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Determinant Factors of Nurse's Compliance with Prevention of Application Standards in Health Care Associated Infection (HAIS) Prevention Effort in ICU And UGD Kendari Hospital.

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Keywords: Compliance, Precautions Standards, HAIs.

Absctract. *Health Care Associated Infection (HAIs) is hospital acquired infections both of which occur in patients when receiving treatment, health workers who work in hospitals and hospital visitors. Standar Precaution created to protect against accidents that can occur. The application of the precaution standard is influenced by compliance. The purpose of knowing the determinants of nurses' adherence to the implementation of Precaution Standards in the prevention of HAIs in the Intensive Care Unit and Emergency Room at the Kendari City Hospital. The type of research used is correlation analytic using the Cross Sectional Study approach. The sample were 37 ICU and IGD room nurses. The sampling technique uses total sampling technique. The variables studied consisted of the dependent variable that is the application of the precaution standard and the independent variables namely knowledge, availability of facilities and motivation. The analysi used is Spearman's rho. The results showed that there is a relationship of knowledge (ρ=0,002; r=0,491), availability of facilities (ρ =0,006; r=0,444) and motivation (ρ =0,009; r=0,425) by applying the precaution standard in the prevention of HAIs. The conclusion of this study is that there is a relationship between knowledge of the availability of facilities and motivation with the application of precaution standards in efforts to prevent HAIs. It is recommended to nurses to increase awareness, understanding, and insight into the quality of nursing services in implementing standard precaution so that the incidence of HAIs can be minimized or prevented.*

Introduction

Health Care Associated Infections (HAIs) are hospital-acquired infections that occur in patients receiving treatment, health workers working in hospitals and hospital visitors (1)

According to WHO (World Health Organization) data in 2016 the incidence of HAIs in hospitals worldwide in inpatients is around 3-21% (an average of 9%) or more than 1.4 million patients. Based on the results of the 2014 HAIs survey in United States hospitals, the incidence of HAIs reached 722.00 in acute care units and 75,000 patients with HAIs died while hospitalized (5). Meanwhile in Indonesia, the incidence of nosocomial infections in advanced inpatient services until December 2014 reached 148,703 cases (2).

The Southeast Sulawesi Provincial General Hospital is a referral center hospital throughout the Southeast Sulawesi Province. Based on the report of the Nosocomial Infection Committee Team in 2014 the incidence of nosocomial infections from

January to March was 4.9% or 49 people out of 1,002 patients who were operated on, while in 2015 January to March it was 14.52% of 51,306 patients regardless of the laboratory examination criteria.

ICU (Intensive Care Unit) nursing services are services provided to patients in critical condition in the intensive care room. The Emergency Unit which generally serves accident cases and other emergency cases must provide all equipment related to standard precautions because it is very risky for exposure to blood and other fluids from patients (4).

The service of nurses and nurses is very high and fast, this often causes nurses to pay less attention to aseptic techniques in nursing perform maintenance and use of PPE (Personal Protective Equipment). Most ICU patients get infectious diseases due to the use of invasive devices, such as catheters and mechanical ventilators. The mortality rate of patients in the ICU due to bacterial infection is twice as high as that of non-infected patients (5).

The results of a preliminary survey on April 2, 2019, by observing in the IGD and ICU of the Kendari City Hospital 4 nurses noted that on average they did not pay attention to standard precautions such as infusion and blood sampling using gloves and did not wash hands. according to the procedure before and after giving 2000 procedures. In the emergency room, there were 2 incidents of infusion phlebitis, In the ICU room, there were 2 cases of ILO (surgical wound infection) and 3 incidents of infusion phlebitis. These events led to the occurrence of HAIs.

Method

This research belongs to the type of analytic correlation research using a cross-sectional study approach. This research has been carried out in the Intensive Care Unit and Emergency Installation of the Kendari City Hospital from July 1-15 2019. The sample in this study was all ICU and IGD nurses as many as 37 nurses. The sampling technique used was total sampling.

Results and Discussion

Results

1. Distribution of Respondents' Characteristics

The Frequency Distribution Of Respondents Based On The Characteristics Of Respondents Can Be Seen In The Following Table.

Characteristics Respondent	mean±SD	n (%)
Gender		
Man		24 (64,9)
Women		13 (35,1)
Age	30,24±2,994	
< 30 year		15 (40,5)
≥ 30 year		22 (59,5)
Last Education		
S1 + Ners		10 (27)
DIII		27 (73)
Length Of Working	4,68±1,796	
>5 year		15 (40,5)
≤5 year		22 (59,5)

Source : Primery data, 2019

The table above shows that among respondents whose gender is dominated by men as many as 24 respondents (64.9%) age respondents has an average of 30.24±2.994 and respondents who have the latest education are dominated by respondents who have a DIII education as many as 27 respondents (73%) while the average respondents who work have an average of 4.68±1.796

2. Distribution of Research Variables

The Frequency Distribution of Respondents Based On Research Variables Can Be Seen In The Following

Research Variable	mean±SD	n (%)
Application Standard Precaution	14,30±3,170	
Applied		23 (62,2)
Not Applied		14 (37,8)
Knowledge	7,24±2,229	
Good		22 (59,5)
Not Enough		15 (40,5)
Availability Facility	6,95±2,134	
Enough		21 (56,8)
Not Enough		16 (43,2)
Motivation	18,68±4,625	
Good		23 (62,2)
Not Enough		14 (37,8)

Source : Primery data, 2019

The table above shows that the average respondent who applies Standard Precaution is 14.30±3.170 with a score of respondents' answers that dominates is applied by 23 respondents (62.2%), the average knowledge is 7.24±2.229 with a score of respondents' answers which dominates is good as many as 22 respondents (59.5%),the average availability of facilities is 6.95 ± 2.134 with a dominating score of enough answers for as many as 21 respondents (56.8%) while the average respondent who has motivation is 18.68 ± 4.625 with a dominating answer score is good for as many as 23 respondents (62.2%).

3. Results of Bivariate Analysis of Relationships Availability of Facilities by Implementing Standard Precaution in Efforts to Prevent HAIs in the Room ICU & IGD Kendari City Hospital

	Availability_Facilities Score
Score	$r = 0{,}444^{**}$
Application standard precaution	$\rho = 0{,}006$ n = 37

Spearman correlation test results

The table above shows that the results of the Spearman obtained a significant value of value 0.006 (<0.05) which means that H1 is accepted, there is a relationship between the availability of facilities the application of standard precautions in the prevention of HAIs value of the relationship strength (r) shows a moderate correlation of 0.444 (r = 0.26-0.50)

4. Results of Bivariate Analysis of the Relationship between Motivation and Application of Standard Precaution in Efforts to Prevent HAIs in ICU & IGD Rooms at Kendari City Hospital

Score Application Standard Precaution	*r = 0,425* ρ=009 n = 37

Spearman correlation test results

Based on the table shows that the results of the Spearman test obtained a significant value of 0.009 (<0.05), which means that H1 is accepted, namely there is a relationship between motivation and the application of standard precautions in the prevention of HAIs with the value of the relationship strength (r) showing a moderate correlation**.** of 0.425 (r = 0.26-0.50).

