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ORIGINAL RESEARCH

EVALUATION OF ADHERENCE AND INSULIN INJECTION PRACTICES IN PEOPLE WITH TYPE II DIABETES MELLITUS

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ABSTRACT	Keywords
The practice of insulin injection in people with Diabetes Mellitus must be carried out appropriately and obediently by the patient for optimal regulation of glycemic control, preventing complications, and improving quality of life. This study was conducted to identify the description of insulin injection adherence and insulin injection practice in individuals with type 2 diabetes mellitus. This study was a quantitative research design with a cross-sectional approach using a questionnaire distributed to 32 respondents. The research was held at Club Prolanis Manado. Descriptive data analysis was conducted to describe the research variables. The findings showed that 100% of the respondents adhered well to insulin injections (Auto compliance > 80%), most respondents do not prime to check insulin flow and expel air before injecting insulin (78.1%), most respondents rotate the injection locations (75%), most respondents do not experience lipodystrophy (87.5%), more than half of the respondents experienced pain (53.1%), most of the respondents did not experience insulin leakage (81.2%), more than half of the respondents pinched during injection (56.2%), most of the respondents waited 10 seconds before removing the needle (75%). Skills and adherence in injecting insulin must be improved through continuous education and evaluation to achieve optimal glycemic control.	*Diabetes Mellitus Type 2, Insulin Adherence, Insulin Injection Practice*

INTRODUCTION

Diabetes mellitus (DM) is a degenerative disease that has increased significantly yearly in the world and in Indonesia. Data from the International Diabetes Federation (IDF), in 2021, there will be around 537 million people in the age range of 20-72 years experiencing DM worldwide, which will increase to 783 million in 2045. This number does not include the undiagnosed group. IDF data shows that the prevalence of DM in Indonesia is around 10.2 million people.

Indonesia is fifth among the ten countries, with around 19.5 million DM cases, which has increased from 2013 (International Diabetes Federation, 2017). North Sulawesi is ranked 4th in the province with the highest number of diabetics based on the 2018 RISKESDAS results (Kemenkes RI, 2018).

DM is a metabolic disorder characterized by hyperglycemia resulting from deficiencies in insulin production, abnormalities, and insulin resistance. Individuals with type 2 diabetes mellitus with poor glycemic control and severe

disease progression require exogenous insulin to regulate blood glucose levels (PERKENI, 2021). Insulin is a hormone that regulates blood glucose levels, enters cells for energy metabolism, and supports storing food reserves. The use of controlled and optimal insulin therapy can regulate blood glucose levels regularly, reduce the risk of complications, and achieve optimal glycemic control in combination with optimal meal planning.

Management of insulin therapy will have an optimal glycemic control effect if carried out regularly. Through education, diabetes mellitus patients are encouraged to carry out independent care, including insulin therapy, such as insulin injections. Patients are expected to be able to inject insulin independently (if possible) or assisted by family members in conditions with limitations. On the other hand, there are individuals with diabetes mellitus who intentionally delay or are disobedient in injecting insulin according to the correct dose and time for various reasons. The results of a study shows that medical costs, fear, confusion, feelings of failure, and helplessness trigger individuals with diabetes mellitus to delay or not inject insulin (Osborn et al., 2018). In addition, inaccuracies in insulin injections also impact the effectiveness of insulin work and the risk of complications of insulin therapy. Another study showed that 96.89% of respondents used insulin needles more than once with an average of six times, and 90% did not wait 5-10 minutes before removing the insulin needle (Patil et al., 2017). These data show that the practice of insulin injections is inappropriate. Identifying and evaluating adherence and insulin injection practices need to be done to understand the imprecision of insulin injection techniques. 89% of respondents used insulin needles more than once, an average of six times, and

90% did not wait 5-10 minutes before removing the insulin needle. This fact shows that the practice of insulin injections is inappropriate.

METHOD

This research used a quantitative research design with a descriptive study conducted in one of the Prolanis groups with a total sample of 32 people. Sampling was conducted using a purposive sampling technique on prospective respondents who met the inclusion criteria: type 2 DM patients with insulin therapy (basal, bolus, and basal-bolus), not undergoing anti-diabetic drugs combination therapy, and willing to become respondents. Retrieval of data using demographic questionnaires and respondent characteristics, evaluation of insulin injection techniques, and the Autocompliance method to evaluate adherence to insulin injections with the formula:

$$\frac{Total\ number\ of\ insulin\ injections}{Total\ number\ of\ prescribed\ insulin\ injections} \times 100\%$$

This research was carried out based on an assignment letter from the Institute for Research and Community Service at Sam Ratulangi University, number 630/UN12.13/LT/2022. Before taking the data, the researcher explained the study's purposes and process. Furthermore, the respondents needed to sign the consent form freely. Finally, the data was analyzed and presented in the distribution of frequencies of each category in the tables.

RESULTS

Table 1. Distribution of Respondent Characteristics

Category	Frequency	Percentage
Gender		
Man	5	15.6
Woman	27	84.8
Duration of Suffering DM		

< 10 years	17	53.1
≥ 10 years	15	46.9
Duration of Using Insulin		
< 10 years	26	81.2
≥ 10 years	6	18.8
Injection frequency per day		
1 time		
2 times	9	28.1
3 times	18	56.3
4 times	3	9.4
	2	6.3
Total	32	100

The results of the data analysis showed that most of the research respondents were female (27%), respondents who had diabetes were more in the category <10 years (53.1%), most respondents had been using insulin <10 years (81.2%), and more than half the number of respondents doing insulin injections two times per day (56.3%).

Table 2. Distribution of Respondents' Adherence with Insulin Injections based on the Autocompliance Method

Category	Frequency	Percentage
Compliant (≥80%)	32	100
Not compliant (< 80%)	0	0
Total	32	100

The results of the data analysis showed that all respondents were compliant in injecting insulin with an autocompliance score of ≥ 80%.

Table 3. Distribution of Priming before Insulin Injection

Category	Frequency	Percentage
Yes	7	21.9
No	25	78.1
Total	32	100

The results of data analysis showed that most of the respondents did not do priming to check the smoothness of insulin and expel air during insulin injection (78.1%).

Table 4. Distribution of Rotating Insulin Injection Locations

Category	Frequency	Percentage
Yes	24	75
No	8	25
Total	32	100

The results of data analysis showed that most of the respondents rotated or moved locations during insulin injections (75%).

Table 5. Lipodystrophy Frequency Distribution at Insulin Injection Sites

Category	Frequency	Percentage
Yes	4	12.5
No	28	87.5
Total	32	100

The results of data analysis showed that most of the respondents did not experience lipodystrophy in the insulin injection area (87.5%).

Table 6. Distribution of Pain Frequency during Insulin Injection

Category	Frequency	Percentage
Yes	15	46.9
No	17	53.1
Total	32	100

The results of the data analysis showed that more than half of the respondents experienced pain during insulin injections (53.1%).

Table 7. Distribution of Pinching During Insulin Injections

Category	Frequency	Percentage
Yes	14	43.8
No	18	56.2
Total	32	100

The results of the data analysis showed that more than half of the respondents pinched during injection (56.2%).

Table 8. Distribution of Leakage Frequency during Insulin Injection

Category	Frequency	Percentage
Yes	6	18.8
No	26	81.2
Total	32	100

The results of the data analysis showed that most of the respondents did not experience insulin leakage during injection (81.2%).

