
5	Bachelor	1	6,7%
	Total	15	100%

Based on table III above, it can be explained that some of the respondents had an elementary education level, namely 3 respondents (20%) and some had a junior high school education level, namely 4 respondents (26.7%), as many as 5 respondents had a high school education level (33, 3%), 2 respondents

(13.3%) had a Diploma education level, and 1 respondent had a Bachelor's degree (6.7%).

Table IV. Characteristics of respondents based on the job

No.	Workplace Situation	Total	Prosentase
1.	Enterpreneur	3	20%
2.	Employee	4	26,7%
3	Retired	3	20%
4.	House wife	5	33,3%
	Total	15	100%

Based on table IV it can be explained that respondents with jobs as entrepreneurs were 3 respondents (20%), while respondents with jobs as employee were 4 respondents (26.7%), respondents with jobs as retirees were 3 respondents (20%), and respondents with a job as a housewife as many as 5 respondents (33.3%).

Table V. Diabetes Mellitus Attitude Pre-Test.

No.	Attitude	Total	Prosentase
1.	Negative	9	60%
2.	Positive	6	40%
	Total	15	100%

Based on the frequency distribution data in table V shows that the majority of respondents have a negative attitude about preventing DM complications, as many as 9 respondents (60%).

Tabel VI. Diabetes Mellitus Attitude Post-Test.

No.	Attitude	Total	Prosentase
1.	Negative	1	6,7%
2.	Positive	14	93,3%
	Total	15	100%

Based on the frequency distribution data in table VI, it shows that the majority of respondents have an increased positive attitude about preventing complications of DM by 14 respondents (93.3%).

Tabel VII Effectiveness of individual real-time video counseling on the attitude of preventing DM complications

Category	Attitude Pre-test		Attitude Post-test	
	$\sum$	%	$\sum$	%
Negative	9	60%	1	6,7%
Positive	6	40%	14	93,3%
Total	15	100	15	100
P value = 0,005				

Table VI shows that from the results of statistical tests using the Wilcoxon sign rank test, the calculations were carried out by using SPSS 16.0 with a significance level of ρ <0.005, the results of the DM compliance prevention attitude were ρ = 0.005 and a Z value of -2.828, which means that it is smaller than the significance level of ρ < 0.005. So that H1 is accepted, meaning that there are differences before and after giving individual realtime video counseling as an effort to increase attitudes towards preventing complications in diabetes mellitus patients at the Bojonegoro Public Health Center.

IV. DISCUSSION
Prevention attitude
According to the study's findings in table V, the majority of respondents have a negative attitude toward preventing DM complications before receiving intervention in the form of individual real-time video counseling, particularly when it comes to blood sugar instability, a long history of DM, improper footwear, a lack of physical activity, and the ability to control diet. This can be caused by a variety of circumstances, one of which is a lack of

understanding about preventing diabetes complications. Furthermore, there was a change in attitude toward preventing DM complications after receiving individual real-time video counseling interventions; 9 out of 15 respondents who had a negative attitude before receiving the intervention had a positive attitude change about preventing DM complications, and this could be influenced by knowledge, awareness (self-awareness), will (willness), and ability.

Attitude is a closed reaction or response by someone to a stimuli or thing. Attitude manifestations cannot be seen directly, but can be predicted from closed behavior [12]. In other words, the prevention of DM problems attitude is a closed, emotional reaction to making decisions that one believes in.

Diabetes Mellitus management begins with educating the patient in order to improve their lifestyle and behavior. The education provided includes an explanation of the disease's progression, the need of regulating and monitoring diabetes, complications and dangers, as well as pharmaceutical and non-pharmacological therapies. Health education or health education is an important factor in the management of type 2 diabetes [12].

Health education that requires regular patient visits to health care centers can be an obstacle both in terms of cost and time [6]. Although many attitude improvement programs for DM patients have been carried out, effective and efficient approaches still need to be reviewed regularly, one of which is the individual real time video counseling method.

The program to improve the attitude of preventing complications in DM patients is very important to do to prevent complications. This is consistent with the findings of Kurniawan, Sae-Sia, Maneewat, and Petpichetchian (2011), who discovered that patients who have a positive attitude toward diabetes prevention have a higher chance of avoiding complications.

Individual real time video counseling is a program modification that is expected to maximize effectiveness and time efficiency and has a wider scope. The combination of lectures and follow-up using the Whatsapp application is expected to provide effective education and monitoring to improve the attitude of DM patients. Moreover, patients with weak conditions will be greatly facilitated by the consultation via telephone/WhatsApp application.

Effectiveness of individual real-time video counseling on the attitude of preventing DM complications

Health education using video has a carrying capacity for understanding results in a good category and can be a motivation to understand some of the information conveyed. Based on the results of this study (table VII) it states that individual real-time video counseling is very effective in increasing attitudes towards preventing complications of DM disease. This is in accordance with the results of research by Xiangyu Yan, et al (2020) and Xiaofang Zhu et. al (2019) it is proven that the effectiveness of digital education intervention on HIV/AIDS clients has a significant effect. Increase knowledge, adherence in treatment, awareness in the prevention and transmission of HIV/AIDS. besides that, another study conducted by (Angger Anugerah Hadi Sulistyo, 2021) concerning the effect of group discussions and telephone briefs on increasing attitudes towards preventing complications of DM states that educational methods delivered directly

using telephone media are effective in increasing attitudes towards preventing complications of DM, this is can be influenced by the level of education, social support, and motivation of a DM patient.

Diabetes mellitus is a chronic disease that requires long-term care, DM requires continuous control to prevent short-term and long-term complications [16]. One of the complications that causes big problems in diabetics is the emergence of foot problems[19].

The wound appears as a result of a symmetrical polyneuropathy, which manifests clinically as a decrease in the sensation of pressure on the skin, vibration, and loss of knee reflexes on the patient's knee; this is the main cause of the appearance of injuries, with a prevalence of 75% -90% in patients [1].

Many factors influence the emergence of diabetic foot sores which include, history of DM ≥10 years, male active smokers, uncontrolled blood glucose levels, visual disturbances which can affect the ability to perform foot care, polyneuropathy, foot trauma (abrasions), deficiency physical exercise, lack of knowledge about DM disease, non-maximum adherence in wound prevention, cholesterol level ≥200mg/dl, HDL level≤45mg/dl, non-compliance with low sugar diet, irregular foot care, use of inappropriate footwear, these things can be a trigger factor for injuries to occur in 99.9% of cases caused [21]

Health education includes a combination of education and interventions that have been designed to facilitate behavior and environmental changes for health. Health education can be displayed using video media which contains education about diabetes mellitus and its prevention with creative models. Because video media is said to be more effective and easier to understand in the process of providing health education [13]. This is in accordance with research conducted by Ifroh, et al in 2021 which states that the use of digital education is also able to increase the interest and interest of education participants, especially among informal workers, and increase knowledge about COVID-19 by 75% [10]

V. CONCLUSIONS

Individual Real Time Video Counseling is beneficial for changing attitudes toward reducing diabetes complications, with a value of 0.005 and a Z value of -2.828. Individual Real-Time Video Counseling is an excellent and efficient Health Education technique for improving attitudes toward preventing DM complications. This shift in attitude can be impacted by information, self-awareness, will, and ability.

Individual Real Time Video Counseling can be produced as one of the innovations to improve access to counseling services for diabetes patients by utilizing technology or in the form of an application. so that it can be used as a benchmark of health services and nursing interventions in pub;ic Health Center.

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Influence Of Workload & Work Stress On Nurses' Performance During The COVID-19 Pandemic

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Abstract

Background: *The rapid spread of the coronavirus (COVID-19) outbreak has caused the most considerable health problems in all countries. As front liners and care providers for COVID-19 patients, nurses are at risk of having a large workload and tremendous stress when caring for patients, which can disrupt work balance and affect performance in service.* **Objective:** *This study aims to determine the relationship between workload and work stress on nurse performance during the COVID-19 pandemic.* **Method:** *The type of research is Descriptive Exploratory with a cross-sectional study design. The research was conducted through the distribution of questionnaires directly to respondents. The respondents of this study were 133 nurses working in the New Emerging and Re-Emerging Infectious Disease Installation (PINERE) at two hospitals in Banda Aceh City, Aceh Province. Data analysis using bivariate using Independent sample t-test.* **Results:** *This study showed there was a significant relationship between work stress and nurse performance (value 0.045 < 0.05), and there was no critical relationship between workload and nurse performance (value 0.238 < 0.05) during the COVID-19 pandemic.* **Results:** *It is recommended that hospital policymakers have policies related to mental health support and workload management for nurses during certain extraordinary conditions, such as the COVID-19 outbreak so that nurses' performance remains quality and optimal in service to patients.*

Keyword: COVID-19 , nurse performance, workload, work stress

I. INTRODUCTION

Coronavirus Disease 2019 (COVID-19) is a contagious respiratory disease that has infected hundreds of millions worldwide. The disease is caused by the SARS-COV-2 virus, first discovered in Wuhan, China, in December 2019. In January 2020, the WHO held an emergency meeting and declared COVID-19 a global public health emergency of international concern (1).

The prevalence of COVID-19 worldwide in May 2023 is 766 million positive confirmed cases, and nearly 7 million deaths are reported (2). Indonesia reported its first COVID-19 case in March 2020. As of May 2023, there are 6.8 million cases of COVID-19 and 161 thousand deaths. Aceh Province was also not spared from the spread of this disease, where 2 thousand people died from 45 thousand cases of COVID-19 that occurred (3).

Facing this critical situation, health workers are the frontline directly involved in the care of COVID-19 patients (4). One of these health services is the nursing profession. The quality of nursing services is an essential component that must be considered in the national health system and the nursing profession (5). Quality and professional nursing services can improve the quality of hospitals (6).

The quality of nursing services can be seen from nursing performance where the better the performance, the better the quality of service (7). Performance is the appearance of a person's work in an organization; various factors can influence it. (8).

During the COVID-19 pandemic, the number of incidents and death rates continues to increase, lack of certain medicines, use of personal protective equipment, excessive working hours (16–22 hours per day), aggressive media coverage, non-optimal support risks and increased workload when providing care to patients, causing psychological distress and contributing to the non-optimal performance of health workers including nurses (4). The performance of nurses in carrying out treatment, prevention and control of COVID-19 plays a critical role in improving the quality of services provided. Nursing services provided must be of high quality and reliable (9).

The enormous pressure experienced by health workers during the COVID-19 pandemic has brought significantly increased workload and psychological stress (10). The high workload includes wearing level 3 personal protective clothing (PPE), which requires particular time its use and can cause a decrease in immunity so that the risk of contracting the virus increases. In addition, various

special decontamination procedures and the use of particular supplies are stored in particularly isolated areas. All these actions add to the nurse's workload. Nurses' obligation to be professional even though they cannot meet family and closest people at a particular time also causes the workload to increase. Some early reports identified a very high nursing workload in the care of COVID-19 patients (11,12).

Excessive workload on nurses can degrade the health condition of nurses (13), harms patient safety (14) as well as that cause a decrease in the quality of care (15) that can be seen in their performance. Several studies on the relationship between workload to nurse performance have been done. A meta-analysis study of 14 articles examining performance in nurses with COVID-19 patients showed that workload has a contradictory effect on performance, where when the nurse's workload is high, nurses tend to experience a decrease in performance (16).

Other consequences of this pandemic period COVID-19 include increased psychological distress such as fear, anxiety, depression, stress, insomnia, denial, anger and loneliness (17). In the situation of caring for COVID-19 patients, many nurses mentioned that working during the pandemic increased mental fatigue due

to the high risk of being infected with COVID-19 , feelings of torment, an increase in the number of infected patients in a swift period, limited medical resources, and inadequate protective supplies. Stressful situations cause nurses to experience stress (18).

Stress is an individual's introverted reaction to situations perceived as threats or difficulties in their lives, and stress negatively affects mental and physiological health (Ozel and Karabulut, 2018; Demirci et al., 2013) (19). The COVID-19 pandemic has caused increased anxiety and stress about the deaths of families, colleagues, and patients (20).

The reflection of stress on employment status varies, but it can pose severe problems in the field of health. Stress can lead to reluctance to go to work, making mistakes, quitting jobs, poor quality of work, deterioration of co-worker relationships, inaccurate decisions, and other negative behaviours. The effects of work stress on the health sector can cause their performance negatively (19).

This situation is thought to cause increased mental health problems in health workers, affecting focus, perception and ability to make decisions and hampering action against the virus in some cases(21). A cross-sectional study conducted on 491 nurses showed

a negative correlation between work stress and nurse performance, where when work stress increased, nurse performance decreased(22). This study aligns with a study conducted on 114 COVID-19 nurses in Turkey, showing that work stress experienced can reduce nurse performance (19).

Although several previous studies are currently related to the relationship between workload and nurse performance, the results seem inconsistent. Some studies show a relationship between these two variables, while others also show no relationship between workload and nurse performance. Research related to the relationship between work stress and the performance of COVID-19 nurses is also minimal.

Although WHO (2023) (23) as made a statement that COVID-19 is over as a global health emergency but everything related to this disease still needs to be studied in more detail as a policy basis for maintaining professional nurse performance in case of undesirable conditions such as the COVID-19 pandemic.

So further discussion and research are needed to see the relationship between workload and work stress with the performance of COVID-19 nurses.

II. METHODS

This study used a cross-sectional design to determine the relationship between workload, work stress, and nurse performance. The sample in this study was 133 nurses on duty at the COVID-19 care installation at dr. Zainoel Abidin Regional General Hospital (RSUDZA) and Meuraxa General Hospital Banda Aceh and selected using convenience sampling techniques. The hospital is a referral hospital for Aceh Province in handling COVID-19 and already has a New-Emerging and Re-Emerging Infectious Disease Installation (PINERE) in handling COVID-19 .

The instrument for data collection is in the form of questionnaires. The questionnaire used to assess workload is the NASA-TLX (The National Aeronautical and Space Administration-Task Load Index) questionnaire developed by Hart & Stevelend (1988) (24). This questionnaire is used to examine the mental workload experienced by a person in various work activities based on 6 dimensions: mental demand, physical demand, temporal demand, performance, effort and frustration level. This questionnaire has been carried out through a translation and back translation process by translation agencies to maintain the content used and modified by the author with the help of one expert.

The use of the NASA-TLX questionnaire goes through two stages: 1) Weighting, where respondents are asked to choose one indicator that most affect their workload on each item of the indicator pair (there are 15 pairs of indicators); 2) Rating, this stage respondents give ratings on 6 workload indicators on a scale of 0 – 100. Next, the workload value of each indicator is calculated or called Weighted Workload (WWL). The final score is calculated between zero and 100, where a score above 50 indicates a high workload (24). The questionnaire to measure work stress in nurses is the Expanded Nursing Stress Scale (ENSS) questionnaire developed by Toft and Anderson (1981) and French et al. (2000). This study will take the ENSS questionnaire, which has been carried out as a translation back process to Indonesian and has been tested for validity and reliability by Harsono (2017) (25) with a Cronbach alpha value of 0.956. This questionnaire is a particular stress assessment instrument for nurses. It is adjusted to the characteristics of the nurse's work consisting of 9 dimensions and 57 statements with alternative answers using a 5-level Likert scale (0=not found by respondents, 1= does not cause stress, 2=occasional / sometimes stressful, 3=often makes stress, 4= very/always stressful. Based on the

ENSS instrument assessment standards, the higher the level of work stress experienced by nurses, the higher the measurement value (french). ENSS does not classify whether a person's work stress level is low, medium, or high. So that the meaning of the total score will use calculations with the 100 value transformation method (26).

Performance questionnaires are measured using the Individual Work Performance Questionnaire (IWPQ) developed by Koopmans et al. (2013), comprising task performance, contextual performance, and counterproductive work behaviour. This research uses IWPQ from Dwiliesanti &; Yudiarso (2022)(27) which adapts questionnaires that have been translated into Indonesian by Widyastuti & Hidayat (2018) with reliability values between 0.90 – 0.97. The IWPQ consists of 18 statement items using a five-level Likert scale (0=re, 1=sometimes, 2=often, 3=very often, and 4=always). The IWPQ score can be calculated on each dimension where the score starts from 0 to 4, with the high score reflecting the height of the dimension. The total IWPQ score is calculated as an overall dimension score with an average of 0 (low) to 12 (high).

Researchers tested the NASA-TLX, IWPQ and ENSS questionnaires again for validity and reliability on 30 respondents

in other government hospitals outside of the study respondents. The NASA-TLX, ENSS and IWPQ questionnaires had r > results from r table 0.361, so the questionnaires were declared valid. The NASA-TLX alpha Cronbach questionnaire 0.7896 and the Cronbach alpha 0.934 belonged to the ENSS questionnaire, and the IWPQ questionnaire had a Cronbach alpha value of 0.8968, so the questionnaire was declared reliable and reliable.

The data obtained will be analyzed & presented in the form of frequency distribution and bivariate analysis using the Spearman rank test with a CI level of 95%. All respondents signed the agreement to become respondents.

III. RESULT

Table 1 Characteristics of Respondents (n=133)

Characteristics	Frequency (n)	Percentage (%)
Age (M±SD)	32,76±4,93	-
Sex		
Male	55	41,4
Female	78	58,6
Education		
D3 Nursing	83	62,4
D4 Nursing	10	7,6
Ners	40	30,0
Leng of work (M±SD)	6,23±4,56	-
Workshop Participation COVID-19 Management		
Yes	105	78,9
No	28	21,1
Workload		
High	77	57,9
Low	56	42,1
Work Stress		
High	98	73,7
Low	35	26,3
Nurse Perfomance		
Good	88	66,2
Poor	45	33,8
Total	133	100

Table 1 shows the characteristics of respondents in this study, where the average age of respondents was 32.76 years. The gender of respondents was dominated by 78 people (58.6%) women; the most recent education was the D3 Nursing level as many as 83 people (62.4%). Then the average length of work of respondents was 6.23 years. Based on participation in the COVID-19 management workshop, as many as 105 respondents (78.9%) had attended training related to COVID-19 . In addition, more than half of respondents (57.9%) have a high workload, most respondents (73.7%) have high work

stress, and 66.2% have good work performance.

Table 2. Correlation between work load and work stress with nurse performance (n=133)

Work-load	Nurse Perfomance			p-value
	Good	Poor	Total	
	n (%)	n (%)		
Low	31 (54,4)	25 (32,9)	56(42,1)	0,238
High	26 (45,6)	51 (67,1)	77(57,9)	
Total	57 (42,86)	76 (57,14)	133(100)	
Work-stress				
Low	23 (82,1)	12 (11,42)	35 (26,3)	0,045
High	5 (17,9)	93 (88,58)	98 (73.7)	
Total	28 (21,05)	105(78,5)	133(100)	

Table 2 shows the relationship between workload quality and work stress with nurse performance. The chi-square analysis results showed a significant relationship between work stress and respondent performance (p = 0.045), and there was no significant relationship between workload and respondent performance (p = 0.238).

Table 3 Distribution of respondent workload indicators based on NASA-TLX dimensions (n=133)

Indicators	Skor	Persentage
Mental needs	5995	16,70
Physical needs	5135	14,31
Time needs	7250	20,20
Performance	4550	12,68
Level of effort	7150	19,91
Frustration level	5815	16,20
TOTAL	35.895	100

From Table 3, it can be seen that from the 6 NASA-TLX indicators, the highest indicator/domain value is obtained, namely the Time Requirement domain with a score of 7250 (20.2%) and the lowest indicator value, namely the Performance indicator with a score of 4550 (12.68%).

Table 4 Distribution of respondents' work stress indicators based on ENSS dimensions (n=133)

Dimensions	Mean	SD	Min	Max
Death and dying	86,74	26,08	0	95,00
Conflict with doctors	33,56	23,40	0	76,00
Not enough preparation	55,68	25,80	0	79,00
Problems with coworkers	45,67	24,60	0	83,00
Problems with supervisors	34,56	23,85	4,56	78,00
Vagueness of treatment	56,89	25,70	3,48	88,00
Problems with patients	17,80	16,78	6,78	78,00
Workload	76,65	26,03	0	85,00
Discrimination	15,08	18,78	0	65,00

From Table 4, it can be seen that 9 ENNS indicators show 4 dimensions with a mean score> 50, namely the dimensions of death and dying, workload, the vagueness of treatment and dimensions of insufficient preparation. `

IV. DISCUSSION

The Relationship between Workload and Nurse Performance

The COVID-19 pandemic has made nurses work more intensively than

usual, increasing the workload physically and mentally. Working in conditions high in infection and still having to provide the best service, facing patients with different urgency and types of diseases, complex nurse-patient relationships including concerns about the patient's family concerns about the treatment of health workers towards patients, imbalances between working hours and the number of jobs and personal matters make nurses have to be able to adapt to the circumstances of the COVID-19 pandemic (28).

The workload experienced by a nurse can be in the form of a physical burden, mental/psychological burden or social/moral burden arising from the work environment. As frontline health workers during the COVID-19 pandemic, nurses will be very likely to experience disruptions during work which can result in fatigue and end in accidents or occupational diseases and, of course, disruptions in performance.

The study showed that half of the respondents (57.9%) had a high workload. In this study, nurses worked quickly, carefully and swiftly in providing nursing services, considering that patients' lives were at stake. During service hours, nurses have to work quickly with many patients. In addition, the period that nurses have until the end of the shift to perform their duties and only have time to rest for a while.

When viewed from the workload dimensions seen from the 6 NASA-TLX indicators, respondents' workload has varying dimensions. However, the workload dimension's final score falls into this study's high category. This result happens because their work environment influences the high mental workload experienced by nurses. A high level of vigilance is needed in providing care to patients, especially during the COVID-19 pandemic, and nurses work in hospitals where there is a significant danger of contracting the COVID-19 virus.

The highest indicator/domain value was obtained, namely the Time Requirement domain, with a score of 7250 (20.2%). Time availability significantly affects the workload because activities must be completed quickly, and many things must be done quickly and deftly. Nursing services and patient monitoring must be by established protocols. Patients should be supervised, and nurses should work quickly to serve all patients. In addition, most patients need the help of nurses to fulfil these daily activities.

The number of patients that need to be treated and the availability of resources to support the nurse's work largely determine the nurse's workload.

This study showed no significant relationship between workload and performance (p = 0.038). The results of this study are in line with the research of Pourteimour et al. (2021) (29) of 139 COVID-19 nurses who said the workload was not significantly related to nurse performance (p = 0.510).

The results of this study are different from some other studies. The study by Dafriani et al. (2022) on 135 COVID-19 nurses (p = 0.007), research by Hakman et al. (2021) (30) in his study of 77 COVID-19 nurses (p = 0.031) and Wulandari et al. (2023) research on 164 COVID-19 nurses (p = 0.007), showed a relationship between workload and nurse performance.

The results of this study that are different from other research results can be attributed to the efforts and efforts of nurses to face the current crisis and the support from external factors such as the hospital where they work, support from family and positive attitudes of the community towards nurses' performance during the pandemic situation. So that regardless of whether there is a high workload or not, nurses still try to maintain their professionalism at work and do not interfere with their performance.

The Relationship Between Work Stess and COVID-19 Nurse Performance

This study's results showed a significant relationship between work stress and performance (p = 0.045). The results of this study are in line with the research of Joshua et al. (2021)(31) of 240 COVID-19 nurses who said work stress greatly impacted the performance of nurses (p = 0.000). Several studies in Indonesia also provide more or less the same results. Hardy et al. (2021) (32) in their research on 30 COVID-19 nurses (p = 0.01), Hakman et al. (2021) (30) in their research on 77 nurses (p = 0.042), Khusnawati et al. (2021)(33) 61 nurses (p = 0.001) showed a relationship between work stress and nurse performance..

Nurses are at the forefront of patient care and are more emotionally affected as they face risks and forge closer patient relationships. The COVID-19 pandemic has forced nurses to provide direct care to infected patients, away from family and friends, working in intense and stressful conditions and increasing stress levels. The situation and pressure are also far different from previous conditions, requiring extra caution in providing patient services. Caregivers with families, young children or the elderly will increase the psychological burden due to worry and anxiety about transmission to loved ones. Plus the

negative response of people around the neighbourhood (19).

The results of this study show that the level of work stress felt by the majority of respondents is high (73.7%) during the COVID-19 outbreak, which can affect nurses' performance (19). Nurse performance is an essential factor in ensuring the efficient and uninterrupted provision of care services, patient satisfaction, and safety(34).

Nurse work stress is a condition in which nurses face job demands that exceed the limits of their abilities, which can cause serious health problems that interfere with nursing care and performance provided to clients. Nurse work stress can hurt a nurse's fatigue and mentality. Nurses who experience work stress relatively often can cause overwork or even intend to leave their jobs (35).

As the workload increases and regular attendance at the hospital, nurses only have a few opportunities to rest &regain their energy, and thus they will experience fatigue and stress. In these circumstances, nurses lack peace of mind and thoroughness, which can negatively impact their performance by lowering the quality of care provided (36). If this stress condition can be overcome, the nurse's performance will also improve so that work stress is closely related to the nurse's performance.

The study had several limitations: a) it was only conducted at two selected government hospitals in a small town, so the findings could only be generalized in a limited way; b) given the limited number of participants available, it is recommended that future studies be conducted in various private and public hospitals with more respondents to be able to compare the findings; c) the COVID-19 pandemic has been declared over as a global health emergency so that future studies can use more precise data collection strategies with retrospective methodology; e) This study is a cross-sectional study so causation cannot be determined.

V. CONCLUSIONS

This study showed that most respondents had a high workload and work stress, and only work stress had a significant relationship with performance. In pandemic conditions, it is essential to control nurses' stress levels so that health services can be provided without any disruption. In this study, hospital policymakers must have policies related to mental health support during certain extraordinary conditions, such as the COVID-19 outbreak, where there are precautions for stress and good psychological support for nurses. In addition, the workload regulation on nurses must be arranged so that nurse

performance remains qualified and optimal inpatient service.

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Increasing Mother's Knowledge throught Nutrition Education for Stunting Prevention: Literature Review

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ABSTRACT

Stunting is a nutritional problem faced by the community that is associated with an increased risk of morbidity, motor and mental growth retardation in children, and death. The Prevalence of stunting indonesia in 2021 is at 24,4% or around 5,33 million children are stunted. The purpese of this study is to explain the increase mother's konowledge through nutrition education for stunting prevention in a literarure review. This study method uses a literature review, searches for articles using 2 databases, google scholar and Research Gate, then a selected using PICOS according to the inclusion criteria found 7 articles ranged 2020-2022. The results of the article that before education showed 4 asrticles based on numerical data the highest mean value was 66,0 and 3 articles based on category data, less category was 72,00%, enough was 34,29% and good was 30,0%. After education showed 4 articles based on numerical data the highest mean value was 88,4 and 3 articles based on category data, less category was 36,67%, enough was 24,0%, and good was 85,71%. Analysis the increase, 4 articles that there was an increase based on the mean value before 12,72-77,0% and after 19,66-88,801%, the difference before and after ranges from 6,94-27,986, 3 articles proved based on the value of the results before, less category ranges from 51,42-72,0%, enough 28,0-34,29%, and good 14-29-30,0%, after, less category 36,67%, enough 14,2924,0%, and good 63,33-85,71%. The conclusions obtained shows that there is an increase in mother's knowledge through nutrition education for prevention of stunting. Based on the results of this literature review, it is hoped that it can be a source of information for the development of nursing science to optimize nutrition education for stunting prevention.

Keywords: *Nutrition Education, Mother's Knowledge, Stunting*

I. INTRODUCTION

Stunting is a physical growth disorder characterized by a decrease in growth rate and is the impact of nutritional imbalances (Losong and Adriani, 2017). Stunting is one of the nutritional problems faced by countries throughout the world, especially in developing countries. The problem of stunting is a public health problem that is associated with an increased risk of morbidity, mortality and barriers to motor and mental growth in children (Apriluana and Fikawati, 2018). Stunting is a chronic nutritional problem that occurs due to a lack of nutritional intake, children with stunting have a lower Intelligence Quotient (IQ) compared to other normal children (Kemenkes RI, 2018). Stunting is growth failure that occurs in infants under five years of age who experience growth failure from the womb to the beginning until birth, stunting can be seen when the baby is two years old (TNP2K, 2017).

According to WHO in 2017, more than half of toddlers originating from Central Asia suffer from stunting with a total of 55%, a third coming from Africa by 39%. Stunting in Asia is around 83.6 million, the highest number comes from South Asia around 58.7% and the lowest is (0.9%). Toddlers with stunting come from Southeast Asia with a prevalence of 22.2% and 150.8 million toddlers experience stunting in the world (Kemenkes RI, 2018). According to the Kasus Gizi Indonesia (SSGI)) in 2019 the stunting rate was 27.7%, in 2020 it decreased to 26.9%. The prevalence of stunting in 2021 is at 24.4% or around 5.33 million children under five (Kemenkes RI, 2021).

Stunting can also have an impact on a weak immune system and vulnerability to chronic diseases such as diabetes, heart disease and cancer as well as maternal reproductive disorders in adulthood (Ulfa and Sitasari, 2019). In the long term, stunted children who manage to survive, in adulthood tend to become obese, and have the opportunity to suffer from non-communicable diseases, such as hypertension, diabetes, cancer, and others (Kemenkes RI, 2018). Toddlers who experience stunting will have a level of intelligence that is not optimal, making children more susceptible to disease and in the future can be at risk of decreasing productivity levels. In the end, stunting will hamper the rate of economic growth, increase poverty and widen inequality (TNP2K, 2017).

To address nutritional problems in children such as stunting in toddlers, there have been many policies and programs launched by the government, such as Posyandu, DDTK (Early Detection of Growth and Development) in

toddlers and children (Maywita, 2018). The President of the Republic of Indonesia targets the stunting rate to fall to 14% in 2024. To achieve this target, the handling of stunting in the next 2 years must decrease by 3-3.5% per year (Kemenko, 2021). One of the efforts to prevent and overcome the stunting rate is to apply balanced nutrition consumption. Balanced nutrition is meeting the needs of food consumed daily and containing nutrients in the types and quantities needed by the body (Fajriani, Aritonang and Nasution, 2020). This aims to keep the child's body healthy, support the growth and development of the child so that it is better so that it avoids various kinds of diseases and can achieve normal nutritional status, and can help the child's brain growth process to improve learning achievement (Kemenkes RI, 2017).

The importance of optimal nutrition for growth, development, and health for children can increase well if it is accompanied by an increase in mother's knowledge about child nutrition. Mothers as the first and main educators in the family need to be equipped with various knowledge and skills so that they understand, are skilled in caring for and guiding the growth and development of children properly according to the stage of child development. The role of the mother in the stage of child development is very important, because with good maternal skills, it is hoped that monitoring of children can be carried out properly (Werdiningsih and Astarani, 2012).

Increasing mother's knowledge about child nutrition can be done through nutrition education. Nutrition education activities are activities to provide information related to nutrition with the aim of increasing knowledge and changing behavior for the better (Muzarofatus, 2021). In addition, education can increase one's knowledge, with an increase in knowledge it is hoped that there will be a change in behavior that is better for nutrition and health (Nuryanto *et al.*, 2014). Health education is an intervention that determines public health. In general, health education aims to develop the behavior of individuals, groups and communities so that they improve healthy living behaviors. One effort to increase mother's knowledge and behavior is through education or health education (Rehena, Hukubun and Nendissa, 2020).

Seeing the phenomenon of the high incidence of stunting in Indonesia, the researchers conducted a literature review study to increase mothers' knowledge through nutrition education for stunting prevention.