Discussion

Relationship Between Knowledge And Implementation Of Standard Precaution In Hais. Prevention Efforts

The results indicate that the correlation test value using the Spearman test obtained a value of 0.002 (<0.05) that there is a relationship between the application of standard prevention in the prevention of HAIs. In addition, the value of r = 0.491 (r = 0.26-0.50) indicates the level of relationship between knowledge and the application of standard precautions in the prevention of HAIs moderate. s because nurses always wear disposable gloves whenever there is a possibility of exposure to blood and other body fluids always maintain healthy environmental conditions such as clean air, pressurized ventilation, supply of clean water, clean environmental surfaces, arrangement of equipment in such a way that it looks easy cleaned.

Research conducted by Miftahul Jannah (2015) on of standards at PKU Muhammadiyah Hospital Yogyakarta. Show by a probability value of 0.028 <0.05. Based on knowledge will last a long time, compared to are not based on knowledge. In addition, knowledge can obtain information. The higher better the application of standard precautions will be because nurses have the function of standard precautions (7)

Facility Availability Relationship With Standard Application Precautions In Hais Prevention Efforts.

The results of a 0.009 (<0.05) relationship between motivation and the application of standard precautions to prevent HAIs. In addition, the value of r = 0.425 (r = 0.26-0.50) shows the value of the strength he moderate correlation.get such as obeying the rules and infection control procedures in hospitals and other people in the vicinity. The leadership gives praise for the work done provides infection control education and training to improve the knowledge and skills of nurses

Motivation is something that gives strength to encourage work values, the desire to get good, attitude, personality, education, while experience, knowledge of extrinsic factors are factors from outside the human self in the form of leadership, encouragement or guidance of others and environmental conditions (6)

Research conducted by Evie Wulan Ningsih (2013) Fisher exact test one was marked as the significant value because of the p-value for the 2-way test. Results calculations release 16.00 are rejecting H0 because p-value < (0.006 < 0.05) between nosocomial infection prevention behavior by nurses workload that nurses must do to prevent nosocomial infections, for example in washing hands before and before taking action (10)

Conclusion

Based on the results of the research analysis and discussion is a relationship between knowledge of the availability of facilities and motivation for standard precautions in the prevention of HAIs. Awareness, understanding, insight into the quality of nursing services by applying standard precautions so that HAIs be minimized or prevented

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Case Study: Giving Garlic Brought Therapy Towards Reducing Blood Pressure In Hypertension Patients In The Working Area of Puuwatu Health Center, Kendari City

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Keywords: Steeping Garlic Water; Blood pressure; Hypertension

Abstract. *Hypertension is a disease that is feared by many people because it can cause complications. Treatment of hypertension can be done by consuming herbal plants, can be made yourself and the ingredients are easily obtained at cheap and affordable prices, rarely cause side effects, one of which is the therapy of steeping garlic water as a natural medicine for lowering blood pressure which is known to contain allicin compounds which are efficacious to destroy formation of blood clots in the arteries thus effectively lowering blood pressure. This study aims to provide an overview of giving garlic water steeping therapy to reduce blood pressure in patients with hypertension. It is a descriptive research with a case study approach. The research subjects were 15 people with hypertension and taken by purposive sampling. The results showed that there was a decrease in blood pressure in the subjects after being given infusion of garlic water for 6 consecutive days. Families and the public can know that by drinking steeped garlic water when blood pressure increases, it can reduce blood pressure in people with hypertension.*

Introduction

Hypertension is a condition of increased blood pressure that can lead to continued complications or cause more severe damage, namely stroke, coronary heart disease (damage to the heart's blood vessels), and left ventricular hypertrophy (occurs in the heart muscle), and kidney failure[1].

Many people do not know this when there is an attack of hypertension and is considered a normal thing. Proper management of hypertension is needed to prevent complications. Non-pharmacological hypertension therapy is a therapy that does not use drugs or compounds that work to affect blood pressure. Hypertension treatment that is usually done by the community is consuming herbal plants which are believed to be able to lower blood pressure because they can be made by family members and the ingredients are easy to obtain, causing less side effects. , and obtained at a more economical price, one of which is by steeping garlic water therapy[2].

Garlic (Allium sativum L) has several benefits for the body, namely high blood pressure can decrease because it has active compounds that can affect the availability of ions for smooth muscle contraction of blood vessels from the ajoene group[3].

Every year there is an increase in cases of hypertension which is expected to increase by 2025. More at the age of 55-64 years[4]. The non-communicable disease that has the highest prevalence diagnosed in health facilities is

hypertension with the number of cases reaching 185,857. In Indonesia at the age of 18 years, 34.1% with the highest sufferer in South Kalimantan at 44.1%, while for Southeast Sulawesi, it ranks 16th highest with 28.7%. The prevalence of hypertension in women tends to be higher and in urban areas tends to be higher than in rural areas[5].

Based on information, in Southeast Sulawesi, data obtained from visits to service units such as Puskesmas and their networks, from 160,975 people or 12% of the population aged 18 years and over, blood pressure measurements were taken, as many as 54,127 people or 33.62% had hypertension. Based on gender, hypertension was more common in men, namely 45.61%, compared to 30.21% in women. This data was collected from 17 districts/cities, so that the data can be used as a reference for the description of hypertension cases in Southeast Sulawesi, the percentage of which is still above the national prevalence.

An efficient way is needed by doing self-therapy at home, namely the therapy of giving steeped garlic water to lower blood pressure, because so far the intervention that is often found is taking medication for the patient's blood pressure to drop, but we know the effect is not good on the body's organs if it is consumed for a long time.

METHODS

The design of this research is descriptive with a case study approach that aims to provide an overview of the administration of garlic water steeping therapy for reducing blood pressure in Hypertensive Patients in the Puuwatu Health Center Work Area, Kendari City. This research was conducted in July 2020. The population in this study was 37 people with hypertension in the Puuwatu Public Health Center Working Area, Kendari City. The sampling technique was carried out by purposive sampling in accordance with the inclusion criteria, so that the number of samples in this study amounted to 15 respondents.

The instruments in this study were a blood pressure measuring device (tensimeter), observation sheets and SOP sheets of garlic water stew. Data analysis with univariate analysis to describe the frequency distribution of Blood Pressure in Hypertensive Patients.

RESULTS AND DISCUSSION

Subjects were determined as subjects for measuring blood pressure based on research criteria where the person concerned was willing to be a respondent and was not taking blood pressure-lowering drugs and the patient had long suffered from hypertension since 4 to 11 years ago due to an unhealthy lifestyle, lack of exercise and consuming high blood pressure levels. excessive salt and thought factors. The main complaint of the client is that the client complains of headaches and tension in the back of the neck. The intervention was carried out for 6 consecutive days.

Table 1. Demographic Data of Hypertension Patients in the Work Area of Puuwatu Public Health Center, Kendari City

No.	Initials	Age (y.o)	Education	Occupation
1.	Mrs. H	52	Elementary School	Entrepreneur
2.	Mrs. N	49	Senior High School	Housewife
3.	Mrs. S	45	Senior High School	Housewife
4.	Mr. A	69	Academy/ University	Pension
5.	Mrs. M	59	Elementary School	Housewife
6.	Mrs. J	65	Elementary School	Housewife
7.	Mrs. P	67	Elementary School	Housewife
8.	Mr. M	45	Senior High School	Farmer
9.	Mr. S	63	Junior High School	Farmer
10.	Mr. H	66	Elementary School	Farmer
11.	Mr. S	62	Junior High School	Farmer
12.	Mrs. B	65	Junior High School	Housewife
13.	Mr. W	60	Senior High School	Farmer
14.	Mr. S	45	Senior High School	Farmer
15.	Mrs. I	65	Elementary School	Housewife

From the table above, there are 6 people with hypertension under the age of 60 years which are included in the old adult age category. The highest level of subject education is elementary school and only 1 person has an undergraduate education and as many as 7 people have jobs as housewifes.