Table 9. Distribution held 10 seconds before withdrawing the needle

Category	Frequency	Percentage
Yes	28	75
No	4	25
Total	32	100

The results of data analysis showed that most of the respondents waited 10 seconds before removing the insulin needle (75%).

DISCUSSION

Adherence to insulin therapy impacts the glycemic control of individuals with DM (Schaper et al., 2017). The results of this study indicate that all respondents have high adherence to insulin injections, where all respondents show auto-compliance of more than 80%. This finding is different from another result which showed that 66.7% of the respondents showed insulin non-adherence (Despras et al., 2022). This condition can cause a glycemic imbalance. Insulin therapy in people with type 2 DM to meet the needs of insulin in the body to regulate blood glucose levels. Appropriate insulin therapy accompanied by patient compliance positively correlates with glycemic control, controlling the emergence of chronic complications and improving quality of life.

Correct insulin injection technique is one of the factors related to blood glucose control (Grassi et al., 2014). Research by Misnikova et al, proved that respondents in the intervention group who received training in insulin injection techniques demonstrated an increase in their ability to use proper insulin injection techniques, which was closely related to a decrease in A1C levels (Misnikova et al., 2017). Nevertheless, the results of this study show differences in insulin injection practices carried out by respondents with recommendations for the correct injection technique.

The majority of respondents in this study had yet to take the priming step in preparing insulin. Priming removes air in the pen and needle and ensures the needle functions properly (Kshanti et al., 2017). The same result was found in a study by Poudel et al., who stated that research respondents did not do priming before insulin injection, but only when changing cartridges or needles (Poudel et al., 2017). Priming is essential to avoid inaccurate insulin doses that enter the subcutaneous tissue.

This study found that most of the respondents rotated when injecting insulin. Recommendations for insulin injections must rotate in the injection area and change the area periodically. The recommended insulin injection areas are the abdomen, the upper 1/3 of the anterolateral thigh, the middle 1/3 of the posterior upper arm, and the upper lateral buttock area. Rotation is vital to prevent lipodystrophy and optimize the process of insulin absorption in the subcutaneous tissue. Therefore, educators must explain how to do rotations in a structured manner to individuals with diabetes mellitus and their families. The injection site is in one area with the distance

between one injection and the next injection, which is one cm or one finger. The injection site can be moved to another area weekly (Kshanti et al., 2017).

Furthermore, most respondents said they did not experience lipodystrophy in insulin injections. This information is consistent with the data that most respondents rotate when injecting insulin. Research conducted by Alhazmi et al., showed that 43% of respondents experienced lipodystrophy, which was related to an error in the insulin injection technique, namely how to rotate the insulin area incorrectly (Alhazmi et al., 2020). Subsequent research by Gorska-Ciebiada et al., showed that 63.5% of respondents rotated the injection area. Injection site rotation is essential to prevent lipohypertrophy (Gorska-Ciebiada et al., 2020). These complications can reduce insulin absorption by up to 25% and negatively affect the patient's glycemic control.

Another situation arises when insulin injections are a pain. The study results showed that the response was not much difference between the presence and absence of pain during insulin injections. A study result showed that more than 50% of respondents reported pain during insulin injections related to bleeding (Gorska-Ciebiada et al., 2020). Several factors are associated with insulin injection pain: injecting through clothing, cold insulin injection, and injection in lipohypertrophic areas, improper rotation technique, hypoglycemia, hyperglycemia conditions, high HbA1c levels, low BMI, younger age, and large insulin doses (Frid et al., 2016).

The results of this study showed that most respondents pinched when injecting insulin. Pinching or forming skin folds when injecting insulin ensures that insulin enters the subcutaneous layer to avoid entering the muscle layer (Hicks, 2008). As a result, insulin injected into the muscles can be absorbed more quickly, so the patients are at risk of experiencing hypoglycemia. The proper pinching technique: lifting the skin and subcutaneous tissue a few centimeters from the muscle with the thumb and forefinger or with the middle finger (Kshanti et al., 2017). The pinch is released after the insulin needle pull from the skin. The pinch technique optimizes insulin dosage and absorption in the body.

Insulin leakage is another problem that can occur when injecting insulin. However, this study's results showed that most respondents did not experience insulin leakage. Insulin leakage can occur when injecting large insulin doses or withdrawing the insulin pen immediately after all doses have been injected. This founding is consistent with other data; most respondents held the insulin needle for about 10 seconds after injecting all insulin doses. Research by Poudel et al. stated that more than 50% of respondents held the insulin pen for about 5-10 seconds after injecting a dose of insulin. This action must be done to prevent insulin leakage so that the injected dose is not reduced (Poudel et al., 2017).

Adherence to insulin therapy and proper injection technique is the target of DM management for patients with insulin. Health professionals are essential in providing education and training to patients and families. However, this research still needs more data collection and sample size. Therefore, it is necessary to research on a larger scale and more specific data related to insulin injection skills by direct observation of injection methods by patients and develop appropriate and measurable training methods for people with DM.

CONCLUSIONS

Most study respondents have demonstrated high levels of adherence to insulin therapy. Accordingly, the practice of injecting insulin has been carried out well by the majority of respondents. However, education and training on insulin injection techniques must be optimized by involving health workers and diabetes educators.

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ORIGINAL RESEARCH

MANAGEMENT OF MASTITIS IN POST PARTUM: LITERATURE REVIEW

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ABSTRACT	Keywords
Mastitis is inflammation of the breast that may be caused by a bacterial infection. Infection is a phenomenon that often occurs in breastfeeding mothers, mastitis certainly requires immediate and appropriate treatment, and mastitis that is not handled properly can affect breastfeeding. This study aims to review the management of mastitis. Delayed, inappropriate and inadequate treatment of mastitis can lead to recurrence, more extensive breast lesions, and even tissue damage. Mastitis is most common in the second and third weeks postpartum, with most reports indicating that 74% to 95% of cases occur within the first 12 weeks. However, it can occur at any stage of lactation, including the second year. Mastitis and breast abscess occur in all populations, whether the mother is breastfeeding or not. The reported incidence varies from a few to 33% of breastfeeding women but is usually under 10%. The results show that clinical observation that mastitis is caused by stagnation of milk in the breast, and that efficient ejection of milk as it forms can largely prevent the condition (Gunther, 1958). Therefore, breastfeeding contests are the most important part of mastitis treatment, and in cases of mastitis, breastfeeding should still be given with the correct breastfeeding technique. Antibiotics and symptomatic treatment can make a woman feel better temporarily, but if the milk output is not corrected, the condition can get worse or even if antibiotics are given.	*Postpartum; Mastitis; Management*

INTRODUCTION

Mastitis is an inflammatory condition of the breast that can be accompanied by infection. Inflammation of the breast during breastfeeding requires prompt and appropriate treatment. Without proper treatment, inflammation can lead to premature cessation of breastfeeding, which is considered the normative standard for infant feeding and nutrition. Based on the nutritional and immunological value of breast milk, recommendations from the American Academy of Pediatrics (AAP) and the World Health Organization (WHO) are exclusive breastfeeding until the age of 6 months (WHO, 2019).

Mastitis is a problem that is often found in breastfeeding mothers. It is estimated that about 3-20% of breastfeeding mothers can experience mastitis. There are two important things that underlie our attention to this case. First, because mastitis usually reduces milk production and is a reason for mothers to stop breastfeeding.