II. Methods

This research is in the form of a literature review regarding increasing mother's knowledge through nutrition education for stunting prevention. The protocol and evaluation from the literature review will use the PRISMA checklist as an effort to determine the selection of studies that have been found and adapted to the objectives of the literature review. Literature review which is Based on the results of a literature search through publications in three databases namely ResearchGate, Google Scholar and using keywords that have been adjusted to MeSH. Researchers get literature as many as 5805 articles that match these keywords. The search results that have been obtained are then checked for duplication and 5660 results are obtained. From these results they are then excluded and 7 full text articles are obtained that are worthy of review from 2020-2022.

a comprehensive summary of several research studies that are determined based on a particular theme. A literature search was carried out in December 2021 – June 2022. The data used in this study is secondary data, namely data obtained not from direct experience but obtained from the results of research that has been carried out by previous researchers. Secondary data sources obtained are in the form of reputable journal articles both nationally and internationally with predetermined themes (Nursalam, 2020).

The literature search in this literature review uses databases with high and medium criteria, that is ResearchGate and Google Scholar. Searching for articles or journals uses keywords based on Boolean operators (AND, OR, NOT) which are used to expand or specify search results, making it easy to determine which articles to use. The keywords in this literature review are adjusted to the Medical Subject Heading (MeSH), which is a word registration arrangement for identifying journal articles and books in the health sciences. The search results are then combined and assessed for duplication. After removing the duplication of research assessing using a determination formula called PICOS (Population/Problem, Intervention, Comparison, Outcome, Study Design). In accordance with the PICOS criteria for inclusion of journal articles with respondents namely mothers who have toddlers, interventions using nutrition education or education using comparison interventions before and after then the expected outcome is explaining that there is no or an increase in mother's knowledge about stunting as well as a study design used quantitatively; quasy experimental design; one group pre-test post-test. The

design of the articles that were eliminated can be seen in Figure 1. After all articles have been assessed for eligibility using PICOS, the number of articles accepted and not accepted is counted.

Figure 1 The results of the selection of study articles can be described in the flow diagram below:
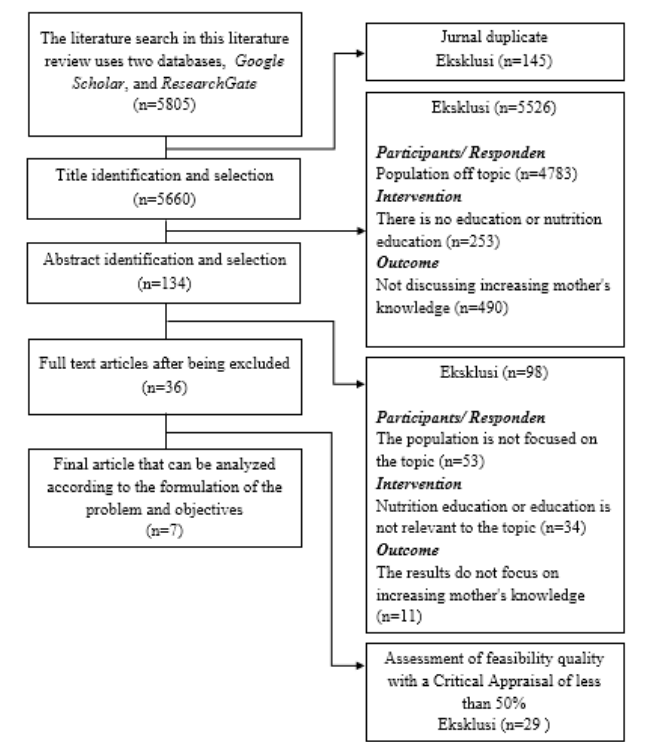
III. RESULT

Based on the results of a literature search through publications in three databases namely ResearchGate, Google Scholar and using keywords that have been adjusted to MeSH. Researchers get literature as many as 5805 articles that match these keywords. The search results that have been obtained are then checked for duplication and 5660 results are obtained. From these results they are

then excluded and 7 full text articles are obtained that are worthy of review from 2020-2022.

Tabel 1. Study Characteristics

No	Artikel	article results		
		Mean	Standar Deviasi	ρ value
1	Zasendy Rehena, Monike Hukubun, Andriana Ritje Nendissa (2020)	before: 60,815 after: 88,801	before: 10,142 after: 8,537	0,000
	difference	27,986		
2	Qonita Rachmah, Diah Indriani, Susi Hidayah, Yurike Adhela, Trias Mahmudiono (2020)	before: 60,5 after: 88,4	before: 18,9 after: 13,8	0,002
	difference	27,9		
3	Atik Aryani, Indriyati, Riska Putri Dwi Mei Linda (2021)	before: 12,72 after: 19,66	before: - after: -	0,001
	difference	6,94		
4	Deviana Laurenzy Tadale, Kadar	before: 66,0 after: 77,0	before: - after: -	-

76

No	Author	Kurang	Enough	Good	ρ value
	Ramadhan, Nurfatimah (2021)			r: 85,71%	
	difference	11,0			
5	Niken Ayu Merna Eka Sari, I Gusti Ayu Putu Satya Laksmi, Ni Komang Ayu Resiyanthi, Putu Ayu Parwati, Ni Luh Gede Intan Saraswati (2022)	before: 72,0% after: 0,0%	before: 28,0% after: 24,0%	before: 0,0% after: 76,0%	-
6	Nunung Sri Mulyani, Eva Fitriyaningsih, Agus Hendra Al Rahmad, Abdul Hadi (2022)	before: 70,0% after: 36,67%	before: 0,0% after: 0,0%	before: 30,0% after: 63,33%	-
7	Lusia Henny Mariati, Yohana Jehani (2022)	before: 51,42% after: 0,0%	before: 34,29% after: 14,29%	before: 14,29% after:	-

Based on Table 1, the results of the articles reviewed show that there has been an increase in mother's knowledge through nutrition education. 4 articles proved that there was an increase based on the mean before nutrition education ranging from 12.72-77.0 and after the range 19.66-88.801 with the difference between the mean before and after the range 6.94-27.986. 3 articles proved that based on the value of the results before nutrition education, the category was lacking in the range of 51.42-72%, sufficient in the range of 28.0-34.29%, and good in the range of 14.29-30.0%, and after nutrition education, the category was lacking in 36, 67%, sufficient range of 14.29-24.0%, and good range of 63.33-85.71%. 3 of the 7 articles included a ρ value of <0.05 and 4 articles did not include a ρ value. So it can be concluded that there is an increase in mother's knowledge through nutrition education for stunting prevention.

IV. DISCUSSION

Answer the research problem, support and maintain the answer with the results, compare with the results of the relevant research, state the limitations of the study conducted, state the

importance of the findings, find or come up with newness and submit further research.

V. CONCLUSIONS

The results of the 7 articles reviewed showed that there was an increase in mother's knowledge through nutrition education. 4 articles proved that there was an increase based on the mean before nutrition education ranging from 12.72-77.0 and after the range 19.66-88.801 with the difference between the mean before and after the range 6.94-27.986. 3 articles proved that based on the value of the results before nutrition education, the category was lacking in the range of 51.42-72%, sufficient in the range of 28.0-34.29%, and good in the range of 14.29-30.0%, and after nutrition education, the category was lacking in 36, 67%, sufficient range of 14.29-24.0%, and good range of 63.33-85.71%. 3 of the 7 articles included a ρ value of <0.05 and 4 articles did not include a ρ value.

After carrying out nutrition education, it is hoped that there will be changes and an increase in mother's knowledge. According to the articles reviewed, with the provision of nutrition education there was a change in mother's knowledge before and after and there was an increase in value. Educational activity is a planned effort to influence people so

that they do what is expected by the educator. Changes in mother's knowledge are not only obtained in formal education, but can also be obtained in non-formal education. Providing nutrition education provides experience to mothers who have toddlers from non-formal education (Notoatmodjo, 2014).

Good mother's knowledge is expected to be applied to daily behavior. It is important for mothers to have knowledge about balanced nutrition, because to meet daily nutritional needs, they need to consume a variety of foods and have balanced nutrition. By consuming a wide variety of foods every day, nutritional deficiencies in one type of food will be complemented by the advantages of the nutritional composition of other types of food, so that a balanced input of nutrients can be obtained (Mufida, Sartono and Mufnaetty, 2020). Optimal nutritional intake, both in quality and quantity supports optimal growth and development, so that daily food intake must match the type and amount needed by the body (Kementerian Kesehatan RI, 2018). There was a change in the mother's knowledge before and after being given the nutrition education intervention. Changes in mother's knowledge before and after nutrition education are very visible because mothers are able to understand and

apply the information provided during nutrition education. This is probably because mothers have high motivation to learn to care for and raise children well, so mothers are motivated to participate in nutrition education activities from the beginning to the end of the event.

High motivation affects learning ability, learning ability factors are often associated with a person's level of education. The higher the level of education, the higher the learning ability. However, even though a person's level of education is low, his learning ability is not necessarily low due to motivational factors. With high motivation it can improve learning abilities, so mothers keep trying to get information to increase better knowledge.

Changes in mother's knowledge are also supported by mother's attitudes and emotions. Mother's stable attitudes and emotions affect the reception of information during educational activities. With the attitude and emotions of the mother who is anxious and unfocused, the ability to receive information is less than optimal. So that the information that is expected to be received by the mother properly, cannot be absorbed optimally by the mother.

The increase in mother's knowledge was also motivated by various ages, educational levels, and employment status. Age affects the comprehension and mindset of the mother. The older you are, the more your grasping power and mindset will develop so that the knowledge you get will get better and the knowledge you will get will increase. Mothers with backgrounds of various levels of education have an influence on the learning process, because the higher a person's education, the easier it is for that person to receive information and vice versa. Knowledge is also very closely related to education where a person with a high level of education, the wider his knowledge will be. Furthermore, economic status determines the knowledge of a mother, mothers with sufficient economic status, mothers can get greater opportunities to access a facility to support increased knowledge. Conversely, if the mother has a low economic status, it will be difficult for her to access the facilities needed to support increased knowledge, so that this economic status will affect the mother's level of knowledge.

In addition, before being given nutrition education, mothers had never received nutritional education counseling interventions for stunting prevention, so mothers' knowledge was still lacking and they did not know about nutritional health for stunting prevention. Then after being given nutrition education, the mother's knowledge increased better, this was because the mother had

received the nutrition education intervention and the mother understood the information provided during the nutrition education. Mother has been given experience with nutrition education. With this experience the mother obtained the truth of knowledge by repeating the knowledge obtained when given nutrition education.

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RESILIENCE OF FATHERS WHO HAVE CHILDREN WITH AUTISM SPECTRUM DISORDER

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Abstract

Having children with Autism Spectrum Disorder (ASD) is stressful for parents because there are factors that interfere with the child's ability to communicate, socially interact, and exhibit normal behavior patterns. Parents, particularly fathers, are responsible not only for earning a living but also for ensuring that their children develop optimally. As a result, father resilience is important because it correlates with their ability to adapt to the challenges they face. The purpose of this study is to identify father resilience in autistic children in the Bandung area. This research is a quantitative descriptive study. There are 42 respondents, all of whom are parents of autistic children at two special needs schools in Bandung. The Connor-Davidson Resilience Scale (CD-RISC) questionnaire was used to assess father resilience. Data were analyzed using descriptive statistics. According to the findings, most fathers (54.8%) have high resilience. The resilience domains with the highest scores are a trust of instincts, handling of unpleasant occurrences, power to face pressure, and self-control. Personal competence, high standard, and perversion have the lowest scores. According to the study's findings, it is recommended that special needs schools provide counseling and education to fathers with low resilience, as well as encourage them to participate in the peer-parent community and provide counseling to parents through a home visit intervention.

Keywords: Autism Spectrum Disorder (ASD), children, parent, resilience

I. INTRODUCTION

Autism Spectrum Disorder (ASD) is one of the early childhood developmental disorders. ASD typically affects children's communication, behavior patterns, and social interactions before the age of three (Bekhet, Johnson, & Zauszniewski, 2012). Children with ASD exhibit stereotyped movements accompanied by an interest in repetitive activities are unable to respond to sensory experiences, and resist environmental or daily routine changes (Edyta, 2016). Furthermore, approximately 30% of ASD children may develop seizure disorders, indicating severe neurologic dysfunction. Neuroimaging studies show a variety of structural and functional deficits in the cerebellum, cerebrum, amygdala, and hippocampus of people with ASD (Nolen, 2012).

According to World Health Organization data (2018), the prevalence of ASD worldwide is as high as one in every 160 children. Because the government has not surveyed the number of ASD in Indonesia, there is no definitive data on the number of ASD. In 2010, it was estimated that one in every 5000 children had ASD; now, one in every 500 children has ASD, bringing the total number of ASD children in Indonesia to approximately 6,900 (Riandini, 2015). According to research studies obtained from the West Java Provincial Education Office, there are 2,321 disabled people in West Java. Bandung Regency has the highest number of autistic children, according to recommendations from West Java Province's education office. In Bandung Regency, there were 337 students with ASD, with 277 male students and 60 female students. Bunda Bening's Special Needs School has the most autistic students in Bandung Regency, with 70 students, followed by Satria Galdin' Special Need School (29 students), and Cileunyi State Special Need School (26 students).

Having a child with autism spectrum disorder is a source of stress for parents, affecting both their physical and mental health. Parents of children with ASD are more stressed than parents of children with global developmental delay, cerebral palsy, or Down syndrome (Halstead et al., 2018).

Previous research has found that parents of children with ASD are more likely to experience stress, anxiety, depression, and physical health issues than parents of children with other disorders (Bekhet & Matel-Anderson, 2017). Parenting and raising an autistic child are difficult for parents. ASD children affect all family members, and the cost of treatment includes financial, social, and health aspects, as well as overall family life (Fletcher in Bekhet & Matel-Anderson, 2017).

Previous research suggests that differences in cultural beliefs, family traditions, and religious values contribute to widespread prejudice and stigma against children with ASD and their families (Kang-Yi et al, 2014). According to the findings, parents describe the difficulty of living in a judgmental environment and are labeled as bad parents. Several parents discussed how cultural beliefs influenced people's perceptions of their children. Stigma and incorrect societal evaluations can harm parents and family members. Because stigma tends to increase the stressful experience of

parenting, the findings highlight evidence of negative emotional and social consequences (Ilias et al., 2019).

Parents reported having to adjust many aspects of their lives, including cognition, feelings, daily routines, and overall life plan. After learning of their child's diagnosis, the majority of parents (72.7%) reported going through a period of grief and denial. Four out of eight fathers reported being in the rejection stage for some time (Ilias et al., 2019). The majority of parents (63.6%) also reported that their lives have been filled with anxiety over their child's future since learning of their child's ASD diagnosis. When fathers learn that their child has ASD, they are often filled with anger, hatred, fear, rejection, feelings of isolation, low self-esteem, and depression (Petterson in Ahmad & Dardas, 2015).

Children with autism spectrum disorder require extra care and attention from their families. Families with ASD children have very complex dynamics that influence how they function (Apostelina, 2012). Mothers and fathers each play distinct roles in

their children's development. Mothers are frequently found to be the primary caregivers, and this role expectation may be especially strong in more traditional societies. Furthermore, Jones et al. (2013) discovered that mothers had higher levels of psychological distress (stress, anxiety, and depression) than fathers (Braunstein et al., 2013). Involving fathers in the care of ASD children is one way for practitioners to ensure the well-being of ASD mothers and children to create positive families (Laxman et al., 2014).

Parenting stress is experienced differently by mothers and fathers of autistic children and is affected by a variety of factors (Hayes & Watson, 2013). Parents of autistic children have lower marital satisfaction and higher parenting stress (Bekhet et al., 2012). Fathers who have children with ASD will face both objective and subjective burdens. The caregiver's psychological reactions (loss of hopes and dreams, depression, anxiety, and embarrassment in social situations) are referred to as subjective burdens (Picardi et al., 2018). Objective burden refers to practical

problems (disturbed family relationships, constraints in social activities, recreation, and work, and financial difficulties).

The father must earn a living while also protecting his family members to provide a comfortable and safe environment for his partner and children. Fathers can help mothers reduce stress, anxiety, and depression symptoms while caring for children with ASD (Laxman et al., 2014). The key to providing the most effective assistance is a thorough understanding of all parties' roles and contributions. Not only do fathers contribute significantly to the care and education of autistic children, but they also act as playmakers (Potter, 2017).

A father has his way of teaching life lessons to his autistic children. Fathers' distinct interaction styles with their children have a significant impact on facilitating play and language. In terms of social skills, discipline, communication, and language, fathers play a unique role in the care of children with ASD (Flippin & Crais, 2011). ASD children are more

socially competent in exploring their surroundings when their fathers appear to provide support, warmth, and sensitivity (Ahmad & Dardas, 2015). Engaged fathers can significantly support their children's coping skills, independence, and self-esteem development, as well as reduce the frequency of childhood behavior problems (Coley in Ahmad & Dardas, 2015).

Parents, particularly fathers, play an important role in making decisions that will support and stimulate children's academic achievement during childhood (Huston & Bentley, 2010). The educational values instilled in children by their fathers have an impact on their academic achievement. Fathers not only influence their children's academic performance, but they also play a role in making decisions about extracurricular activities. The extent to which fathers facilitate and encourage children's participation in activities such as sports, music, and other activities greatly influences whether the child participates in these activities (Santrock, 2011).

Low-resilience fathers can reduce the effectiveness of interventions for children (Paynter, Davies, & Beamish, 2018). Increased levels of parenting-related stress and psychological distress in fathers of autistic children have the potential to i mpair family functioning and reduce child therapy efficacy. Children experience developmental delays when their fathers are stressed (Estes, Swain, & MacDuffie, 2019).

Individuals with low resilience are less able to focus on their life goals and take longer to get up when faced with adversity. Individuals with high resilience have fewer psychiatric disorders because psychiatric symptoms can cause a person to judge himself as incapable of surviving in the face of a problem (Scale et al., 2012). Individual resilience that is less than optimal, according to Utami (2017), will prefer to give up on circumstances and be unable to control the balance in the face of various pressures. Increasing resilience is critical because it serves as practice for dealing with future difficulties and challenges. As a result, not all individuals,

particularly fathers, can accept and adapt to the challenges they face (Muniroh, 2010).

Resilience is defined as an individual's ability to recover from adversity by increasing knowledge to adapt to similar adversity in the future (Keye & Pidgeon, 2013). A resilient individual possesses five components of resilience: (1) personal competence, high standards, and persistence, which demonstrate a calm and optimistic attitude; (2) trust in one's instincts, tolerance for negative things, and the strength to deal with stress, which demonstrates that it is easy to cope with stress, think carefully, and stay focused when faced with problems; (3) positive acceptance of change and interactions with other people demonstrates that individuals can identify the purpose and meaning of these changes; (4) self-control demonstrates hope and effort; and (5) spiritual influence demonstrates a deep belief in God Almighty (Connor & Davidson, 2003).

Based on the foregoing, it can be concluded that every father with an autistic child faces unique challenges. Nurses, as health care workers, can assist fathers in such situations. One of the roles of nurses as educators is to help parents, especially fathers, learn more about caring for children with ASD. Meanwhile, the nurse's role as a counselor is to talk with the father about his feelings and obstacles in caring for children with ASD (Indriati, 2011).

II. METHOD

The research design is a descriptive study with a cross-sectional approach. This study aimed to determine the resilience levels of fathers who have children with ASD. This study included all fathers who had children with autism spectrum disorder who attended two special needs schools in the Bandung area. The research sample included 42 fathers with autistic children who were recruited using a total sampling technique. The data collection process lasted four months (March to June 2021).

The Indonesian version of Connor and Davidson's Connor-Davidson Resilience Scale (CD-RISC) was used to assess paternal resilience. The instrument is designed for adults, and it is a resilience measurement tool that is

widely used to assess resilience. This questionnaire contains 25 question items that are divided into 5 sub-variables: personal competence, high standards, and persistence (8 questions), trust in one's instincts, tolerance for negative things, and strength to deal with stress (6 statements), positive acceptance of change and relationships with other people (5 statements), self-control (3 statements), and spiritual influence (2 statements). This questionnaire contains 25 statement items that are graded on a Likert scale with the following response options: disagree = 0, disagree = 1, somewhat agree = 2, agree = 3, strongly agree = 4. A high score indicates strong resilience, while a low score indicates low resilience. This instrument can reveal control ability, commitment, challenge, goal orientation, self-esteem, adaptability, sociability, sense of humor, and resilience to suffering (Connor & Davidson, 2003).

Data analysis was carried out by calculating the level of resilience score by adding the scores of the 25 statement items. The Shapiro-Wilk test was used on 42 respondents in the study, and the result was 0.001. These results show that the data is not normally distributed, so the calculation employs the median. After calculating the overall score, the researcher categorizes the respondents as high or low. The calculation results will be categorized as high resilience if the total score is 67 (median) and low resilience if the total score is 67 (median). The data was then analyzed using descriptive univariate with frequency and percentage.

III. RESULTS

The results revealed the following characteristics of the respondents: 38.1% of respondents were laborers, 42.9% were senior high school graduates, 47.6% had an income of 1.5-2.5 million rupiah, and 47.6% and 54.8% were members of an ASD parent association (Table 1). Table 2 shows that 54.8% of fathers have high resilience. The results of the analysis per item of the questionnaire show that respondents have a high score on the item regarding belief in the purpose of life, which includes the components of believing in their instincts, tolerance for negative

things, and strength in facing pressure. While the questionnaire items with the lowest scores are related to aspects of trying to see the lighter side of problems encountered (both problems related to personal competence, high standards, persistence, and self-

Characteristics	Frequency (f)	Percentage (%)
Work		
Laborer	16	38.1
Engineer	1	2.4
Employee	10	23.8
Traders	2	4.8
Farmer	1	2.4
Not Working	4	9.5
Self-employed	8	19.0
Education		
Elementary School	7	16.7
Junior School	12	28.6
Senior School	18	42.9
University	5	11.9
Family Income		
< 1,5 million rupiahs	5	11.9
1,5-2,5 million rupiahs	20	47.6
2,5-3,5 million rupiahs	12	28.6
> 3,5 million rupiahs	5	11.9
Participation in ASD's Parent Support Group	23	54.8
Yes	19	45.2
No		

control components).

Table 3 displays the results of the father's resilience crosstabulation based on the characteristics of the respondents. According to the findings of the study, the majority of respondents with low resilience work as laborers. As many as 58.3% of respondents with low resilience are junior high school graduates. The majority of respondents with low resilience earn less than 1.5 million rupiahs. Then, based on participation in ASD associations, it was discovered that 82.6% of respondents who attended ASD associations had high resilience.

Table 2. Resilience Category of Autistic Fathers (n=43)

Characteristics	Frequency (f)	Percentage (%)
Low	19	45.2
High	23	54.8

Table 3. Crosstabulation of Father's Resilience Based on Father's Characteristics

Characteristics	Category of Resilience			
	Low		High	
	f	%	f	%
Work				
Laborer	10	62.5	6	37.5
Engineer	0	0	1	100
Employee	6	60	4	40
Traders	0	0	2	100
Farmer	0	0	1	100
Not Working	2	50	2	50
Self-employed	1	12.5	7	87.5
Education				
Elementary School	4	57.1	3	42.9
Junior School	7	58.3	5	41.7
Senior School	8	44.4	10	55.6
University	0	0	5	100
Family Income				
< 1,5 million rupiahs	3	60	2	40
1,5-2,5 million rupiahs	10	50	10	50
2,5-3,5 million rupiahs	6	50	6	50
> 3,5 million rupiahs	0	0	5	100
Participation in ASD's Parent Support Group				
Yes	4	17.4	9	82.6
No	15	78.9	4	21.1

IV.   DISCUSSION

According to the findings, more than half of fathers who have children with Autism Spectrum Disorder (54.8%) have high resilience. Fathers with high resilience in this study are members of the parent group at the association of parents with autistic children. This result is superior to Maharani's (2018) findings, which show that only 13.3% of parents fall into the high resilience category. There are still fathers who have low resilience, which can be attributed to financial difficulties in treating ASD children (Kavaliotis, 2017).

Involving fathers in the care of children with ASD is one way to ensure the well-being of mothers and children with ASD, resulting in a positive family (Laxman et al., 2014). Fathers who have children with ASD will face both objective and subjective burdens. Objective burdens refer to practical problems (disturbed family relationships, constraints in social activities, recreation, and work, and financial difficulties), whereas subjective burdens refer to caregivers' psychological reactions (loss of hopes and dreams, depression, anxiety, and social embarrassment). 2018; Picardi et al. Parents of autistic children face enormous challenges in nurturing and raising their children.   ASD children affect all family members,

90

and the cost of treatment includes financial, social, and health aspects, as well as overall family life (Fletcher in Bekhet & Matel-Anderson, 2017). When compared to fathers of children without disabilities, fathers of children with ASD

reported more fatigue and spent more time parenting and working, and less time engaging in recreational activities. Furthermore, parents of children with ASD face significant financial challenges due to healthcare costs, underemployment, or job loss (Picardi et al., 2018).

According to the findings, the resilience of respondents in the high resilience category (54.8%). Positive expectations, high spiritual values, always optimism, always grateful, a good sense of humor, enthusiasm in carrying out activities, and the ability to interpret life goals are all indicators of high resilience (Kim et al., 2013). Resilience in the low category (45.2%) is characterized by characteristics such as poor spiritual condition, inability to interpret life goals towards resilience, high anxiety response, lack of sense of humor, and a tendency to be lazy in carrying out any activity (Kim et al., 2013).

Fathers with low resilience have fewer positive interactions with their children than fathers with high resilience. Fathers with high resilience have a better quality of life, can improve their children's quality of life, and are more able to provide quality time between family members (Ahmad & Dardas, 2015). According to the resilience component of fathers who have children with Autism Spectrum Disorder, the highest components are found in the components of trust in their instincts, tolerance of negative things, and strength to face pressure. Personal competence, high standards, persistence, and self-control are the components with the lowest component values.

The father is expected to make good and correct decisions as the family's leader. As a result, when faced with a problem, this component enables fathers to cope with stress, think clearly, and stay focused. When making decisions about their children's care, fathers remain focused and think clearly under these conditions (Ahmad & Dardas, 2015). Question number eight, about the proclivity to recover after illness or other adversity, received the highest

score. This is because respondents had a high number of ASD problems, making it easier for them to bounce back and overcome problems other than ASD. Personal competence, high standards, and persistence are the least important components of respondent resilience. When faced with adversity, someone with this component can remain calm and not give up easily. According to Ashanti (2013), the stress of caring for children can make parents feel as if they are fighting the stressors alone. As a result of this component, a father will have the strength and patience to care for his child while remaining calm and not giving up.

Fathers' Resilience based on their characteristics According to the study's findings, fathers who work as laborers are less resilient than fathers who work as engineers, small traders, or farmers. This is feasible because a significant amount of time can be spent accompanying children. A father's job and career are affected by raising a child with Autism Spectrum Disorder. Some fathers (45.5%) need to change their working hours, go part-time, or take unpaid leave (Burrell et al., 2017). These findings demonstrate that high resilience occurs when a father can take the time to accompany his child because he can manage work, such as small traders and farmers who typically work until noon. a father who works as an engineer and owns his own business to manage his time while raising children. Respondents with low resilience had junior high school education and lower incomes. Fathers with a high level of education and income can use a variety of problem -solving strategies to avoid stress and improve their quality of life (Bekhet & Matel-Anderson, 2017).

Based on ASD association participation, it was discovered that 82.6% of respondents with high resilience attended ASD associations. According to Ahmad and Dardas (2015) research, more than half of fathers (59.1%) felt isolated as a result of their child's disruptive behavior. The majority of fathers stated that their child's behavior had caused them to be estranged from family and friends. Fathers who attend ASD associations can understand the problems they face, allowing them to feel less isolated from their surroundings. The importance of participating in ASD associations is because one of the

problems faced by fathers is the problem of being isolated from the environment can be overcome with education and a sense of togetherness, mutual understanding, and self-acceptance in caring for children with Autism Spectrum Disorder.

Nursing implications for dealing with fathers' resilience include assisting fathers in achieving the goals necessary for child care, specifically by educating positive acceptance of the problems they face. Nurses can always educate fathers and mothers, both of whom are parents of children who must accept the fact that their child has Autism Spectrum Disorder. As a result of this positive acceptance, the father will be able to establish a good relationship with his nuclear family (children and wife) or with his surroundings. Furthermore, counseling from health professionals is required to be able to continue to calm the family, particularly fathers, in caring for children with ASD so that fathers can remain relaxed in dealing with problems that arise. Fathers must be taught to see the bright side of their problems.

V. CONCLUSION

The purpose of this study was to find out how resilient fathers who have children with Autism Spectrum Disorder are. According to the findings of a survey of 42 respondents, fathers' resilience was found to be in the high resilience category (54.8%). Respondents with high resilience are fathers who join groups of parents of autistic children. The respondents in this study believed in their instincts, tolerance for negative things, and strength to face pressure, and personal competence, high standards, and persistence had the lowest result value based on the resilience component.

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The Correlation Between Depression and The Quality of Life of CKD Patients Undergoing Hemodialysis

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Abstract— This cross-sectional study aimed to determine the correlation between the level of depression and the quality of life of Chronic Kidney Disease (CKD) patients undergoing hemodialysis. The study was conducted among 59 patients who attended the hemodialysis clinic in a public hospital in Bali, Indonesia. Data were collected through questionnaires. The used questionnaires were personal and clinical data form, Kidney Disease Quality of Life-Short Form (KDQOL-SF) and Patient Health Questionnaire (PHQ-9) all in Indonesian version. Chi-square was applied for analyzing data. Results indicated that most of the participants were elderly (86.4%) and many of them were male (66.1%). Majority of the participants had hypertension (67.8%) and undergoing hemodialysis for less than 5 years (66.1%). About half of the total sample had poor quality of life (52.5%) and moderate depression (52.5%). The result from Chi-square analysis showed that there was a significant correlation between depression and quality of life of CKD patients undergoing hemodialysis (p value 0.001). Therefore, the role of nurses in providing education, support, and motivation is needed in order to decrease the level of depression and increase the patients' quality of life.

Keywords – Quality of life, depression, CKD, hemodialysis

I. INTRODUCTION

Based on various epidemiological data, chronic kidney disease (CKD) affects an average of 10% of the world's population. This is due to an increase in population and an increase in diseases such as diabetes mellitus, hypertension and obesity (1). The Indonesian Renal Registry (IRR) noted that in 2018 there were 30,554 active patients undergoing dialysis, and most of them had chronic kidney failure (2). Conservative treatment or dialysis is one of the actions that must be implemented as soon as the patient is diagnosed with kidney failure; if not, there will be complications that can cause death (3). Hemodialysis is the most frequently used treatment, is a lifelong treatment or continues until the patient gets a kidney transplant (4). Hemodialysis is an extracorporeal blood cleansing technique used to remove accumulated metabolic waste products in patients with end-stage renal disease (ESRD) (5).

According to the World Health Organization (WHO), quality of life is an individual's perception of their life in the context of the culture and value system in which they live and in relation to their goals, expectations, standards and problems (6). Quality of life is a comparison between expectations and reality. In CKD patients with hemodialysis, quality of life also reflects the quality of treatment because it involves physical, psychological and social processes to be achieved (7). The

life of patients with CKD is regulated and adapted to changes caused by the nature of the disease and the methods of treatment (8). More than that, patients depend on dialysis equipment and medical personnel. Treatment also involves restrictions on how to eat and drink and physical activity. Mental and physical symptoms greatly affect the level of quality of life felt by patients. At the same time, patients must feel the negative effects of dialysis therapy such as pain, sleep disturbances, and even depression, thereby reducing the quality of life (1).