Tabel 2. Distribution of Blood Pressure Frequency in Hypertensive Patients in the Work Area of Puuwatu Health Center Before and After Giving Garlic Water Stew

Initials	Intervention	Results blood pressure (mmHg)	
		Pre	Post
Ny. H	First day	170/90	160/90
	Last day	130/80	120/90
Ny. N	First day	160/100	160/90
	Last day	140/90	130/80
Ny. S	First day	160/100	150/90
	Last day	130/90	120/80
Tn. A	First day	160/100	150/100
	Last day	130/90	130/80
Ny. M	First day	160/90	150/90
	Last day	130/80	120/90
Ny. J	First day	170/110	170/90
	Last day	140/90	130/80
Ny. P	First day	160/100	150/100
	Last day	140/90	130/90
Tn. M	First day	160/90	150/90
	Last day	140/90	130/90
Tn. S	First day	180/100	170/100
	Last day	150/100	140/90
Tn. H	First day	160/90	150/90
	Last day	130/90	120/90
Tn. S	First day	150/90	150/80
	Last day	130/80	120/80
Ny. B	First day	170/90	160/100
	Last day	140/90	120/90
Tn. W	First day	160/90	150/80
	Last day	130/80	120/80
Tn.S	First day	150/90	150/80
	Last day	130/90	120/90
Ny. I	First day	180/100	170/90
	Last day	140/90	130/90

The results showed that after being given the infusion of garlic water for 6 consecutive days as much as 200 CC/day, the post-test blood pressure on day 6 decreased by 10-30 mmHg systolic blood pressure and 10-20 mmHg diastolic blood pressure. However, there are also some respondents who have blood pressure only a decrease in systolic pressure and some in diastolic pressure.

Garlic contains the compound allicin which is effective in destroying the formation of blood clots in the arteries so that it can lower blood pressure. In addition to allicin, garlic also contains hydrogen sulfide, high intracellular ion concentrations cause vasoconstriction which has an impact on the occurrence of hypertensive conditions. Thus, there will be a decrease in intracellular ion concentration and followed by muscle relaxation, this can cause blood vessel dilation and make blood vessels not stiff, so blood pressure drops. Garlic can improve lipid profile balance, affect blood pressure, inhibit platelet function, antioxidant and fibrinolytic activity[6]. Increased blood pressure is caused by factors such as physical exercise, stimulants (substances that accelerate body functions), food, gender, emotional stress (anger, fear, and sexual activity), heredity, pain, obesity, age, and blood vessel conditions[7].

After giving garlic water, blood pressure decreased in subjects, this is in line with research conducted by Dina Riski Hevtidayah and Raisa Farida Kafil (2018) which showed a decrease in blood pressure. This is because garlic contains the compound allicin which is effective in destroying the formation of blood clots in the arteries, reducing diabetes symptoms and reducing blood pressure. also the effect of blood vessels can be enlarged and not stiff. The results of the study found systolic blood pressure in the intervention group had an average of 153 mmHg and diastolic and 91 mmHg before being given garlic steeping as much as 200 cc/day then after being given garlic steeping it had an average of 128 mmHg and 82 mmHg. The difference obtained in the systolic decreased significantly by 25 mmHg, and the difference in diastolic found a decrease of 9 mmHg[8]. The results of research conducted by Sofilina Nufita Setianti and Cemy Nur Fitria (2018) stated that there was a decrease in blood pressure in hypertensive patients after giving garlic boiled water. The average systolic value is 173.33 and after the treatment by consuming garlic steeped water, the average systolic value is 145.33. There was a decrease in blood pressure with an average systolic difference of 33.03 and an average diastolic value of 102.67 and after giving treatment by consuming garlic steeped water, the average diastolic value was 77.67. Another study

by Mohanis (2015) Before giving garlic steeping, the systolic was 165.33 mmHg and the diastolic was 96.66 mmHg. The average blood pressure in the elderly with hypertension after giving garlic steeping is 154 mmHg systolic and 94 mmHg diastolic[9].

The action given to the subject was accepted with information related to the benefits of giving steeped garlic water, so the researchers recommend steeping garlic water as an herbal drink that can be consumed when blood pressure increases which serves as an alternative to non-pharmacological treatment to reduce hypertension.

CONCLUSIONS

Giving infusion of 200 cc of garlic water/day for 6 consecutive days can reduce high blood pressure in the working area of Puuwatu Public Health Center, Kendari City.

SUGGESTIONS

It is hoped that families and the community can drink steeped garlic water when blood pressure increases in patients suffering from hypertension.

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The Influence Of Health Education On Knowledge Of Free Sexual Behavior

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Keywords: Health Education, Free Sexual Behavior, Youth.

Abstract. *Sexual behavior in a variety of activities or behavior caused by sexual urges or to get sexual pleasure. Health education regarding free sex behavior is expected to provide knowledge and encourage changes in individual behavior. This study aims to determine the effect of student health education on knowledge about free sex behavior. The study was conducted using pre-experimental methods with the One-Group Pretest-Posttest Design approach. The population, namely all students for the 2019-2020 period, totaled 946 people with a sample size of 90 people who were stabilized by the Cluster Random Sampling technique. The results of statistical tests showed that at the pretest it was known that most of them had good knowledge, namely 62.2%, and in the post-test, good knowledge reached 98.9%. This study shows the effect of health education on knowledge about free sexual behavior (p-value 0.000 <0.05). Knowledge before being given health education about free sex behavior is known to have good knowledge which is 62.2% and less knowledge reaches 27.8%. Most of the knowledge after being given health education about free sex behavior has good knowledge, namely reaching 98.9%. This is because respondents can accept the process of providing health education with an online system that is well accepted.*

Introduction

Sexual behavior in a variety of activities or behaviors because of sexual urges or to get sexual pleasure[1]. So far, adolescents have not used reproductive health services because they feel ashamed and are still considered taboo by the community, making them less understanding in determining their reproductive health behavior[2].

Data obtained from the World Health Organization (WHO) in 2013, that sexual behavior in African countries, Asian countries such as Bangladesh, India, Nepal, Yemen, and Latin American and Caribbean countries, around 40% - 80% of women aged 18 years are active sexuality. Similarly, in Uganda, about 4% of men aged 10 years, 10% aged 12 years, 22% aged 14 years, and 64% aged 18 years admitted to having had sexual intercourse[3]. Indonesian Health Demographic Survey (2017) adolescents 15-19 years are the highest age both women and men (19%) have had sexual intercourse such as kissing on the lips in 30% of women and 50% of men, only holding hands in 64% of women

and men - 75% of men, touching/stimulating 5% of women and 22% of men, hugging 17% of women and 33% of men, while premarital intercourse in women 2% and men 8% for reasons including 47 % love each other, 30% are curious/wanted to know, 16% just happen, 3% each because they are forced and influenced by friends. Some of these behaviors are at risk of having a pregnancy outside of marriage, and as many as 19% of adolescent girls in Indonesia experience pregnancy outside of marriage[4].

The benefits obtained from health education are the achievement of changes in the health behavior of individuals, families, and communities, gaining knowledge and understanding of the importance of health, the formation of healthy behavior physically, mentally, and socially, reducing morbidity and mortality, changing one's behavior in the health sector[5]. Providing health education regarding free sex behavior to adolescent students is very necessary so that they have the correct knowledge and understanding[6].