Second, because mastitis has the potential to increase vertical transmission in several diseases (especially AIDS). Most mastitis occurs within the first 6 weeks after the baby is born (most commonly in the 2nd and 3rd weeks), although mastitis can occur throughout breastfeeding even in women who are temporarily not breastfeeding (World Health Organization, 2000).

Awareness of inefficient milk ejection resulting from poor breastfeeding technique is an important underlying cause, but mastitis remains synonymous with breast infection according to many health professionals. They are often unable to help a woman with the condition continue to breastfeed (WHO, 2019).

The two main causes of mastitis are milk stasis and infection. Milk stasis is usually the primary cause, which may or may not be accompanied or develop into an infection. Gunther (1957) recognized from clinical observations that mastitis results from stagnation of milk in the breast.

Mothers who experience sore nipples, it will be an entry point for microorganisms to infect the breast. The habit of incomplete breast emptying process can cause stasis or breast engorgement which will then become a medium for the growth of microorganisms. The condition of the mother with fatigue can cause a decrease in the body's immune system, thus facilitating the occurrence of infection by microorganisms (IDAI, 2013). Without effective milk removal, non-infectious mastitis tends to progress to infectious mastitis, and infectious mastitis to abscess formation. Thomsen et al (1983) also correlated cell and bacterial counts with clinical findings, and found that it was impossible to ascertain from clinical signs whether or not infection was present.

Mothers who experience problems in breastfeeding will have an impact on exclusive breastfeeding mothers for their babies. One of the factors that influence the success of exclusive breastfeeding is the mother's physical factor. Mother's physical factors are related to the condition of the mother supports breastfeeding or not, such as fever, mastitis, and so on (Maharlouei, 2018)

The World Health Organization (WHO, 2015) states that the number of cases of breast infection that occurs in women such as cancer, tumors, mastitis, fibrocustic disease continues to increase, where breast cancer sufferers reach up to more than 1.2 million people are diagnosed, and 12% of them are diagnosed with breast cancer. breast infection in the form of mastitis in postpartum women (Sari et al., 2019)

A Cochrane review showed that the incidence of mastitis can be as high as 33% (Boakes et al., 2018). In Indonesia, it is estimated that there are 876,665 women diagnosed with mastitis. This shows that mastitis always increases from time to time (Efrizal, 2021). According to the East Java Provincial Health Office in 2018 there were 58% of postpartum mothers who experienced problems in breastfeeding, namely 23% experienced breast swelling, 13% sunken nipples, 9% sore nipples, 7% mastitis and 6% breast abscess so that breastfeeding on babies experience a decline (Rohmah et al., 2019).

Mother's lack of knowledge about the breastfeeding process can cause errors in breastfeeding positions which result in blisters on the mother's nipples. In addition, it also causes the process of releasing and releasing breast milk that is less than optimal, causing breast engorgement. Mastitis is one of the causes of early weaning in infants due to the pain and discomfort felt by nursing mothers. Lack of information about breastfeeding is considered as one of the causes of low knowledge of mothers about breastfeeding, causing mastitis (Permatasari et al., 2018).

Breastfeeding technique is an important factor compared to other risk factors that can increase the risk of mastitis (World Health Organization, 2000). The correct position and attachment of the baby to the mother's breast in breastfeeding techniques will reduce the possibility of problems in the breastfeeding process such as nipple blisters and mastitis in the mother (Haslan, 2020). Inappropriate breastfeeding techniques can result in problems with the breasts that occur during the breastfeeding process which are caused by the baby not suckling up to the areola (Potter, 2016).

Breastfeeding techniques can affect milk production, where if the breastfeeding technique is not correct it can cause sore nipples and make the mother reluctant to breastfeed and the baby rarely breastfeeds. It is increasingly recognized that poor breastfeeding technique resulting in inefficient milk production is an important cause of mastitis (Erliningsih et al., 2018). Indicators in the effective breastfeeding process include the correct position of the mother and baby (body position), proper attachment of the baby (latch), the effectiveness of the baby's sucking on the breast (effective sucking) (Rinata et al., 2016). Therefore always make sure the act of breastfeeding with the correct position and attitude. Another risk factor is the frequency of breastfeeding, it is advisable to breastfeed the baby as often as possible without a schedule because a healthy baby can empty one breast in about 5-7 minutes and the milk in the baby's stomach will empty within 2 hours, so it's best to breastfeed the baby at least every 2 hours (Erliningsih et al., 2018).

In addition to breastfeeding techniques, breastfeeding is the most important aspect of mastitis treatment, and in cases of mastitis breastfeeding is recommended to be continued. Antibiotics and symptomatic treatment can make a woman feel better temporarily, but if the milk output is not corrected, the condition may get worse or recur despite antibiotics. Another principle or management of mastitis treatment is the provision of antibiotic therapy, supportive counseling and symptomatic treatment (WHO, 2019). Based on the description above, researchers are interested in conducting a review of the management of mastitis in postpartum mothers.

METHOD

This study uses a qualitative approach (library research) by collecting data based on research results sought through publish or perish by searching through Google Scholar as many as 200 studies from 2012 to 2022 and filtering again according to current research studies, researchers then observe again so that it becomes material. The study qualitative approach is a method that is more relevant to be used in terms of observing and analyzing phenomena that occur.

RESULTS

Based on the results of research conducted by Hasanah et al (2017) entitled the relationship between breastfeeding techniques and the risk of mastitis, statistical test results were obtained. risk of mastitis in breastfeeding mothers in Kemuning Village, Arjasa District, Jember Regency (95% CI; p value 0.005). From the results of the analysis, the value of OR = 6.679, it means that breastfeeding mothers who have adequate breastfeeding techniques will have a higher risk of mastitis by 6.679 times compared to breastfeeding mothers who have good breastfeeding techniques. This is in line with the research of Rishel & Ramaita (2021) that there is a significant relationship between breastfeeding technique and the incidence of sore nipples,

where the better the mother's breastfeeding technique, the lower the incidence of sore nipples. Sore nipples can develop into mastitis if not treated properly.

Based on the results of Dewi (2021) research on the relationship between breastfeeding techniques and breast care practices with the incidence of breast milk dams at BPS Ponirah Margorejo Metro Selatan Metro City in 2017, it can be concluded, The results show that there is a relationship between breast care practices and the incidence of breast milk dams through the chi square test. p-value $0.015 <$, (α=0.05). Of the 35 respondents who experienced breast milk damming, 14 respondents and 23 (65.7%) respondents had carried out the correct breastfeeding technique and 26 (75.0%) had correctly practiced breast care. So there is a relationship between breastfeeding techniques and breast care practices with the incidence of breast milk dams because it is less than the p-value of 0.05.

Research conducted by (Egbe et al., 2016) entitled Prevalence and Risk Factors of Lactation Mastitis in Three Hospitals in Cameroon: A Cross-Sectional Study found that 71% (174/245) of the respondents did not know breastfeeding techniques and did not practice the habit of breastfeeding. Standard breastfeeding. Similar results were also obtained from research conducted by Arista (2016), showing that from 34 respondents there were 19 (55.9%) respondents who had poor breastfeeding techniques.

This is in line with the research conducted by Aminah (2018) entitled The Relationship between Breastfeeding Techniques and the Incidence of Mastitis in Breastfeeding Mothers in the Work Area of Pustu Pojok City of Kediri in 2018 which stated that only 21.6% (8/37) of respondents had the correct breastfeeding technique, 32.5% had adequate breastfeeding techniques, and 45.9% had inadequate breastfeeding techniques. Research conducted by Hasanah et al (2017) also showed similar results, namely only 36.8% (21/57) of breastfeeding mothers who had good breastfeeding techniques.