Depression is defined as a psychological problem in patients with CKD that generally occurs in hemodialysis phase. Depression is defined as a mental health disorder characterized by ongoing depression, feelings of sadness and loss of interest in carrying out activities, thereby causing a low quality of daily life. An individual who has major depressive problems, thus, this disorder will be able to influence thoughts, feelings and behavior, thereby causing physical and emotional problems (9). The prevalence of CKD patients undergoing hemodialysis who depressed ranges from 10%-66% (10). The impact caused by depression in CKD patients undergoing hemodialysis is by increasing the emergence of symptoms of anxiety which can later make the treatment process difficult and while their life expectancy will be low (8, 11). This depression will later cause the patient to be unable to work, this is because his health is not good, taste disturbances, increased sensitivity to pain and also the cost of treatment is higher compared to patients with moderate and even severe depression (12).

Therefore, it is necessary to know and evaluate the quality of life of CKD patients undergoing hemodialysis and its correlation to the incidence of depression. Since, there are still no related studies that evaluate this problem in this public hospital.

Moreover, depression and other psychiatric disorders are often undiagnosed because medical personnel do not pay much attention to somatic complaints which are psychiatric diseases in hemodialysis patients. Thus, this study will provide input to nurses in establishing therapeutic interventions for building relationships, providing comprehensive support to patients and family. So, the study aimed to determine the correlation between the level of depression and the quality of life of CKD patients undergoing hemodialysis.

II. METHODS

A cross-sectional study was conducted at the Hemodialysis Clinic in a public hospital in Bali, Indonesia. The number of samples were using total sampling which were 59 participants. Patients both male and female who were 18 years old and above and undergoing dialysis regularly were recruited. Data were recruited from August to September, 2022 by using convenience sampling. Face-to-face meeting was conducted when they visit clinic for hemodialysis. The study protocol was reviewed and approved by the Institutional Review Board and the Research Ethics Committee of the Wangaya Hospital. The study protocol and objectives of the study were explained to each participant. All participants were voluntary and they provided written informed consent. In data collection, demographics data recorded by a structured questionnaire. Depression level assessed by Patient Health Questionnaire (PHQ-9). While the patients' quality of life assessed by Kidney Disease Quality of Life-Short Form (KDQOL-SF). All questionnaires were in Indonesian version. The collected data were analyzed by using Chi-Square analysis.

III. RESULT

Participants demographics

A total of 59 patients (39 males and 20 females) with CKD who undergoing hemodialysis were enrolled and successfully collected. The majority were

elderly (86.4%) and almost all the participants were married (86.4%). More than half of participants received education at high school level (55.9%) and did not work (57.6%) (Table 1).

Clinical characteristics

Overall, 67.8% of participants had hypertension, 15.3% had diabetes mellitus, 10.2% had both hypertension and diabetes mellitus and 1.7% had SLE. Most of them undergoing hemodialysis for less than 5 years (66.1%) (Table 1).

Table I. Characteristics of the study sample

Characteristics	All, *N* = 59, n (%)
Age (years)	
≤ 40	4 (6.8)
41 – 60	4 (6.8)
> 60	51 (86.4)
Gender	
Female	20 (33.9)
Male	39 (66.1)
Marital status	
Single	7 (11.9)
Married	51 (86.4)
Divorced	1 (1.7)
Educational level	
Primary school	9 (15.3)
Middle school	1 (1.7)
High school	33 (55.9)
University graduate	16 (27.1)
Employment	
Unemployed	34 (57.6)
Government	8 (13.6)
Laborer	9 (15.3)
Self-employed	7 (11.9)
Others	1 (1.7)
Comorbidities	
Hypertension	40 (67.8)
Diabetes Mellitus	9 (15.3)
Hypertension and Diabetes Mellitus	6 (10.2)
SLE	1 (1.7)
Duration of Hemodialysis	
< 5 years	39 (66.1)
5 – 10 years	14 (23.7)
>10 years	6 (10.2)

Characteristics	All, *N* = 59, n (%)
Level of Depression	
Mild	14 (23.7)
Moderate	31 (52.5)
Severe	14 (23.7)
Level of Quality of Life	
Good	28 (47.5)
Poor	31 (52.5)

Level of depression

More than half of participants had moderate depression (52.5%). Then, 23.7% of each of them had severe and mild depression, respectively.

Level of Quality of life

Approximately, half of them had poor quality of life (52.5%). While, only 47.5% had good quality of life.

Bivariate analysis

Results from chi-square analysis, depression was found to be associated significantly with quality of life (p = 0.001). Particularly, participants with moderate and severe depression were tended to have poor quality of life compared to those participants with mild depression (Table 2).

Table II. Analysis of Chi-Square

		Quality of Life				p-value
		Good		Poor		
		n	%	n	%	
Level of Depression	Mild	10	16.9	4	6.8	0.001
	Moderate	17	28.8	14	23.7	
	Severe	1	1.7	13	22.0	
	Total	37	47.5	31	52.5	

IV. DISCUSSION

This study examined the correlation between depression and quality of life of CKD patients undergoing hemodialysis. As the results showed that there was a significant association between the depression and quality of life, this finding is consistent with the theory and the existing literature over the world (8, 10, 13). Prior research has repeated the result in which depression can reduce

the quality of life of CKD patients undergoing hemodialysis in terms of physical, psychological, and social relationships (13). Depression level is an independent factor related to quality of life. Depression has a significant effect on the quality of life of CKD patients undergoing hemodialysis. Even so, the risk of CKD patients undergoing hemodialysis and experiencing depression tends to have a poor quality of life. Depression causes a decrease in the quality of life of patients, especially affected by physical and mental conditions, these conditions are very good in non-depressed patients, especially work problems (14).

In the study, more than half participants had moderate depression, even as much as 23.7% suffered from severe depression. It can be concluded that only 23.7% of them had mild depression. Moreover, 22% of patients suffered from severe depression had poor quality of life. Factors that can influence depression include social, psychological, physical and biological factors. Since, most of the participants in this study were elderly, based on social factors, depression in the elderly is caused by loss of close relatives, social loss, and also loss of work due to daily activities and loss of income. External factors that can influence depression include accessibility to the elderly, lack of environmental, family and social support (14).

According to the characteristic of the participants, 57.6% of them did not work. It can be one of the factors trigger their depression. In addition, the patient's comorbidities may be another factor triggering this depressive event. In this study, all the participants had at least one comorbidity such as hypertension, diabetes mellitus, and SLE. As much as 10.2% even have two comorbidities which are hypertension

and diabetes mellitus. This can be the reason why cases of depression are high in this study.

Refers to the quality of life of the patients in this study, approximately half of them had poor quality of life. Nevertheless, the results from many previous studies are contradicted with the current study finding (11, 15). The opposite result in the study can be explained by the reasons for the difference in the study population, as well as the participant's characteristics. In this study, most of the participants undergoing hemodialysis for less than 5 years. Therefore, they still need to adapt to their conditions. Moreover, all of them had at least one chronic conditions and complications. This can affect their quality of life. It is supported by literature which states that quality of life is influenced by several individual characteristic factors (age, gender, and educational level), nutritional status, length of time on hemodialysis, comorbid conditions, medical management (14).

Limitation
Convenience sampling was used in collecting the data. Thus, the findings could not be generalization to the population with different characteristics.

V. CONCLUSIONS

More than half of CKD patients undergoing hemodialysis were found to have depression as well as poor quality of life. Moderate to severe level of depression were found to be associated with poor quality of life. Nurses are recommended to improve education, support, and motivation in order to decrease the level of depression and increase the patients' quality of life.

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The Effect of Brain Gym on the Development of Preschool Children

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Abstract

Children's development will experience rapidity at an early age. Therefore, proper stimulation must be given to maximize their development. This study aimed to analyze the effect of brain gymnastics on children's development. This study used a pre-experimental quantitative survey method with a one-group pre-test and post-test design. The population in this study were students of TK Al Bukhari Sumber Wadung, with a total population of 46 people using a purposive sampling technique. This research instrument uses a Pre-Developmental Screening Questionnaire. The results of the Wilcoxon signed ranks test obtained a p-value of 0.001 which means <0.005, which can be concluded that there is a significant influence between brain exercise and child development. Based on the research results, it is necessary to increase brain gymnastics so that children can continue to maximize their basic abilities according to their stage of development.

Keywords -- Brain Gymnastics, Development of Preschool Children

I. INTRODUCTION

The golden period is a period of rapid growth and development of the brain that runs from birth until children enter preschool age (Affrida, 2017). The physical development of children has functions that are equivalent to other aspects of development; development is the first barometer to determine the growth and development of children (Fitriani & Adawiyah, 2018). Each child has a different development. This is because children have different nerve and muscle maturity from one child to another (Wardhani et al., 2020).

WHO 2019 reported data on the prevalence of 13-18% of toddlers in Indonesia who experienced developmental and growth disorders (WHO, 2019). The Indonesian Pediatrician Association states that around 5 to 10% of children are estimated to experience delays (IDAI, 2013). The results of Riskesda's research show that for East Java, the percentage of growth and development is around 71.6% according to age.

Developmental delays in children are due to a lack of parents knowing the danger signs (red flags) of child development, a lack of early detection checks or developmental screening in children, and a lack of direct involvement of parents with children or stimulation from other than parents (Septiani et al., 2016). In general, children have standard patterns of growth and development, which are the result of the interaction of many factors that can affect children's growth and development, such as hereditary factors, social environment, nutrition, immunization, the size of children in the family, socioeconomic status and parenting styles (Ariyanti, 2016). Children's development can be

achieved more optimally through brain exercise therapy. Brain gymnastics can stimulate cognitive development through a brain switch, activating positive energy in preschoolers (Yulianti & Yanti, 2018).

Efforts can be made to activate and balance all dimensions of the brain by doing brain gymnastics or brain gyms (Desiningrum et al., 2016). Children who receive targeted and regular stimulation will develop faster than those who receive less or no stimulation (Ansriyani, 2018). Brain gym is considered to be able to stimulate child development (Kusuma et al., 2019). This exercise can help maximize the work of the right brain and left brain so that it can help maximize brain function (Paseno et al., 2020).

Based on this background, the researcher is interested in researching the effect of brain gyms on child development in TK Al Bukhari Sumber Wadung Banyuwangi.

II. METHODS

This study uses a quantitative survey method. The quantitative survey method can be interpreted as a research method based on the philosophy of positivism, used to examine specific populations or samples with a questionnaire (Sugiyono, 2018). This research describes the effect of brain gymnastics on children's development with a pre-experimental with a one-group pre-test and post-test research design where the researcher will observe the first to test the changes that occur after the experiment. The design of this study was to identify the effect of brain gymnastics using the demonstration method on child development at Al Bukhari Sumber Wadung Kindergarten.

The population in this study was 46 people using the purposive sampling technique. Respondents were taken based on inclusion criteria: respondents who got 7-8 doubtful results on the developmental pre-screening questionnaire. The independent variable is brain gym, and the dependent variable

is child development—data collection techniques using developmental pre-screening questionnaires. The data analysis method used was the Wilcoxon signed ranks test using SPSS.

III. RESULTS

Table 1. Frequency distribution of respondents based on age at TK Al Bukhari Sumber Wadung

Age		
age	frequency	percent
Five years old	37	80%
Four years old	9	20%
Total	46	100%

Based on Table 1 above, the frequency of respondents is based on age. Respondents aged five years old were 37 (80%), and four years old were nine respondents (20%).

Table 2 Distribution of the frequency of respondents by gender

Gender		
Gender	Frequency	Percent
Male	22	48
Female	24	52
Total	46	100

Based on Table 2 above, most respondents were female, as many as 24 respondents (52%), and male, as many as 22 (48%).

From the table above, it can be seen that before doing brain exercises, as many as six students (13%) obtained relevant results, as many as 30 students (66%) doubted, and as many as ten students (21%). After receiving the intervention, it was found that 40 students (92%) showed relevant results, and six students (8%) had doubts.

Thus there is an increase in children's proper growth and development from 13% to 92% of the respondents. The significant value obtained was 0.001, which means <0.005, and the study was accepted. This means a statistically significant difference exists between brain

gymnastics' effects on preschool children's development.

IV. DISCUSSION

A. Child Development Before Doing Brain Gymnastics

Based on Table 3, most of the respondents showed dubious results. Because of the value of the development pre-screening questionnaire, most respondents got a 7-8 Yes.

According to (Yuniarti, 2018), children aged 4-5 cannot move their left and right fingers together. In addition, according to (Masrurin) Children aged 4-5 years cannot express themselves freely to participate in brain gymnastic movements because they have never applied brain gymnastics to sharpen children's development.

Previous research also showed that before brain gymnastics was carried out, children's development was questionable, and they still needed more assistance in applying brain gymnastics to acquire children's skills in following every brain gymnastic movement (Paramita, 2020).

Preschoolers have not been able to capture much information related to the basic abilities of children that must be mastered at an early age, namely the ability to be social-emotional, language, gross motor, and also fine motor skills, and do not know the benefits of brain gymnastics on children's development. This brain gym activity must be done repeatedly to allow children to express and coordinate every brain gym movement.

B. Child Development After Brain Gymnastics

From Table 3 above, almost all respondents showed results by the child's development. Because in the pre-screening development questionnaire post-test, almost all respondents scored 9-10 Yes.

According to Zulaini (2018), brain exercises should be done before children are six years old because, at this age,

they will respond to what other people want. According to (Milyanti, 2016), Brain Gym is proven to improve aspects of children's development from the fine motor, gross motor, language, and social independence. According to (Putanto, 2019), because this brain exercise proves that children can function their left and right fingers simultaneously, it also allows children to adapt to the school environment and friends to make them happy. According to Rafika (2015), preschool children catch or understand the movements that are exemplified faster, and there are good results if done continuously and gradually.

In participating in this brain exercise, preschool children need to do integrated guidance because the movements accompanied by songs make children more cooperative so that children can follow the movements while singing songs. So many benefits are obtained from brain exercises that have been carried out.

C. The Effect of Brain Gymnastics on Child Development

Based on Table 3, it is known that there is no decrease in the post-test after four brain exercises with the Wilcoxon Signed Ranks Test. The effect of brain exercise on child development found a result of 0.001 which means <0.005, which means that the research H0 is rejected and the research Ha is accepted. This means that there is a difference in the development of children before doing brain exercises and after doing brain exercises.

According to Hilda (2017), the study's results can be understood that doing brain exercises improves children's development not only in fine and gross motor development but also in aspects of social independence and children's language development. Children who do brain exercises can stimulate the development of all parts of the brain, both the left, right, front, and back brain,

synergistically to improve aspects of child development.

From the discussion above, there are results of the effect of brain gymnastics on children's development which has increased in children's KPSP post-test scores, where brain exercises are carried out in demonstrations because they can make children understand every movement of brain gymnastics. It can be concluded that the child's development is improving from the increase in scores on the child development pre-screening questionnaire.

V. CONCLUSIONS

1. The results of the pre-test before the brain gymnastics were carried out showed that six students (13%) had doubts about 30 students (66%) and deviations from 10 students (21%).

2. The post-test results after brain exercises showed that 40 students (92%) agreed, and six students (8%) had doubts.

3. The results of the effect of brain gymnastics on children's development with a p-value of 0.001 which means <0.005, means the research is acceptable. This means there is a statistically significant difference in the development of children before and after doing brain exercises.

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The Effect of Screen Time on Eye Health in the Digital Age in Nursing Students

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Abstract **–** Technological advances that are increasingly rapid in today's digital age significantly affect adolescents, especially eye health. Leaving the eyes looking at the screen for a long time can pose risks such as minus eyes, eye fatigue, headaches arising from playing a smartphone, and forget to rest. This research was conducted to identify the effect of screen time on eye health in the digital era in nursing students. This study used an analytic observational method with a cross-sectional design. The population in this study were nursing students at STIKES Rustida, with a sample size of 143 respondents using Simple Random Sampling. The research instrument used a questionnaire and a physical examination using the Snellen Chart. The results of data analysis using the Manova test for eye health disorders obtained a value: of 0.001 and an eye vision value: of 0.000 <0.05. It can be concluded that eye health disorders and visual acuity values indicate an influence on the use of screen time. The cause of eye disorders is excessive screen time with the distance and position of close objects so that the muscles in the eyes will work harder. Based on the research results, it is better to pay more attention to personal health, especially eye health, by reducing activity in using electronic media if it is unnecessary.

Keywords -- Screen Time, Eye Health, Students

I. INTRODUCTION

Technological advances that are getting faster in today's digital era significantly affect teenagers, especially eye health. Health problems that students often experience, such as the eyes not functioning correctly (Putri et al., 2021). Leaving the eyes looking at the screen for a long time can cause risks such as minus eyes, eye fatigue, blurred vision headaches that arise when playing on a smartphone, and being lazy to rest (Puspitasari et al., 2021). Another cause is rarely blinking; this problem can result in dry eyes (Nasyahtadila et al., 2022).

World Report on Vision: In 2021, 2.2 billion people worldwide have vision problems (WHO, 2021). According to Wati (2021), 60% of school-age children in Indonesia use electronic media for over 2 hours. The Rapid Assessment of Avoidable Blindness (RAAB) in East Java is the province with the highest prevalence of blindness, with blindness of 4.4% (Sudrajat et al., 2021) or reaching the highest number of 371,599 (Gumilang, 2022).

Not a few teenagers use smartphones to watch videos, play online games, and play social media for a long time, and these activities are factors that affect vision complaints (Kartikawati et al., 2021). Screen time is often referred to as the duration spent staring at the screen, and the recommended time for all users is only ≤ 2 hours/day (Wati, 2021). The increase in smartphone users in this modern era has raised concerns regarding the adverse effects of radiation from the light reflected by monitors into the eyes (Muallima et al., 2019). Among students, they often complain of watery

eyes, red eyes, minus, plus, cylinders, and eye fatigue; this is related to the technology that students often use in their lives (Laela et al., 2016).

As we know, eye disease is a disease that cannot be transmitted and can be avoided (Abdu et al., 2021). However, many conditions make a person not concerned about the health of his own eyes (Wulandari & Hermiati, 2019). Efforts to prevent decreased eye sharpness in students are maintaining activity patterns by using smartphones with sufficient lighting and doing them with good position and frequency (Wulandari et al., 2019).

II. METHODS

The research method used was analytic observational with a cross-sectional design. This study included all students at Rustida College of Health Sciences, totaling 223 students as a population, with a total sample of 143 respondents selected by the Simple Random Sampling technique and declared eligible for an ethical test. This study's instrument was a questionnaire and physical examination using the Snellen Chart. This study used Spearman's and Manova's Rank tests.

III. RESULTS

Table 1. Frequency distribution of respondents by age

Age	Frequency	Percent
19 years old	33	23,1
20 years old	38	26,6
21 years old	60	42
22 years old	9	6,3
23 years old	3	2
Total	143	100

Based on Table 1 it can be seen the frequency of respondents based on age. Respondents aged 20 were 38 (26.6%) and 23 years old were three respondents (2%).

Table 2. Distribution of respondents by generation

Level	Frequency	Percent
1	63	44,1
2	37	25,9
3	43	30
Total	143	100

Based on Table 2 it can be seen the frequency of respondents based on the Force. Level 1 respondents were 63 respondents (44.1%), and level 2 were 37 respondents (25.9%).

Table 3. Distribution of the frequency of respondents by gender

Gender	Frequency	Percent
Male	22	15,4
Female	121	84,6
Total	143	100

Based on Table 3 above, the majority of respondents were female, 121 respondents (84.6%) and male, 22 respondents (15.4%).

Table 4. Frequency distribution of respondents based on the use of gadgets

Use of Gadgets	Frequency	percent
Study	1	0,7
Social Media	69	48,3
Games	32	22,4
Watching video	24	16,8
Browsing	3	2,1
Online Shop	14	9,6
	143	100

Based on Table 4 above, most respondents used gadgets for social media, as many as 69 respondents (48.3%) and browsing as many as three (2.1%).

Table 5. Results of Spearman's Rank Test Effect of Screen Time on Eye Disorders

			screen time usage	eye health problems
Spearman's rho	screen time usage	r	1.000	.663**
		ρ		.000
		n	143	143

			screen time usage	eye health problems
eye health problems	r		.663**	1.000
	ρ		.000	
	n		143	143

The results of the study with the Spearman Rank test obtained results: 0.000 <0.05, which means that there is a significant relationship between the screen time variable and eye health disorders, while for the level of correlation strength, the result is 0.663, meaning that the level of correlation strength is said to be strong.

Table 6. Spearman Rank Test Results Effect of Screen Time on Visual Values

			screen time usage	eye health problems
Spearman's rho	screen time usage	r	1.000	.551**
		ρ		.000
		n	143	143
	eye health problems	r	.551**	1.000
		ρ	.000	
		n	143	143

The results of the study with the Spearman Rank test obtained: 0.000 <0.05, which means that there is a significant relationship between the screen time variable and the student's visual acuity value, and for the strength level of the correlation, the results are 0.551, meaning that the correlation strength level is said to be quite strong.

Table 7. Manova Test Results Effect of Screen Time on Eye Health

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Screen Time	Eye Health Disorders	434.124	25	17.365	2.482	.001
	Eye Vision Value	44.740	25	1.790	3.997	.000

The above results explain that the significant eye health disorder is 0.001 and the eye vision score is significant at 0.000 <0.05, meaning Ho (rejects), thus concluding that the average variable Y1 (eye health disorder) and Y2 (visibility value) indicates an effect on the variable X (screen time usage).

IV. DISCUSSION
a. Effect of Screen Time on Eye Health

The results of the study in Table 5 with the Spearman Rank test concluded that there was a significant relationship between the screen time variable and eye health problems.

Places to study that are not effective for school children will trigger a decreased vision, such as hours of screen time, sitting positions that do not match body proportions, and eye distance with cellphones/laptops used for teaching and learning facilities that are too close (Damawiyah & Noventi, 2019). Using media that exceeds the limit and is sustainable will have an impact on the visual organs and will have an effect on the ocular and physical (Lee et al., 2019).

Wulandari (2019) argues that smartphone use can affect eye complaints, eye fatigue, and also the incidence of computer vision syndrome. This means that the length of time someone uses a smartphone can affect the health of one's eyes.

b. The Effect of Screen Time on Visual Values

The results of the research based on Table 6 with the Spearman Rank test obtained the value of ρ: 0.000 <0.05; it can be stated that there is a significant relationship between the screen time variable and the student's visual acuity value.

The decrease in visual acuity in students with the frequency of duration of using gadgets in the excessive criteria is caused by stress experienced by the visual function (Andriany & Bima, 2017). This research is in line with Wahyuningrum's study (2021), which shows that there is a significant

relationship between screen-based activity and children's right eye vision (-value < 0.001) and children's left eye vision (-value < 0.001). According to Wahyuningrum (2021), school-age children have a habit of watching TV or playing with gadgets 5.5 hours per day one week and 7.4 hours per day on holidays, including Sundays. This routine of more than 2 hours per day can increase the risk of children suffering from decreased vision.

Then it can be estimated that students are more active in front of the monitor screen, such as playing gadgets. Bad habits that students often do when playing with devices such as excessive frequency of use in a day and lying down in the bedroom or living room. Suppose this becomes a habit, of course. In that case, it will have an impact on the function of the eye where the ciliary muscle will change the lens to be convex due to frequent viewing of objects closely; excessive monotonous activity of the monitor screen can cause the eye lens to become less sensitive to things that are far away.

c. The Relationship of the Effect of Screen Time on Eye Health

Based on the test results in Table 7, it can be concluded that the variable eye health disorders and visual acuity values influence screen time use.

According to Zhang (2020), using electronic media for a long duration causes eye fatigue, irritation, blurred vision, myopia, and other eye symptoms. Eye vision disease is caused by waves on laptop screens that are seen too much; the cornea of the eye will respond to X-rays and electromagnetic radiation, then the light is channeled into the lens, which can damage the lens of the eye due to physiological damage to the nerves and weakening of vision (Wahyuningrum et al., 2021).

The incidence of eye disease increases, mainly if the risk factors are not found and prevented early. Interventions can be implemented for electronic media users by paying attention to the 20/20/20 rule every hour, meaning every 20 minutes, looking at objects from a distance of 20 feet or 6 meters for 20 seconds. Educational intervention from the 20/20/20 rule can result in significant changes in dry eye symptoms, tear film, and little changes to ocular surface protection.

V. CONCLUSIONS

1. The results of the Rank Spearman test analysis for the screen time variable with health problems obtained a ρ-value of 0.000 <0.05; it was stated that there was a significant relationship between the screen time variable and eye health disorders in students.

2. The analysis results of the Rank Spearman screen time test with the student's visual acuity value obtained a ρ-value of 0.000 <0.05, so it can be said that there is a significant relationship between the screen time variable and the student's visual acuity value.

3. The results of the analysis of the Manova test on the Relationship of the Effect of Screen Time on Eye Health in the Digital Age in Nursing Students at the Rustida Banyuwangi High School of Health Sciences, the ρ-value results for eye health disorders are 0.001. The eye vision value obtains a significant value of 0.000 <0.05; it can be concluded that the average variable of eye health disorders and visual acuity values affects the variable of screen time use.

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Firdawsyi Nuzula, The author, was born in Banyuwangi on September 6, 1983. She graduated with a bachelor's degree in nursing from the Binawan Institute of Health Sciences, Jakarta graduated, , in 2007, then worked as a pediatric emergency room staff from 2008-2011 and continued his master's studies at Udayana University Bali majoring in public health concentrating on maternal and child health graduating in 2015. The author is a nursing lecturer actively conducting research in nursing pediatrics, maternity, and medical surgery and has been actively teaching from 2012 until now

The Training Component of Knowledge Improvement about Basic Life Support in Laypersons: A literature review

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Abstract

OHCA has become the highest case of out-of-hospital mortality in several countries of the world. OHCA is a time-dependent condition that requires immediate intervention. Despite many efforts to treat OHCA, mortality rates remain high without bystanders performing Basic Life Support (BLS). BLS should be performed as soon as possible as the duration of respiratory arrest is one of the most important survival factors. Bystanders in performing quality CPR must pay attention to several things such as hand position when applying pressure, compression speed, compression depth, chest wall recoil. This study aims to determine the training design associated with improving layperson knowledge in providing basic life support in out-of-hospital cardiac arrest conditions. The method used in this research is a literature study on several databases including Science Direct, ProQuest, Wiley, and EBSCO-Host. Several keywords were combined with Boolean to find articles according to the research objectives. The searching results found 474 articles that matched the keywords and Boolean. Prism analysis was used as a reference in article selection. The results of the analysis showed that there were 8 articles that would be analysed to answer the research objectives. The researcher categorized the training design related to layperson's knowledge in BLS as media, method, trainer and duration of training. With training program that involves many senses, given by trainers with the right training methods and duration, layperson's knowledge of BLS can be improved.

Keywords – OHCA, CPR, Bystander, Training

I. INTRODUCTION

Out Hospital Cardiac Arrest (OHCA) is the highest case of out-of-hospital death in several countries in the world (1,2). OHCA is a condition in which the heart stops beating and blood circulation stops, which occurs outside the hospital (3). Cardiac arrest is a time-dependent condition that requires immediate intervention (4). The most frequent cause of OHCA is heart disease, specifically Coronary Artery Disease (CAD) and other structural heart diseases, such as cardiomyopathy (5). In addition, cardiac arrest can result from a foreign body airway obstruction (FBAO) that does not receive immediate treatment (6). Life-threatening FBAO usually results from total airway obstruction (7).

The incidence of non-traumatic OHCA in the United States reached 350,000 cases treated by Emergency Medical Service (EMS) in 2015 (8). However, until now the number of OHCA cases in Indonesia has not been clearly recorded, but it is estimated that people with heart disease reach 1.5% of the total population (9) Although many efforts have been made to treat OHCA, mortality rates remain high without first responders performing basic life support (BLS) BLS should be performed as soon as possible because the duration of respiratory arrest (i.e. the time interval between collapse and initiation of CPR/Cardiopulmonary Resuscitation) is one of the most important survival factors (2,9)

Immediate CPR performed by the person closest to the victim (Bystander) can increase two to four times the survival rate of OHCA (10). Actions that can be performed by a layperson on an OHCA victim include early access to a cardiac arrest condition, immediate EMS call, quality hands only CPR and application of Automated External Defibrillation (AED) (11). Early bystander CPR has also been reported to be associated with better neurological recovery compared to no bystander CPR (12). Bystander AED use also has a positive association with clinical outcomes in victims with OHCA (13).

Bystanders in performing quality CPR must pay attention to several things such as hand position when applying pressure, compression speed, compression depth, chest wall recoil. Furthermore, for Bystanders who have already conducted BLS training and feel capable can provide airway management and can provide breath support (11). So that to be able to provide treatment, lay people must also have good and updated knowledge. Referring to the high BLS outcomes carried out by lay people, researchers want to conduct research with the aim of knowing what components are associated with increasing lay people's knowledge in providing basic life support in out-of-hospital cardiac arrest conditions.

II. METHODS

This research is a literature study on several databases including science direct, ProQuest, Wiley, and EBSCO-Host. Several keywords combined with Boolean "AND" and "OR" were used to find articles related to the research objectives. The keywords used were "*BLS AND FBAO AND Knowledge AND Training AND Course AND Video Tutorial AND Improvement*". Researchers in conducting literature searches applied several inclusion criteria including: articles published in international journals; articles published in the 2015-2023 range; original research with RCT, experimental, Quasi Experimental, and pre-experimental methods. The year range was chosen because it is in accordance with the AHA's update regarding the BLS algorithm which has changed since 2015. Prism 2020 analysis was used to select the articles analyzed to answer the research objectives.

III. RESULT

The search results in the four databases obtained 474 articles that match the keywords used by the author. Referring to the Prisma analysis, the researcher selected 14 articles for further thorough

analysis. Furthermore, from the 14 articles that were analyzed thoroughly, 8 articles were selected to answer the research objectives. The Prisma 2020 flow chart can be seen in Figure 1 below.

The analysis table of the articles selected in this study can be seen in Table 1 below.