Haery's research in 2017, obtained a p-value = 0.000 <0.05, which means that there is a difference in pre-test and post-test knowledge after being given sexuality counseling using the stratagem method. The results of the control group test obtained a p-value = 0.564 > 0.05 which means there is no significant difference in the level of knowledge of the pre-test and post-test without giving sexuality counseling with the stratagem method[7].

A preliminary study on March 10, 2020, obtained information from the school, namely the Counseling Guidance (BK) teacher, it is known that in 2017 4 students kissed and 6 students were caught carrying and watching pornographic videos. Data for 2018-2019 shows 15 students were caught watching pornographic videos. The results of the interview with 10 students revealed that 6 of the students had experienced menstruation and 4 students had wet dreams. They said they had never had sex and had never kissed just holding hands.

A total of 7 people (4 students and 3 students) know and can mention what a sexually transmitted disease is but cannot explain the signs and symptoms and the dangers of the disease. A total of 3 people (1 student and 2 students) did not know about the disease at all, and out of 10 people (6 students 4 students) did not know the dangers of early sexual intercourse, the risk of early pregnancy, and the dangers of abortion.

The findings regarding the factors that hinder the efforts of the supervising teacher in preventing students' sexual behavior are students who are difficult to open up to, lack of student education about sex, parents who do not cooperate, and consider students to be entirely the responsibility of the school. Other inhibiting factors are the lack of parental attention to the development of their children, the lack of firmness of the existing rules at school, and the existing sanctions are not treated for students whose parents play a role in the school. The study aims to determine the effect of student health education on knowledge about free sexual behavior.

Method

This research is a pre-experimental study with a One-Group Pretest-Posttest approach. The population is all students for the period 2019-2020 totaling 946 people (508 boys, 438 girls, and a total sample of 90 people. The sampling technique in this study used the Cluster Random Sampling technique, which is a type of sampling technique where a researcher divides the population into several separate groups referred to as clusters[8].

The research instrument is in the form of a questionnaire and an extension program or SAP. The questionnaire has been tested for validity and reliability with the results of r count 10 question items > 0.30 alpha 0.760 > 0.60 and the

questionnaire is declared valid and reliable. Univariate analysis was used for frequency, distribution and proportion, and analysis. The distribution of the data is not normal causing the selection of statistical tests using the Mann Whitney test with a 95% confidence level carried out computerized[9]. This research has obtained a research permit from the Research and Development Agency of the Prov. Southeast Sulawesi with the number 070/1814/Balitbang/2020.

Results and Discussion

Characteristics of Respondents

Table 1 Characteristics of Respondents

Characteristics of Respondents	f	%
Age (Years)		
Mean + SD	16.57 + 0.654	
Gender		
Man	45	50.0
Woman	45	50.0
Class		
X	48	53.3
XI	42	46.7

Table 1 shows that most of the respondents are 16.57 years old on average, male and female are of the same gender, namely 45 people (50.0%) and most of the respondents are class X, namely 48 people (53.3%).

Knowledge Before and After Being Given Health Education About Free Sexual Behavior

Tabel 2 The Knowledge before (pretest) and after (posttest) given health education on free sexual behavior

Motivation		N	%	Mean ± Std. Deviation
Pretest Knowledge	Well	65	72.2	57.89 ± 14.260
	Not enough	25	27.8	
Posttest Knowledge	Well	89	98.9	75.89 ± 12.169
	Not enough	1	1.1	

Table 2 shows that the average pretest and post-test knowledge of 90 respondents are in the good category, but more respondents in the pretest motivation have less knowledge by 27.8%, after health education, there is an increase in the good category up to 98.9%.

The results showed that most (72.2%) of respondents had good knowledge, but respondents with less knowledge about free sex behavior were quite lot, reaching 25 people (27.8%). The majority of respondents gave incorrect answers to statements about the definition of health education and sources of information that can obtain health education. This is because respondents still have a lack of understanding about free sex behavior.

Respondents are teenagers aged 15-18 years, this allows respondents to more easily manage and understand the information received because respondents at a young age can process information well. This is following the theory that age can affect an individual's knowledge where the older he gets, the more his ability to capture information and mindset will develop, so that knowledge will become better[10]. Adolescent knowledge in terms of promiscuity is the result of a person's sensing of an object, which consists of two aspects, namely positive and negative aspects that can determine a person's attitude where more positive aspects of an object will form a positive attitude towards an object[11,12].

The results of previous studies that support this research were conducted by Haery in 2017 which showed that there was a significant difference in pre-test and post-test knowledge after sexuality counseling was carried out[7]. Another research that supports is Delyana in 2015 which shows that there are differences in adolescent knowledge before and after sexual education is carried out on students[13].

Measurement of respondents' knowledge after health education regarding free sex behavior was carried out to determine whether the health education provided was effective and could have a changing effect on knowledge or not. The

measurement results in table 2 show that the majority have good knowledge of free sex behavior, which is up to 89 people (98.9%) which means that as many as 24 respondents experienced a change in knowledge in a positive direction.

This shows that the material presented by the researcher regarding free sex behavior was well received by the respondents, even though in the implementation of education and knowledge measurement, pretest and posttest were carried out using an online system. Knowledge in this study has increased, at first, respondents had less knowledge than good knowledge. This increase occurred after the intervention was carried out in the form of providing health education with PowerPoint slides and educational videos distributed through research groups in the WhatsApp messenger application that had been created previously and consisted of research respondents. Respondents who experienced a change in knowledge mostly answered correctly on questions that were previously incorrectly answered, especially on questions about the definition of health education and sources that could provide health education.

Health education is an effort to increase or increase the ability to improve and maintain their health and media that can be used in the form of visual aids, audio or hearing and visual aids (audiovisual) as well as aids with written media such as posters, leaflets, booklets, sheets. flipchart[14]. Health education targets are individuals, groups, and the wider community[15]. Methods that can be used for individuals are guidance and counseling and interviews, for target groups the methods that can be used are in the form of group discussions, expressing opinions (Brainstorming), role-playing, groups discussing rumors and simulations, health education methods for the wider community are lectures and seminars [14–16].

The appropriate previous research was Savitri's study in 2013 which showed the knowledge of respondents before the intervention reached 62.8% and after the intervention reached 81.4%[17]. Similarly, Siwi's research (2019) shows the average knowledge of the pre-test respondents means = 77.53 and the post-test respondents' knowledge level means = 89.77[18].

The effect of student health education on knowledge about free sexual behavior

Table 3 Distribution of influence between health education on knowledge about free sexual behavior

Variable	Median	Min	Max	p-value
Pretest Knowledge	60	30	90	0.000
Posttest Knowledge	80	40	100	

Table 3 shows that the results of the bivariate analysis using Mann Whitney with a 95% confidence level obtained a p-value of 0.000 <0.05, which means that Ha is accepted and shows that there is an effect of student health education on knowledge about free sexual behavior. The health education carried out has a significant effect on changes in the knowledge of research respondents about free sex behavior.

This significant relationship is supported by a change in the median value of respondents' knowledge before (pretest) is 60 and (post-test) is 80 which indicates an increase in the median value of respondents after being given health education because respondents received well the material provided by the researcher. In addition, health education was carried out through the WhatsApp messaging application group where researchers sent videos and PowerPoint slides, and the post-test was carried out relatively quickly, namely, after education so that respondents had good memories of the material presented.