According to research conducted by Cullinane et al (2015) stated that in the breastfeeding technique, the problem of attachment by the baby to the mother's nipple was the most common, namely as many as 45 respondents (64.3%).

The results of research conducted by Fauziah et al (2015) with the title Effectiveness of Supervised Breast Care on Prevention of Breast Swelling in Postpartum Mothers to 26 respondents found that there was a significant difference between the scale of breast engorement in the supervised intervention group and the scale of breast engorement in the control group that was not supervised (independent). In hospital. Maternity Jeumpa Pontianak and RS. Bayangkara Pontianak in 2014. This is shown from the results of the Mann Whitney test with p = 0.000, meaning that the significance value is less than 0.05.

There is no research on supervised breast care for postpartum mothers. According to Wahyuni, (2018), breast milk that is not smooth can be caused by the accumulation of milk and congestion which can cause blockages in the lymphatics and veins that occur on the third postpartum day. This situation can trigger breast swelling and eventually mastitis occurs. The best management for breast engorgement is prevention such as effective breastfeeding position and attachment, use of a supportive or unwired bra and breastfeeding indefinitely and as often as possible (Joan Crookston, 2013). Supervised breast care is carried out by providing health education and supervising mothers who have just given birth to perform breast care for 3 consecutive

days and will see the effect of breast care on breast swelling on the fourth day.

The results of the analysis of research conducted by Erliningsih et al (2018) with the title of the relationship between breastfeeding intervals and the incidence of mastitis showed that there were 12 (85.7%) mothers suffering from mastitis from 14 respondents with long breastfeeding intervals and 6 (26.1%) mothers suffering from mastitis from 23 respondents with short breastfeeding intervals. From the results of statistical tests obtained p-value = 0.001.

This is in line with the theory which states that breast milk that is not secreted adequately will cause lactation to be suppressed (experiencing inhibition) due to swelling of the alveoli and basket cells that cannot contract. If there is swelling, it will be difficult for the breast to be fed to the baby because the breast loops are more prominent and the nipples become flatter making it difficult for the baby to suck. Furthermore, breasts that experience swelling will experience complications in the form of breast obstruction which will lead to mastitis (Wahyuni, 2018).

This is also in line with the research revealed by Bugis (2007) regarding the relationship of breastfeeding risk factors with the incidence of mastitis in hospitalized patients. DR. Karyadi Semarang in 2007 which showed that breastfeeding was a risk factor for mastitis in patients hospitalized in hospitals. Dr. Kariadi Semarang. This is evidenced by the prevalence ratio value of 2.09 with a 95% confidence interval of 1.634 – 2.675 (Bugis, 2007).

Ensuring smooth expenditure is one of the essential treatments. Antibiotics and symptomatic treatment can make a woman feel better temporarily, but if the milk output is not corrected, the condition may get worse or recur despite antibiotics.

DISCUSSION

Prevention of the incidence of mastitis can be done by paying attention to risk factors. When the breast is full and swollen (engorgement), the baby usually becomes difficult to latch on properly, because the surface of the breast becomes very tense. Mothers are helped to express some breast milk every 3-4 hours by hand expressing or the recommended breast pump. Before expressing breast milk, massage on the neck and back can stimulate the release of the hormone oxytocin which causes milk to flow and reduces pain. The correct hand-expressing technique needs to be shown and taught to the mother so that the milking is effective. Expressed breast milk can be fed to babies using a cup or spoon. This breast engorgement needs to be treated immediately to prevent the occurrence of Feedback Inhibitors of Lactin (FIL) which inhibits the distribution of breast milk.

Incomplete emptying or compression of the ducts from tight clothing can cause breast milk to stagnate. Mothers are advised to immediately examine her breasts if she feels a lump, feels pain and redness. In addition, mothers also need to rest, increase the frequency of breastfeeding, especially on the problematic side of the breast and do massage and warm compresses in the lump area (IDAI, 2013).

Management of mastitis begins with improving the mother's breastfeeding technique. Good milk flow is important in the management of mastitis because milk stasis is a problem that usually initiates mastitis. Mothers are advised to breastfeed more often starting from the problematic breast. But if the mother feels very painful, she can start breastfeeding from the side of the healthy breast, then immediately transferred to the problem breast, when some of the milk has let down and the pain has reduced. Position the baby on the breast so that the chin or tip of the nose is where the

blockage is. This will help drain milk from the area (IDAI, 2013).

It is increasingly recognized that poor breastfeeding technique resulting in inefficient milk production is an important cause of mastitis (World Health Organization, 2000). Therefore always make sure the act of breastfeeding with the right position and attitude. Mistakes in attitude while breastfeeding cause ductal obstruction. Massage before lactation is one of the most effective measures to avoid blockages in the ducts. Using a pillow support while breastfeeding can also help make the breastfeeding position better.

The structure of the breast consists of three parts, namely the skin, subcutaneous tissue and the corpus mammae, the corpus mammae consists of parenchyma and stroma. Parenchyma is a structure consisting of lactiferous ducts, ducts, lobes and alveoli. There are 15-20 lactiferous ducts, each of which is divided into 20-40 ductule branches. Then the ductules branch again into 10-100 alveoli each ductulus so that it forms like a tree. So it is recommended to breastfeed the baby as often as possible without a schedule because a healthy baby can empty one breast in about 5-7 minutes and the milk in the baby's stomach will empty within 2 hours, so it's best to breastfeed the baby at least every 2 hours. If breast milk is not expelled adequately in long intervals, it will cause suppressed lactation (impaired) due to swelling of the alveoli and basket cells that cannot contract. If there is swelling, it will be difficult for the breast to be fed to the baby because the breast loops are more prominent and the nipples become flatter making it difficult for the baby to suck. Furthermore, breasts that experience swelling will experience complications in the form of breast blockage which will lead to mastitis.

There are 4 aspects of breast care performed. First, the use of the right bra.

Breastfeeding mothers should avoid bras that are wired and elastic around the bra cups because they can suppress and prevent the duct or flow of milk, and do not use a bra during sleep. There are still some respondents in this study who use a wire bra in their daily life. The reason mothers use wired bras is because the only available bras at home are wire bras and haven't bought a special bra for breastfeeding. This reason could be due to the mother's low economic factor so that she cannot afford to buy a special bra for breastfeeding which is more expensive than a regular bra. Second, good breastfeeding position and attachment. There are several breastfeeding positions that can be used by mothers such as cross-cradle position, cradle-position, footbal position and side-lying position (Joan Crookston, 2013). Good attachment must also be supported by the right position of breastfeeding the baby. This theory is supported by the fact that occurred in the field at the time of the study that most of the mothers with good breastfeeding position and attachment, rarely experienced blisters or sore nipples. This situation was experienced by mothers, especially those in the intervention group, because every day these mothers received supervision and teaching if there were poor breastfeeding positions and attachments. Third, warm compresses before breastfeeding. Warm compresses are carried out before the mother breastfeeds for 15-20 minutes to stimulate milk flow and the letdown reflex (Mohrbacher, 2005).