Table 1 Result of Article Analysis

No.	Author	The Media of Training	The Training Method	Trainer/ Instructure	Training Duration
1	Buttussi et al. (2020) (14)	• Virtual reality • Mannequin	• Tutorial	• Not Explained	• Not Explained
2	Stærk et al. (2021) (15)	• Mannequin	• Simulation • Demonstration	• Certified instructors by The Danish First Aid Council and/or the European Resuscitation Council (ERC)	• Not Explained
3	Damvall et al. (2022) (16)	• mannequin • AED	• Peer Group	• Professional instructors from the NRC	• Two Days
4	Chamdawala et al. (2021) (17)	• Mannequin With Sim-Pad and Skill Reporter	• Simulation • Realtime feedback	• Trainer with certified BLS	• Not explained
5	Shende et al. (2020) (18)	• Mannequin • AED	• Simulation	• Not Explained	• 5 dan 30 minute
6	Ohle et al. (2021) (19)	• mannequin	• Simulation	• Student that undergone Heart and Stroke credentialed Basic Life Support program.	• 10 minutes
7	Martínez-Isasi et al. (2022) (20)	• Mannequin with real time audio-visual feedback	• Theory • Demonstration	• Teachers who have been trained as trainers	• 2 hours
8	Lanzas et al. (2022) (21)	• Video tutorial • Mannequin	• Video Simulation	• Certified instructors by BLS-AED oleh AHA and Portuguese National Institute For Emergency Medicine (INEM)	• 16 Minute
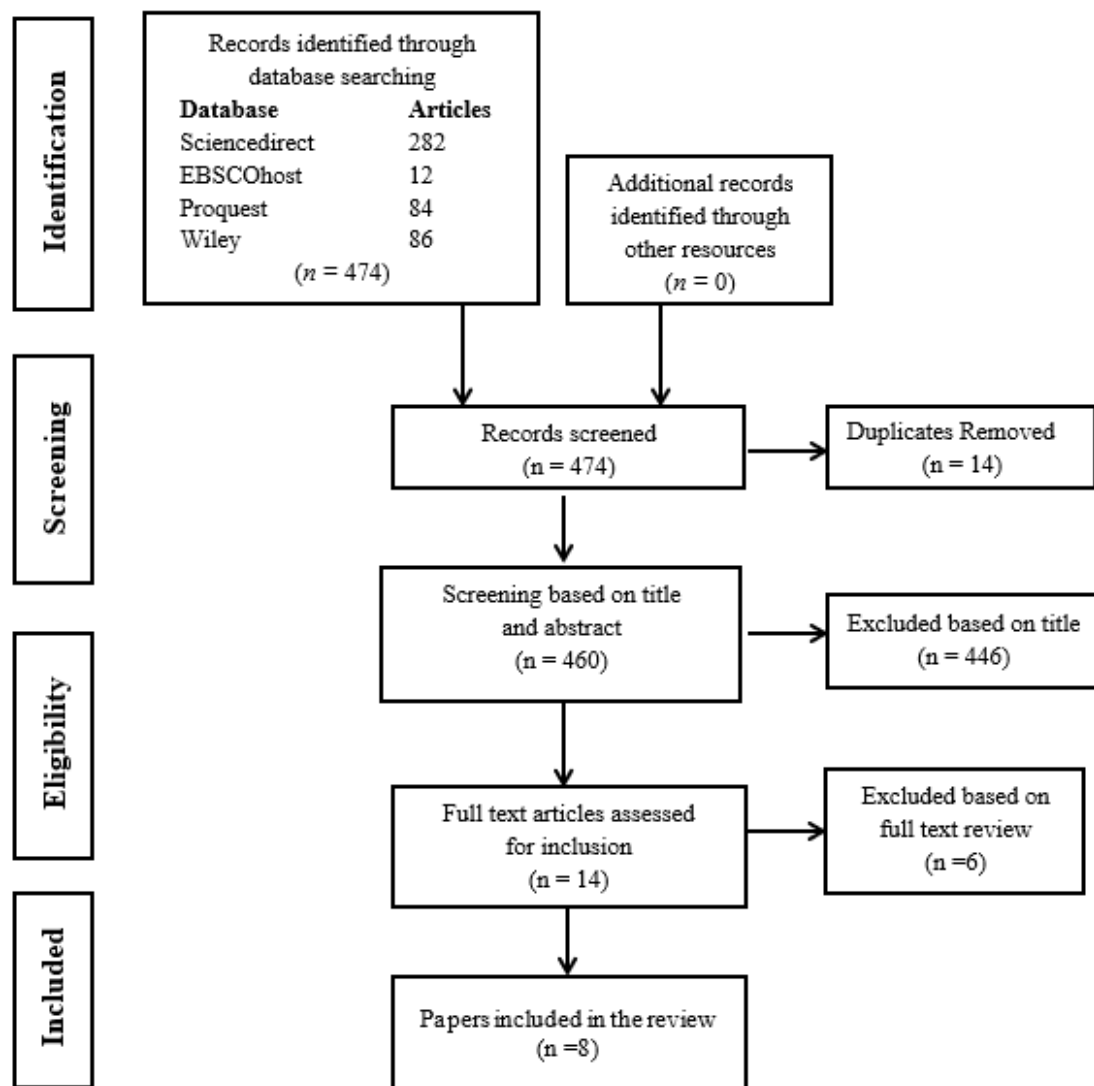
Figure 1 Flow Diagram of Article selection process

IV. DISCUSSION

The results of the study showed that there are four components associated with improving the knowledge of the layperson in providing basic life support in out-of-hospital cardiac arrest conditions. These components include media, training methods, trainers and training duration. The four components can be selected appropriately according to the needs and targets so that the training information can be delivered properly.

A. Media

Media is presented as everything that can communicate messages in the learning process (22). Media becomes a tool for teachers or instructors in providing the material presented. As a tool, the media bridges the teacher so that the material delivered can be well received by students or participants. The media in providing basic life support training summarized in this study are video reality, video tutorials, mannequins with indicators and feedback, ordinary mannequins and AEDs.

The literature suggests that the inclusion of multimedia such as images, audio, and video in the delivery of material enhances learner learning through modalities that stimulate different senses, so that the audience more easily captures the meaning presented (23). The use of video in delivering messages in the form of images and sound can improve understanding of BLS in Nepal (24). In line with these results, an increase in understanding of BLS is shown by a reduction in the response time of Hands Only CPR actions in lay people (25). Training conducted through watching videos has similar benefits in improving understanding of CPR (26).

However, through videos, laypersons can then repeat as often as possible so that knowledge can be further enhanced. Video media is excellent for keeping behaviorally inactive participants engaged, by stimulating their thinking and learning abilities. In fact, well-presented systematic instructions and messages encourage very high cognitive activity necessary for learning, comprehension and retention by viewers. Sound effects and associated music further influence the affective domain of learners.

The use of mannequins, mannequins with indicators and feedback and AEDs during the training will provide participants with an understanding of the sensation of CPR and tools that help increase the survival rate of OHCA victims. By presenting these tools, participants will find it easier to understand the actions taken so that knowledge will increase. Practice on mannequins is necessary to learn the appropriate pressure in performing chest compressions (14). CPR training with mannequins containing detailed feedback was also reported to provide motivation to learn and improve CPR proficiency compared to training using basic control panels. The use of mannequins providing detailed feedback during BLS courses may improve survival in out-of-hospital cardiac arrest (27). With the tools used during practice, participants will have a better understanding.

B. Method

A method is understood as any way of doing something (22). The training method in this case is defined as a way of delivering BLS material to lay people. The methods found in this literature

study that have relevance to improving lay people's BLS knowledge include tutorials, simulations, demonstrations, and peer groups. The tutorial method is often associated with traditional teaching methods where the trainer directs participants on what to do so that the learning objectives can be achieved. The tutorial learning method is reported to be an effective way to improve the knowledge of lay people regarding the implementation of cardiopulmonary resuscitation (28). Providing education through video tutorials is also said to have the same impact on increasing knowledge with or without an instructor (29).

In addition to the tutoring method, demonstrations and simulations from instructors and or with a peer group from the results of the literature study were also found to increase BLS knowledge in the lay community. Simulation using mannequins is said to have high accuracy of training and can also provide real results for patients later (30). In line with these results, simulation and demonstration methods are delivered to have a positive impact on increasing CPR knowledge in nursing students (31). Through simulation and demonstration, participants can directly feel the sensation of CPR. Participants were also able to imitate the trainer who did the demonstration and immediately tried to do it through simulation. The more senses involved in receiving material, the more participants will understand and longer remember the material provided.

C. Trainer *or* Instructor

The results of the literature study show that the average trainer in providing training with the results of increased knowledge from laypersons regarding BLS is given by instructors who have been certified or previously trained. Instructors or trainers have an important role related to how to convey and the content provided. The certification of instructors will provide more points regarding the standardization of teaching methods and content. Furthermore, if the instructor conveys errors in the delivery of the material, it will have an impact on the occurrence of misleading learning so that the participants' understanding is also incorrect (15).

Significant improvements in cardiopulmonary resuscitation knowledge were observed after training by experienced trainers (32). In line with these results, the results of previous studies also reported that peer learning and training with professional trainers have the same significance in increasing BLS knowledge in lay people (33). Peer group trainers and training by professional trainers have their own advantages in improving participants' knowledge. However, the most important of the two is the understanding of the facilitator in the peer group and the understanding of the professional trainer. A trainer should have good knowledge, attitudes and skills so as to be able to deliver the right material.

D. Duration of training

Duration relates to the length of time for which training is conducted. The duration will have a bearing on how long or how many times participants in each session will attend the training. This preliminary study summarizes the duration of the training ranging from 5 minutes to 2 days. The duration will depend on the media, method and trainer in delivering the material.

Referring to the American Heart Association, the time needed to conduct hands only CPR training depends on the ability of the participants but on average it takes 60-120 minutes in one training session (34). The researcher analyzed that the duration of training is highly dependent on the media and methods used. For example, using a video tutorial, one video playback can last for 5 minutes but can be repeated according to the training method used. Therefore, determining the duration of training should consider the media, methods and trainers who provide training.

V. CONCLUSIONS

This literature study found that in improving the knowledge of laypersons about basic life support, a training is needed. The training used must consider the media, method, instructor or trainer and the duration of the training. The suitability of the combination of the four components will be able to optimize the efficiency of training and can increase the knowledge of laypersons regarding the implementation of basic life support. Researchers in this literature study have not found any standardized guidelines or curriculum in providing BLS training to laypersons. However, researchers believe that the compatibility of the four components above will have a positive impact on the knowledge of laypersons about BLS.

VI. LIMITATIONS

Researchers in this study have not been able to present a formula in the implementation of BLS training for laypersons. Future researchers suggest further study of the composition of the four components so that a module or curriculum can be formed in providing BLS training to layperson.

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Nursing process on Impaired Physical Mobility among Elderly with Post-stroke in Bantur District

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Abstract— Stroke is a disease caused by the narrowing of the blood vessels which results from a blocked-on blood and oxygen transfer to the brain cell and the nervous system. It is common for the elder with the post-stroke condition to experience impaired physical mobilization, especially in their extremities. The non-pharmacological therapies such as passive range of motion exercises still need to be pursued in elders with post-stroke to increase muscle strength. The study purposed to explain the effectiveness of the passive range of motion exercises on impaired physical mobility cases among elders with post-stroke conditions. Three post-stroke elders living in Tunjungsari, East Bantur district were recruited as study participants. Mobilization support was carried out once per day for 20 minutes for each patient. The implementation was in three days. The case study was used as the research design. The application of a passive range of motion exercises showed effectiveness only in one patient with indicators of increased limb movement, muscle strength, and range of motion, reduce joint stiffness, limited movement, and physical weakness. The passive range of motion exercises applied to the three stroke patients with impaired mobility give a different response. Using a longitudinal study for further analysis is recommended.

Keywords – Passive Range of Motion (ROM); Exercise; Elderly; Physical Mobility Support; Post-stroke

I. INTRODUCTION

Stroke define as a disease caused by the narrowing of the blood vessels in the brain so that the flow of blood and oxygen to the brain is hampered and the nervous system becomes difficult or even immobilized (Farida, 2017). Stroke can occur due to a blockage or obstruction in the blood vessels in the brain (ischemic stroke) or caused by spontaneous bleeding in a certain part of the brain (hemorrhagic stroke) (Adrian & Louis, 2013). Stroke is a clinical disease that occurs due to interruption of blood flow to the brain and can cause death (WHO, 2014). Other mention that stroke is damage to nerve function due to vascular abnormalities that last more than 24 hours or loss of brain function caused by cessation of blood supply to parts of the brain resulting in cessation of blood supply to the brain, temporary or permanent loss of movement, thinking, memory, speech or sensation and mobilization (Marlina, 2016).

The prevalence of stroke worldwide is 15 million people per year. About 5 million people with stroke are death, while the other 5 million experience permanent disability. Every year, 3 million women and 2.5 million men in the world die from stroke. Meanwhile, every 4 minutes there is a death due to stroke. WHO estimates that 7.6 million deaths will occur due to stroke in 2022 (Lanny, 2016).

The incidence of stroke in Indonesia is 8.3 per 1000 people who have been diagnosed with stroke. Approximately 72.3% of stroke cases have been diagnosed by health workers. Death from stroke reaches 15.9% in the age range of 45-54 years and has increased at the age of 55-64 years around 26.8% (Lanny, 2016). Stroke is the biggest cause of disability in brain function which causes neurological deficits (Stroke Association, 2015). According to the results of a community assessment in Dukuh Tunjungsari, there are four stroke patients under the Puskesmas Bantur monitoring.

According to Rahmawati, Yurida, and Mahdalena (2017), stroke patients experience abnormalities of the brain as the central nervous system which controls and triggers the motion of the musculoskeletal neuron system. Clinically, the symptom that often appears is the presence of hemiparesis or hemiplegia which causes loss of normal postural reflex mechanisms for balance and rotation of the body for functional movements in the extremities. Post stroke sensory and motor disturbances also resulting a balance disorders including muscle weakness, decreased soft tissue flexibility, and impaired motor control. This patient also sometimes experience loss of coordination, loss of body balance and posture (ability to maintain certain positions) and also stroke can cause permanent physical disability. Aprilia (2017) mention in her study that the most common consequence of a stroke is hemiplegia or hemiparesis, 80 percent of strokes patient are suffering hemiparesis or hemiplegia (one side of the body is weak or even paralyzed). The weakness also causing for stroke patients having immobilization, most of the time they will stay on the bed and muscle atrophy will occur so special exercise like Range of Motion (ROM) is needed.

Rehabilitative exercise that can be given to stroke patients is range of motion exercises or what is often called Range of Motion (ROM) which are exercises used to maintain or improve the level of perfection of the ability to move joints normally and completely to increase muscle mass and muscle tone. Movement exercises for stroke sufferers are a prerequisite for achieving patient independence, because motion exercises will help gradually function the legs and arms to return to or near normal, and suffer from strength in these patients to control their daily activities and the impact if not given ROM rehabilitation, namely can cause muscle and joint stiffness, the daily activities of the patient can be totally dependent on the

family, the patient is difficult to meet their daily needs. According to Rahmawati, Yurida and Mahdalena (2017), this exercise is adapted to the patient's condition and the main goal is awareness to make movements that can be controlled properly, not on the magnitude of the movement. The results of a preliminary study of 3 stroke patients found that only one person was routinely given ROM for impaired physical mobility.

Based on the description above, the writer is interested to perform a study entitled "Nursing process in impaired physical mobility among elderly with post-stroke in Bantur District".

II. METHODS

This research is a case study research with the application of nursing care process. The population in this study were 3 elderly with post-stroke who resided in the working area of the Bantur Health Center, Bantur District, Malang Regency. Convenience sampling was used in determining the research sample with inclusion criteria including being > 60 years old, experiencing nursing problems: Impaired physical mobility (D.0054), having main problem with stiffness in one sided or both extremities and willing to be research respondents with confirmation in informed consent. The expected outputs from this study include increased movement of extremities, muscle strength and the range of motion (ROM). Furthermore, patients are also expected to experience lower anxiety, decrease joints stiffness and physical weakness. Outcome criteria are prepared in reference to the Indonesian Nursing Outcome Standards of Physical Mobility (L.05042) (SLKI, 2017).

The assessment process is deliberate using the FIKes UNITRI gerontic nursing assessment sheet consisting of identity, work history and economic status, environmental conditions, medical history, functional pattern, physical examination, special assessment and supporting information. The data

obtained was then analyzed focused on the problem of impaired physical mobility, the formulation of a nursing care plan follow the standardized format, implementation of passive ROM using SOP (standardized operational procedure) by Potter & Perry (2005) and the MMT (Manual Muscle Test) by Kozier (2005) also used to evaluate the muscle strength in 3 consecutive days.

III. RESULT

A. Nursing assessment

Table 1. Characteristics of the study participant

No	Patient Data	Patient 1	Patient 2	Patient 3
1	Name	Mr. S	Mrs. K	Mrs. A
2	Gender	M	F	F
3	Age	86 y.o	72 y.o	63 y.o
4	Address	Tunjungsari RT 24 RW 04	Tunjungsari RT 10 RW 04	Bantur timur RT 48 RW 04
5	Religion	Islam	Islam	Islam
6	Occupation	Farmer	Housewife	Housewife
7	Latest education	Elementary	Junior High School	No education
8	Tribe	Javanese	Javanese	Javanese
9	Marital status	Widow	Married	Single
10	Current complaint	Stiffness in the right extremities	Stiffness in the right extremities	Stiffness in the right extremities
11	Coping efforts	Taken to the hospital on August 20, 2022, last was taken to the hospital 2 weeks ago.	Had a consultation with a neurologist, the last consultation was approximately 6 years ago	Taken to the hospital. However, the family said they forgot the last date they were taken to the hospital
12	Past medical history	The family said the patient had a stroke when his older brother died, the patient suddenly fainted, and was immediately taken to the	The family said the patient had a stroke when he learned that his mother had died 7 years ago, the patient suddenly fell and became	Several years ago the patient had an accident, the patient had a stroke when his father died 6 years ago.

	hospital	unconscious

B. Nursing Diagnose

Based on the results of the study and review of the cases, it was found that the focus data indicated that the three patients had impaired physical mobility, which made these patients unable to move optimally, both in terms of tilting left and right, sitting in bed and other activities.

C. Nursing Intervention

The intervention designed based on the data obtained from the three patients was mobilization support with passive ROM which was carried out 20 minutes 1-2 times a week. The first planning strategy for patients with impaired physical mobility is: early mobilization, namely: identification of pain or other physical complaints, identification of physical tolerance for movement, monitoring of heart rate and blood pressure before starting mobilization, monitoring of general conditions during mobilization, facilitation of activities mobilize with assistive devices such as fences, beds, facilitate movement, suggest early mobilization, involve the family to help patients improve movement, explain the goals and procedures for mobilization, encourage early mobilization, teach simple mobilization that must be done, for example sitting in bed, sitting on the side of the bed, turning left and right, moving from bed to wheelchair, passive and active ROM exercises.

Action plans for passive ROM performed on stroke patients can increase joint range, where the reaction of contraction and relaxation during passive ROM movements performed on stroke patients occurs stretching of muscle fibers and increased blood flow to the paralyzed joint area resulting in an increase in the additional range of the abduction-joint adduction of the upper and lower extremities at the major joints only. So that passive ROM can be done as an alternative in increasing joint range in stroke patients who experience paralysis. (Bakara & Warsito, 2016).

ROM exercises in stroke patients can be done several times in order to get the maximum effect and can reduce the incidence of complications, the implementation of ROM which is a routine, regular and programmed Range of Motion Exercise can affect the results achieved, namely increasing the value of muscle strength after being given an intervention, if not exercise regularly then the condition of the muscles will return to its original state. This is related to the recovery of the energy supply system used during training (Wiwit, 2012). ROM exercises have been shown to be useful in helping with joint range of motion and flexibility problems. Muscle strength can also be overcome by ROM exercises after post-stroke. (Monroe, 2020).

D. Nursing Implementation

The nursing actions performed on the three stroke patients were adjusted based on the IDHS, SIKI and SLKI so that the three clients were taught and assisted to do passive ROM to increase muscle strength.

If ROM exercises are not immediately carried out in stroke patients, it will result in a decrease in muscle contractions, pain, muscle atrophy, causing barriers to physical mobility or inability to do activities (Sholihah, 2017). Results of the Case Study: The application of passive ROM techniques performed on stroke patients with impaired physical mobility, there are weaknesses in the extremities, some are effective and not yet effective, this is because the first and second patients and their families are very enthusiastic and eager to exercise independently and with the help of their families whereas for the third patient and his family were not enthusiastic or provided support for doing passive ROM because the patient's family had resigned to the situation. Conclusion: The implementation of passive ROM in the three stroke patients with impaired mobility gave a different response.

E. Nursing evaluation

The results of the nursing evaluation for the diagnosis of impaired physical mobility carried out on the three clients with stroke were partially resolved because the three patients were able to receive and carry out the instructions given by the researchers so that there was a change in the nursing actions given by the researchers.

According to research conducted by Astrid (2018) programmed, regular and continuous training will produce optimal results, because the more frequently the joints are moved regularly and with the right technique it can stimulate muscle & proprioceptor tone in joints through approximation, it can also help control the brain against these muscles. In addition, the fulfillment of nutrition can affect the increase in muscle strength. Early on, it can reduce ability deficits and reduce disability (Harrington, Breaden and Upchurch, 2019).

Evaluation is a tool or procedure that is used to find out and measure something in an atmosphere in a way and rules that have been determined. While program evaluation is a systematic investigative activity about something valuable and valuable from an object. Program evaluation is a process. Explicitly evaluation refers to achieving goals while implicitly evaluation must compare what has been achieved from the program with what should be achieved based on predetermined standards (Muryadi, 2017)

Implementation of regular passive ROM can be recommended and researchers suggest continuing the intervention independently or assisted by the family

IV. DISCUSSION

Answer the research problem, support and maintain the answer with the results, compare with the results of the relevant research, state the limitations of the study conducted, state the importance of the findings, find or come up with newness and submit further research.

CONCLUSIONS

Based on the results of research on gerontic nursing care in stroke patients with impaired physical mobility in Bantur Village. Researchers can draw conclusions that:

1. Based on the results of the study, it was found that the three participating patients experienced physical weakness, difficulty moving the extremities, joint stiffness and limited range of motion, decreased muscle strength

2. Formulation of nursing diagnoses that appeared in the three patients, namely impaired physical mobility related to muscle weakness marked by decreased limb movement, decreased muscle strength, decreased range of motion, decreased joint stiffness, decreased limited movement, decreased weakness.

3. The nursing action plan for the three patients was passive ROM mobilization support for 20 minutes on the right extremity.

4. Implementation of stroke in three elderly patients with impaired physical mobility problems related to muscle weakness, implementation of nursing, namely mobilization support according to the Indonesian nursing intervention standard guidebook and interventions related to combinations of passive ROM according to SOP. Of the three patients can follow the implementation in full.

5. The results of evaluations conducted on the three patients with the same intervention found that patients 1 and 2 experienced improvements in muscle strength, limb movement, range of motion, joint stiffness, limited movement, physical weakness. But patient 3 did not experience improvement in muscle strength, limb movement, range of motion, joint stiffness, limited movement, physical weakness at all

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SI-HAJAR, AN APP FOR IMPROVING CPR KNOWLEDGE AND SKILLS OF TEENAGER IN LUBUKLINGGAU CITY

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Abstract **–** Survival rates of OHCA victims increase if immediately assisted CPR by people around or bystanders. There is a need to increase the quantity and quality of CPR bystanders through CPR education and training using application media that can be used anytime and anywhere. This study aims to determine the effect of CPR training using the SI-Hajar application on the knowledge and skills of teenagers about CPR. This study used a quasi-experimental design with a pre and post-test approach to CPR training using the Si-Hajar Application. Samples were taken by purposive sampling technique from 40 teenagers in Lubuklinggau City Juni-December 2021. CPR knowledge was measured from knowledge about OHCA, which was measured using a questionnaire. Skill was measured by how the subject performed CPR using a CPR standard operating procedures checklist sheet. We found a statistically significant difference in knowledge before and after intervention between treatment and control groups (P < 0.001) and skills between treatment and control groups (P < 0.001). There are correlation differences between group treatment and control p-value < 0.005 (p = 0.001), In the skill of CPR there are correlation differences between group treatment and control p < 0.005 (p = 0.001), but there is no correlation history saw the cardiac arrest, and willingness to perform CPR p > 0.05 to knowledge and skill of respondent. There is a significant effect of using the Si-Hajar Application method on the knowledge and skills of teenager in OHCA knowledge and CPR management.

Keywords **–** CPR; Applications; Cardiac Arrest; OHCA

I. Introduction

Cardiac arrest is when the heart's function stops suddenly, and if proper help is not immediately given, the results will be fatal. Cardiopulmonary Resuscitation (CPR) is first aid for patients with cardiac arrest (1,2). Out of Hospital Cardiac Arrest (OHCA) is a severe problem with a global incidence of around 55 per 100,000 people per year (3). In the United States, more than 356,000 annually (4). 97.7% in South Korea and China, which is at 90% (1,5).

80% of OHCA died before receiving help from health workers (6). The high OHCA mortality rate is high because the victims were not immediately given appropriate action at the time of the incident because no one was watching, no one was able to provide help, and the distance to health facilities was far away. OHCA victims will experience a decreased chance of survival of around 7-10% every minute if no help is given (1). Witnesses are essential in helping before health workers appear or are known as CPR bystanders.

Data collection on the incidence of cardiac arrest in Indonesia does not record properly, The factors can increase

the incidence of cardiac arrests, such as the incidence of Coronary Heart Disease (CHD). It is estimated that 30 people experience cardiac arrest every day in Indonesia, or an estimated 10,000 people annually (7) In Lubuklinggau, the incidence of cardiac arrest has not been recorded neatly, either at the statistics agency or the health office. Based on preliminary studies, many deaths due to cardiac arrest are considered to be deaths due to hearts attack. This data shows that there are still differences in perceptions about cardiac arrest and heart attack, so the magnitude of the cardiac arrest problem outside the hospital cannot be described statistically.

The factor that can increase the chances of survival for OHCA victims is the presence of a CPR bystander, which is increased by two times better (8). Bystander CPR is an essential link in the survival chain and is closely related to increasing OHCA survival (9,10), a CPR bystander is someone at the scene who can assist in CPR for OHCA victims to save lives and prevent further injury (11). This translation implies that the quantity of CPR bystanders needs to be increased to increase the chances of OHCA victims being helped.

CPR training for school students aged 15-16 years in Hong Kong is an effective way to develop the next generation of CPR volunteers, and training media using proven practical applications can increase CPR knowledge and skills in adolescents (12).

All groups of people should own CPR knowledge and skills. From all walks of life, youth is the group with the most significant number, so they have the potential to become candidates for CPR bystanders. The Central Bureau of Statistics (BPS) of the Republic of Indonesia records that the population of Indonesia aged 15-19 years is the most significant number of people, and more than 60% are currently undergoing education. There would be a lot of CPR bystanders if all teenagers knew about it. Teaching CPR at school age is the best

way to increase the number of trained laypeople and increase the number of CPR bystanders (13).

Basic life support training helps increase knowledge and skills in administering CPR. Wijaya et al., (2021) said "there was a significant effect on the knowledge of high school students in Karanganom Klaten after being given CPR training" (14). CPR training for school students is an international priority (15) Training with faster, easier, cheaper and more sustainable application media can be a solution in today's digital era (16).

Therefore, researchers are interested in knowing how the differences in the influence of the use of training media through the CPR application media that researchers have developed under the name Si-Hajar with traditional methods of lectures and simulations have on the knowledge and skills of adolescents in carrying out CPR in patients with cardiac arrest outside the hospital.

II. Methods
Research Design
This research is quantitative with a quasi-experimental design with a pre and post-test approach that was collected from June until December 2021. The subjects in this study divide become two groups, the control group was given treatment using traditional methods (material and simulations) with 6 meetings in 3 months, 2 times per month, and the treatment group used the Si-Hajar Application started June until December.

Research Sample
Sampling this study used a purposive sampling technique with a sample of 40 people. The inclusion criteria for this research sample are men or women aged 15-18 with smartphones that can download and install the Si-Hajar Application. In comparison, the exclusion criteria for this research sample were having physical limitations

and not having a smartphone that supports installing the Si-Hajar Application.

CPR Knowledge Questionnaire

Knowledge data was collected by questionnaire with two pre-est and post-test CPR training assessments using the traditional method and SI-Hajar Application. The questionnaire about OHCA and hand-only CPR was used to assess knowledge. The knowledge questionnaire has been tested for validity and reliability. The indicators used in this questionnaire include recognition of cardiac arrest, activation of the emergency system, and implementation of CPR measures. The questions in this questionnaire were made in the form of closed questions with ten questions. Respondents choose the answer that is considered correct by placing a cross (X) on options a, b, c, or d. Correct answers are scored 1; incorrect answers are scored 0.

CPR Skills Assessment Format

Both groups measured CPR skills by using the CPR standard operating procedures issued and obtained through the Standard Operating Procedures for the Nursing book. This Standard Operating procedure was assessed using three assessments. one point for a well-done action score. One point for the value of the action taken could be better. 0 points for the value of the action not performed. The maximum value in this SOP is 28, which is then presented as 100%.

Si-Hajar Application

Si-Hajar Application is used as a medium for carrying out CPR simulations; The Si-Hajar Application has all the attributes to perform high-quality CPR simulations, with a maximum compression depth of 5 cm and fast spring recoil. This Application contains educational media such as materials, videos, and live simulations through the Android application media

Image 1. Si-Hajar Application

Statistical Analysis

Data analysis in this study used paired t-tests and independent t-tests. Data analysis using the SPSS Ver.22 program with a confidence level of 96% ($p \leq 0.005$)

Ethical Permission

This study was conducted according to the guidelines of the Declaration of Helsinki. The ethical approval was issued by the Palembang Health Polytechnic Ethics Committee number 1155/KEPK/Adm2/VIII/2021. All participants were asked to fill out and sign a consent form after receiving information about the research, and they had the right to participate in this study. The researcher assures that the confidentiality of the information will be guaranteed.

III. Result

Table 1. shows the characteristics of the respondents. Most respondents were 15 years old (50%), with 28 females (70%). Only 6 participants had a CPR training history (15%), and 10% saw cardiac arrest (6.67%). Only 55% of respondents are willing to perform CPR, and 100% want to learn CPR.

Table 1. Respondents Characteristic Traditional Method

Characteristic	Categories	Total	
		n	%
Age	15 Years	10	50
	16 Years	8	40
	17 Years	2	10
Gender	Males	15	75
	Females	5	25
Training History	Ever	3	15
	Never	17	85
Saw Cardiac Arrest	Ever	3	15
	Never	17	180
Willing To Perform CPR	Yes	10	50
	No	10	50

136

The desire to learn CPR	Yes	20	100
	No	0	0

Table 1. shows that half of the respondents in this group were 15 years old (50%), dominated by 15 women (75%), 3 respondents (15%) had attended training, 3 respondents had seen OHCA events, half of the respondent are willing to perform CPR, and all are willing to take CPR training

Table 2. Respondent's Characteristic Si-Hajar Method

Characteristic	Categories	Total	
		n	%
Age	15 Years	10	50
	16 Years	6	30
	17 Years	3	15
	18 Years	1	5
Gender	Males	13	65
	Females	7	35
Training History	Ever	1	5
	Never	19	95
Saw Cardiac Arrest	Ever	1	20
	Never	19	180
Willing To Perform CPR	Yes	12	60
	No	8	40
The desire to learn CPR	Yes	20	100
	No	0	0

Table 2. shows that half of the respondents in this group were 15 years old (50%), dominated by 13 women (65%), only 1 respondent (15%) had attended training CPR, only 1 respondent had seen OHCA events, 12 (60%) respondent are willing to perform CPR, and all the respondents willing to take CPR training

Table 3. Finding Data

Variable	Control	Experiment	p^*
	M ± SD	M ± SD	(Paired t-test)
Pre-test Knowledge	4.85 ± 1.137	4.90 ± 1.165	0.001
Post-test Knowledge	8.10 ± 0.85	9.43 ± 0.67	
Pre-test Skill	50.53 ± 8.76	52.32 ± 8.92	0.001
Pre-test Skill	76.25 ± 9.07	93.03 ± 7.37	

p^* **Paired t-test**

Variable	P-Value (Covariance Test)

	Group Intervention	History Saw Cardiac Arrest	Willing To Perform CPR
Knowledge	0.001	0.0761	0.585
Skill	0.001	0.37	0.33

Covariance Test

Table 3. shows a significant difference in knowledge between both groups with a p-value < 0.005 (p = 0.001), which means there are any meaningful differences between the knowledge both of groups after got the training, with the higher average knowledge value in the Si-Hajar application method group is 9.43 better than the traditional method. both group training method was influenced by increasing the value knowledge of respondents, but the Si-Hajar application was more effective than the traditional method.

Table 3. also shows the mean difference in skill before and after receiving the training. The findings explained that there was an increase in the average skill value before and after the intervention in both groups, and it was statistically significant by 0.001 statistically. The highest average skill value after CPR training was 93.03 with the Si-Hajar application method.

According to the convenience test in knowledge, there are correlation differences between group intervention p-value < 0.005 (p = 0.001), but there is no correlation between history saw cardiac arrest and willingness to perform CPR p-value > 0.005 (p = 0.0761 for history saw cardiac arrest, and p = 0.0585). In the skill of CPR, there are correlation differences between group intervention p < 0.005 (p = 0.001), but there is no correlation history of seen cardiac arrest and willingness to perform CPR p > 0.05.