The results of this study are supported by the theory that a person's knowledge is the result of sensing a particular object through the five human senses[19]. Knowledge is obtained formally (schools) and informally (health counseling, information from friends, parents, as well as from various information media)[11,19].

This research is supported by Sirait's research conducted in 2020 which shows that there is an effect of reproductive health education on knowledge of the dangers of free sex [20]. Similarly, Savitri's research in 2013 showed that there was a significant influence on the provision of reproductive health education that affected the level of knowledge about free sex in adolescents.[17]. The results of this study are further strengthened by the evidence base on Dhati's 2013 research which shows that there are differences in knowledge of premarital sex before and after being given sex education[21]. This study shows that this change in respondents' knowledge can occur because of the process of implementing health education, respondents are distributed material in the form of PowerPoint slides and videos that can be accessed at any time. So that in the implementation of the posttest, respondents still remember well the materials presented and if they forget they can go back to see the material that has been shared before[22].

This study shows that this change in respondents' knowledge can occur because of the process of implementing health education, respondents are distributed material in the form of PowerPoint slides and videos that can be accessed at any time. So that in the implementation of the post-test, respondents still remember well the materials presented, and if they forget they can go back to see the material that has been shared before.

SIMPULAN

This study concludes that before being given health education about free sex behavior, it is known that most of them have good knowledge, namely 62.2% and less knowledge reaches 27.8%. Knowledge after being given health education about free sex behavior mostly had good knowledge reaching 98.9%. There was an effect of health education on knowledge about free sexual behavior (p-value 0.000 < 0.05). The suggestion of this research is to increase UKS and PIKRR activities in schools and to collaborate with health workers in educating students to prevent free sex behavior.

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Spiritual Therapy (Dhikr) Decrease Blood Sugar Levels in Diabetes Mellitus Patients in the Intensive Care Unit (ICU): A Study Literature

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Keywords: Blood sugar, Diabetes mellitus, Intensive Care Unit, Spiritual dhikr therapy,

Abstract. *Diabetes Mellitus is a metabolic disorder of the distribution of glucose that cannot produce and utilize the hormone insulin optimally so that it can cause an increase in blood glucose levels that exceed normal limits. Dhikr therapy can provide a relaxing effect and calm the soul which can affect the production of the hormone cortisol so that it can reduce blood glucose levels. The purpose of the study was to determine spiritual dhikr therapy to reduce blood sugar levels in diabetes mellitus patients in the Intensive Care Unit Room. This research is a literature review research by analyzing and comparing several articles through searches on journal sites such as Google Scholar and PubMed using the keywords Spiritual therapy of dhikr, blood sugar, diabetes mellitus and in 2016-2021. The result of this literature review is that spiritual remembrance therapy is efficient to reduce blood sugar levels in diabetes mellitus patients who are treated in the Intensive Care Unit. The conclusion of this study is that Spiritual dhikr therapy is a form of intervention that can be carried out by families or nurses as stimulation to patients who can help reduce blood sugar levels in patients with diabetes mellitus. Based on the results, it can be found that the spiritual dhikr therapy intervention can effectively reduce blood sugar levels in patients and it is recommended for type 2 DM patients to use spiritual therapies such as dhikr to lower blood sugar levels.*

Introduction

The Organization World Health (WHO) 2016 states that Diabetes Mellitus is the leading cause of death in the world. Diabetes Mellitus is a metabolic disorder often referred to as metabolic syndrome, which originates from the distribution of glucose that can no produce or utilize the insulin hormone in the human body properly, so that glucose levels in the body increase and even exceed normal limits (Ida Vitani et al., 2020). Diabetes Mellitus is a disease that will continue to

accompany the sufferer for life, because Diabetes Mellitus can only recover if the patient can maintain or control their blood sugar levels, thus greatly affecting a person's quality of life (Mujabi & Yuniartika, 2018). Diabetes is often called the silent killer because diabetes can work slowly to damage the internal organs of the human body, so that diabetes can cause very deadly complications. Diabetes Mellitus is a deadly disease that is very scary for life in the world and can last forever. With the development of time, a person's lifestyle is also becoming increasingly unhealthy. This is seen in the bad habits carried out by humans in their lives. For example, eating fast food, fatty foods, foods that contain high sugar or contain artificial sweeteners and also they do not balance this with physical activity or exercise, so that this causes cases of degenerative diseases to increase, one of which is Diabetes Mellitus.

The International Diabetes Federation (IDF) states that diabetes patients in the world in 2019 had a total of 9.3%, which is equivalent to 463 million people, and this number continues to rise, so that in 2030 it is estimated to be 10.2% or equivalent to 578.4 million people. In 2045, it is estimated that it will increase by around 10.9% or amount to 700.2 million people. The World Health Organization (WHO) in 2016 stated that as many as 422 million people living worldwide have diabetes living in their bodies and it is estimated that it will continue to increase every year. Diabetes that is not well controlled can lead to complications of other diseases. According to theprevalence of critically ill patients admitted to the ICU, the International Diabetes Federation (IDF) 2019, diabetes that is not well controlled can lead to complications of other diseases that cause 12 million patients to be in critical condition and treated in intensive care.

Diabetes-related weakening of the body can exacerbate the situation and have a substantial impact on morbidity and death. Of course, this has a significant impact on the life expectancy of diabetic patients, particularly those in intensive care units ICU (Muzaki & Arofiati, 2020). There are two types of diabetes mellitus: pharmacological and non-pharmacological. When doing pharmacological therapy to reduce blood glucose levels in individuals with diabetes mellitus, usually by giving oral hypoglycemic medications and administering insulin injections Baharudin Lutfi et al., (2019). Spiritual supplementary treatment is an example of non-pharmacological therapy, which is carried out by nurses accompanying patients in addition to taking medications. Complementary alternative therapies, or therapy with the goal of providing a soothing effect and improving thinking skills, can be provided to patients as pharmacological therapy. Dhikr therapy, which involves an element of trust, is a spiritual therapy that can be used to assist lower a patient's blood sugar level (Wahyuningsih et al., 2021). This dhikr spiritual therapy is simple to perform because

it is in accordance with a Muslim's faith and is practiced by the majority of Indonesians. This dhikr spiritual therapy is carried out as a form or way to cure disease (Fatimah, Rochmawati, 2020). Spiritual therapy is an important part of diabetes treatment. This therapy can impact the production of the hormone cortisol since it has a pleasant and relaxing effect on the soul. This can result in a drop in blood glucose levels in the body (Safitri et al., 2017)

Habiburrahman et al., (2019) discovered that the control group did not receive dhikr therapy treatment. When not given dhikr therapy, the experimental group's average blood glucose level is 175.65 mg/dL, whereas when given dhikr therapy, it drops to 167.06 mg/dL. By reading dhikr performed by patients with type II diabetes mellitus repeatedly to reduce sugar levels in their bodies, it may be determined that dhikr therapy is helpful and can provide relaxation for mental concentration. According to Amir et al., (2018), Spiritual treatment, when combined with Al-Ma'tsurat dhikr reading, increases stress perception, allowing the hypothalamic-pituitary-adrenal (HPA) axis to create a balanced amount of cortisol. There are numerous studies, one of which is Alimuddin, (2018), in addition to dhikr therapy.