Based on research conducted by Arora et al (2009) who examined the comparison of cabbage leaves with warm and cold compresses as a treatment for breast engorgement, it turns out that these two treatments are equally effective in reducing breast swelling and breast pain in postpartum women. However, warm and cold compresses are more effective than

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cabbage leaves for relieving pain during breast engorgement. Different from Arora et al (2009), research conducted by researchers only used warm compresses which were carried out before mothers gave breast milk to their children, while warm and cold compresses in Arora et al (2009) were given to postpartum mothers who were experiencing breast swelling and The warm-cold compress is done alternately from hot to cold to stimulate and relieve swelling pain. Although there are differences in the implementation, the aim of the researchers doing warm compresses is to help stimulate milk flow and the mother's let-down reflex so that mothers who are on the first to third postpartum days can produce breast milk as soon as possible and babies can get exclusive breastfeeding. Fourth, manual removal of milk or breast pump when the breast is full. According WHO (2016), babies who find it difficult to get breast milk because the mother's breasts are swollen and hard can be removed manually or with a breast pump. Expression of breast milk is needed to maintain or maintain a milk supply. This is in line with research conducted by Whittlestone who performed milk removal for nursing mothers using a breast expresser. Breast expressers (breast pumps) are indeed more effective in removing or emptying breast milk from mothers who experience swelling. When compared to manual (by hand) dispensing of breast milk, breast pumps are indeed much more expensive. Dispensing milk manually by hand is indeed more economical and affordable than using a pump. However, when viewed in terms of energy and time, manually it takes longer to express breast milk and the mother has to use more energy to express the milk. This will make the mother tired quickly and most likely to give formula milk.

Various methods to help breastfeeding mothers who experience mastitis include helping the mother to increase the baby's attachment to the breast (correct breastfeeding technique), encouraging breastfeeding mothers to breastfeed often, as often and as long as the baby wants, without time limits. And if necessary, express breast milk by hand or with a pump or hot bottle, until the breastfeeding process can be continued.

CONCLUSIONS

The results of all the articles found that there are many ways in the management of mastitis, namely correct breastfeeding techniques, good breastfeeding positions and attachments. There are several breastfeeding positions that can be used by mothers such as cross-cradle position, cradle-position, footbal position and side-lying position (Joan Crookston, 2013). Good attachment must also be supported by the right position of breastfeeding the baby. Warm compresses before feeding. Warm compresses are carried out before the mother breastfeeds for 15-20 minutes to stimulate milk flow and the letdown reflex (Mohrbacher, 2005). Manual ejection of milk or a breast pump when the breast is full. According WHO (2016), babies who find it difficult to get breast milk because the mother's breasts are swollen and hard can be removed manually or with a breast pump. Expression of breast milk is needed to maintain or maintain a milk supply. This is in line with research conducted by Whittlestone who performed milk removal for nursing mothers using a breast expresser. Breast expressers (breast pumps) are indeed more effective in removing or emptying breast milk from mothers who experience swelling.

A possible cause of mastitis is failure to remove milk from the breast effectively; Therefore, it is important to understand how

babies express breast milk. To express milk efficiently and effectively, the baby needs to be properly latched on to the breast, and allowed to suckle indefinitely at the breast. Expenditure of breast milk should be regulated by the needs of the baby to suckle. If the baby's position is not correct, or if feeding time is limited, he or she will not be able to remove milk from the breast effectively or efficiently. Health workers can also provide education to mothers about breastfeeding techniques and breastfeeding according to the wishes of the baby.

SUGGESTION

It is recommended that in cases of mastitis, mothers are encouraged to continue breastfeeding their babies accompanied by proper breastfeeding techniques, in order to reduce damming in breast milk, but if there are sore nipples, it is better to use a tool to distribute breast milk to their babies and provide information on how to breastfeed correctly and how to do it. Lactation management is very important for the prevention of mastitis. Health workers as health service providers, especially midwives, provide education to mothers in maternal care during the puerperium or postpartum period.

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ORIGINAL RESEARCH

LIFESTYLE OF POLYCYSTIC OVARY PATIENTS IN TRESNA MATERNITY HOSPITAL, MATARAM CITY IN 2020

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ABSTRACT	Keywords
Not a few married couples have to wait a long time to have children, some have even given up on having a baby because they have been married for a long time, and the wife has not yet conceived. This situation is usually called infertility or in medical language is known as infertile. One of the factors that cause infertility comes from an unhealthy lifestyle. The number of infertile couples is one of them Polycystic Ovary (PCO) at Tresna Maternity Hospital based on information from existing data. PCO are small follicles measuring 5-7 mm or 0.5-0.7 cm. This study aims to determine the lifestyle of patients Polycystic Ovary at Tresna Maternity Hospital Mataram City in 2020. This research was included in a descriptive design study which was conducted on 6-20 September 2020 at Tresna Maternity Hospital, Mataram City. The population in this study were mothers who had Polycystic Ovary with a sample of 26 people with a sampling technique total sampling where the sampling technique uses the total population. Data analysis using univariate analysis. Research that has been conducted on 26 samples can be seen that most of the mothers suffer from it Polycystic Ovary 18 samples (69.2%) are aged 20-35 years and the majority of mothers who have a healthy lifestyle are 22 samples (84.6%). Conclusion, suffering mother Polycystic Ovary already live a healthy lifestyle, so it is hoped that mothers will pay more attention to their lifestyle such as exercise and food consumed so that their lifestyle will be better.	*Polycystic ovary (PCO), lifestyle, maternity hospital*

INTRODUCTION

Every fair sex certainly wants to feel the experience of being a complete woman by conceiving and giving birth to children. That is one of the goals of a pair of human children deciding to tie the rope of love by marriage, to get offspring and build a happy family. But not a few married couples who have to wait a long time to get offspring. There are even those who have given up on having a baby because they have been married for a long time, and their wife has not yet conceived. This situation is usually called infertility or in medical language it is called infertile (Hecker, 2010).

According to the World Health Organization (WHO), infertility is the inability of a married couple to get pregnant after one year of marriage, having regular sexual intercourse and without using any contraceptives (WHO, 2004., Triwani, 2013). The failure of a husband and wife to

get offspring can be caused by problems in men and or women. Approximately 40% of infertility occurs due to female factors, 40% male factors, and 30% male and female factors (Triwani, 2013). Based on a survey in the United States in 2006-2010, there were more than 1.5 million married women aged 15-44 who were infertile (Tammy, 2015). In Iran there are 5.52% of couples of childbearing age who experience infertility, including primary infertility of 3.48% and secondary infertility of 2.04% (Aflatonia, 2009).

From data from the Central Bureau of Statistics (BPS) in Indonesia, it is estimated that 12% of married couples are unable to produce children (Ahsan, 2012). According to the Indonesian Association of Obstetrics and Gynecology, the prevalence of infertility with idiopathic causes is reported to be around 22-28%, as many as 22% in women aged less than 35 years and 26% in those aged more than 35 years (POGI, 2013). According to research put forward by the World Health Organization (World Health Organization, WHO) of 33 patients studied by health centers in 25 countries including eastern and western Europe, Canada, Australia, Scandinavia, Africa, Asia, Latin America and the Mediterranean it was concluded that the causes of infertility are impaired ovarian function 29%, tubal occlusion and tubal attachments 32%, endometriosis 3% and 36% have no known cause. Infertile data worldwide according to WHO and other reports, it is estimated that 8-10% or around 50-80 million married couples worldwide experience infertility problems, thus making infertility an urgent problem, awareness of this matter is increasing rapidly, the number of couples infertile in Indonesia can be calculated from the number of women who have been married and do not have children who are still alive, then according to the population census there are 12% both in villages and in cities, or approximately 3 million infertile couples throughout Indonesia (Wiknjosastro, 2010). Infertility in women is generally caused by ovulation disorders, tubal disorders, uterine disorders and others. One of the causes of ovulation disorders is Polycystic Ovary Syndrome (PCOS) (Putri, 2016). According to Missmer et al. (2013) as many as 30% of PCOS people experience anovulation (Riska Mareta, 2018).