IV. Discussion

4 0f 40 respondents who conducted this study had directly seen

cardiac arrest outside the hospital, supported by the research of Benjamin, (2018)(17) which stated that the majority of HJLRS incidents occurred in public places and the home environment (17), namely as many as 39.5% in public places, and followed by HJLRS incidents at home as many as 27.5% incidents at home. It can be said that 1 in 15 respondents have seen cardiac arrest and CPR in their respective environments.

Table 3 shows the mean knowledge difference before and after the training. The findings explained that there was an increase in the average value of knowledge before and after the intervention in both groups, and it is statistically significant by 0.001; the highest average value of knowledge After CPR training was 9.43 with the Si-Hajar application method. This increase in knowledge results from exposure to specific information sensed by the subject of the object, in this case, CPR in OHCA patients. CPR education and training have traditionally shown changes in adolescent knowledge. In principle, training through lecture and simulation methods is a process to increase knowledge, skills, and attitudes (18).

The Si-Hajar application that the researcher developed contains not only textbook material but also video, photo, and simulation media that can be done via a smartphone so that it can be an effective medium that can be carried out independently because knowledge is a mental activity. Developed through a learning process, question, and answer, and stored in memory, will be explored when needed through the form of memory (19). A problem given in the simulation will help participants analyze the problem, increasing the value of the knowledge possessed by the subject (20).

Table 3 shows a significant difference in knowledge between the two groups with a p-value < 0.000 (p = 0.001). The higher average knowledge value in the Si-Hajar application group is

9.43. Other studies also state that there is a significant effect on changes in knowledge before and after being given CPR training with application media (21), supported by similar research demonstrated by (22), who used the learning method with the smartphone application method in teaching high-quality CPR, this study showed that there were significant differences in the cognitive ability variables after being given training.

Table 3. show the mean difference in skill before the training, between the groups showing *p* there are no meaningful differences between both group before getting the training, table 3 shows the mean difference in skills before and after receiving the training. The findings explained that there was an increase in the average value of skill before and after the intervention in both groups, and it is statistically significant by 0.001; the highest average value of skill After CPR training was 93.03 with the Si-Hajar application method. Skills result from an exercise accompanied by increased changes by people who learn these skills due to specific activities (19).

The traditional methods through lectures and simulations are considered suitable for improving the skills of adolescents because they can show a direct way of high-quality CPR simulation. The CPR training process using traditional methods will allow respondents to perform CPR actions monitored directly by the trainer and a direct guidance and evaluation process from the trainer throughout the training process (21)). The process of education and simulation during training, accompanied by trainers using traditional media using mannequin media, improves CPR skills as a whole (23)

Increasing skills influenced by the direct feedback from the trainer during the CPR training process so that the subject can find out and immediately correct the procedure errors performed. In line with the previous description, (24)

also said that the feedback provided by the trainer would make it easier for participants to correct mistakes made during the training process. Simulation is a better method for improving CPR skills (25).

Using the Si-Hajar application has advantages that can be obtained from technology-based learning, which is to make it easier for someone to achieve a clinical skill because it will increase the trainees' attention at a specific time and cause an audio imagery effect (26). This attention will lead to increased frontal and parietal cortex activation, stimulating cognitive aspects and strengthening memory (12).

According to elaish, (2019) Explained that learning methods with components of images, sound, and motion animation have the advantage of attracting more attention, being very easy to remember (27), increasing motivation, and retaining knowledge of the material being studied. According to (22), who conducted research using game-based smartphone applications proven to improve cognitive abilities. Learning methods using application methods can be carried out independently as long as learning support devices are available and accessible (28). The learning process using the application method can be reviewed independently of the material that has been given (29).

Table 3 shows a significant difference in skill between the two groups with a p-value < 0.000 (p = 0.001). The higher average skill value in the Si-Hajar application group is 93.03. This is supported by previous research (12,16), which shows that increased knowledge, behavioral intention, and skills are higher than in traditional media.

Based on the theory of dual coding, the right blend of verbal and visual media simultaneously can make it easier for the recipient of the material to absorb the information provided and reduce the stage of abstract understanding (30). Asriyadin et al.,

(2018) found that the level of attainment of knowledge through the senses of sight reached 75% and hearing 13%; besides that, media containing pictures and words combined had a more substantial impact on increasing knowledge (31). Therefore, groups with Si-Hajar application media can experience a higher increase in knowledge than traditional groups because the content in the Si-Hajar application already contains textbook material, sound, and video, and there is also a menu of simulation activities that can be carried out repeatedly by respondents, even in the absence of a coach.

V. Conclusion

Based on the results of the analysis and discussion, it can be concluded that there is a positive influence related to CPR training using traditional methods and applications (Si-Hajar) on the knowledge and skills of adolescents regarding the problem of OHCA incidents and CPR management. However, better results are shown by using application media. So that the application media, especially Si-Hajar that researchers have developed, can be a recommendation for CPR training media for ordinary people, especially teenagers.

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Modification of Virtual Reality Distraction and Relaxation Therapy in controlling pain in Ca Mammae sufferers at Hospital of Jember Area

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Abstract type of breast cancer that ranks first is 2.2 million and pain is the majority of the symptoms that patients complain of pain. Pain management uses pharmacological therapy (analgesic drugs) and non-pharmacological therapy for example (biofeedback, hypnosis, relaxation, acupressure, guided imagery, and distraction). Therapy this research used virtual reality distraction relaxation therapy. The purpose of this study was to determine Ca Mammae pain before and after virtual reality distraction relaxation therapy at Hospital of Jember Area. Methods: The pre experimental study design was a one group pre-post test design with a sample of 32 Ca Mammae pain sufferers who received treatment at Hospital of Jember Area. The measuring instrument used the NRS (Numeric Rating Scale) and data analysis used the paired t test with a significance degree of α 0.05. Results: this research obtained an average result (mean) before virtual reality distraction therapy of 6.19. After 10 minutes of virtual reality distraction therapy, the average (mean) decreased by 4.81. Based on the results of the paired t test, a p-value of $0.000 < α = 0.05$ was obtained, so H0 was rejected and Ha was accepted, which means that there is a difference in Ca Mammae pain before and after virtual reality distraction relaxation therapy at Hospital of Jember Area. Conclusion: modification of virtual reality distraction therapy can reduce Ca Mammae pain at Hospital of Jember Area. It is hoped that virtual reality distraction relaxation therapy can be implemented in pain nursing care, especially Ca Mammae pain.

Keywords - Pain, Ca Mammae, Virtual Reality Distraction Relaxation

Introduction:

The type of cancer that dominates in 2020 is Ca Mammae in first place with 2.2 million or 11.7%. 25% of cancer patients experience pain, at various stages of cancer, namely 51% will continue to increase to 74% at advanced stages. Cancer sufferers experience mild to severe pain of 45-100%. The problem of cancer pain is a world problem, especially in developing countries (Pane, 2017). The type of cancer that dominates in 2020 is Ca Mammae in first place with 2.2 million or 11.7%. 25% of cancer patients experience pain, at various stages of cancer, namely 51% will continue to increase to 74% at advanced stages. Cancer sufferers experience mild to severe pain of 45-100%. The problem of cancer pain is a world problem, especially in developing countries (Pane, 2017). More than 80% of cancer patients with advanced stages (II, III and IV) experience moderate to severe pain even though the patient has received therapy for their cancer, namely 33% of sufferers experience chronic pain (Wita Saraswati, 2020).

Dinas Kesehatan Jawa Timur (2020) states that the cases of Ca Mammae in East Java Province are 2.51%. From 2017 to 2020, Jember Regency experienced an increase in cases of Ca Mammae, from 190 cases to 230 cases in 2020.

Internasional Association for the Study of Pain (2021) states that pain is an unpleasant sensory and emotional experience resulting from actual or potential tissue damage, which is painful in the body and the choice of the individual who experiences it. Pain is a personal experience that is influenced by various levels, namely biological, psychological, and social factors. The pain felt by cancer sufferers is a moderate to severe level of pain that makes cancer sufferers feel uncomfortable. There is a need for pain management to reduce the pain of Ca Mammae sufferers. Pain management includes two therapies, namely pharmacological therapy and non-pharmacological therapy.

One of the non-pharmacological therapies, namely visual distraction, is a method of pain management by attracting attention directed in visual actions to ignore attention to pain by using virtual reality box aids. Virtual reality is a non-pharmacological therapy based on visual distraction technology that interacts with the environment in the virtual world so that the user feels that he is in that environment. Thomas (2021) states that virtual reality is useful in the rehabilitation of sufferers from severe pain because virtual reality can effectively divert attention (distraction) in reducing the pain felt by sufferers, including pain in patients with Ca Mammae. Non-pharmacological techniques using technology can be an alternative choice for clients with Ca Mammae in controlling pain so as to provide comfort to patients because there is no invasive procedure.

Methods:

The research design used was a quasy experiment with a pre-test and post-test approach design. This study divided the respondents into one groups. The intervention group received virtual reality and modifikasi relaxation techniques.

Measurement of pain score pre and post and diastolic intervention at the first meetings. This study used non-probability sampling, consecutive sampling. Researchers have several inclusion and exclusion criteria in determining research respondents, the inclusion criteria: patients diagnosed with Ca Mammae, stage 1 and 2, receiving chemoteraphy pharmacological therapy and living with family. While the exclusion criteria; rejecct to participate in a series of research implementation activities to completion, there are complications of heart failure, kidney failure and stroke. The samples used were patients at the hospital Jember area with a total of 39 patients. This research was conducted at hospital jember area from April 2022 – Mei 2022. The instrument in this study was to measure pain score pre and post implementation virtual reality using a Numeric Rating Scale (NRS). Measurements were carried out every before and after giving intervention to respondents and was given for 15 minutes.

Data collected to the respondent directly after the respondent filled out the provided informed consent. Data were analyzed using a frequency distribution. This research has also received ethical approval from the Health Research Ethics Commission of KEPK STIKES dr Soebandi NO. 221/KEPK/UDS/V/2022.

Results:

There are several tests carried out in the data analysis process, firstly the normality test of the data with a standardized residual value then followed by a uji *paired t test*

Table 1.1 Description of Stage II Ca Mammae Pain Level Before Virtual Reality Distraction Relaxation Therapy at Jember Hospital

Tingkat Nyeri	Frekuensi	Persentase (%)	Hasil
3	3	9,4	
4	1	3,1	
5	6	18,8	
6	7	21,9	
7	9	28,1	
8	4	12,5	
9	2	6,3	
Total	32	100%	
Mean			6,19
Median			6,00
Modus			7
SD			1,595

Table1.2 Description of Stage II Ca Mammae Pain Levels After Virtual Reality Distraction Relaxation Therapy at Jember Hospital

Tingkat Nyeri	Frekuensi	Persentase (%)	Hasil

2	2	6,3	
3	5	15,6	
4	8	25,0	
5	7	21,9	
6	3	9,4	
7	6	18,8	
8	1	3,1	
Total	32	100%	
Mean			4,81
Median			5,00
Modus			4
SD			1,615

Table 1.3 Ca Mammae Pain Before and After Modification Virtual Reality Distraction Relaxation Therapy
at Jember Hospital

Tingkat Nyeri	Frekuensi dan Persentase				Selisih	p-value
	Pre Test	%	Post Test	%		
2	0	0	2	6,3	2	
3	3	9,4	5	15,6	2	
4	1	3,1	8	25,0	7	
5	6	18,8	7	21,9	1	
6	7	21,9	3	9,4	4	0,000
7	9	28,1	6	18,8	3	
8	4	12,5	1	3,1	3	
9	2	6,3	0	0	2	
Total	32	100%	32	100%		
Mean	6,19		4,81		1,38	
Median	6,00		5,00		1,00	
Modus	7		4		3	
SD	1,595		1,615		0,02	

Discussion :

The average result (mean) obtained was 6.19 (moderate pain). In theory Ca Mammae is a group of cancer cells that are in the breast and can spread to other parts of the body. Krisdianto (2019) states that the description of cancer conditions is divided into 8 stages based on the location of the cancer, the area of spread and the extent to which it affects other organs. Stages of cancer include stage 0, stage 1, stage II a, stage II b, stage III a, stage III b, stage III c, and stage IV. One of the complaints from Ca Mammae is pain. Kasih et al., (2019) stated that 45-100% of Ca Mammae sufferers experience moderate to severe pain. Pain is one of the most common symptoms found in cancer patients due to direct influence on the affected soft tissues and organs (Suwondo et al., 2017). Pain arising from Ca Mammae occurs due to the release of various pain mediators such as: H+, K+, ATP, bradykinin, histamine, prostaglandins, serotonin, cytokinins and substance P which causes discomfort for sufferers. The mechanism of pain briefly starts from the transduction process, namely the process of changing pain into an electrical

activity that is received by 3 fibers namely: A-beta, A-delta, and C fibers. Then it goes through the transmission stage where the electrical impulses generated throughout the transduction process are transmitted to the cleft. synaptic cleft from one neuron to the next. The next stage is modulation where the first transmission to the cerebral cortex is modified into augmentation (increase) or inhibition (inhibition). The last stage is perception where pain stimulation that reaches the cerebral cortex is consciously translated regarding unpleasant experiences in the body. This is due to direct influence on soft tissue, namely breast tissue. Ca Mammae pain occurs due to the absence of a defense mechanism or transfer of pain throughout the central nervous system which causes these pain impulses to arise and be perceived as a feeling of discomfort in the body.

The mean result (mean) after Combined virtual reality distraction therapy was 4.81 (moderate pain). In theory, the process of distraction in reducing pain is through efforts to divert the patient's attention to certain activities in the hope that the patient will not focus on the pain. The process of virtual reality distraction therapy in reducing pain begins by directing the patient's vision into visual activity in the virtual reality box for 10 minutes in the hope that the patient will not focus and forget about the pain he is suffering from. Respondents were offered a choice of videos to be played in the virtual reality box according to the wishes of the respondents, such as; natural landscape videos, music videos, religious videos and so on. The process of virtual reality distraction therapy is consistent with stimulating the descending control system to secrete endogenous natural opioids in the brain in order to block pain nociceptors. Endogenous ability in this therapy is able to reduce the degree of feeling of pain by making the defense close to accommodate the perception of pain. So that the processes of transmission, transduction and modulation are slightly hampered by closed defenses as a result of which the perception of pain conveyed by the brain decreases.

Paired t test shows that Ha is accepted, which means there is a difference in stage II Ca Mammae pain levels before and after Modification virtual reality distraction therapy. Prior to Modification virtual reality distraction therapy, pain occurred due to the transmission of pain signals through impulse modulation that entered the open dorsal horn resulting in the perception of pain. During the process of virtual reality distraction therapy, the respondent was diverted his attention in a 10-minute video visual presentation in a virtual reality box device. The patient is directed his gaze into visual activity in an effort to divert the pain he feels. As a result, the transmission of pain signals through modulation of impulses that enter the closed dorsal horn reduces the perception of pain. Pain defense mechanisms

147

can be closed by stimulating the secretion of endorphins which inhibit the release of pain meditators including substance P. This research is in line with previous research conducted by Mohammad (2018) regarding virtual reality as a distraction technique for pain and anxiety among patients with breast cancer: A randomized control trial. This study used a randomized controlled trial design that used a sample of 80 female patients with breast cancer at a specialized cancer center in Jordan. Samples were randomly assigned to the intervention and comparison groups. The results show that one session of virtual reality therapy plus morphine makes a significant reduction in pain and anxiety scores in breast cancer patients. Virtual reality is an effective distraction intervention for managing pain and anxiety among breast cancer patients.

Conclusions:
The results of the p-value = 0.000 <α = 0.05 which indicates that there is a decrease in Ca Mammae pain before and after virtual reality distraction therapy. Modification relaxation Virtual reality is an effective distraction intervention for managing pain among breast cancer patients.

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The Effect of Health Education on Attitudes of Breastfeeding Mothers in Giving Weaning Food to Babies Aged Between 0-6 Months at "M" Midwifery Independent Practice (PMB) Tamansari Village, Mumbulsari District, Jember Regency

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ABSTRACK

Giving of weaning food (MP-ASI) to baby is started from six months old to two years old. In principle, weaning food contains high nutrients and is easy to digest, easy to serve, easy to store, hygienic and affordable. This research was conducted to analyze The Effect of Health Education on Attitudes of Breastfeeding Mothers in Giving weaning food to Babies Aged Between 0-6 Months at "M" Midwifery Independent Practice (PMB) Tamansari Village, Mumbulsari District, Jember Regency. Methods: Research design was Pre-Experimental with One-Group Pre-test-post-test design. The sample of this study were 30 mothers whose babies aged 0-6 months and were selected by total sampling technique. The research was conducted on November 2, 2022. The Wilcoxon statistical test was used for statistical analysis. Results: sig = 0.005 was obtained, indicating a significant effect of Health Education on Giving weaning food to Babies Aged Between 0-6 Months. Discussion: A more complete information can increase knowledge which will affect the thinking and behavior of respondent in giving weaning food.

Keywords: Health Education, Attitudes, Weaning Food

Introduction:

Giving of weaning food (MP-ASI) begins after the baby is 6 months old. At this age, babies have shown interest in other foods in addition to breast milk. The baby's growth will be disrupted if he does not get weaning food after 6 months of age because he does not fulfill the essential nutrients for growth and development (Riksani Ria, 2012).

Breast milk (ASI) contains all essential nutrients for a baby in the first six months after birth. It is not recommended to give breast-milk substitute (PASI) before age of six months old due to high possibility of its contamination, leading to increased risk of disease, especially diarrhea. According to the growth and development process of a baby, at age of six months old breast milk must be supplemented with other liquids and solid foods to provide adequate nutrition. Liquids and solid foods commonly called as weaning food (MP-ASI) are ideally given until the child is two years old (BKKBN dan Kemenkes RI, 2012). Giving complementary food to breast milk prior to 6 months old can lead to the higher risk of diarrhea (BKKBN, 2013)

Riksani (2013) said that mother's behavior greatly influences the high rate of early weaning food. This weaning food is given together with ASI from 6 to 24 months old. The weaning food can be given as solid food such as mashed bananas. This weaning food is given because the parents think that the baby's small and thin that must be given weaning food immediately. This act of giving early weaning food has a negative impact on the baby's health, both in the form of respiratory and digestive tract disorders.

Weaning food is a transitional process from purely milk-based intake to semi-solid foods. This must be done gradually in shape and amount based on the digestive capacity of the baby (Bennu Dkk, 2012). It is expected that eating skills and self-confidence can also be stimulated through a proper provision of weaning food, not only to supply the baby's nutritional needs (Mufida Lalina, 2015).

Based on the background above, the authors are interested to perform a research on the Effect of Health Education on Attitudes of Breastfeeding Mothers in Giving weaning food to Babies Aged Between 0-6 Months at "M" Midwifery Independent Practice (PMB) Tamansari Village, Mumbulsari District, Jember Regency

Method:

Pre-Experimental research design with One-Group Pre-test-post-test design was carried out by giving a pretest prior to health education. A health education about the attitudes of mothers whose babies aged 0-6 months was then given and ended with a posttest. The sample for this study was 30 mothers. The research was conducted on November 2, 2022 at "M" Midwifery Independent Practice (PMB) Tamansari Village, Mumbulsari District, Jember Regency, which were selected using a total sampling technique. The independent variable was health education about weaning food to mothers whose babies aged 0-6 months old and the dependent variable was the mother's attitude in giving weaning food. The treatment was carried out on the first day by giving a pretest, then giving health education about MP-ASI, and was ended with a posttest. Analysis using the Wilcoxon statistical test.

Results:

Table 5.1. Frequency Distribution of Respondents Based on Age in "M" Independent Midwife Practice (PMB) in Tamansari Village, Mumbulsari District, Jember Regency in 2022

Age	n	%
<20	2	6.7
20-35	26	86.7
>35	2	6.7
Total	30	100.0

Table 5.1 shows that most or almost all of the respondents were in the age group of 20-35 years old which were reported in 26 (86.7%) subjects. In addition, the least number of respondents were in the age group <20 and >35 years old which were reported in 2 (6.7%) subjects.

Table 5.2. Frequency Distribution of Respondents Based on Education Level in "M" Midwife Independent Practice (PMB) Tamansari Village, Mumbulsari District, Jember Regency in 2022

Level of education	n	%
Elementary-Junior High School	24	80.0
Senior High School	6	20.0
Total	30	100.0

Table 5.2 shows that almost all of the respondents, specifically 24 respondents (80.0%) had education degree of Elementary - Middle School, whereas the least number of respondents, specifically 6 respondents (20.0%) had education degree of Senior High School.

Table 5.3. Frequency Distribution of Respondents Based on Occupation in "M" Midwife Independent Practice (PMB) Tamansari Village, Mumbulsari District, Jember Regency in 2022

Occupation	n	%
Work	0	0,0
Not Work	30	100.0
Total	30	100.0

Table 5.3 shows that all 30 respondents (100%) did not work and none of the respondents worked (0%).

Table 5.4. Frequency Distribution of Respondents Based on Health Information Sources in "M" Midwife Independent Practice (PMB) Tamansari Village, Mumbulsari District, Jember Regency in 2022

Health Information Resources	n	%
health-headed card (KMS)	5	16.7
Healthcare Workers	25	83.3
Total	30	100.0

Table 5.4 shows that almost all of the 25 respondents (83.3%) received information on the giving of weaning food from healthcare workers and a small proportion of 5 respondents (16.7%) received information on the giving of weaning food from the health-headed card (KMS).

Table 5.5. Frequency Distribution of Respondents Based on Respondents' Attitudes before and after health education about weaning food in "M" Midwife Independent Practice (PMB) Tamansari Village, Mumbulsari District, Jember Regency in 2022

Attitude Category	Pre Test		Post Test	
	n	%	n	%
Negative	17	56.7	10	33.3
Positive	13	43.3	20	66.7
Total	30	100.0	30	100.0

Table 5.5 shows the pre-test results which found that most of the respondents, specifically 17 respondents (56.7%) were categorized as negative

attitude and almost half of the respondents, specifically 13 respondents (43.3%) were categorized as positive attitude. In addition, the post-test results found that most of the respondents, specifically 20 respondents (66.7%) were categorized as positive attitude and almost half of the respondents, specifically 10 respondents (33.3%) were categorized as negative attitude.

The Effect of Health Education on Attitudes of Breastfeeding Mothers in Giving weaning food to Babies Aged Between 0-6 Months at "M" Midwifery Independent Practice (PMB) Tamansari Village, Mumbulsari District, Jember Regency

Table 5.6. Distribution of Respondents Based on The Effect of Health Education on Attitudes of Breastfeeding Mothers in Giving weaning food to Babies Aged Between 0-6 Months Old at "M" Midwifery Independent Practice (PMB) Tamansari Village, Mumbulsari District, Jember Regency

Attitude Category	Pre Test		Post Test		P
	n	%	n	%	
Negatif	17	56.7	10	33.3	0.008
Positif	13	43.3	20	66.7	
Total	30	100.0	30	100.0	

The value of sig = 0.005 was obtained from Wilcoxon statistical test, indicating a significant effect of health education on the attitude of breastfeeding mothers in giving weaning foods to babies aged 0-6 months old.

Discussion:

Age can influence persons mindset; early adulthood is the age of a person to motivate himself to gain as much knowledge as possible (Notoatmodjo in Kumalasari et al, 2015). A more mature age will lead to an easier understanding of a person to a problem, resulting in an increased knowledge. A more mature age will make mothers have more willingness to learn. Thinking, attitude, and strength of a person will become more mature along with the increased age, as a result of broader experience and maturity of his soul. Conversely, mothers of babies aged between 0-6 months will tend to be unresponsive and less aware of the importance of recognizing weaning food (Agustina, 2018).

The level of education also shapes someone's ability to absorb and comprehend certain information. Education means guidance given by someone to the development of others towards a certain ideal. The ability to distinguish between good and bad and between wrong and right also shapes a person's belief system which eventually determines a person's attitude (Azwar, 2011).

Mother's education is an important element in determining the nutritional status of children in supplementary feeding. Mothers with lack of education tend to have poor understanding and absorption. Education helps a mother in receiving information related to the growth and development of the baby, such as in terms of giving weaning food (MPASI) when the baby is six months old. The process of seeking and receiving information will be faster if the mother is highly educated (Nababan & Widyaningsih, 2018). Education is one of important attempts to develop personality and abilities inside and outside of school which causes lifetime impact. It should be emphasized that someone with lack of education does not always indicate lack of

knowledge. Formal education does not ensure increased knowledge, but informal education can also contribute to it. A higher level of education makes someone easier to acquire information (Agustina, 2018).

Notoatmodjo (2012) suggests that knowledge is closely associated with education. Someone with higher education is expected have a broader knowledge. Mothers of babies aged 0-6 months who have a higher level of formal education tend to have broader knowledge than those with a lower level of formal education, because they are more capable and easier to understand the meaning of health and the importance of health (Agustina, 2018).

The results in this study based on mother's occupation found that all respondents as many as 100 respondents (100%) did not work and none of the respondents worked (0%). A housewife may have much more free time to learn positive things for children. Environment gives a social impact for a person, where a person can learn to distinguish between positive and negative things depending on the nature of the group. A person will experience a series of events which may affect the way of thinking (Sa'diyah Anis, 2014).

A study by Nugraheni Diah (2012) showed that there was a association between work and early complementary feeding for infants aged 0-6 months old at the Sawah Lebar Health Center in Bengkulu City. Based on research by Arianti Mahayu, 2014, it is known that mothers who do not work mostly give weaning food to their babies before they are 6 months old. This is due to the habit factor in society. As for working mothers, most of them also give solid food to their babies

before the age of 6 months. Daily life full of activity is the common cause of this wrong breastfeeding behavior. Meanwhile, Kusmiyati's research (2014) stated that housewives (IRT) commonly have more leisure time and opportunities to breastfeed their babies compared to mothers who work at office. This indicates that proper weaning food may be provided too.

The more complete information leads to a broader knowledge. A broader knowledge will affect the thinking and attitude of the respondents in giving weaning food. However, the information obtained by the respondents was information regarding the meaning of weaning food alone, which did not discuss the formulation of weaning food in accordance with the respondent's income. In addition, the negative attitude of this respondent is also supported by the tendency of the respondent to be strong in the cognitive component, while there is lack of the affective and conative components. Attitude is a certain regularity in terms of feelings (affective), thinking (cognitive), and a person's predisposition (conative) to an aspect of the surrounding environment (Azwar, 2011).

According to Hary A (1996) in Rahmawati Rita (2014) information will affect one's knowledge. Despite low education, using various media such as TV, radio or newspapers, health workers and friends may be able to increase one's knowledge. A more complete information will lead to a broader knowledge about health (Notoatmodjo, 2012).

The success of a health education can be influenced by health education factors, goals and processes in health education. Knowledge is an

essential basic for the determination of one's behavior. Behavior will last longer if it is based on knowledge in spite of influence by several complex factors to form real behavior (Notoatmodjo, 2003).

It is expected to hold health education regarding proper supplementary feeding of mothers' babies, counseling can be carried out in collaboration with the nutrition team at the public health center (puskesmas), by holding regular counseling it is hoped that there will be an increase in mother's knowledge and can also reduce mother's motivation in giving weaning food early. Counseling regarding the risks posed if the baby is given complementary feeding too early is also important because it appears that the respondents' knowledge remains low regarding this matter (Nugraheni Diah, 2012.

Individual behavior is an act which can be directly or indirectly measured. Direct measurement can be carried out by observing the activities carried out by respondents (Prastomo Unggul, 2016). After a person obtains knowledge from various sources of information, it will lead to attitudes and behavior (Notoatmodjo, 2012).

The knowledge of parents, especially mothers, about MP-ASI plays a very important role because most of the malnutrition can be prevented if sufficient knowledge on maintaining nutrition and management of children's food is provided. Ignorance about how to give MP-ASI to infants, and the existence of habits that are detrimental to health, are direct and indirect causes of malnutrition and infection problems in infants, especially at the age of less than 2 years (Mufida, 2015)

The value of sig = 0.005 was obtained from the Wilcoxon statistical test, indicating a significant effect of health education on the attitude of breastfeeding mothers in giving weaning foods to babies aged between 0-6 months. This was in line with the results of research (Sa'diyah Anis. 2014) which found that there was an effect of health education about giving weaning foods to respondents' attitudes.

Giving of sufficient weaning food, both in quality and quantity can provide guarantees for the child's subsequent physical growth and intelligence. The pattern of giving MP-ASI must be adjusted to the volume of the baby's stomach. The type of food and the frequency of administration, must be done gradually according to the development of the function and development of the baby's digestive system. Giving the wrong MP-ASI can cause the baby to suffer from wrong nutrition, diarrhea and even intestinal fermentation and infant death (Prastomo Unggul, 2016).

According to Suhardjo in Prastomo Unggul (2016) counseling is an educative approach that produces community behavior needed to improve nutrition. Health education or counseling about the practice of giving MP-ASI to mothers who have babies 6-12 months can improve the practice of giving MP-ASI. Counseling about the practice of complementary feeding generally utilizes the lecture and discussions method.

The success of a health education can be influenced by counseling factors, goals and processes in counseling. A proper health education will certainly be able to change a person's behavior to perform the best actions for health (Sa'diyah Anis, 2014). According to

Notoadmodjo (2012) Knowledge is the result of "knowing" after sensing an object which occurs through the five human senses, such as sight, hearing, smell, taste and touch alone.

Mother's knowledge is an important factor in providing supplementary food to infants because with good knowledge, the mother knows when to give the right food. Knowledge can be obtained from information conveyed by other people, print media, electronic media, or counseling (Rahmawati Rita, 2014). Ignorance about the consequences of early complementary feeding and how to give it as well as habits that are detrimental to health, directly or indirectly cause malnutrition problems in children, especially in children under 2 years (shofiyah Siti, 2020).

Health care workers are needed to carry out counseling about proper and correct complementary feeding to ensure increased mother's knowledge. The knowledge of respondent will later form will form a new belief because the information provider is a trusted source. This was in accordance with the theory suggesting that knowledge will form beliefs which will then provide perspectives for humans in perceiving reality, becoming the basis for decision making and determine attitudes towards certain objects (Pratiwi Gita, 2022). This was in line with the results of the study that almost all of the 25 respondents (83.3%) received information on the provision of MP-ASI from health workers. Experience as a source of knowledge is a method to reveal the truth of knowledge by repeating the knowledge about solving problems encountered in the past. The mother's experience when giving complementary foods to her first child can

influence the provision of MP-ASI for her next child. Improper habits in feeding infants due to the lack of knowledge of most parents about the importance of breastfeeding and supplementary feeding at the age of 4-6 months. Through the ante natal care (ANC), it is hoped that the mother will also receive information related to pregnancy, childbirth and post-delivery, such as exclusive breastfeeding, weaning food, etc (Rahmawati Rita, 2014).

Knowledge will affect the mindset of something that ultimately affects behavior change. A higher knowledge leads to a higher tendency of the person to pay attention to health problems both for himself and for his family. A higher knowledge will make mother less likely to provide weaning foods to babies who are less than 6 months old. Knowledge of good MP-ASI will influence or change the practice of giving MP-ASI which is also good, quality of a knowledge will affect the practice of giving weaning food is not good either (Prastomo Unggul, 2016).