Patients with diabetes mellitus who are treated in the Intensive Care Unit (ICU) generally exhibit physical weakness due to the disease's symptoms, according to the author's experience. Patients with diabetes mellitus would feel scared and apprehensive about themselves in critical situations, thus it is important to address not only pharmacological but also non-pharmacological requirements, such as spiritual fulfillment, which can assist diabetic patients lower their blood sugar levels. With some of the findings above, the authors are interested in conducting a systematic review which aims to determine the spiritual healing of dhikr in patients with diabetes mellitus who are treated in the ICU from several research journals.

Method

This research method is carried out by means of a literature review or is a form of description of various relevant studies in the field or topic of dhikr spiritual therapy to reduce blood sugar levels in diabetes mellitus patients. Search by using various articles searched on Pubmed and Google Scholar. The inclusion criteria in this research are articles published from 2016 – 2021 which are accessed in full text in pdf form, and are limited to experimental studies. "terapi spiritual dzikir, gula darah, diabetes melitus, intensive care unit" are the Indonesian keywords, whereas "Spiritual Dhikr Therapy, blood sugar, diabetes mellitus, intensive care unit" is the English keyword. The literature review or systematic review, as well as articles that did not clearly describe the intervention and technique, were all excluded from this study.

There were four articles that met the review criteria once the article sorting process was completed. The articles are extracted after

they have been screened to see how many are still eligible for further study. Data was extracted by reading all four publications in their entirety and then jotting down the most noteworthy findings in each. The information was then combined utilizing narrative approaches. The authors grouped comparable extracted data at this point. To make conclusions, the data from the four papers was evaluated for similarities and differences. The key data is tabulated after it has been analyzed. The flow of PRISMA is depicted in the diagram below (figure 1).

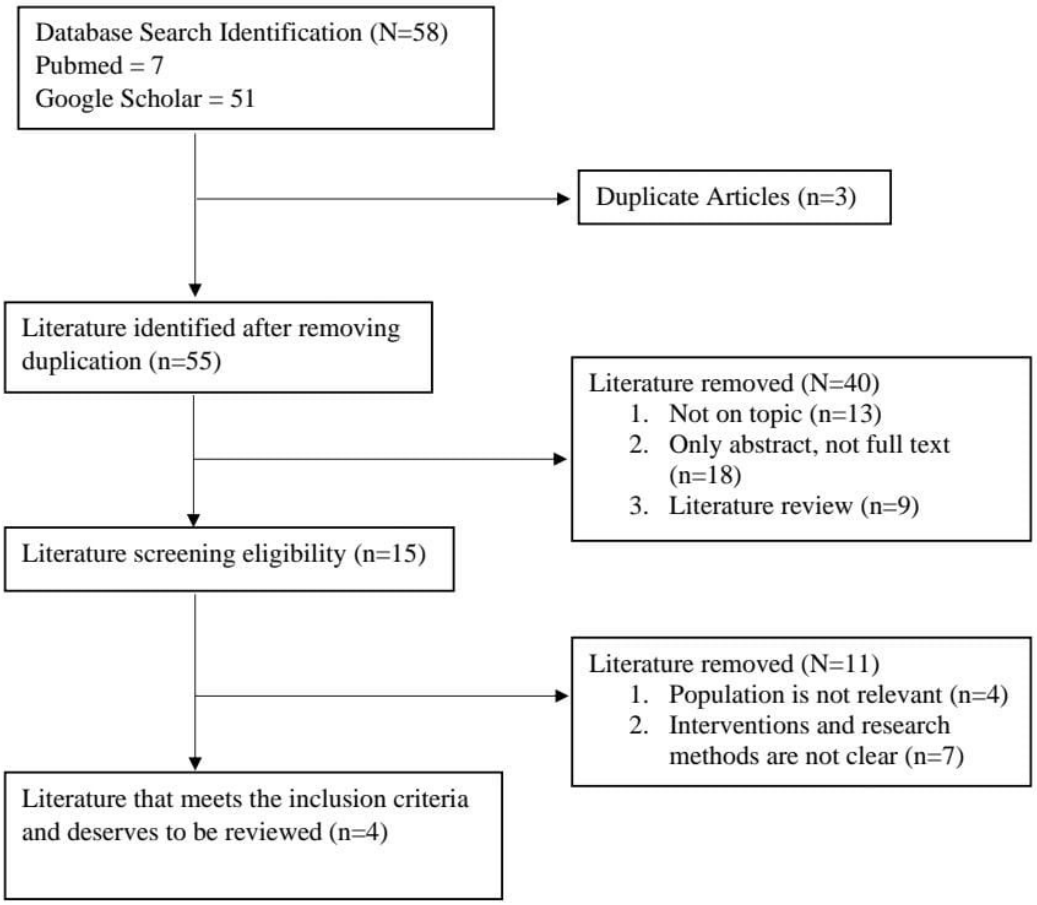


Figure 1. The flow of PRISMA

Results and Discussion

Four papers were obtained based on article data extraction, which were chosen from a review of spiritual dhikr therapy administered to diabetic patients in the ICU. The previous researchers used an average of 28-40 research samples from the four selected articles. An observation sheet containing blood glucose

levels measured with a glucometer was used in the first and fourth paragraphs as the instrument. A blood sugar questionnaire and a depression anxiety stress scale questionnaire were employed in the second and third papers, respectively.

According to the findings of the review, four publications demonstrated that spiritual dhikr therapy can influence blood sugar levels in diabetic patients. The following results were obtained after summarizing the papers in tabular form (table 1):

Table 1. Extraction of data from articles that meet the criteria

No	Author/ Year/ Country	Title	Aim	Sample	Method	Intervention	Research result
1	Habibburahman, Yesi Hassneli, Y fitriana Amir (2018). Indonesia	The Effectiveness of Dhikr Therapy on Blood Glucose Levels in Type II Diabetes Mellitus Patients	To determine the effectiveness of dhikr therapy in lowering blood glucose levels in patients with type II diabetes mellitus.	The number of samples was 34 respondents, consisting of 17 respondents as the experimental group and 17 respondents as the control group.	Research method: the method used in this study is a quaisy experiment al design with a non-equivalent control group design.	The intervention that will be given to the patient is measuring blood glucose levels in the control and experimental groups before and after dhikr therapy. Dhikr therapy (Murottal Al-Quran Ayat Kursi) for ± 20 minutes twice a day for three consecutive days	The results obtained were the average blood glucose level in the experimental group was 175.65 mg/dL who had not been given dhikr therapy and after being given dhikr therapy, blood glucose levels decreased to 165.06 mg/dL.
2	Research by Faisal Amir, GondoMastutik, M. Hasinuddin, Suhartato Taat Putra (2018). Indonesia	Dzikh (Recitation) And Relaxation Improve Stress Perception and Reduce Blood Cortisol Level in Type 2 Diabetes Mellitus Patient with ADM	This study aims to determine the effect of remembrance and relaxation on improving stress perception and decreasing blood cortisol levels in patients with type 2	Consisting of 14 people in the control group and 14 people in the intervention group.	This quasi-experiment al research uses a non-randomized control group design pretest posttest	The treatment of reciting the recitation of the verse of the chair and relaxation with 10-15 minutes is carried out every morning, afternoon and when you want to sleep for 6 weeks.	There is an average perception of stress in the intervention group which is much higher than in the control group which shows an increase in stress perception and when given dhikr therapy and relaxation, blood sugar levels decrease.