Data at the Tresna Maternity Hospital in 2020 showed that 300 mothers visited and examined themselves in the obstetric room in 2019 from September to December, 66 people were diagnosed with infertility (22.0%) and 234 were not diagnosed people (78.0%). Whereas in 2020 from January to July there were 525 fertile couples, 103 (19.6%) people were diagnosed with infertility, 422 people (80.3%) were not diagnosed with infertility (Tresna Maternity Hospital, 2020). From the data obtained by the author at the Tresna Maternity Hospital, the number of sufferers Polycystic Ovary (PCO) as many as 26 people.

Polycystic ovary syndrome (PCOS or Polycystic Ovary Syndrome) is also known as Stein-Leventhal Syndrome. In 1935 it was first described as amenorrhea associated with bilateral polycystic ovaries (Fahimeh, 2015). However, it is currently interpreted as a metabolic clinical condition that often occurs in women of reproductive age in the short term which will cause reproductive dysfunction. However, if it occurs in the long term it will also cause metabolic disorders (Moran, 2004). One of the diagnostic criteria for polycystic ovary syndrome is the presence of 2 or more of the following criteria, namely irregular menstruation, chronic anovulation, evidence of hyperandrogenism in biochemical examinations and evidence of polycystic ovaries in sonographic examination (Carmina, 2006). The presence of chronic anovulation is a risk factor for ovarian

cancer. Therefore, treatment for ovarian cysts is not only limited to correcting short-term problems such as reproductive problems but also the possible long-term effects.

Infertility can be caused by various factors, both from husband and wife factors. Meanwhile, infertility for husbands is around 40%, including sperm abnormalities, narrowing of the seminal canal, immunological or antibody factors, and nutritional factors. The combined factors caused by both husband and wife are about 3%. Meanwhile due to unexplained factors around 2% (Anwar, 2008). The cause of a woman and a man becoming infertile can also be caused by an increased risk factor, namely an uncontrolled lifestyle that has been applied since their teens. These factors are age, smoking habits, consuming alcohol, stress, poor diet, strenuous exercise, experiencing overweight or underweight, sexually transmitted diseases, poor environmental conditions (air and water pollution), as well as health problems related to hormones. One of the factors causing infertility in women is from the egg, the most common of which is PCO. PCO are small follicles which are usually less than 1.8 cm / 18 mm in size and can be examined through diagnostic tests, namely ultrasonography (USG) transvaginal.

Based on preliminary studies, some patients have received treatment to treat PCO, but many have not had a good effect. One of the causes of infertility is lifestyle, so researchers are interested in examining the lifestyle of sufferers polycystic ovary at the Tresna Maternity Hospital Mataram City, West Nusa Tenggara.

METHOD
Design
The design used in this study is a descriptive design which is a research conducted to describe or describe a phenomenon that occurs in society. This research was conducted on September 6-20 2020 at Tresna Maternity Hospital, Mataram City.

Samples and sampling techniques
All mothers suffer Polycystic Ovary in the Tresna Maternity Hospital, Mataram City, from January to June 2020, there were 26 people who were used as the population and sample. Sampling technique using total sampling where the sampling technique uses the total population.

Instrument
The tool used in collecting research data is a questionnaire in which there are questions that are well structured, mature, where the respondent only has to give answers or by giving certain signs. The type of questionnaire used was a closed questionnaire (Closed Ended) is a form of question that makes it easier for respondents to provide answers, and is also easy to process (tabulate). The question form used is Dischotomous Choice where the respondent is only provided with two answers/alternatives, and only chooses one of them.

Intervention
First, respondents who agreed to be the research sample were asked to fill out a consent form to become respondents, namely informed consent. Then, in the second stage, respondents were asked to fill out a questionnaire to find out the respondent's data and the lifestyle they lived.

Analysis Data
This study conducted research with data collection methods by observation, identification, interviews and filling out questionnaires. The collected data were analyzed through the SPSS program and continued with analysis using descriptive analysis using tabulations of the frequency distribution of the studied variables which were then interpreted in the form of narratives and tables. The data that has been

processed can be used as a basis for discussing problem statements which can then be presented in tabular form and conclusions can be drawn.

Ethical considerations

In conducting research, it is necessary to obtain recommendations from the institution or other parties by submitting an application for permission to the institution or institution where the research is conducted. When conducting research, researchers need to pay attention to several ethical considerations or aspects, including: anonymity, confidentiality, autonomy, justice and beneficence. The researcher asked the respondent's consent to participate (informed consent) before the research was conducted.

RESULTS

Table 1. Distribution of the frequency of respondents based on the age of the mother with Polycystic Ovary at Tresna Maternity Hospital in 2020

Age	Amount	Presentase (%)
< 20 years	0	0
20-35 year	18	69.2
>35 years	8	30.8
Amount	26	100

Source: Primary Data, 2020

Based on table 1 above shows that the age of the patient's mother Polycystic Ovary, most have 20-35 years of age by 18 respondents (69.2%) and not found at the age of <20 years.

Table 2. Distribution of respondents based on lifestyle in sufferers Polycystic Ovary at Tresna Maternity Hospital in 2020

Category	Amount	Presentase (%)
Healthy	22	84.6
Not healthy	4	15.4
Amount	26	100

Source: Primary Data, 2020

Based on table 2 above, it shows that of the 26 respondents based on lifestyle, it turned out that 22 respondents (84.6%) had a healthy lifestyle and 4 respondents (15.4%) had an unhealthy lifestyle.

DISCUSSION

Mother's age in sufferers polycystic ovary

Based on the results of research conducted by researchers on 26 respondents, it can be seen that the majority of respondents were aged 20-35 years, 18 respondents (69.2%) and were not found at age <20 years. Age is one of the factors that influence female infertility. At the reproductive age of 20-35 years the reproductive organs are ready to be fertilized, fertility at this age can decrease because there are many influencing factors such as body weight that is not ideal (too fat or too thin), stress, lack of exercise and disease in the reproductive organs. In this study, all respondents aged 20-35 years did not exercise regularly. This research is in accordance with research conducted by Gita Hafas in 2010 with the title Effect of Age on Female Fertility, found that the reproductive age of 20-34 years was 22% (Gita Hafas, 2010).

From the results of the research above, based on the provisions of the BKKBN, this age is included in the healthy reproductive age, namely the age of 20-35 years which is related to physical and psychological health, free from disability and related to the reproductive system, its functions and processes (Kemenpppa, 2016 in Arlyana, 2021). Based on the results of the study, it was also found that the outcomes of pregnant women at risk of having a baby born with asphyxia (63%) due to impaired uterine blood flow, preeclampsia and eclampsia (Wahyuni & Riyanti, 2018).

Lifestyle of polycystic ovary sufferers

Based on the results of research conducted by researchers on 26 respondents, it can be seen that the majority of respondents have a healthy lifestyle of 22 respondents (84.6%) and a small proportion of respondents have an unhealthy lifestyle of 4 respondents (15.4%).

Lifestyle is a lifestyle by paying attention to certain factors that affect daily life (Soekidjo, 2012). Factors that affect a healthy lifestyle, namely behavior patterns including skipping breakfast, not moving enough, eating high-calorie snacks and lifestyle changes including lack of exercise, drinks containing caffeine and consuming less vegetables and fruit.