Conclusion:

The pre-test results showed that most of the respondents, specifically 17 respondents (56.7%) were categorized as negative attitude and almost half of the respondents specifically 13 respondents (43.3%) were included in the positive attitude category. The post-test results showed that most of the respondents, specifically 20 respondents (66.7%) were categorized as positive attitude and almost half of the respondents, specifically 10 respondents (33.3%) were categorized as negative attitude. The value of sig = 0.005 was obtained from the Wilcoxon statistical test, indicating a significant effect of health education on the

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The Role of Nurse Educators in Reducing Anxiety in Pre-Operative Patients

Program Studi S1 Ilmu Gizi FIKKES Universitas Muhammadiyah Semarang

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Analisis data menggunakan uji korelasi
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maka tingkat kecemasan pasien semak
pemberian edukasi kepada pasien dapat m
pra operasi.

Kata Kunci -- Perawat, Pendidik, Kecemasan

I. JS **INTRODUCTION**

Anxiety experienced by patients who will undergo treatment is a reasonable response (1). However, the patient's fear and anxiety often outweigh that of the actual disease. High patient anxiety tends to weaken nursing actions or slow down the patient's healing process (2). The patient's anxiety that is not handled when going to undergo rehabilitation measures will cause physiological signs to appear due to stress including

increased speed of breathing patterns, increased blood pressure, sweaty palms, changes in sleep patterns, and so on (3). Anxiety that becomes stressful results in increased protein breakdown, risk of infection, slow wound healing, altered immune response, and fluid and electrolyte poisoning. Signs of anxiety and the patient's way of demonstrating anxiety are not the same for every patient in the preoperative stage (4).

Anxiety is something that affects almost everyone at some point in their life. Anxiety is a reaction to situations that greatly stress one's life (5). Anxiety can appear alone or accompanied by other symptoms of various emotional disorders (6). Anxiety often appears in patients who will undergo surgery. This anxiety is not only disturbing for patients but also makes surgical procedures more difficult for medical personnel (7). High levels of anxiety can cause patients to become restless and interfere with cooperation between patients and medical personnel during operations, thereby affecting the expected results (8).

According to research on the level of anxiety in preoperative patients, it was found that out of 30 patients, out of 30 patients, 3 patients experienced a high level of anxiety, 16 patients experienced a moderate level of anxiety, and 11 patients experienced a mild level of anxiety (9). Similar research related to the level of knowledge about perioperative and the level of anxiety in preoperative clients found that in preoperative patients who experienced moderate levels of anxiety 7 patients, 19 patients experienced mild anxiety levels, 6 patients did not experience anxiety and no patients with severe levels of anxiety were found (10).

Anxiety has a large effect both on the quality and intensity of the patient's pain experience (11). Anxious patients are more sensitive to pain. Fear of pain or anticipation of high levels of pain will increase patient anxiety (12). This is following studies of preoperative anxiety with degrees of pain which found that patients with surgical interventions who experience moderate and severe anxiety are likely to experience moderate and severe pain complications as well (13).

The role is defined as a set of behaviors expected by individuals according to their social status. The role of the nurse is a set of behaviors that are carried out by nurses according to their profession (14). The role of the nurse as an educator is shown to provide explanations of disease information, client conditions, and treatment plans, provide advice and facilitate clients in teaching, teach

healthy behaviors and support client abilities, and provide examples of health-related behaviors. Utilization of nurse's skills regarding nurse's knowledge to overcome the anxiety of patients who will perform surgery needs to be done for patient recovery and patient preparation (15). Lack of knowledge about surgery, postoperatively, and fear about some aspects of surgery are factors of anxiety for patients who will undergo surgery. Knowledge of what to expect will help reduce patient anxiety (16).

The main task role of the nurse educator, in this case, is to educate patients and their families. Nurses are tasked with providing continuous nursing care to patients and patient families so that nurses have the main position in providing teaching to patients and patient families (1). The purpose of nurses providing patient education is to maintain the patient's health condition, improve health, and prevent disease and complications from occurring (17). Education conducted for patients focuses on the learning needs of patients in a short time. Learning about the patient's preparation for a procedure, which emphasizes the benefits of information can make the patient more able to cope effectively if taught about what might happen.

The impact that occurs when nurses do not provide education and teaching to patients is that patients will feel anxious about their condition, and patients feel afraid during treatment and care procedures (18). What happens when nurses provide education and teaching is that patients will be motivated to maintain an optimal level of health, prevent disease, treat disease, and

develop individual skills to care for themselves and their families independently.

Nurses as nursing care workers are expected to be able to carry out their role as educators in providing health education and teaching, to provide knowledge to patients, and overcome patient anxiety when going to surgery. Based on the description above, the researcher is interested in researching the relationship between the role of the nurse educator and the anxiety level of preoperative patients in the Asparaga Room at Dr. Haryoto Lumajang Hospital.

II. METHODS

This type of research in this study used analytic observational using a cross-sectional approach. The variables in this study include the independent variable, namely the role of the nurse as an educator, and the dependent variable, namely preoperative anxiety.

The population used in the study were all patients who would perform surgery in the Asparaga Room at Dr. Haryoto Lumajang Hospital with the inclusion and exclusion criteria set by the researcher. The sampling technique to be used in this study uses a non-probability sampling technique with the accidental sampling method. Inclusion criteria for respondents included clients who were going to have surgery, had never experienced surgery before, and had moderate or severe anxiety scales.

Data collection for the role of nurse educator with observations related to explanations of operations, action preparation, health education, and care after surgery. While the variable level of

anxiety is measured using the Hamilton Anxiety Rating Scale (HARS), namely 0: no symptoms at all; 1: one of the symptoms present; 2: moderate or half of the symptoms; 3: severe or more than half of the symptoms present; and 4: very severe all symptoms are present. Bivariate analysis was performed to determine the influence of the independent variables on the dependent variable using the Spearman Rank Correlation statistical test with a p-value <0.05.

III. RESULT

Based on table 1, shows that mostly there were 23 people (69.7%) female respondents, and 10 people (30.3%) male respondents with 20 people (60.6%) working outside the building. Most of the respondents had elementary/junior high school education as many as 20 people (60.6%).

Table 1. Distribution of respondent characteristics (n=33)

No	Category		f	%
1	Gender	Male	10	30,3
		Female	23	69,7
2	Latest education	School	30	90,9
		College	3	9,1
3	Work	Outside	20	60,6
		Inside	13	39,4

The results of statistical tests using the Spearman Rank Correlation showed that there was a significant relationship between the role of nurse educators and the anxiety level of preoperative patients (p-value = 0.004 and r = -0.617). Based on these results, it was found that there was a relationship between the role of the nurse educator and the anxiety level of preoperative patients with a moderate and negative correlation, which means that the higher the role of the nurse educator, the patient's anxiety level decreased by 61.7%.

Table 2. Distribution of Variable

Variable	Category	f	%
1 Role of nurse	Less	1	3
	Sufficient	5	15,2
	Good	27	81,8
2 Anxiety	No worries	3	9,1
	Mild	20	60,6
	Moderate	10	30,3
Spearman Rank Correlation p=0.004 r=-0.617			

IV. DISCUSSION

Someone who is female is more likely to experience anxiety disorders than men with a ratio of 2:1 (3), this is due to factors that can cause anxiety. Anxiety disorders in Indonesia show a much higher prevalence than the general average. The prevalence (morbidity) of anxiety disorders ranges from 6-7% of the general population. The female group experienced more anxiety disorders when compared to the male group with a prevalence of 10-16%.

As much as 69.7% of respondents were women with pre-operative anxiety in the moderate and severe anxiety scale category. This shows that women are more sensitive in dealing with changes in their health. The high level of sensitivity that women have is one of the reasons women worry more quickly than men. It can be understood that the more sensitive a person is, the heavier the psychological pressure they will receive. This is also caused by differences in the brain and hormones in women which are related to the reproductive process in women.

In addition, the level of education can cause a person to easily experience anxiety (19). The level of individual education affects the ability to think. The higher the level of individual education, the easier it is to capture new

information and think rationally, so the higher one's education, the higher one's knowledge.

When undergoing surgery, the patient will experience stress. Waiting for surgery will cause fear and anxiety (11). Anxiety is something that afflicts almost everyone at some point in their life. Anxiety is a normal reaction to a situation which is to remember that anxiety can appear alone or together with other symptoms of various emotional disorders (1).

Anxiety is a natural thing experienced by patients who will undergo surgery. However, if anxiety is not resolved and continues, it can affect the results of the actions that the patient will undergo. Education carried out by nurses to patients and their families makes patients understand more about the actions they will undergo. Providing information to the patient and helping the patient to calm down can make the patient's response to the action he is about to undergo adaptively.

This illustrates that anxiety is possible due to many causes. There are changes in the hospital environment, loss of personal control, changes in self-concept, and a decrease in the ability to work. Anxiety experienced by patients is caused by anxiety about the condition of the disease, anxiety because they cannot recover, fear, and death.

Health education is a beneficial collaboration between health workers and patients in a hospital setting because sufferers are a good "captive audience" (easily motivated) and it is hoped that easy and good communication can occur between health workers (providers) and their consumers. The purpose of health counseling is to eliminate family fears and worries, inform families so that they increase knowledge about the problem and patient's prognosis, and answer doubts.

The effect of providing pre-surgical information has an effective effect on reducing anxiety, explanations of pre-operative information will help reduce stress, and bad perceptions about surgery so that clients understand the actions that will be performed on them, indirectly during research some respondents are very enthusiastic to ask about the operation and at that time a health education process was taking place so that the respondent did participate, not only receiving information but also being active in asking questions.

Other benefits of pre-surgical counseling are meeting individual needs regarding surgical knowledge, increasing patient safety, increasing psychological and physiological comfort, increasing patient and family participation in their care, and increasing adherence to instructions that have been described.

V. CONCLUSIONS

The effect of providing pre-operative information has an effective effect in reducing anxiety by 61.7%, with an explanation of pre-operative information that will help reduce stress in patients. The information provided by nurses will be able to improve surgical knowledge, patient safety, psychological and physiological comfort, patient and family

participation in care, and care adherence.

The role of nurses as educators is very important to prepare patients for surgery so that they show professional behavior by having broad insight and good communication skills. The application of good communication will be able to increase the image of professionalism in nurses and the profession.

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NURSING INTERVENTION FOR POST TRAUMATIC STRESS DISORDER PASCA DISASTER

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Abstrak- Bencana adalah peristiwa atau rangkaian peristiwa yang mengancam dan mengganggu kehidupan masyarakat dan penghidupan yang disebabkan, baik oleh faktor alam dan/atau faktor non alam serta faktor manusia/sosial, yang menghasilkan manusia korban jiwa, kerusakan lingkungan, harta benda kerugian, dan dampak psikologis (1). Penelitian ini bertujuan untuk mengetahui intervensi keperawatan yang dapat dilakukan atau diberikan kepada seseorang atau masyarakat yang telah trauma mengalami bencana. Metode yang digunakan dalam penelitian ini ialah *systematic literature review* yang diperoleh dari artikel jurnal dalam 10 tahun terakhir. Database yang digunakan dalam penelitian ini ialah Google Scholar, Scopus, Pubmed, Proquest dan juga Science Direct. Penilaian yang digunakan berdasarka Joanna Briggs Institute (JBI) Critical Appraisal Tools. Proses screening menggunakan metode PRISMA guidelines dan didapatkan 10 artikel jurnal. Berdasarkan hasil telaah ditemukan bahwa intervensi yang dapat dilakukan setelah mengalami bencana ialah pelatihan ketahanan, dukungan psikososial, strategi koping positif, dan konseling kesehatan mental. Beberapa intervensi yang didapatkan tersebut diharapkan mampu memberikan manfaat dalam menangani kejadian paska bencana yang dialami oleh masyarakat.

Kata kunci : Intervensi Keperawatan, Paska Bencana, PTSD

Abstract- Disaster is an event or series of events that threatens and disrupts people's lives and livelihoods caused, both by natural factors and/or non-natural factors as well as human/social factors, resulting in human casualties, environmental damage, property object loss, and psychological impact (Hebble, 1975). This study aims to determine nursing interventions that can be carried out or given to a person or community who has been traumatized by a disaster. The method used in this study is a systematic literature review obtained from journal articles in the last 10 years. The databases used in this research are Google Scholar, Scopus, Pubmed, and also Science Direct. The assessment used is based on the Joanna Briggs Institute (JBI) Critical Appraisal Tools. The screening process used the PRISMA guidelines method and 10 journal articles were obtained. Based on the results of the study it was found that interventions that can be carried out after experiencing a disaster a disaster are resilience, psychosicial support, positive coping strategies and mental health counseling. Some of the interventions obtained are expected to be able to provide benefits in dealing with post-disaster events experienced by the community.

Keywords: Nursing Intervention, Post Disaster, PTSD

Index Terms—*DO NOT CHANGE FONT THIS GUIDELINE*

VI. INTRODUCTION

Perubahan Climate change is a form of global threat that will have a negative impact on all countries in the world without exception for Indonesia. Some of the effects of climate change include increasing average temperatures, changing rainfall patterns, rising sea levels, increasing extreme temperatures such as heat waves, and various natural disasters such as droughts, hurricanes, floods and forest fires (2).

The series of natural disasters that have occurred in the world have claimed hundreds of victims dead, missing, and injured. Large material and immaterial losses have an impact on psychological and somatic health. Several terrible disasters in the world have been recorded, including; In August 2005, residents of New Orleans, Louisiana were faced with one of the worst disasters ever to hit the United States: Hurricane Katrina's landfall. In September 2008, Hurricane Ike hit the Texas coastline, causing widespread damage and loss of life in Galveston, where 75% of all homes were damaged or destroyed (3).

In Indonesia, several large-scale and massive-impact disasters were recorded, such as the 2004 Aceh earthquake and tsunami, the 2006 Yogyakarta and Bantul earthquakes, the 2006 Pangandaran tsunami, the 2009 Padang and Padang Pariaman earthquakes, West Sumatra, the 2009 earthquake, tsunami and liquefaction in Palu and Donggala in 2018 and the eruption of Mount Kelud in 2014. These successive natural disasters were influenced by Indonesia which has 3 major tectonic plates, namely the Indo-Australian, Eurasian and Pacific plates. Fault and volcanic activity in the Indonesian region apart from providing many gifts of natural resources including soil fertility, also contributes to the risk formation of several types of disasters. The earthquakes and tsunamis that

occurred were heavily influenced by tectonic fault activity and steep slopes prone to landslides (4).

The National Disaster Management Agency (BNPB) through the Indonesian disaster data and information information system (DIBI) recorded that around 90 disasters which included floods, landslides, earthquakes and tsunamis occurred between 2002 and 2009 with a total death toll of around 90,000 people and injuries. - injured about 12,000 people. In addition, BNPB stated that during 2022 from 1 January to 8 November 2022 there were 3,110 natural disaster events throughout Indonesia. From these natural phenomena, it can be proven that Indonesia is a country prone to natural disasters. According to BNPB's daily report, the disasters that occurred can be seen in almost all provinces in Indonesia (5).

Natural disasters cause a lot of damage, both physical and psychological. Earthquakes have consistently been shown to be associated with mental health problems such as depression and post-traumatic stress disorder, a survey shows that, after a disaster event, around 15-20% of the population will experience mild or moderate mental disorders which refer to the condition of post-traumatic stress disorder (PTSD), while 3-4% will experience severe disorders such as psychosis, major depression and high anxiety (6).

In addition to loss of life and property, as well as physical injuries, these natural disasters have a huge impact on the mental health of individuals who have survived the disaster. When faced with an unexpected disaster, individuals are vulnerable to a series of adverse physical, emotional, cognitive behavioral reactions. This adverse response is manifested by headaches, insomnia, anxiety, nervousness, fear, sadness, depression,

anger, irritability, inattention, memory loss and even life changes in beliefs and personality. Post-traumatic stress disorder (PTSD) is a common mental health disorder associated with traumatic events. For example, about a third of people experience PTSD when they are in a motorcycle or traffic accident, and the disorder can be long-lasting. (7). PTSD is characterized by permanently impaired memories associated with traumatic events, avoidance of trauma-related stimuli, and persistently increasing disturbances. The incidence of PTD in survivors of direct disaster is approximately 30% to 40% (8).

Affected survivors try to deal with the trauma in various ways. Adaptive mechanisms include using religious, family and social support, exerting self-direction and helping others. Less adaptive coping mechanisms that may be required in intervention include stress expression in somatic forms, denial, avoidance, blame, helplessness, dependence, and substance use. Maladaptive coping strategies further increase the victim's vulnerability to PTSD (9). In terms of Mohamad Asim's research, 2022 it was concluded that the majority of respondents (92% women and 87% men) still experienced subclinical psychiatric symptoms one year after the floods in Kerala, India, so that psychological interventions were needed that were adjusted to counter the long-term effects of flooding on individual mental health (10).

Based on several studies and searches of various literature above, the author wants to make a systematic review which aims to find out nursing interventions that can be carried out or given to a person or community who has been traumatized by a disaster.

VII. METHODS

This research is a systematic review that conducts a literature review of original research. The initial stage in this research begins with formulating and defining the problem that is used as a reference in the process of searching for articles. The search results obtained are used to develop a framework in a report. The search process uses keywords that are arranged based on predefined PICOs and associated with Booleans in the form of AND and OR. The articles used in this study were searched in several databases, namely Google Scholar, Scopus, Pubmed, and Science Direct. The keywords included in the search for articles on the database are ("Post Traumatic Stress Disorder (PTSD)" AND ("Disaster" OR "Post Disaster") AND ("Nursing Interventions") Article used are limited to several criteria in the form of articles in English, publications for the last 5 years (2019-2023), full-text articles, and open access.

This search process can be described in a structured manner in the Preferred reporting items for systematic reviews and meta-analysis (PRISMA) chart. Researchers perform data extraction independently with critical analysis to determine the feasibility of the article. The articles obtained in the search were screened based on titles, keywords, and abstracts with inclusion criteria, namely simulations in the form of nursing interventions carried out in communities or communities affected after a disaster. Data extraction was carried out on design, intervention model, participant characteristics and other quantitative information applied in the study. A total of 20 articles were screened in full-text to determine whether they were excluded for several reasons such as not original research, design/methodological unclear, and protocol studies. Based on the results of

the full-text screening, 10 articles were excluded so that 10 articles were included in the literature review. As for the quality assessment of the article, we do it using critical appraisal tools based on the Joanna Briggs Institute (JBI). Based on the results of critical review of 10 articles, good results were obtained in all articles.

VIII. RESULT

The literature used in this review comes from several different countries including the United States, Nepal, and also Indonesia. Articles that have the same intervention will be compared. The articles used in this literature review range from 2016 to 2023 which discuss interventions that can be given to victims after a disaster. The research design of the journal articles found includes a cross-sectional, Qualitative Approach, Quasi-Experimental, Clinical Trials, Experiment Research, concurrent embedded approach. Thus there are 9 interventions that will be discussed in this study, namely Art Therapy, Progessif Muscle Relaxation (PMR), Ddzikir Therapy, Cognitive Behavioral Counselling (CB), EMDR Counselling, Egostage Counselling, MDMA-Assisted Psychotherapy, Cognitive Behavioral Therapy (CBT), Play Therapy Method, dan Traumatic Counselling.

The following is a summary of the search for journal articles found:

NO.	PENULIS & TAHUN	JUDUL	INTERVENTION	HASIL
1.	Rizkya et al., 2020	Efektivitas Person-Centered Art Therapy Untuk Mengurangi Simtom Post-Traumatic Stress Disorder (Ptsd) Pada Penyintas Bencana Gempa Di Lombok	Art Therapy	The results showed that giving the Person-Centered Art Therapy intervention reduced PTSD symptoms in the four study subjects. The Creative Connection Process, which is used in preparing the themes in each intervention session, helps facilitate the subject to be able to express himself by conveying what is felt and experienced openly, as well as facilitating the subject to better recognize and understand himself.
2.	Sasmita et al., 2021	Progressive Muscle	PMR (Progressi	The results of the analysis showed that there was a significant

NO.	PENULIS & TAHUN	JUDUL	INTERVENTION	HASIL
		Relaxation and Dhikr on Reducing Post Traumatic Stress Disorder in Earthquake Victims	ve Muscle Relaxation dan Dzikir	decrease in PTSD signs and symptoms of earthquake victims before and after the PMR and Dhikr intervention in the control group (P value <0.05). PTSD signs and symptoms of earthquake victims in the intervention group decreased significantly from the control group. Nurses can apply PMR therapy and dhikr for disaster victims who experience PTSD. It is necessary to socialize and optimize the application of PMR and dhikr for health workers.
3.	Mukhadiono et al, 2016	Ptsd Recovery for Children Victims of Landslide Disasters with Play Therapy	Play Therapy	The results showed that there were significant differences in the intervention group with PTSD scores before and after play therapy (p 0.001). In the control group there was no significant difference in PTSD scores before and after play therapy (p 0.163). The research suggestion is that play therapy can be used as a program for handling the psychological impact of child victims of disasters, and the environment where children live needs to provide play facilities for children that are adapted to local culture.
4.	Nursalin & Indonesia Pratiwi, 2020	Effectiveness of the Traumatic Counseling Model for Reducing PTSD Symptoms in High School Students	cognitive behavioural counselling (CB), EMDR counselling, egostate counselling	The results of the significance test proved that there was a significant difference between the mean posttest scores of the groups treated with CB, EMDR, egostate, and control. It can be concluded that the hypothesis "there is a difference in the average posttest scores of the groups treated with CB, EMDR, egostat, and control is acceptable. The results of the analysis also show that the most effective method used in dealing with traumatized students is egostate counseling because the reduction in trauma scores is the most numerous. Therefore, the traumatic counseling model developed is effective for reducing PTSD symptoms in high school students in Surabaya.
5.	Muslaini & Indonesia Sofia, 2020	The Effectiveness of Zikir Therapy on Post Traumatic Stress Disorder (PTSD) in Palu Tsunami Survivors	Dhikr Therapy	The results of the mixed anava design analysis test showed that dhikr had a significant impact on the experimental group compared to the control group which received disaster education. Thus, dhikr has been shown to reduce individual PTSD levels.
6.	Mithoefer et al., 2019	Art Therapy as Trauma Healing in Children After the Mount Semeru Eruption Disaster Art Therapy As Children Trauma Healing Post-Disaster of	Art Therapy	Art therapy in the form of drawing, making crafts, listening to fairy tales, and writing and reading poetry can reduce trauma after the eruption of Mount Semeru. This is indicated by changes in behavior in the children of SDN Sumbermujur 03 and emergency schools. Prior to the intervention, the behavior of the target children tended to be moody and prone to panic. After the intervention, the target children showed a cheerful and more open attitude.
7.	Hayati et al, 2018	Comparative Effectiveness of Cognitive Behavioral Therapy 5 Sessions and 12 Sessions Toward to Post Traumatic Stress	Cognitive Behavioral Therapy (CBT)	The results of this study before and after the intervention in both groups experienced a decrease in PTSD scores with a median difference of 6.00 in the CBT 5 session and an average difference of 7.58 in the CBT 12 session with significance (p-value <0.01) and the results of the analysis of the effectiveness of the two interventions (p-value > 0.05) with

NO.	PENULIS & TAHUN	JUDUL	INTERVENTION	HASIL
		Disorder on Post Flood Disaster Adolescent		a significance number of 0.648. It was concluded that there was no significant difference between the effectiveness of the 5-session CBT group and the 12-session CBT group. There needs to be a comparison of more than 5 sessions and less than 12 sessions for further research.
8.	Pertiwiwati et al., 2021	Play Therapy as a Method of Trauma Healing in PTSD Children Victims of Flood Disaster in West Martapura, South Kalimantan	Play Therapy Method	The results showed that there was a significant difference between the scores of the pretest and posttest scores on the PTSD questionnaire (p = 0.000) with the Wilcoxon test after trauma healing with the play method was performed. The conclusion of the study was trauma healing with the play therapy method is effectived for treating pediatric patients with PTSD victims of the post-flood South Kalimantan
9.	Hunainah, 2021	Indonesian Journal of Early Childhood: Traumatic Counseling For Children Affected By the Tsunami Disaster	Traumatic Counseling : physical health examination; counseling using the traumatic healing method; play therapy; psychological assistance in the form of cognitive behavioral therapy (CBT) therapy.	The counselor devised appropriate methods and strategies for healing children, especially mental and psychological healing related to their trauma. The treatment given by the coun- selor to carry out traumatic counseling consists of 4 stages, namely (1) physical health checks on children; (2) counseling using the traumatic hea- ling method; (3) play therapy; (4) psychological assistance in the form of Cognitive Behavioral Therapy (CBT) therapy.
10.	Andhikari Nepal Baral & Bhagawati, 2019	Post traumatic stress disorder and coping strategies among adult survivors of earthquake, Nepal	PTSD Severity Level With PTSD Symptom Scale	The prevalence of PTSD was found to be high among pediatric patients who experienced physical trauma. Particular attention should be paid to female patients, aged 8 to 10 years, who have chronic illnesses, for those who complain of severe pain and involving others to provide a good social support system, is highly recommended to relieve PTSD in this population segment.

to better recognize and understand himself (11).

Art Therapy is the result of a combination of art and psychology. In Art Therapy, art media, creative processes, and works of art are used to express feelings, make peace with emotional conflicts, increase self-awareness, reduce anxiety, and increase self-esteem (Malchiodi, 2007). Through Art Therapy, individuals can express their emotions in a safe way until they are able to face and accept them (Malchiodi, 2007).

Progressive Muscle Relaxation (PMR)

In research conducted by (Sasmita et al., 2021) shows that PMR accompanied by Ddzikir Therapy can reduce the signs and symptoms of natural disaster victims who experience PTSD. The results of the analysis in this study showed that there was a significant decrease in PTSD signs and symptoms of earthquake victims before and after the PMR and Dhikr intervention in the control group (P value <0.05). PTSD signs and symptoms of earthquake victims in the intervention group decreased significantly from the control group (12).

Art Therapy

In (Rizkya et al., 2020) showed that giving the Person-Centered Art Therapy intervention could reduce PTSD symptoms in the four research subjects. The Creative Connection Process, which is used in preparing the themes in each intervention session, helps facilitate the subject to be able to express himself by conveying what is felt and experienced openly, as well as facilitating the subject

Dzikir Therapy

Research conducted by (Muslaini & Sofia, 2020) shows that dhikr training has an effect on reducing PTSD in survivors of the 2018 Palu tsunami, evidenced by the results of hypothesis testing using anava mixed design, with a significance value of .046 (P<.05), which means significant. Partial eta squared analysis shows that dhikr training contributes effectively 31.9%.(15)

The results of this study support the research of Goodarzi et al. (2011) who examined earthquake victims in Bam, Iran, proved that people who make religion a way of life have lower PTSD. When a person dhikr continuously with full devotion, a sense of closeness and love for his Lord will be formed.

Syarif (2012) argues that people who meditate fervently, psychologically will feel the belief and presence of Allah SWT. beside him and assume that life in this world is not alone because there is a Essence that is able to hear all troubles. The peace that comes from dhikr is proven to have a relaxing effect on people who are undergoing healing from trauma or illness.

Play Therapy

In his journal article (Mukhadono et al., 2016) states that play therapy has a significant effect on reducing the PTSD scores of victims who experience post-disaster trauma. In this study, the results of the p-value between before and after the application of play therapy to victims with PTSD was 0.001 which means that the application of play therapy can be given to victims with PTSD. (13)

This was also supported in a study conducted by (Pertiwiwati et al., 2021) which showed that there was a significant difference between the pretest and posttest scores on the PTSD questionnaire (p = 0.000) with the Wilcoxon test after trauma healing was carried out using the play method. The conclusion of the study is that trauma healing using the play therapy method is effective in treating pediatric PTSD victims after the South Kalimantan flood. (18)

Traumatic Conseling

In the journal article (19) it is stated that counselors will design appropriate methods that can be given to children who have experienced trauma. This article states that the method used starts from checking the child's health. The second is counseling which is carried out using the Trauma Healing method. Then there is play therapy for children. And the last thing done by the counselor is to provide psychological assistance using CBT.

In another article, namely (Nursalin & Pratiwi, 2020) conducted research related to several traumatic counseling which includes Cognitive Behavioral Counseling (CBT), EMDR Counseling, and also Egostate Counseling. In research conducted, (14) stated that there were significant differences in the post-test given the CBT treatment, EDMR Counseling, Egostate Counseling, and the control group. In this study it was concluded that the most effective method given or carried out for students who experienced trauma was the Egostate Counseling method.(14)

In addition, research conducted by (Hayati et al., 2018) entitled "Comparative Effectiveness of Cognitive Behavioral Therapy 5 Sessions and 12 Sessions Toward to Post Traumatic Stress Disorder on Post Flood Disaster Adolescent" also stated that the intervention was in the form of Cognitive Behavioral Therapy (CBT) can be given to reduce the PTSD score of victims who have experienced a disaster. In this study it was stated that CBT 5 and CBT12 had a significant relationship with a p-value < 0.05. Meanwhile, if tested by analysis based on the effectiveness of the two groups (CBT 5 and CBT 12) it had a p-value > 0.05 which concluded that between the two session no significant difference. (17)

IX. DISCUSSION

Post-traumatic stress disorder (PTSD) is a condition in which a person experiences an event that is traumatic and can be life-threatening, especially outside of everyday human existence, which causes fear, helplessness and horror. By definition, PTSD can occur within 1 month and can cause significant impairment of function. The most common adverse psychological reaction among survivors after a disaster is PTSD which can cause long-term damage to social life, family life, and individual well-being. (20)

Post-traumatic stress disorder (PTSD) is a common mental health disorder associated with traumatic events. For example, approximately one third of people on the mental health of the population living in the area experience PTSD when they have a catastrophic accident. Maintaining emotional calm and motorcycle or traffic accidents, and these distractions offering social support to residents are important in long-term survival. (21)

Injuries caused PTSD events by 23.28% compared to 9.63% for those who were not injured. The risk of PTSD has been consistently shown to be related to the severity of disaster exposure, with the direct victims being most at risk.(22)

Art Therapy

Art therapy is defined as a treatment in which patients, facilitated by the art therapist, use art materials, the creative process, and the resulting artwork to explore their emotions, foster self-awareness, reduce anxiety, and increase self-esteem (American Art Therapy Association, 2014). The visual and tangible characteristics of art therapy in PTSD treatment appear to be consistent with the often wordless, image-based, sensory-perceptual nature of traumatic memories (Ehlers, Hackmann, & Michael, 2004; Herman, 1992; Holmes & Bourne, 2008; van der Kolk, 1994). It is posited that art making in art therapy may provide relaxation and decrease of arousal (Collie, Backos, Malchiodi, & Spiegel, 2006). It may also provide a more gradual access to traumatic as well as positive memories and emotions, and therefore reduces avoidance (Collie et al., 2006). According to art therapy experts, it enables patients to express and externalize memories and emotions in visual art and to connect implicit and explicit memory (Collie et al., 2006; Malchiodi, 2012; Smeijsters, 2008). (23)

If you look at the principles of Person-Centered Art Therapy, the process of expressing this emotion is a process that an individual needs to go through to achieve self-awareness, self-understanding and also generate insight which then becomes the personal growth of the individual (Rogers, 1993).

Changes in PTSD symptoms that occurred in these four subjects were explained through the Creative Connection Process framework that the four subjects had gone through from the sessions in the Person-Centered Art Therapy they were given. All sessions provided help the subject to process memories, thoughts, and feelings of the traumatic event within the subject, so they can connect with real conditions which make the subject more aware and understand what happened to them.

Art Therapy has 5 sessions in its implementation. The first session is Expressing The Self, the subject is invited to be able to re-imagine the traumatic events experienced, identify things that have changed in their life in the form of images, and realize what they

feel from the changes they experience (11).

The second session is Self-Understanding, where the subject identifies feelings that have dominated him recently by pouring them into colors. This helps the subject to process the emotional experience he feels that may be experienced unconsciously, thereby helping the subject to better understand the world within himself. This process also provides space for the subject to be able to clearly identify the emotions felt and avoided before, so that the subject can understand himself.