			diabetes mellitus.				
3	Shanti Wardaningsih, Dian Pepriana Widyaningrum (2018). Indonesia	The effect of prayer and dhikr al Ma'tsurat intervention on depression scores and blood sugar in patients with diabetes mellitus at Public Health Center Mlati 1	Knowing the effect of prayer and remembrance of Al-Ma'tsurat on depression scores and blood sugar.	number of samples 34 respondents which is divided into 17 respondents in the control group and 17 respondents in the intervention group	Method used Quasy experiment with (Non Equivalen Control Group) Pretest Post test	Giving prayers and remembrance of Al-matsurat and verses of the Qur'an for 10 minutes to the intervention group.	The results of the study that obtained differences in depression scores and blood sugar in the control group and also the intervention group showed significant differences
4	Sitti Fatimah M Arsad, Erna Rochmawati, Arianti Arianti (2020). Indonesia	The Effect of Dhikr Therapy on Blood Glucose Levels in Type 2 Diabetes Mellitus Patients.	Knowing the effect of dhikr spiritual therapy on blood sugar levels in patients with diabetes mellitus	The sample was 40 respondents, divided into 20 respondents in the experimental group and 20 respondents in the control group.	Quasy experiment with control group preposttes design	Diabetic oral therapy and also given dhikr therapy which is done by reading prayers, Asmaulhusna and by reading thayibah sentences which is done by reading a guide book or listening to it with an MP3 player, carried out with a duration of 15 minutes every day for 2 days	The results obtained from the t-test conducted in the two groups where glucose levels have a p value or equal to 0.000 or $p < 0.05$ this can of course be interpreted that therapy carried out with dhikr greatly affects the decrease in blood sugar levels in the body.

Decreased blood levels might occur when a patient's health is unstable and anxiety is a psychological disorder that is linked to other chronic diseases, including diabetes mellitus. Blood sugar levels in diabetic people fall as a result of a variety of circumstances. Navid et al., (2020) discovered a link between poor blood sugar control and decreased conditions in patients with diabetes mellitus, which is produced by a lack of motivation from their families, then gender, and a strong sense of fear about complications. Dhikr therapy, according to Safitri et al., (2017), has the effect of enhancing molecular signals and neurotransmitters in order to release endogenous opiates like engkephalin, which can cause sensations of euphoria and pleasure, as well as calm the body's response.

Yulianti & Armiyati, (2019) on an independent diabetes management module, guidance for spiritual dhikr therapy which is directed at developing a good attitude when sick. Before giving the treatment, the patients in the treatment group lacked tawakkal when they were facing the pain and after the treatment, 23 patients had a decreased level of tawakkal and only about 2 patients had a little sense of tawakal. Nowadays, there are so many people who come to seek healing from doctors and priests, but actually everyone has the potential to heal themselves. This can be done by applying the concept of This can be accomplished by beginning therapy approaches with the concept of surrendering and then standardizing them to rehabilitate a person. It has been shown to be effective in controlling and lowering blood sugar levels in diabetic patient. According to Kusnanto (2018), spiritual and religious elements of life are one of the most important impacts on life and have a significant impact on a diabetic's condition.

Muzaki & Arofiati, (2020) did research on dhikr spiritual therapy and found that patients with diabetes mellitus who got dhikr spiritual support treatments experienced less anxiety, which resulted in lower blood sugar levels. Spiritual healing can provide intrinsic and vital components for caring for critical ill patient. According to Putri & Kusnanto, (2015) research, providing spiritual support in the form of stimulation of the Al-Quran's sound can enhance the Glasgow Coma Scale (GCS) in critically ill patients. There is also a journal kept by the author (Lukmanulhakim & Syukrowardi, 2018). Patients with diabetes mellitus and critical patients with hemodynamics can benefit from spiritual assistance, dhikr, and reading Al-Quran.

Conclusion

Spiritual Dhikr therapy is one of the approaches utilized to cure diabetes mellitus patients. This treatment can also be carried out by the patient's family, who work to reduce the patient's blood sugar levels.

According to the author's description of various research on the spiritual therapy of dhikr in patients with diabetes mellitus, the intervention of spiritual dhikr therapy can effectively reduce blood sugar levels in patients. Based on the findings of this literature review, it is proposed that patients with type 2 diabetes utilize spiritual therapy in the form of

dhikr to reduce blood sugar levels in their bodies in the intensive care unit (ICU) so that they can return to normal health.

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Melting Time and Fe Content of Soybean Ice Cream by Utilizing Moringa Flour, Southeast Sulawesi Varieties, Indonesia

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Abstract. *Adolescents are a high-risk group for anemia. The prevalence of anemia in adolescents was 32% in 2018. One of the risk factors for anemia is the low intake of iron (Fe). Local food diversification is an effort to increase iron intake, one of which is by making ice cream using Moringa and soybean flour. Moringa leaves contain higher iron than other vegetables, namely 17.2 mg / 100 g. Ice cream is a snack that is loved by all levels of society. This study aims to determine the melting time and fe content of ice cream by utilizing Moringa leaf flour. This study used a one-factor completely randomized design (CRD). The research data were analyzed descriptively. The results of this study indicate that the ice cream with the addition of 5 gram of Moringa leaf flour has an average melting time of 49,18 minutes, and the laboratory results show the ice cream content is 0.114 mg / L and the addition 10 grams of Moringa leaf flour has an average melting speed of 58.26 minutes, and the laboratory results show the ice cream content is 0.135 mg / L. The results of this study indicate that the ice cream with the addition of 10 grams of Moringa leaf flour has an average melting speed of 58.26 minutes, and the laboratory results show the ice cream content is 0.135 mg / L. Soybean ice cream with the use of Moringa leaf flour can be used as an alternative healthy snack for adolescents.*

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Introduction

Adolescents are a high-risk group for anemia[1–4] The prevalence of anemia in adolescents was 32% in 2018[5] . One of the risk factors for anemia is the low intake of iron (Fe) caused by eating behavior in adolescents. Adolescents tend to prefer eating junk food, one of them is ice cream. Ice cream is snacks favored by all levels of society [6]. Efforts to overcome anemia in adolescents through diversification of iron-rich local food (Fe).[7] [8]. One of the foods that contain high iron is the moringa plant. Diversification of ice cream through the use of moringa and soybeans to increase nutritional content, especially ice cream products[9,10].

Moringa leaves are rich in macronutrients and micronutrients as well as antioxidants [11,12]. Moringa leaves contain higher iron than other vegetables, namely 17.2 mg / 100 g [13]. To increase nutrient content and extend shelf life, fresh Moringa leaves become Moringa leaf powder[14]. According to the research results of Mayangsari R and Rasmiati K 2020, when compared to fresh Moringa leaves, the nutritional content in the form of Moringa leaves is much higher, such as carbohydrates 36.16 grams; 2.16 grams of fat; 27.75 grams of protein; in 100 grams of Moringa leaf powder [15]. According to the results of previous research, the nutritional content of Moringa leaf flour is beta-carotene content 10 times carrots, 25 times banana

potassium, 25 times iron spinach, ½ times vitamin C oranges, 17 times calcium milk, and 9 times yogurt protein. [16]. Moringa leaves also function as a natural coloring agent in ice cream and provide a longer melting rate for ice cream, add flavor, give good shape and density[17,18].

Soy milk contains protein and inhibitory amino acid composition similar to cow's milk. Soy milk contains minerals (calcium, phosphorus, and iron) and vitamins (vitamin A, vitamin B1, and vitamin C), soy milk also does not contain cholesterol [19,20].