In this study, it was found that 22 respondents experienced a healthy life but still suffered Polycystic Ovary because 18 respondents with PCO are career women or workers. This makes the mother often feel tired due to her workload and the average number of hours worked $\geq$ 10 hours a day so that mothers are vulnerable to stress which can affect ovulation. In addition, it was found that 4 respondents were housewives, who spend more time at home, but in their lifestyle mothers often consume foods that should be limited but are consumed in excess, such as carbohydrates and do not carry out physical movements such as sports. And from research on 26 respondents, both those whose life categories were healthy or unhealthy, most of them rarely did sports and were prone to stress. This research is in accordance with research conducted by Nervian in 2013 with the title Effect of Lifestyle on Infertility, it was found that infertile women are due to an unhealthy lifestyle.

CONCLUSIONS

Based on data processing and analysis regarding the study "Lifestyle of Polycystic Ovary Sufferers at Tresna Maternity Hospital in 2015" most of the mothers who suffer from Polycystic Ovary are aged 20-35 years as many as 18 samples (69.2%) and most of the mothers who have a lifestyle healthy as many as 22 samples (84.6%). In conclusion, mothers who suffer from Polycystic Ovary already live a healthy lifestyle, so it is hoped that mothers will pay more attention to their lifestyle such as exercise and food consumed so that their lifestyle will be better.

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ORIGINAL RESEARCH

THE EFFECT OF THE COMBINATION OF BACK ACCUSED THERAPY AND CINNAMON BARK DECOCTION ON FASTING BLOOD SUGAR LEVELS IN PATIENTS WITH DIABETES MELLITUS TYPE II

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ABSTRACT	Keywords
Diabetes mellitus is a degenerative disease that occurs due to chronic metabolic disorders because the pancreas is not enough to produce insulin or the body cannot use the insulin that is produced optimally and effectively. Alternative treatment for type II diabetes mellitus patients with complementary therapy, a combination of back acupressure and cinnamon bark decoction in improving fasting blood sugar levels. This study was conducted to prove the effect of a combination of back acupressure therapy and cinnamon decoction on fasting blood levels in type II diabetes patients. This research is one of a kind true experimental with a plan pretest-posttest control group design. The total sample of 56 people was divided into 2 groups, each consisting of 28 respondents in the intervention group who were given back acupressure and cinnamon bark decoction, while 28 respondents in the control group were only given 5 pillars of diabetes mellitus treatment for 21 days. Then measurements of fasting blood sugar levels were carried out on the 8th and 21st days. Data tested using independent t-test. There was a decrease in blood pressure before and after treatment, namely 172.25 mg/dl to 137.07 mg/dl with a difference of 63.45 mg/dl in the intervention group, then 167.75 mg/dl to 154.96 mg/dl with a difference 76.33 mg/dl in the control group. Test results independent t-test showed a difference in decreasing fasting blood sugar levels between the intervention group and the control group with a p value of 0.000. Conclusion, giving a combination of acupressure and cinnamon bark decoction for 21 days is effective in reducing fasting blood sugar levels in patients with type II diabetes mellitus.	*Acupressure, cinnamon bark, fasting blood sugar levels, type II diabetes mellitus*

INTRODUCTION

Diabetes mellitus is a disease that is well known among the public which is a threat to global public health and one of the main causes of death in adults worldwide.[1] Diabetes mellitus is a degenerative disease that occurs due to chronic metabolic disorders because the pancreas is not enough to produce insulin or the body cannot use the insulin that is produced optimally and effectively.[1] Diabetes mellitus can cause several complications ranging from head to toe, from heart disease and stroke, kidney failure to infections that result in amputation of limbs, to cause death in sufferers.[2] The causes of Type II Diabetes Mellitus (DM)

are heredity (50%), age, gender is more common (80.4%) compared to men (25%), obesity, lack of physical activity, unhealthy eating patterns, stress, drugs.[3,4]

International Diabetes Federation (IDF) in 2019 found that there were at least 463 million people in the world aged 20-79 years, equivalent to a prevalence rate of 9.3% of the total population at the same age and also estimated the prevalence of diabetes mellitus by sex in 2019, namely 9% in women and 9.65% in men. The prevalence of diabetes mellitus is estimated to increase with increasing age of the population to 19.9% or 111.2 million people aged 65-79 years. The number is predicted to continue to increase until it reaches 578 million in 2030 and 700 million in 2045.[5,6] The data from the 2018 Basic Health Research state that the prevalence rate of diabetes mellitus in Indonesia nationally is (8.5%), when compared to the results of Basic Health Research in 2013 (6.9%) this shows that there is an increase in the prevalence of diabetes mellitus. prevalence of (1.6%). Data from the Central Java Provincial Health Office in 2018 showed that the prevalence of diabetes mellitus in Central Java was 2.1% of sufferers.[7] Preliminary studies that have been conducted at the Srondol Health Center (PKM) found data that the population of diabetes mellitus in 2021 was 1223 people and in January 2022 as many as 60 people had diabetes mellitus.

There are several classifications of diabetes mellitus, one of which is type 2 diabetes, which occurs due to insulin resistance or cell dysfunctionbpancreas.[8] Type 2 diabetes mellitus is not caused by insulin secretion, but insulin target cells fail or cannot respond to insulin normally or are resistant to insulin.[9,10] Insulin resistance often occurs due to obesity, lack of physical activity or aging. The classic complaints of Diabetes Mellitus include polyuria, polydipsia, polyphagia, and unexplained

weight loss, while other complaints can be in the form of a feeling of weakness, tingling, itching, blurred vision, and erectile dysfunction in men, and itching of the vulva in women.[8] Beta cell failure is the newest major cause, broadly speaking the pathophysiology of type 2 DM is caused by eleven things (egregious eleven) which includes: pancreatic beta cell failure, effect sincretin decrease that can occur due to a decrease in insulin in the cellsb, the alpha cells of the pancreas function in the synthesis of glucagon which in the fasting state will increase its level in the plasma which will causehepatic glucose production (HGP) in the basal state increased significantly compared to normal individuals, fat cells increased lipolysis and improvement Free fatty Acid (FFA) in plasma, muscle multiple insulin performance disorders in intra myocellular as a result of impaired tyrosine phosphorylation resulting in impaired glucose transport in muscle cells, decreased glycogen synthesis, and decreased glucose oxidation, liver, brain, large intestine, immune/inflammation deregulation, small intestine/stomach and kidney.[11] Handling diabetes mellitus requires proper treatment so that blood sugar can be controlled. Actions that can be taken in preventing and controlling glucose in the blood and improving insulin absorption by body cells include the 5 pillars of implementing DM, among others; education, diet, physical activity, medication and blood sugar monitoring.[12] In addition to the 5 pillars in the management of DM, another therapy that can be done is using therapy non pharmacology or complementary therapy.[12]

One of the therapies used to lower blood glucose levels and improve insulin absorption is giving back acupressure therapy and giving cinnamon consumption.[13,14] Acupressure is an action to provide stimulation at certain points using

the fingers with pressure or mechanical techniques. The acupressure technique with the back acupressure method is a healing therapy which is performed on the back area by pressing and vibrating it, using certain points, the back acupressure itself is useful for stimulating the back nerves.[15] The main point of acupressure which is useful for lowering blood sugar levels is the BL 15 point (without), point Bl 20 (pi his), point BL 22 (we isu), point BL 23 (sen su).[16] The basic mechanism of acupressure therapy is to lower blood sugar levels by stimulating the points acupoint which is also related to the pancreas to produce insulin and improve blood circulation in the back so that it can stimulate the performance of the pancreas in order to increase insulin resistance, increase the number of receptors on target cells and accelerate the use of glucose, thereby reducing blood sugar levels.[14]