The third session is Empowering Self, where the subject is asked to describe himself and write down the positive things that have become his strength in dealing with the events he has gone through, especially in the last year after going through a traumatic incident. This process of identifying self-strengths helps the subject to focus on the positive aspects within himself, so that the subject is able to feel positive emotions and also foster positive self-confidence. Negative energy that was previously felt is converted into positive energy in the subject. These energy changes also help the subject deal with PTSD symptoms, namely negative alterations in cognitions and mood. Negative beliefs, persistent negative emotional states, and the inability to feel positive emotions are changed through the intervention process, resulting in positive insight by recognizing one's potential.

In the fourth session, namely the Experimentation and Risking stage, the subject tries to identify the goals of happiness to be achieved and tries to move imagery in achieving these goals.

In the last session, namely the Have Faith stage, the subject describes and forms a tree containing the hopes he has for himself and his family. These hopes are a form of reinforcement of the subject's positive belief in his own ability to achieve the goals he wants. These hopes and beliefs are processed, so that they become a positive meaning for the subject that supports the creation of the subject self which grows and develops into a more integrated unit between the world inside and outside of himself. The processes that these subjects went through supported the reduction and reduction of the symptoms felt by the four subjects.

Progressive Muscle Relaxation (PMR)

Progressive muscle relaxation is a relaxation technique aimed at reducing muscle energy use. Stress was related to the reporting of musculoskeletal pain which involved head pain (35.2%) and back pain (31.9%) (Østerås, Sigmundsson, & Haga, 2015). Through progressive muscle relaxation interventions, there is a relaxation of the skeletal muscle which impacts on the relaxation of visceral muscles so that the body's consumption of oxygen, the speed of metabolism, respiratory rate, muscle tension, systolic and diastolic blood pressure decreased (Bernstein, Borkovec, Hazlett-stevens, & Douglas, 2000).(24).

The process of relaxation in skeletal muscles that impacts on visceral muscle relaxation becomes more leverage with the help of relaxation music. Music provides a stimulus to decrease muscle energy. The results of other studies showed that music could reduce the activity of alpha-amylase and systolic blood pressure (Linnemann, Ditzen, Strahler, Doerr, & Nater, 2015). Decreased alpha-amylase activity through music is influenced by the elements contained in the music. The

type of music used by researchers in this study is the type of music Pachelbel's 'Canon' and stress relief that has a slow frequency, regular rhythm with a tempo less than 80 beats. Elements contained in the music used to affect the response of relaxation respondents. This is in line with studies that show an increase in brain-derived neurotrophic factor (BDNF) that functions in controlling anxiety and emotions after being given intervention with a low rhythm and mild tempo of 50-60 dB (Angelucci, Ricci, Padua, Sabino, & Attilio, 2007). The additional intervention other than PMR and music used in this study is lavender aromatherapy. Other studies showed that aromatherapy relaxed breathing muscles and made breathing rhythms more regular. Moreover, the use of lavender aromatherapy is effective in improving mood and provide a sense of comfort (Linnemann et al., 2015). Aromatherapy lavender can lower the level of salivary cortisol that indicates decreased stress (Toda & Morimoto, 2011). (24)

Dzikir Therapy

Dzikir therapy is a treatment effort that includes the activity of remembering, chanting the name, and the majesty of Allah SWT repeatedly, which is accompanied by awareness of Allah SWT with the aim of healing pathological conditions. The dhikr therapy in this study consisted of four meetings. The first meeting is the provision of material regarding the meaning of dhikr, recitation of dhikr and its meaning, implementation of dhikr, and the benefits of dhikr. The second, third and fourth meetings are the practice of dhikr together. In the practice of dhikr, the subject is guided to recite the dhikr, the subject is given guided to recite the dhikr, the subject is given an understanding of the meaning of the recited dhikr. Subjects were also given the task of doing dhikr after every prayer and before going to bed.

The practice of dhikr consists of four stages which are modifications of the dzikir stages of Subandi (2009) which are adapted to research subjects, namely the elderly. The four stages are the before, the beginning, the core, and the end of the dhikr. At the stage before dhikr, participants are guided to straighten their intentions only to Allah SWT. The initial stage is to say the shahada and salawat. At the core stage, namely pronouncing the names of Allah (ism-ul-dzat) and asmaul husna, the facilitator explains the meaning of each asmaul husna that will be pronounced so that participants understand each of the asmaul husna being taught. (25)

The results of this study are also in line with research (25) which reports that dhikr is effectively proven to reduce anxiety. In general, based on the results of a literature review conducted by Ross et al. (2015), a therapeutic approach based on religion and spirituality has been shown to improve health and optimism.

During the implementation of this study, since the pre-test was carried out until the follow-up, small-scale earthquakes and hurricanes were still common. This condition actually increased trauma to the control group because the disaster education given as treatment to the control group actually made them more tense, not more relaxed. This is understandable because disaster education trains people to be more alert (alert), not educates to overcome anxiety or panic that arises when a disaster occurs. This condition is different from the experimental group which was provided with preventive strategies to deal with anxiety, alertness,

rejection, and flashbacks. Phenomenon ini selaras dengan penelitian Slater dkk. (2016) that people who use religious coping as a way to adapt to physical, psychological and social challenges will have lower levels of PTSD and higher levels of positive emotions.

Play Therapy

Play therapy according to Dzulfaqori (2017) is a technique that is able to handle post-traumatic disaster children to entertain and overcome problems suffered by children through play. Masykur (2006) says that children who are victims of disasters have a variety of unique characteristics, so forms of intervention that are in line with the characteristics and development of children are needed so that trauma disorders can be reduced. Mukhadiono (2016) further stated that playing is one of the most suitable methods. Because through play children will feel comfortable, happy in expressing and exploring their feelings, and children will forget the trauma they experienced.

Play therapy can also eliminate some problems such as anxiety, removing boundaries, inner barriers, frustration and having emotional problems that aim to change the behavior of children who are not suitable to be appropriate and expected so that children can play and be more cooperative and can easily invited to cooperate when undergoing therapy (Noverita, 2017).(24)

Traumatic Counseling

Most often, a person who has experienced a traumatic event and cannot cope with it and adapt to it needs the help of a counselor to solve the problem. However, until now, assistance to traumatized students has not been optimal. Preliminary surveys at several schools or other institutions that deal with traumatized students show that these institutions do not have a therapeutic model to help these students. Therefore, counseling models and procedures that can be used to help these students need to be developed in such a way that counselors can help these students more easily. (14)

Traumatic counseling is one of the methods used to overcome PTSD. Traumatic counseling is also one of the methods commonly used by school counselors to help traumatized students, namely traumatic counseling. The purpose of this counseling is to eliminate traumatic memories, increase rational thinking, arouse interest in the realities of life, restore self-confidence, rejuvenate attachment and connection with other people who can provide support and care, and emotional care and restore meaning and purpose to their lives. (14)

X. CONCLUSIONS

Based on the findings in the literature, this study found several interventions that could be given to victims who experienced post-disaster trauma in the form of Art Therapy, Progressive Muscle Relaxation (PMR), Dzikir Therapy, Play Therapy, and Traumatic Counseling which included: Physical Health Checks on Children, Counseling using the traumatic healing, Play Therapy, Cognitive Behavioral Therapy (CBT), EMDR Counseling, and Egostate Counseling.

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The Effect of Brain Gym on the Development of Preschool Children

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Abstract

Children's development will experience rapidity at an early age. Therefore, proper stimulation must be given to maximize their development. This study aimed to analyze the effect of brain gymnastics on children's development. This study used a pre-experimental quantitative survey method with a one-group pre-test and post-test design. The population in this study were students of TK Al Bukhari Sumber Wadung, with a total population of 46 people using a purposive sampling technique. This research instrument uses a Pre-Developmental Screening Questionnaire. The results of the Wilcoxon signed ranks test obtained a p-value of 0.001 which means <0.005, which can be concluded that there is a significant influence between brain exercise and child development. Based on the research results, it is necessary to increase brain gymnastics so that children can continue to maximize their basic abilities according to their stage of development.

Keywords -- Brain Gymnastics, Development of Preschool Children

I. INTRODUCTION

The golden period is a period of rapid growth and development of the brain that runs from birth until children enter preschool age (Affrida, 2017). The physical development of children has functions that are equivalent to other aspects of development; development is the first barometer to determine the growth and development of children (Fitriani & Adawiyah, 2018). Each child has a different development. This is because children have different nerve and muscle maturity from one child to another (Wardhani et al., 2020).

WHO 2019 reported data on the prevalence of 13-18% of toddlers in Indonesia who experienced developmental and growth disorders (WHO, 2019). The Indonesian Pediatrician Association states that around 5 to 10% of children are estimated to experience delays (IDAI, 2013). The results of Riskesda's research show that for East Java, the percentage of growth and development is around 71.6% according to age.

Developmental delays in children are due to a lack of parents knowing the danger signs (red flags) of child development, a lack of early detection checks or developmental screening in children, and a lack of direct involvement of parents with children or stimulation from other than parents (Septiani et al., 2016). In general, children have standard patterns of growth and development, which are the result of the interaction of many factors that can affect children's growth and development, such as hereditary factors, social environment, nutrition, immunization, the size of children in the family, socioeconomic status and parenting styles (Ariyanti, 2016). Children's development can be achieved more optimally through brain exercise therapy. Brain gymnastics can stimulate cognitive development through a brain switch, activating positive energy in preschoolers (Yulianti & Yanti, 2018).

Efforts can be made to activate and balance all dimensions of the brain by doing brain gymnastics or brain gyms (Desiningrum et al., 2016). Children who receive targeted and regular stimulation will develop faster than those who receive less or no stimulation (Ansriyani, 2018). Brain gym is considered to be able to stimulate

child development (Kusuma et al., 2019). This exercise can help maximize the work of the right brain and left brain so that it can help maximize brain function (Paseno et al., 2020).

Based on this background, the researcher is interested in researching the effect of brain gyms on child development in TK Al Bukhari Sumber Wadung Banyuwangi.

II. METHODS

This study uses a quantitative survey method. The quantitative survey method can be interpreted as a research method based on the philosophy of positivism, used to examine specific populations or samples with a questionnaire (Sugiyono, 2018). This research describes the effect of brain gymnastics on children's development with a pre-experimental with a one-group pre-test and post-test research design where the researcher will observe the first to test the changes that occur after the experiment. The design of this study was to identify the effect of brain gymnastics using the demonstration method on child development at Al Bukhari Sumber Wadung Kindergarten.

The population in this study was 46 people using the purposive sampling technique. Respondents were taken based on inclusion criteria: respondents who got 7-8 doubtful results on the developmental pre-screening questionnaire. The independent variable is brain gym, and the dependent variable is child development—data collection techniques using developmental pre-screening questionnaires. The data analysis method used was the Wilcoxon signed ranks test using SPSS.

III. RESULTS

Table 1. Frequency distribution of respondents based on age at TK Al Bukhari Sumber Wadung

Age		
age	frequency	percent
Five years old	37	80%
Four years old	9	20%
Total	46	100%

Based on Table 1 above, the frequency of respondents is based on age. Respondents aged

five years old were 37 (80%), and four years old were nine respondents (20%).

Table 2 Distribution of the frequency of respondents by gender

Gender		
Gender	Frequency	Percent
Male	22	48
Female	24	52
Total	46	100

Based on Table 2 above, most respondents were female, as many as 24 respondents (52%), and male, as many as 22 (48%).

From the table above, it can be seen that before doing brain exercises, as many as six students (13%) obtained relevant results, as many as 30 students (66%) doubted, and as many as ten students (21%). After receiving the intervention, it was found that 40 students (92%) showed relevant results, and six students (8%) had doubts.

Thus there is an increase in children's proper growth and development from 13% to 92% of the respondents. The significant value obtained was 0.001, which means <0.005, and the study was accepted. This means a statistically significant difference exists between brain gymnastics' effects on preschool children's development.

IV. DISCUSSION

A. Child Development Before Doing Brain Gymnastics

Based on Table 3, most of the respondents showed dubious results. Because of the value of the development pre-screening questionnaire, most respondents got a 7-8 Yes.

According to (Yuniarti, 2018), children aged 4-5 cannot move their left and right fingers together. In addition, according to (Masrurin) Children aged 4-5 years cannot express themselves freely to participate in brain gymnastic movements because they have never applied brain gymnastics to sharpen children's development.

Previous research also showed that before brain gymnastics was carried out, children's development was questionable, and they still needed more assistance in applying brain gymnastics to acquire children's skills in following every brain gymnastic movement (Paramita, 2020).

Preschoolers have not been able to capture much information related to the basic abilities of children that must be mastered at an early age, namely the ability to be social-emotional, language, gross motor, and also fine motor skills, and do not know the benefits of brain gymnastics on children's development. This brain gym activity must be done repeatedly to allow children to express and coordinate every brain gym movement.

B. Child Development After Brain Gymnastics

From Table 3 above, almost all respondents showed results by the child's development. Because in the pre-screening development questionnaire post-test, almost all respondents scored 9-10 Yes.

According to Zulaini (2018), brain exercises should be done before children are six years old because, at this age, they will respond to what other people want. According to (Milyanti, 2016), Brain Gym is proven to improve aspects of children's development from the fine motor, gross motor, language, and social independence. According to (Putanto, 2019), because this brain exercise proves that children can function their left and right fingers simultaneously, it also allows children to adapt to the school environment and friends to make them happy. According to Rafika (2015), preschool children catch or understand the movements that are exemplified faster, and there are good results if done continuously and gradually.

In participating in this brain exercise, preschool children need to do integrated guidance because the movements accompanied by songs make children more cooperative so that children can follow the movements while singing songs. So many benefits are obtained from brain exercises that have been carried out.

C. The Effect of Brain Gymnastics on Child Development

Based on Table 3, it is known that there is no decrease in the post-test after four brain exercises with the Wilcoxon Signed Ranks Test. The effect of brain exercise on child development found a result of 0.001 which means <0.005, which means that the research H0 is rejected and the research Ha is accepted. This means that there is a difference in the development of children before doing brain exercises and after doing brain exercises.

According to Hilda (2017), the study's results can be understood that doing brain exercises improves children's development not only in fine and gross motor development but also in aspects of social independence and children's language development. Children who do brain exercises can stimulate the development of all parts of the brain, both the left, right, front, and back brain, synergistically to improve aspects of child development.

From the discussion above, there are results of the effect of brain gymnastics on children's development which has increased in children's KPSP post-test scores, where brain exercises are carried out in demonstrations because they can make children understand every movement of brain gymnastics. It can be concluded that the child's development is improving from the increase in scores on the child development pre-screening questionnaire.

V. CONCLUSIONS

1. The results of the pre-test before the brain gymnastics were carried out showed that six students (13%) had doubts about 30 students (66%) and deviations from 10 students (21%).
2. The post-test results after brain exercises showed that 40 students (92%) agreed, and six students (8%) had doubts.
3. The results of the effect of brain gymnastics on children's development with a p-value of 0.001 which means <0.005, means the research is acceptable. This means there is a statistically significant

difference in the development of children before and after doing brain exercises.

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Nurse Coping Strategies in Handling Post-Traumatic Stress Disorder During The Covid-19 Pandemic : A Narrative Review

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Abstrak— **Latar Belakang**: Di masa pandemi COVID-19, perawat menyaksikan berbagai peristiwa traumatik yang dapat menyebabkan perawat mengalami gangguan stress pasca trauma atau *post-traumatic stress disorder* (PTSD). Perawat perlu mengetahui strategi koping yang tepat untuk membantu mereka menghadapi PTSD. **Tujuan**: Kajian pustaka ini bertujuan untuk mengetahui strategi koping perawat dalam menangani PTSD di masa pandemi COVID-19. **Metode**: Sebuah desain studi tinjauan naratif digunakan. Database yang digunakan adalah CINAHL, PubMed, dan Sage Journal, serta Google Scholar sebagai sumber lain. Studi yang ditinjau bersifat kuantitatif dan kualitatif dalam bahasa Inggris dengan teks lengkap, diterbitkan pada tahun 2013 – 2022 dalam populasi keperawatan. Kata kunci "perawat" ATAU "staf perawat" DAN "mengatasi" ATAU "strategi mengatasi" DAN "gangguan stres pascatrauma". **Temuan**: Delapan artikel mengulas strategi koping yang digunakan perawat dalam menangani PTSD, yaitu strategi koping proaktif dan strategi yang berfokus pada masalah dan emosi. **Kesimpulan**: Strategi coping proaktif dapat menurunkan kejadian PTSD pada perawat. Strategi coping fokus masalah dan fokus emosi dapat menurunkan gejala PTSD yang dialami perawat. Pihak rumah sakit perlu lebih memperhatikan penanganan PTSD pada perawat selama pandemi COVID-19 untuk membantu mempertahankan sumber koping yang positif.

Abstract— **Background**: During the COVID-19 pandemic, nurses have witnessed various traumatic events that can cause nurses to experience post-traumatic stress disorder (PTSD). Nurses need to know appropriate coping strategies to help them deal with PTSD. **Objective**: This literature review aims to identify nurse coping strategies in handling PTSD during the COVID-19 pandemic. **Methods**: A narrative review study design was used. The databases used are CINAHL, PubMed, and Sage Journal and Google Scholar as another source. The studies reviewed were quantitative and qualitative in English with full text, published in 2013 – 2022 in the nursing population. The keywords "nurses" OR "nursing staff" AND "coping" OR "coping strategies" AND "post-traumatic stress disorder". **Findings**: Eight articles reviewed the coping strategies used by nurses in handling PTSD, namely proactive coping strategies and strategies that focus on problems and emotions. **Conclusions**: Proactive coping strategies can reduce the incidence of PTSD in nurses. Problem-focused and emotion-focused coping strategies can reduce PTSD symptoms experienced by nurses. The hospital needs to pay more attention to handling PTSD in nurses during the COVID-19 pandemic to help maintain positive coping sources.

Keywords: coping strategies; COVID-19 pandemic; nurses; post-traumatic stress disorder.

XI. INTRODUCTION

In this section introduce the topic using the best pyramid (general to specific), emphasize why your research topic is important, relate it to current knowledge, use previous research to justify the problem of whether there are "gaps" or differences with previous researchers, bring up what has been done and what needs to be done. Objective: introduce what is done and give the main purpose of the article.

The COVID-19 pandemic has placed a heavy physical and psychological burden on nurses. As front lines in handling COVID-19 cases, nurses must deal with high exposure to the virus daily. The increasing cases of COVID-19 are directly proportional to the workload and working hours of nurses have increased, causing nurses to feel full of stress, lack of sleep and lack freedom, burdened with heavy work responsibilities and high expectations for the results of their work (1). The absence of an effective treatment or vaccine, high infectivity, and fear of infecting loved ones have significantly negatively impacted the mental health of nurses and other health workers when they care for COVID-19 patients (2).

Events that occur during a pandemic tend to cause health workers to experience psychological problems. Various studies state that health professionals who are directly involved in diagnosing, treating, and caring for patients with COVID-19 are at risk of experiencing post-traumatic stress disorder (PTSD) and other psychological disorders (3–6). Studies report that 56.6% of health workers showed symptoms of PTSD during the COVID-19 pandemic (7). Another study in Italy showed that 39.88% of nurses had temporary PTSD diagnoses, which deserves further analysis (8).

PTSD has a negative impact closely related to significant psychosocial morbidity, drug abuse, and other adverse physical symptoms (9). Psychiatric disorders, heart problems, damaged nerves, and decreased body metabolism can occur if PTSD is not treated immediately (10). PTSD, in the long term, also has the potential to cause

suicidal behaviour (11). PTSD can also affect the victim's behaviour and responses to daily activities. PTSD management and treatment planning in primary care practice has received little attention (12).

In preventing further negative impacts on nurses experiencing PTSD during the COVID-19 pandemic, an adaptive coping strategy is a need to deal with PTSD. Nurses need coping strategies to manage painful and difficult emotions when dealing with stress or trauma (13). Relationship was found between maladaptive coping mechanisms and PTSD, which correlated with coping styles related to avoidance coping. There is a concern that nurses are treating the PTSD they experienced during the COVID-19 pandemic using maladaptive coping (14).

Nurses at high risk of experiencing PTSD need to know appropriate and adaptive coping strategies to help them deal with the traumatic events they experienced during the COVID-19 pandemic. If the nurse uses inappropriate coping strategies to deal with the traumatic event, it will harm themselves and others. The failure of health workers to recommend psychological treatment for patients is one of the causes of PTSD patients not taking treatment, according to Rodriguez (15).

Based on the presentation of some existing data and information, nurses, as a population that is at high risk of experiencing PTSD during the COVID-19 pandemic, need to know the right coping strategies for dealing with PTSD in order to prevent other negative impacts that they may be experiencing. As an essential construct, nurses' coping strategies in dealing with PTSD during the COVID-19 pandemic have never been reviewed before; therefore, this literature review aims to explore coping strategies nurses use in dealing with post-traumatic stress disorder during the COVID-19 pandemic. It is hoped that this study can be used as a guideline for nurses and other health workers to deal with traumatic situations during a pandemic and improve the coping measures taken.

XII. METHODS

Design

This study uses the literature review method with a narrative review approach. The narrative review aims to identify and summarize what has been published before, avoid duplication, and seek new areas of study that still need to be addressed. It follows the objectives researchers want to achieve from this study: identifying coping strategies for nurses to overcome post-traumatic stress disorder.

Search Strategy

The authors conducted several search processes to gain relevant articles on coping strategies used by nurses in dealing with the PTSD they were experiencing. During the search process, the authors use several keywords, such as; "nurses or nursing staff," AND "coping or coping strategies or coping skills," AND "post-traumatic stress disorder or PTSD." This study used three databases: EBSCO, PubMed, and Sage Journal, and Google Scholar as another source.

Eligibility Criteria

The criteria of this research study were a full-text article in English. The literature includes literature within the design of Cross-Sectional Studies, Qualitative Research, Quasi-Experimental Studies, and Randomized Controlled Trials (RCT) design within the last ten years of publication from 2012 – 2021 and focusing on nurses.

Selection Process and Item Data

All authors have completed the study selection process using the PRISMA Flow Diagram 2020 guide. Journal selection results are determined using keywords, validated against inclusion criteria and titles, and created in the appropriate journal. The data included in the current study is eight articles.

Data Extraction and Analysis

Data extraction was done manually using data extraction tables, and the primary data taken from the literature obtained were: author and year of study, research design, research location, number and characteristics of the sample and results of the study. The analysis was carried out using a qualitative descriptive approach with a content analysis method. This analysis activity includes reading, recording data, re-reading, identifying data, classifying data, discussing data, presenting data, and drawing conclusions.

XIII. RESULT

A search using the database identified 967 pieces of literature with details of 528 articles found in PubMed, 346 articles in Sage Journal, 76 articles in EBSCO, and 17 other articles obtained through a search on Google Scholar. 8 articles were appropriate and discussed the coping strategies used by nurses in handling PTSD. The study selection process to obtain the results of a literature search that meets the criteria for further review is contained in figure 1.

Fig 1. Flow of Articles Selection Using the 2020 PRISMA Guidelines

Study Characteristics

The results of the selection of articles obtained eight selected literature consisting of 6 literature using a cross-sectional study, one cross-sectional & correlational study, and one qualitative explorative study design. The research was conducted in China (n= 2), South Korea (n= 2), Netherlands (n= 1), England (n= 1), Spain (n= 1), and Egypt (n= 1). Respondents examined in the study were 2,395 nurses identified as having PTSD or PTSS. The characteristics of the study are listed in Table 1.

Based on the results of the search and analysis of the literature conducted by the author, a coping

strategy that can assist nurses in dealing with PTSD they are experiencing is a positive coping strategy. Positive coping strategies can be in the form of proactive, problem-focused, and emotion-focused coping. Using positive coping strategies shows a low level of PTSD and can relieve symptoms and help PTSD recovery in nurses.

IV. DISCUSSION

Based on the results of a literature review, the authors found that proactive coping strategies, problem-focused coping strategies (especially positive thinking, seeking problem-solving, and seeking help) and emotion-focused (chatting and getting emotional support from superiors, colleagues, and family)) can help nurses to relieve PTSD symptoms they experience (16–21). Conversely, maladaptive coping (dysfunctional coping), such as avoidance, anger, feeling ashamed and helpless, drinking alcohol, smoking, and using drugs, can hinder PTSD recovery (21–23).

Table 1. Characteristics of included studies.

NO	Author & Year	Design	Country	Sample	Finding
1)	Jiang et al., (2021)	cross sectional study	China	884 frontline nurses in handling COVID-19	Positive coping strategies (thinking positively, not taking problems too seriously, sharing problems with those closest to them, and engaging in hobbies and recreation) correlate with the slower onset of PTSD experienced. Getting more social support can help nurses maintain positive coping strategies.
2)	Wang et al., (2020)	cross-sectional & correlational study	China	202 nurses exposed to COVID-19	Nurses exposed to COVID-19 with positive coping strategies by taking active steps to eliminate or avoid stressors show low PCL-C scores.
3)	Kim & Yeo, (2020)	cross sectional study	South Korea	145 trauma nurses from six regional trauma centres in South Korea were participants.	Dysfunctional and emotion-focused coping is a significant factor in PTSD, and the impact of dysfunctional coping on PTSD is more significant than emotion-focused coping. Meanwhile, problem-focused coping does not have a significant correlation with PTSD.
4)	Jung et al., (2020)	cross sectional study	South Korea	300 nurses from three isolation hospitals in South Korea were	Social support from supervisors will help nurses overcome PTSD symptoms they experience and prevent the desire to change jobs.

					participants.
5)	Hamed et al., (2020)	cross sectional study	Egypt	181 nurses	Imperfect avoidance coping and seeking instrumental support are risk factors for PTSD. However, proactive coping is associated with lower rates of PTSD.
6)	Rodríguez-Rey et al., (2019)	cross sectional study	Spain	298 pediatric intensive care unit staff (57 doctors, 177 nurses, and 64 nurse assistants) and 189 staff working in non-critical pediatric units (53 doctors, 104 nurses, and 32 nurse assistants).	Seeking help, solving problems, and positive thinking as forms of problem-focused coping are associated with better outcomes (lower PTSD scores). Therefore, emotion-focused coping styles, such as avoidance, self-isolation, expressing emotions, and self-blame, are associated with worse outcomes (higher PTSD scores).
7)	Colville et al., (2017)	cross sectional study	England	377 ICU staff (76 doctors, 294 nurses)	Chatting with senior staff and taking up hobbies can reduce the likelihood of PTSD symptoms experienced by nurses in the ICU.
8)	de Boer et al., (2014)	qualitative explorative study.	Netherlands	12 ICU nurses	Feelings of anger, shame and helplessness can hinder recovery. In contrast, chatting with co-workers is thought to aid recovery.

Proactive coping is future-oriented coping, which involves long-term planning and prevention, in contrast to reactive coping, which intends to compensate for events that have occurred (24). Individuals need to learn their ability to recognize future threats and use strategies that can help deal with problems as soon as possible (25). Previously reviewed studies stated that nurses who use proactive coping show lower rates of PTSD (18). Proactive coping follows the results of previous studies, which reported that the coping strategy that most significantly reduces the likelihood of PTSD for individuals who experience high-level traumatic situations is proactive coping (26), and the severity of PTSD is negatively related to proactive coping (27).

Coping strategies that focus on problems aim to change or modify problems or their environment by reducing demand and expanding resources in dealing with stress (28). Problem-focused coping had a significant positive effect on the welfare of nurses with heavy work demands (29). However, studies that have reviewed previously found that instrumental social support increases risk factors for PTSD (18). This statement explains that instrumental social support as a form of problem-focused coping may not always be needed because nurses diagnosed with PTSD have several unhealthy characteristics, such as poor social life, lack of role models, disturbing thoughts, feelings of regret, and loss of optimism (30). On the other hand, doing various problem-solving by actively assisting nurses in dealing with PTSD they are experiencing can help them get out of the problems they are facing (31).

Coping that focuses on emotions can be through emotional support, acceptance, positive reframing, religion, using humour, using substances, self-distraction, self-blame, rejection, and releasing anger (32). This strategy aims to regulate emotional responses arising from stressful situations (33). Coping that focuses on emotions such as substance use, self-blame, rejection and releasing anger can lead to poor outcomes (22). Conversely, positive emotional copings, such as emotional support, acceptance, positive reframing, religion, and humour, can help individuals manage the negative emotions they experience (34).

Losing co-workers, family and those closest to them during a pandemic is traumatic for nurses and other health workers. Even though mental health workers have trained when they hear news of grief, it is certainly not easy to accept or even witness this sad event. Getting social support from the family can provide good results in the recovery of PTSD nurses, given that the culture and habits of Indonesian people still adhere to a family-centric system (35). Even though coping strategies that focus on emotions do not actively help solve problems, in this context, coping strategies that focus on emotions and support from family can help nurses slowly regulate their emotions and feelings so they can make peace with the traumatic situation experienced during the COVID-19 pandemic before actively solving the problem.

There is an opinion that problem-focused coping strategies are considered more effective in handling PTSD because these coping strategies tend to provide reasonable solutions and results and bring about significant changes in situations. Meanwhile, coping strategies focusing on emotions do not contribute to problem-solving and can lead to more complicated problems and uncontrolled feelings around them (19). However, other opinions suggest that emotion-focused coping may be necessary to manage emotions before an individual can effectively engage in problem-focused coping (34). Previous research has shown problem-focused coping to be more useful when stress is perceived as controllable, whereas

emotion-focused coping is more useful when stress is perceived as uncontrollable (36). This shows that both coping strategies, which focus on problems and emotions, can assist nurses in handling PTSD, either solving problems or reducing stress.

We can predict the incidence of PTSD by the coping strategies used (19). Previous research has also stated that there is a correlation between maladaptive coping and PTSD (14). This statement follows the theory expressed by Beckham & Beckham (2004) that one of the factors that can increase the risk of PTSD is when individuals handle it with a form of maladaptive coping. Maladaptive coping increases stress and indicates poor mental health outcomes and higher rates of psychopathological symptoms (36,37). Therefore, nurses need to modify maladaptive coping into positive coping and maintain it to prevent the negative impacts that may arise.

The source of coping is a critical aspect of the coping process that can encourage individuals to make a more positive assessment of stressful situations. Lack of coping resources in individuals correlates with clinical impairment, risk of poor prognosis or recurrence (38). Therefore, nurses need a supportive environment to help them maintain positive coping resources to handle PTSD during the COVID-19 pandemic successfully.

The hospital has a vital role in the health professionals' welfare during the COVID-19 pandemic, both physically and psychologically. There is a need for a program that functions to manage and provide effective coping and sufficient social support to relieve PTSD symptoms in nurses during and after the COVID-19 pandemic. Managers need to be aware of the impact of traumatic events on nurses and take preventive measures such as reducing critical incidents, increasing open communication, establishing collegial support systems, and evaluating the need for professional assistance (21). As a shelter for nurses, hospitals need to take preventive measures, facilitate the improvement of nurses' coping skills and recommend psychotherapy and medication for treating PTSD experienced by nurses during the COVID-19 pandemic.

Based on the explanation above, it can conclude that proactive coping strategies can reduce the incidence of PTSD experienced by nurses, and coping strategies that focus on emotions and problems can help nurses deal with the PTSD they experience. Nurses are also encouraged to use proactive coping strategies to detect and prevent possible adverse effects that nurses will experience due to the traumatic events they experienced during the COVID-19 pandemic. In addition, nurses need to get support from their environment to maintain the positive coping strategies they use to deal with PTSD during the COVID-19 pandemic.