Ice cream is a dairy product that is made by freezing and cream and other ingredients such as fruit juice, chocolate and other food ingredients [6]. The making of this cream uses a new innovation, namely by adding Moringa leaf flour which can increase the nutritional content of ice cream, especially the use of milk with low-fat milk, namely soy milk. This ice cream with the addition of Moringa flour and soybeans is expected to be a healthy alternative snack to increase intake for teenagers. The purpose of this study was to analyze the physical properties of soy ice cream with the addition of Moringa leaf flour.

MATERIAL AND METHOD

Research Design and Participants

This research is an experimental study with a one-factor completely randomized design, namely the concentration of adding Moringa flour to soy ice cream [21]. There are 2 levels of treatment, namely the addition of 5 gr (K1) moringa flour and 10 g (K2) of soybean ice cream. Making and observing the melting speed of soybean ice cream using moringa flour was carried out at the Laboratory of Culinary Nutrition, STIKes Karya Kesehatan, testing of ice cream levels was carried out at the Chemical Laboratory of Mathematics and Natural Sciences, Halu Oleo University. The subjects in this study were Moringa leaf flour and soy milk. The object in this study was ice cream. The sample of this study was the size of the addition of Moringa leaf flour.

Intervention

a. Tools and Materials

1. Tools

   The tools used for the preparation of ice cream are the dough basin, small bowl, measuring cup, tablespoon, spatula, scale, scissors, sieve, and blender. The tools used to process ice cream are gas stoves, pans, mixers, whisks, ice cream cups [22].

2. Materials

   The ingredients needed to make modified ice cream from Natasya (2019) are Moringa leaf flour (5 grams and 10 grams), 1000 mL of soy milk, 250 grams whipping cream, 15 grams of cornstarch, 250 grams of sugar, 1 tablespoon of agar, and warm water. [23].

b. Making Moringa Leaf Flour

The moringa leaves used are young moringa leaves that are located at the top of the tree, then the moringa leaves are washed with clean water and then plucked from the leaf stalks, then spread on a wire net in the sun for 6 hours (it's dry enough). The manufacture of flour from dry moringa leaves is often used in a dry blender and sieved with a 100 mash sieve to separate the small stalks that are not crushed with a blender, then stored in an airtight plastic container**.** [1524].

c. Ice Cream Making

The making of this ice cream consists of several stages which are a modification of Faubun and Sinay (2017):

1. Beat granulated sugar and egg yolk with a whisk until thickened and white then set aside.
2. Combine the whipping cream with soy milk then stir until evenly mixed, followed by the addition of Moringa leaf flour with a variation of each treatment of 5 gr and 10 g, stirring and beating using a mixer until the mixture is evenly mixed.
3. Heat the ingredient (b) while stirring until it almost boils. (± 80ºC) then removed and put into the egg mixture while continuing to stir using a mixer. After that, shake it using a mixer until the dough is evenly mixed.
4. Pour into a clean container and let it cool down.

5. Put the dough in the refrigerator for about 2 hours.
6. Remove the dough from the refrigerator then shake it using a mixer and put it back in the refrigerator until it is half frozen for about 5 hours.
7. Repeat the beating up to three times.
8. Pour the ice cream into the ice cream cup provided.
9. Store in the freezer until it hardens and is ready to serve [25].

Observation of Parameters

The monitoring parameters carried out included physical properties in the form of storage speed of cream and analysis of nutritional content in the form of ice cream content.

Data Collection and Analysis

Primary data obtained by direct measurement. Measurements are made by direct observation from the results of the analysis of nutritional content carried out in the laboratory. Fe content test was obtained using the dry ashing method with Atomic Absorption Spectroscopy (AAS) [26]. This test was carried out by officers of the Halu Oleo University Mathematics and Natural Sciences Laboratory. For data on melting time, it is obtained by means of frozen ice cream which is allowed to melt at room temperature, and the melting time is calculated[27,28]. The data obtained in this study were presented in tabular form and analyzed descriptively by displaying the frequency value of the nutritional content of ice cream.

This research has obtained an ethical license number: 130 / KEPK-IAKMI / VII / 2020.

RESULTS AND DISCUSSION

Result

a. Melting Time

Table 1. Ice Cream Melting Time

Moringa Flour	Melting Time (minutes)		
	I	II	Average
5 gr	49, 15	49,21	49,18
10 gr	58, 22	58,30	58,26

Based on Table 1, the melting time of ice cream shows the average melting time of ice cream is between 49.18 - 58.26 minutes.

b. Fe Content

Table 1. Information on Nutritional Value of Soybean Ice Cream Using Moringa Flour

Moringa Flour	Fe Content (mg/L)
5 gr	0,114
10 gr	0,135

Based on table 2 shows that the more Moringa flour is added to the ice cream, the higher the Fe content in the ice cream..

DISCUSSION

a. Melting Time

The more Moringa leaves are added, the melting time of the ice cream will be slower [29]. Moringa leaves are a nonfat dry substitute used in the manufacture of ice cream with protein content which can inhibit melting speed and provide good shape and density. In addition, the protein content can stabilize the fat emulsion after the homogenization process and produce a soft ice cream texture [3025].

This is inversely proportional to the research of Salman et al. (2016) on the effect of adding Moringa leaf flour on the physicochemical and sensory characteristics of ice cream that the higher the addition of Moringa leaf flour, the faster the melting time [31]. This is due to the different processing of moringa. In previous studies, Moringa was processed into fruit juice, while in this study, Moringa was processed into Moringa flour.

Ice cream melting is caused by a decrease in the freezing point of the ice cream. The time it takes for the ice cream to melt is greatly influenced by the composition of the ingredients used in the ice cream making. The addition of a thickener such as milk to ice cream is able to bind ice particles in the ice cream dough and cause the water-holding power to become stronger, which causes it not to melt quickly. Besides that, the melting time of the ice cream is also getting longer due to the fat content in moringa and soy milk. Fat in ice cream making can enhance the flavor of the ice cream, produce a soft texture, help shape the ice cream, and help with good melting properties[32] [18].

b. Fe Content

Iron is one of the minerals contained in moringa [33]. Iron is a very important micromineral in the body because it functions in the formation of red blood cells, namely the process of hemoglobin synthesis.[34]. Iron deficiency can cause anemia. In addition, it can reduce immunity because it is closely related to the decreased function of antibody-forming enzymes [35].

Moringa leaves contain high iron, the results of an analysis of Fe content in Moringa leaves at the Research Institute for Spices and Medicines in 2014 showed quite good results, namely 1 kg of Simplicia can produce an iron content of 54.92 mg. Meanwhile, the iron content in Moringa leaf flour is much higher, namely 28.2 mg / 100 grams. Moringa leaves have hematopoietic activity, this is useful for increasing the number of platelets (when consumed in low doses) and is also useful for the formation of human blood cells. Moringa leaves contain more amino acids than those found in eggs. Therefore, Moringa leaves can help the absorption of iron [36] [37] .

CONCLUSIONS AND SUGGESTIONS

Based on observations, the ice cream with the addition of 5 gram of Moringa leaf flour has an average melting speed of 49,18 minutes, and the laboratory results show the ice cream content is 0.114 mg / L and the addition 10 grams of Moringa leaf flour has an average melting speed of 58.26 minutes, and the laboratory results show the ice cream content is 0.135 mg / L.. Soybean ice cream using canned moringa flour is used as a healthy snack for adolescent.

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