The limitation that the author felt while conducting this narrative review was that the availability of journals that focused on discussing coping strategies for nurses in dealing with PTSD in the same study design was still relatively small, thus allowing for bias. Furthermore, the lack of data on PTSD in nurses during the COVID-19 pandemic dramatically limits the potential for tracing the actual problem, especially regarding the PTSD phenomenon in nurses with an Indonesian background. Geographical characteristics in the literature are still limited to the continents of Asia and Europe, so they are not fully representative of the world. The solution we give might not be easy to implement on other continents due to the different characteristics of each continent.

So that the authors are not limited to just one type of research design, and the range of years of publication of the articles

reviewed is not limited to the COVID-19 pandemic (2019-2022), besides that the authors also increase sources of information from other literature, so that this research can be more credible. Although this narrative review has several limitations, it is the first to discuss coping strategies nurses can use to handle PTSD experienced during the COVID-19 pandemic.

V. CONCLUSION

Based on the studies that have been reviewed, in general, three coping strategies can be used by nurses in handling the PTSD they experienced during the COVID-19 pandemic, namely proactive coping, problem-focused coping, and emotion-focused coping. Proactive coping is proven to reduce the incidence of PTSD in nurses. Coping strategies that focus on problems and coping strategies that focus on emotions are forms of adaptive coping strategies that are proven to have a good impact on PTSD experienced by nurses. In handling it, nurses need a supportive environment to help them maintain positive coping resources. The hospital is essential in seeking preventive, healing and recovery measures for nurses handling PTSD during the COVID-19 pandemic.

Based on the research results and the conclusions that the researchers have upheld, the researchers hope that in the future, there will be more research and experimental research that discusses coping strategies for nurses in handling PTSD, especially those set against the COVID-19 pandemic. It is hoped that nurses can apply the coping methods that have been discussed in this narrative review as guidelines for dealing with PTSD during the COVID-19 pandemic. Researchers also hope that the hospital can pay serious attention to the psychological health of health professionals by creating programs that aim to detect early psychological problems and facilitate the need for therapy for health professionals in need. It is hoped that the government can increase public awareness of the importance of mental health through campaigns or counselling.

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The Effect of Screen Time on Eye Health in the Digital Age in Nursing Students

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Abstract

Technological advances that are increasingly rapid in today's digital age significantly affect adolescents, especially eye health. Leaving the eyes looking at the screen for a long time can pose risks such as minus eyes, eye fatigue, headaches arising from playing a smartphone, and forget to rest. This research was conducted to identify the effect of screen time on eye health in the digital era in nursing students. This study used an analytic observational method with a cross-sectional design. The population in this study were nursing students at STIKES Rustida, with a sample size of 143 respondents using Simple Random Sampling. The research instrument used a questionnaire and a physical examination using the Snellen Chart. The results of data analysis using the Manova test for eye health disorders obtained a value: of 0.001 and an eye vision value: of 0.000 <0.05. It can be concluded that eye health disorders and visual acuity values indicate an influence on the use of screen time. The cause of eye disorders is excessive screen time with the distance and position of close objects so that the muscles in the eyes will work harder. Based on the research results, it is better to pay more attention to personal health, especially eye health, by reducing activity in using electronic media if it is unnecessary.

Keywords -- Screen Time, Eye Health, Students

I. INTRODUCTION

Technological advances that are getting faster in today's digital era significantly affect teenagers, especially eye health. Health problems that students often experience, such as the eyes not functioning correctly (Putri et al., 2021). Leaving the eyes looking at the screen for a long time can cause risks such as minus eyes, eye fatigue, blurred vision headaches that arise when playing on a smartphone, and being lazy to rest (Puspitasari et al., 2021). Another cause is rarely blinking; this problem can result in dry eyes (Nasyahtadila et al., 2022).

World Report on Vision: In 2021, 2.2 billion people worldwide have vision problems (WHO, 2021). According to Wati (2021), 60% of school-age children in Indonesia use electronic media for over 2 hours. The Rapid Assessment of Avoidable Blindness (RAAB) in East Java is the province with the highest prevalence of blindness, with blindness of 4.4% (Sudrajat et al., 2021) or reaching the highest number of 371,599 (Gumilang, 2022).

Not a few teenagers use smartphones to watch videos, play online games, and play social media for a long time, and these activities are factors that affect vision complaints (Kartikawati et al., 2021). Screen time is often referred to as the duration spent staring at the screen, and the recommended time for all users is only ≤ 2 hours/day (Wati, 2021). The increase in smartphone users in this modern era has raised concerns regarding the adverse effects of radiation from the light reflected by monitors into the eyes (Muallima et al., 2019). Among students, they often complain of watery eyes, red eyes, minus, plus, cylinders, and eye fatigue; this is related to the technology that students often use in their lives (Laela et al., 2016).

As we know, eye disease is a disease that cannot be transmitted and can be avoided (Abdu et al., 2021). However, many conditions make a person not concerned about the health of his own eyes (Wulandari & Hermiati, 2019). Efforts to prevent decreased eye sharpness in students are maintaining activity patterns by using smartphones with sufficient lighting and doing them with good position and frequency (Wulandari et al., 2019).

II. METHODS

The research method used was analytic observational with a cross-sectional design. This study included all students at Rustida College of Health Sciences, totaling 223 students as a population, with a total sample of 143 respondents selected by the Simple Random Sampling technique and declared eligible for an ethical test. This study's instrument was a questionnaire and physical examination using the Snellen Chart. This study used Spearman's and Manova's Rank tests.

III. RESULTS

Table 1. Frequency distribution of respondents by age

Age	Frequency	Percent
19 years old	33	23,1
20 years old	38	26,6
21 years old	60	42
22 years old	9	6,3
23 years old	3	2
Total	143	100

Based on Table 1 it can be seen the frequency of respondents based on age. Respondents aged 20 were 38 (26.6%) and 23 years old were three respondents (2%).

Table 2. Distribution of respondents by generation

Level	Frequency	Percent
1	63	44,1
2	37	25,9
3	43	30
Total	143	100

Based on Table 2 it can be seen the frequency of respondents based on the Force. Level 1 respondents were 63 respondents (44.1%), and level 2 were 37 respondents (25.9%).

Table 3. Distribution of the frequency of respondents by gender

Gender	Frequency	Percent
Male	22	15,4
Female	121	84,6
Total	143	100

Based on Table 3 above, the majority of respondents were female, 121 respondents (84.6%) and male, 22 respondents (15.4%).

Table 4. Frequency distribution of respondents based on the use of gadgets

Use of Gadgets	Frequency	percent
Study	1	0,7
Social Media	69	48,3
Games	32	22,4
Watching video	24	16,8
Browsing	3	2,1
Online Shop	14	9,6
	143	100

Based on Table 4 above, most respondents used gadgets for social media, as many as 69 respondents (48.3%) and browsing as many as three (2.1%).

Table 5. Results of Spearman's Rank Test Effect of Screen Time on Eye Disorders

			screen time usage	eye health problems
Spearman's rho	screen time usage	r	1.000	.663**
		ρ		.000
		n	143	143
	eye health problems	r	.663**	1.000
		ρ	.000	
		n	143	143

The results of the study with the Spearman Rank test obtained results: 0.000 <0.05, which means that there is a significant relationship between the screen time variable and eye health disorders, while for the level of correlation strength, the result is 0.663, meaning that the level of correlation strength is said to be strong.

Table 6. Spearman Rank Test Results Effect of Screen Time on Visual Values

			screen time usage	eye health problems
Spearman's rho	screen time usage	r	1.000	.551**
		ρ		.000
		n	143	143
	eye health problems	r	.551**	1.000
		ρ	.000	
		n	143	143

The results of the study with the Spearman Rank test obtained: 0.000 <0.05, which means that there is a significant relationship between the screen time variable and the student's visual acuity value, and for the strength level of the correlation, the results are 0.551, meaning that the correlation strength level is said to be quite strong.

Table 7. Manova Test Results Effect of Screen Time on Eye Health

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Screen Time	Eye Health Disorders	434.124	25	17.365	2.482	.001
	Eye Vision Value	44.740	25	1.790	3.997	.000

The above results explain that the significant eye health disorder is 0.001 and the eye vision score is significant at 0.000 <0.05, meaning Ho (rejects), thus concluding that the average variable Y1 (eye health disorder) and Y2 (visibility value) indicates an effect on the variable X (screen time usage).

IV. DISCUSSION

a. Effect of Screen Time on Eye Health

The results of the study in Table 5 with the Spearman Rank test concluded that there was a significant relationship between the screen time variable and eye health problems.

Places to study that are not effective for school children will trigger a decreased vision, such as hours of screen time, sitting positions that do not match body proportions, and eye distance with cellphones/laptops used for teaching and learning facilities that are too close (Damawiyah & Noventi, 2019). Using media that exceeds the limit and is sustainable will have an impact on the visual organs and will have an effect on the ocular and physical (Lee et al., 2019).

Wulandari (2019) argues that smartphone use can affect eye complaints, eye fatigue, and also the incidence of computer vision syndrome. This means that the length of time someone uses a smartphone can affect the health of one's eyes.

b. The Effect of Screen Time on Visual Values

The results of the research based on Table 6 with the Spearman Rank test obtained the value of ρ: 0.000 <0.05; it can be

stated that there is a significant relationship between the screen time variable and the student's visual acuity value.

The decrease in visual acuity in students with the frequency of duration of using gadgets in the excessive criteria is caused by stress experienced by the visual function (Andriany & Bima, 2017). This research is in line with Wahyuningrum's study (2021), which shows that there is a significant relationship between screen-based activity and children's right eye vision (-value < 0.001) and children's left eye vision (-value < 0.001). According to Wahyuningrum (2021), school-age children have a habit of watching TV or playing with gadgets 5.5 hours per day one week and 7.4 hours per day on holidays, including Sundays. This routine of more than 2 hours per day can increase the risk of children suffering from decreased vision.

Then it can be estimated that students are more active in front of the monitor screen, such as playing gadgets. Bad habits that students often do when playing with devices such as excessive frequency of use in a day and lying down in the bedroom or living room. Suppose this becomes a habit, of course. In that case, it will have an impact on the function of the eye where the ciliary muscle will change the lens to be convex due to frequent viewing of objects closely; excessive monotonous activity of the monitor screen can cause the eye lens to become less sensitive to things that are far away.

c. The Relationship of the Effect of Screen Time on Eye Health

Based on the test results in Table 7, it can be concluded that the variable eye health disorders and visual acuity values influence screen time use.

According to Zhang (2020), using electronic media for a long duration causes eye fatigue, irritation, blurred vision, myopia, and other eye symptoms. Eye vision disease is caused by waves on laptop screens that are seen too much; the cornea of the eye will respond to X-rays and electromagnetic radiation, then the light is channeled into the lens, which can damage the lens of the eye due to physiological damage to the nerves and weakening of vision (Wahyuningrum et al., 2021).

The incidence of eye disease increases, mainly if the risk factors are not found and prevented early. Interventions can be implemented for electronic media users by paying attention to the 20/20/20 rule every hour, meaning every 20 minutes, looking at objects from a distance of 20 feet or 6 meters for 20 seconds. Educational intervention from the 20/20/20 rule can result in significant changes in dry eye symptoms, tear film, and little changes to ocular surface protection.

V. CONCLUSIONS

1. The results of the Rank Spearman test analysis for the screen time variable with health problems obtained a ρ-value of 0.000 <0.05; it was stated that

there was a significant relationship between the screen time variable and eye health disorders in students.

2. The analysis results of the Rank Spearman screen time test with the student's visual acuity value obtained a ρ-value of 0.000 <0.05, so it can be said that there is a significant relationship between the screen time variable and the student's visual acuity value.
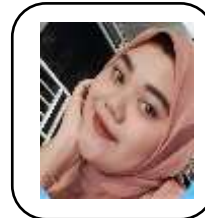
3. The results of the analysis of the Manova test on the Relationship of the Effect of Screen Time on Eye Health in the Digital Age in Nursing Students at the Rustida Banyuwangi High School of Health Sciences, the ρ-value results for eye health disorders are 0.001. The eye vision value obtains a significant value of 0.000 <0.05; it can be concluded that the average variable of eye health disorders and visual acuity values affects the variable of screen time use.

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The Relationship between Affective Function and Economic Function with Medication Adherence in Elderly Patients with Hypertension in Rural Area

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Abstract— The nonadherence of elderly patients with hypertension in their anti-hypertensive treatment therapy is one of the factors that leads to uncontrolled blood pressure, which can result in complications in the elderly. This study aimed to analyze the relationship between affective and economic function and medication adherence in elderly hypertensive patients in rural area. The research design used in this study was correlational with a cross-sectional approach. The study population consisted of elderly patients with hypertension in rural area, Jember, East Java, Indonesia. A sample of 100 people was taken using the simple random sampling method. The independent variables were affective and economic function, while the dependent variable was medication adherence. Data were collected using a questionnaire and tested using the Mann-Whitney test. The results of the study showed that the affective function of elderly patients with hypertension was mostly in the good category, with 65 people (65%). The economic function of elderly patients with hypertension was mostly in the good category, with 51 people (51%). Medication adherence in elderly patients with hypertension was mostly in the low adherence category, with 90 people (90%). There was no relationship found between affective function and medication adherence in elderly patients with hypertension in rural area (p-value 0.749 > 0.05). There was also no relationship found between economic function and medication adherence in elderly patients with hypertension in rural area (p-value 0.190 > 0.05). Adherence of the elderly with anti-hypertensive treatment therapy can prevent complications and maintain their quality of life.

Keywords -- Affective Function, Economic Function, Medication Adherence, Elderly Patients with Hypertension

Abstrak— Ketidakpatuhan lansia penderita hipertensi dalam terapi pengobatan antihipertensi menjadi salah satu faktor terjadinya tekanan darah yang tidak terkontrol yang akan berdampak komplikasi pada lansia. Penelitian ini bertujuan untuk menganalisis hubungan antara fungsi afektif dan fungsi ekonomi dengan kepatuhan minum obat pada lansia hipertensi di Wilayah Rural. Desain penelitian yang digunakan dalam penelitian yaitu korelasional dengan pendekatan Cross Sectional. Populasi penelitian adalah lansia penderita penyakit hipertensi di Wilayah Rural, Jember, Jawa Timur, Indonesia. Sampel sebanyak 100 orang diambil menggunakan metode Simple Random Sampling. Variabel independen yaitu fungsi afektif dan fungsi ekonomi. Variabel dependen yaitu kepatuhan minum obat. Data dikumpulkan menggunakan kuesioner dan diuji dengan Mann-Whitney Test. Hasil penelitian didapatkan bahwa fungsi afektif lansia penderita penyakit hipertensi sebagian besar dalam kategori baik sebanyak 65 orang (65%). Fungsi ekonomi lansia penderita penyakit hipertensi sebagian besar dalam kategori baik sebanyak 51 orang (51%). Kepatuhan minum obat lansia penderita penyakit hipertensi sebagian besar dalam kategori kepatuhan rendah sebanyak 90 orang (90%). Tidak terdapat hubungan antara fungsi afektif dengan kepatuhan minum obat pada lansia hipertensi di Wilayah Rural (p value 0,749 > 0,05). Tidak terdapat hubungan antara fungsi ekonomi dengan kepatuhan minum obat pada lansia hipertensi di Wilayah Rural (p value 0,190 > 0,05). Kepatuhan lansia pada terapi pengobatan antihipertensi akan menjadikan tekanan darahnya terkontrol dan terhindar dari berbagai macam risiko komplikasi akibat penyakit hipertensi.

Kata Kunci – Fungsi Afektif, Fungsi Ekonomi, Kepatuhan Minum Obat, Lansia Penderita Hipertensi.

I. INTRODUCTION

When an elderly reaches the age of 60, their physiological function begins to decline. As a result, the elderly are more prone to cardiovascular disorders, making them vulnerable to hypertension. Elderly who have been diagnosed with hypertension must adhere to hypertension treatment (Harsismanto et al, 2020). Medication nonadherence is quite common in the elderly with hypertension. This nonadherence is evident when the elderly visit health care facilities. The elderly visit health facilities when they experience hypertension symptoms, in the sense that the elderly only follow the pattern of hypertension symptoms (Emiliana et al, 2019).

Until now, hypertension has ranked first in terms of health problems for the elderly, according to World Health Organization (WHO) data (WHO, 2019). The prevalence of hypertension in people aged 55 to 64 years is (55.2%) (Fitriananci et al, 2022). According to Infodatin Lansia (2016), 45.9% of the elderly aged 55-64 years, 57.6% of the elderly aged 65-74 years, and 63.8% of the elderly aged 75 years have hypertension. East Java Province comes in second, with 10.4% of the population suffering from hypertension. Hypertension affects as many as 52.5% of the elderly aged 55-85 years (Silvanasari et al, 2022).

According to Health Office of Jember Regency data for 2018, the incidence of hypertension in the elderly in 2014-2017 was the highest in Jember Regency and is a top priority for immediate treatment (Silvanasari et al, 2022). According to data from the Health Office of Jember Regency (2022), the prevalence of elderly hypertension in Jember Regency in 2020 was 26828 people, increased to 60650 people in 2021, and decreased to 48225 people in 2022.

Data on the prevalence of elderly hypertension in the Rural Area in 2020 revealed 577 people, increased to 900 people in 2021, and increased again to 2072 people in 2022. This shows that the prevalence of hypertension in the elderly in rural areas is nearly doubling every year (Jember Health Office, 2022). These findings indicate that the prevalence of hypertensive elderly in Jember Regency remains high, implying that hypertensive patients must be able to control their disease by being obedient in undergoing hypertension treatment; however, available data indicates that the level of adherence of hypertensive elderly in undergoing treatment therapy is quite low (Hasibuah, 2022).

According to the findings of a preliminary study conducted on 8 December 2022 by interviewing the nurse in charge of the elderly Posyandu in Rural Areas, many elderly hypertensives were found to be non-compliant in their treatment and rarely carried out blood pressure control at the elderly Posyandu. This is in accordance with the findings of a preliminary study conducted by researchers on ten elderly with hypertension in the rural area, which discovered that ten hypertensive elderly were non-adherent to hypertension treatment, because the elderly would take hypertension medication on a regular basis when symptoms of hypertension appeared, and then discontinue when the symptoms subsided is gone. Another barrier that prevents the elderly from complying with hypertension treatment is a lack of transportation and delivery personnel for hypertensive elderly to health facilities.

Education, knowledge, beliefs, the economy, and the role of the family are all factors that influence medication adherence in the elderly with hypertension. The role of the family is the most important factor influencing medication adherence in the elderly with hypertension (Rohmayani, 2020). According to Aliyah et al. (2022), elderly with hypertension refusal to take antihypertensive drugs was influenced by affective and economic functions. This is related to a number of factors, including the distance traveled from one's home to health services, financing, service quality, drug prices, drug quantity, and the role of the family. This shows that affective and economic functions both play a role in medication adherence in elderly patients with hypertension.

Disobedience of elderly patients with hypertension in hypertension treatment will have an effect on uncontrolled blood pressure. Complications include coronary heart disease, stroke, heart failure, kidney failure, peripheral

vascular disease, and retinal blood vessel damage (Ministry of Health RI, 2019).

Community empowerment in early detection and monitoring of hypertension risk

No	Respondent Characteristics	Frequency (*f*)	Percentage (%)
1	**Age**		
	60-74 years old	86	86
	75-90 years old	14	14
	> 90 years old	0	0
2	**Gender**		
	Male	14	14
	Female	86	86
3	**Education**		
	Primary School	36	36
	Junior High School (SMP/MTS)	9	9
	Senior High School (SMA/SMK/MA)	4	4

factors through Posyandu lansia held in the community is one of the government's efforts to control the incidence of elderly hypertensive patients (Ministry of Health, 2019). Based on this description, researchers were interested in conducting research on elderly with hypertension in rural areas under the title "The Relationship between Affective Function and Economic Function with Medication Adherence in Elderly Patients with Hypertension in Rural Area."

	College	1	1
	No School	50	50
4	**Caring Family**		
	Husband	38	38
	Wife	5	5
	Son/ Daughter	52	52
	Others	5	5
	Total	**100**	**100**

II. METHODS

This study was carried out in the rural area of Jember, East Java, Indonesia, between February and March 2023. Research design applied of this study was correlational with a cross-sectional approach. Population of this study consisted of elderly with hypertension in the rural area. The Simple Random Sampling method was used to collect a sample of 100 people. The affective function and the economic function were the independent variables. Medication adherence was the dependent variable. A questionnaire was used to collect data, which was then tested using the Mann-Whitney Test. This study was approved by the Health Research Ethics Commission of dr. Soebandi University, number 009/KEPK/UDS/II/2023 dated 16 February 2023.

III. RESULTS

A. Description of Research Respondent Characteristics

The descriptions and percentages of age, gender, education, and families caring for elderly patients with hypertension in rural areas are as follows.

Table I. The frequency distribution and percentage of elderly patients with hypertension in rural areas are related to demographic characteristics.

According to table I, the majority of the respondents were 60-74 years old, namely 86 people (86%), the sex of the respondents in the study was mostly women, as many as 86 people (86%), the respondents' education was mostly not schooling, as many as 50 people (50%), and the families who cared for the respondents were mostly their children, as many as 52 people (52%).

B. Description of Research Variables

Tabel II. Frequency and percentage distributions related to research variables in elderly patients with hypertension in rural areas

According to table II, the findings show that the affective function of elderly patients with hypertension in the Rural Area is mostly in the good category, with 65 people (65%) falling into this category. The elderly patients with hypertension in rural area have mostly good economic functions, with 51 people (51%). Adherence to medication in the elderly with hypertension in rural areas is mostly low, with 90 people (90%) falling into this category.

C.   Finding of Bivariate Analysis

Table III shows the results of a Mann-Whitney Test analysis of affective function and medication adherence in elderly with hypertension in rural areas.

According to the Mann-Whitney Test analysis results in table III, the p value > a (0.749 > 0.05) indicated that there was no relationship between affective function and medication adherence in elderly with hypertension in rural areas.

Table IV.   The Mann-Whitney Test results of an analysis of economic function and medication adherence in elderly with hypertension in rural areas.

		Medication Adherence								
		Low		Mode rate		High		Tota l	P valu e (α)
		N	%	N	%	N	%		
Economi c Functio n	Goo d	44	44	2	2	5	5	51	0,190
	Bad	46	46	2	2	1	1	49	
Total		90	90	4	4	6	6	100	

According to table IV, the Mann-Whitney Test analysis stated that the p value > α (0.190 > 0.05) indicated that there was no relationship between economic function and medication adherence in elderly with hypertension in rural areas.

No	Variable	Frequency (*f*)	Percentage (%)
1	**Affective Function**		
	Good	65	65
	Bad	35	35
	Total	100	100
2	**Economic Function**		
	Good	51	51
	Bad	49	59
	Total	100	100
3	**Medication Adherence**		
	High	6	6
	Moderate	4	4
	Low	90	90
	Total	100	100

IV. DISCUSSION

According to the findings of this study, the affective function of elderly with hypertension in the Rural Area was mostly good. The affective function is said to be good when the five indicators in the affective function are met: the family maintains mutual care with other family members, the family fosters intimacy, the family maintains bonds and identification, the family maintains linkages and separation, and the family understands the response needs of other family members (Friedman, 2010). The findings of this study are in accordance with the findings of Tamamengka et al (2019), who found that the majority of respondents had good family affective function. The researchers believed that paying attention to the affective function of the elderly is critical, because family involvement in their care will motivate the elderly to behave.

According to the findings, the majority of families who care for the elderly are their biological children. This shows that the elderly

		Medication Adherence						
		Low		Moderate		High		Total	P valu (α)
		N	%	N	%	N	%		
Affective Function	Good	59	59	2	2	4	4	65	0,74
	Bad	31	31	2	2	2	2	35	
Total		90	90	4	4	6	6	100	

family is at the stage of family development with the elderly in which the elderly child has

entered adulthood, with an adult age, of course he has matured emotionally so that he will behave wisely.

According to Herawati et al (2020), the age of the family who cares for the elderly has an impact on the family's affective function. Age has an effect on a person's attitude; the older they get, the wiser and more emotionally mature they are in deciding where to place their roles and functions; thus, families with elderly members are more likely to optimize affective functions in their families. The researchers believed that the involvement of a child contributed to the positive affective function observed in this study. Children in this study who care for the elderly have reached adulthood. His mature age will make him wiser in acting and role placement. Another factor that contributes to the development of good affective function in the family is that the elderly in this study live with their families, giving them many times to spend with the elderly.

According to these findings, the economic function of elderly with hypertension in rural areas was mostly good. A good economy functions when the income generated can meet all of the family needs (clothing, food, housing, and adequate health care), the family has health insurance, and the family receives government assistance on a regular basis. Family economic resources are used to meet all of the family's needs, so the better the economic function that is intertwined in a family, the better the family's health quality (Friedman, 2010). The findings of this study were in accordance with the findings of Kodri and Rahmayati (2016), who found that the majority of the elderly come from well-off families. Researchers believed that the economic function is critical in supporting the health of the elderly because material assistance would still be required during the treatment process.

The majority of the elderly in this study were cared for and lived with their biological children who had reached adulthood; of course, as adults, they had worked and had an income to support their elderly parents.

Older families are the most recent stage of family development, when a husband and wife have reached old age or even died, so the role of a child is critical in maintaining and improving the health of the elderly who have reached this stage. At this stage of development, the role of a child is required to meet all of the needs of the elderly. Financial support is one of the services provided by a child. This assistance is expected to improve the elderly's health and welfare, thereby improving their quality of life (Lase & Souisa, 2021). The researchers believed that the good economic function in this study was due to a child's involvement in meeting the needs of the elderly. Her adulthood showed that she already has enough money to care for and meet the needs of the elderly.

According to the findings, medication adherence in the elderly with hypertension in the rural area was mostly low. Adherence is said to be low when the elderly are unable to take medication independently, are not disciplined in taking medication, and do not take medication on time (Puspita, 2016). The findings of this study were in accordance with the findings of Purnawinadi and Lintang (2020), who found that the majority of elderly with hypertensio have low adherence. The level of treatment adherence will influence the blood pressure of the elderly with hypertension. Adherence with medical therapy is critical to the success of hypertension treatment (Fitriananci et al, 2022). Researchers believed that the most important factor in controlling blood pressure in the elderly and reducing the risk of complications from hypertension is adherence to medication.

According to the questionnaire results, 88 elderly people (88%) stopped taking antihypertensive medication after feeling healthy. When they experienced hypertension symptoms, the elderly will resume adherence to medical therapy. The questionnaire test results revealed that 41 elderly people (41%) did not adhere to medication therapy because they forgot to take their medication.

This is in accordance with the findings of a study conducted by Tumundo et al (2021), which found that the majority of the elderly were disobedient to treatment because they forgot to take antihypertensive medication, and it was found that the majority of the elderly were disobedient because they believed they were already healthy and did not see the need to continue therapy. This nonadherence is due to the elderly's age and low level of education. When someone reaches old age, his memory deteriorates, causing the elderly to easily forget. Education is also a factor in elderly disobedience in medication therapy, because the elderly's level of education influences their

behavior. This is also consistent with SDKI DPP PPNI Working group team (2017), which states that memory loss and inadequate understanding are two factors that influence nonadherence.

The researcher believed that elderly nonadherence was due to a lack of understanding about the importance of adhering to antihypertensive medication in order to keep blood pressure under control. The elderly's lack of knowledge was influenced by their low level of education. Another reason why the elderly were disobedient to antihypertensive medication therapy was that they frequently forgot to take their medication. This was due to the age factor; as people get older, their memory declined. The elderly's declining memory capacity causes them to be inconsistent in taking medication or even forgot to take antihypertensive medication.

The results of bivariate analysis using the Mann-Whitney Test statistical test between affective function variables and medication adherence variables stated that p value > α (0.749 > 0.05), indicating that there was no relationship between affective function and medication adherence in hypertensive elderly in the rural. In this study, there was no relationship because affective function was in the good category and medication adherence was in the low category. This showed that well-established affective function did not influence medication adherence in elderly with hypertension, implying that there might be other factors that influenced adherence to antihypertensive drugs in elderly hypertensives.

According to the findings of a study conducted in the rural area, the majority of hypertensive elderly people did not attend school. According to Wijayanti et al (2022), education is one of the factors causing elderly non-adherence to antihypertensive drugs. This was in accordance with the findings of his study, which found a significant relationship between education and medication adherence in elderly hypertension patients. According to Mardiana et al (2021), when a person's education is high, they will be more compliant in treatment therapy because they understand the importance of treatment therapy and the risks of not adhering to treatment.

The researchers believed that education for the elderly is important to support their knowledge, particularly regarding the importance of adhering to antihypertensive medication therapy; in general, the higher a person's education, the greater their knowledge. This shows that the elderly's non-adherence to antihypertensive treatment was influenced by their low level of education, which had an impact on their lack of knowledge about the importance of adhering to antihypertensive treatment.

According to the findings of a rural study, the majority of the elderly with hypertension were between the ages of 60 and 74. According to Megawatie et al (2021), age is another factor that contributes to elderly non-adherence to antihypertensive medication therapy. Natural changes in the elderly, including physical, psychological, and social changes, caused the elderly to easily forget, disregarded their illness, became frustrated, and rejected the disease from which they were suffering, making the elderly disobedient to antihypertensive treatment therapy.

The researchers believed that natural changes that occurred in the elderly caused some decline. Psychological decline was one of the declines that occurred in the elderly. This was what caused the young elderly to forget and results in the elderly failing to take antihypertensive medication.

The findings of this study contradicted those of Apsari et al (2021), who found a significant relationship between affective function and adherence to medication for elderly atihypertension. This data was supported by Tamamengka et al (2019) research, which found a significant relationship between affective function and medication adherence in the elderly. According to the findings of this study, the majority of affective functions were in the good category, and the majority of elderly adherence levels were in the high category, while the respondents in this study had an average education level of middle and high school. The researchers believed that the differences in the study's results were due to different levels of education, which would affect the elderly's adherence with antihypertensive medication therapy.

The results of bivariate analysis using the Mann-Whitney Test statistical test between economic function variables and medication adherence variables stated that p value > α (0.190 > 0.05), indicating that there was no

212

relationship between economic function and medication adherence in elderly with hypertension in the rural. Because economic function was in the good category and medication adherence was in the low adherence category, there was no relationship in this study. This showed that good economic function had no effect on medication adherence in elderly hypertensives, implying that there might be other factors that influenced adherence to antihypertensive drugs in elderly hypertensives.

According to SDKI DPP PPNI Working group team (2017) the factors that affect medication adherence including disability (eg memory loss, sensory/motor deficits), side effects of treatment programs, non-therapeutic environment, complex and/or long therapy programs, barriers accessing health services (eg impaired mobility, transportation problems), inadequate understanding. Signs of disobedience to treatment are refusing/behavior not following the treatment program & refusing/behavior not following recommendations.

The researchers believed that there was no relationship in this study, implying that there were other factors influencing elderly with hypertension treatment adherence. These factors included disability, medication side effects, the environment, complex or lengthy therapy programs, barriers to accessing health services, and a lack of understanding, all of which could affect a person's adherence to treatment. This study included affective and economic function as reinforcing factors, but researchers found it difficult to cover all of the factors that influenced medication adherence in elderly hypertensives.

V. CONCLUSIONS

The findings of this study showed that (1) the majority of elderly with hypertension in rural areas had good affective functions, (2) the majority of elderly with hypertension in rural areas had good economic functions, and (3) the majority of elderly with hypertension in rural areas had good adherence to medication. There was no relationship between affective function and medication adherence in hypertensive elderly people in Rural Areas, and there was no relationship between economic function and medication adherence in hypertensive elderly people in Rural Areas.

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