Previous studies have shown that acupressure is effective in lowering blood sugar levels with a significant value (p<0.05). Previous research has shown that this back acupressure therapy has one of the benefits, namely improving blood circulation so that glucose in the blood circulation can be metabolized properly. Research entitled The Effect of Acupressure Therapy on Blood Sugar Levels in Patients with Type II Diabetes Mellitus at the Internal Medicine Polyclinic at Tk II Hospital, dr. Soedjono Magelang in 2016[14] using the true experiment method pretest and posttest with control group design with a sample of 52 people, 26 intervention groups and 26 control groups. The intervention group received six times of acupressure for three weeks with blood measurements before and after each acupressure. The results showed that the median blood after acupressure (150.50 mg/dl) was significantly lower than before acupressure (181, mg/dl).value=0,031) effect size 0,5 (modest effect).[14] Research by Zarvasi, et al

in 2018 showed that acupressure was effective in reducing fasting blood sugar levels in diabetes mellitus with an average fasting blood sugar level before treatment was 128.30 mg/dl and after treatment in the intervention group was 122.23 with a p value (p value= 0,001). Effect size 0,40 (Modest effect).[17]

Cinnamon is a herbal or spice plant that is often used and consumed by Indonesian people. This plant also contains chemical compounds such as selenium, safrole, essential oils, eugenol, tenin, cinnamaldehyde, resin, potassium oxalate and tanners and flavonoids.[18] Flavonoids are natural organic compounds found in roots, leaves, bark, stamens, flowers, fruit and fruit seeds of plants. Flavonoids contained in cinnamon can improve the performance of glucose metabolism and convert glucose into energy, this process can increase cell sensitivity to insulin so that glucose levels in the blood decrease.[19,20] Flavonoids can lower blood sugar levels with their ability as antioxidants that are protective against cell damageb as a producer of insulin and can increase insulin sensitivity. Antioxidants can suppress beta cell apoptosis without changing the proliferation of pancreatic beta cells.[21] Especially the ability of flavonoid squercetin in hibiting glucose transporter 2 (GLUT 2) intestinal mucosa so that it can reduce glucose absorption. This can cause a reduction in the absorption of glucose and fructose from the intestine so that blood glucose levels fall. When quercetin When ingested with glucose, hyperglycemia is significantly reduced.[13] So that flavonoids can provide beneficial effects in fighting diabetes mellitus, both through the ability to control blood sugar levels and optimize the work of the pancreas organ.[20] Apart from other Flavonoids, cinnamon contains selenium, which is a micro-nutrient that functions as an antioxidant. Selenium contains proteins that have antioxidant

effects. Seleno protein plays a role in protecting against stress oxidative through production Reactive Oxygen Species (ROS) and Reactive Nitrogen Species (RNS). ROS affect B cell function failure and chronic DM complications.[22]

Research entitled the effect of cinnamon extract on decreasing blood sugar in type II DM sufferers[18] In this study, 20 respondents were given cinnamon consumption twice a day in the morning and in the evening for 7 days. The results showed that there was a difference in the average blood sugar level before consuming cinnamon of 263.40 mg/dl and after consuming cinnamon extract of 225.65 mg/dl with a value of (p value = 0.001) with effect size 0,1 (weak effect).[18] Research entitled The Effect of Cinnamon Decoction on Fasting Blood Sugar Levels in Type 2 Diabetes Mellitus Patients[23] in his research, 10 grams of cinnamon was boiled with 100cc of water until it boiled for 5 minutes, then the cinnamon boiled water was consumed while warm immediately after breakfast and dinner. Respondents' fasting blood sugar was checked every morning at 06.30-08.30 where respondents were previously asked to fast at night for at least 8 hours. /dl and after treatment in the intervention group of 220.84 mg/dl with a value of (p value=0,034) effect size 0,37 (Modest effect).[23] Research with the title effect of combination therapy acupressure and foot exercise to changes in scores ankle brachial index (ABI) and blood sugar in type II DM patients in 2017[24] in his research using the method Quasi experimental control group pre-test post-test design and sampling technique consecutive sampling with 20 respondents stated that there was a significant difference in blood sugar pre and post intervention group (p value = 0.138), where the blood sugar before the intervention was 177.40 mg/dL after the

treatment became 125.10 mg/dL. Effect size 0,5 (Modest effect).[24]

The above data shows that previous research on acupressure and giving cinnamon decoction was statistically significant on blood sugar levels in type II DM patients, but clinically these studies have not shown achievement of normal values from examination of fasting blood sugar levels. To improve the health status of people with diabetes mellitus, combination interventions are needed, namely giving acupressure with acupressure and cinnamon decoction. This combination can improve insulin function, stimulate insulin production, increase peripheral circulation and regenerate blood vessel cells and insulin absorption in cells. Previous studies have only examined acupressure on blood sugar levels and there has been no research on acupressure on blood sugar levels. Research related to acupressure has been linked to blood sugar levels. However, until now there has been no research in the field of nursing that specializes in examining the administration of full-blooded back acupressure by giving as much as six times of acupressure for 21 days combined with giving 100 grams of cinnamon decoction boiled with 200cc water until boiling for 5 minutes given in the morning and evening day in 21 days which can reduce blood sugar levels in the hospital or in the community, judging from the availability and price considerations, cinnamon is easy to get and also affordable. In this regard, the authors are interested in conducting research on the effectiveness of the Combination of Acupressure Therapy and Cinnamon Stewing on Fasting Blood Sugar Levels in Patients with Diabetes Mellitus Type II in reducing blood sugar levels and controlling levels in type II DM patients.

METHOD

Design

The research design carried out is of a type True Experimental with research design Pretest-Posttest randomized control group design used to determine the effect of a combination of back acupressure and cinnamon bark decoction. Both groups were measured for blood sugar levels prior to conducting the study (pretest). After that, the experimental group was given back acupressure and cinnamon bark decoction for 21 days. Whereas the control group was only given 5 pillars of managing diabetes mellitus for 21 days. Then measurements of fasting blood sugar levels were carried out on the 8th and 21st days.

Samples and sampling techniques

The study population in this study were type II diabetes mellitus patients in the Working Area of the Srondol Banyumanik Health Center, Central Java. Determination of the minimum number of samples using the technique probability sampling by method proporsional random sampling and based on inclusion and exclusion criteria, 56 respondents were divided into two groups with 28 respondents each in the intervention group and 28 respondents in the control group.

Instrument

The instruments used in this study included: Respondent characteristic questionnaire, photometer and Standard Operating Procedures (SPO) for acupressure therapy and giving cinnamon decoction and checking fasting blood sugar levels. The characteristic questionnaire contains several questions about the respondent's biodata which include: initial name, age, gender, level of education, occupation, length of time suffering from DM, smoking history, exercise history. Respondents who were willing to become research samples were examined for fasting blood sugar levels using venous blood, which was carried out

by the Srondol Health Center laboratory team using spectrophotometry using a photometer. Monitoring blood sugar levels using an observation sheet for blood sugar levels, this sheet contains data on the results of measuring fasting blood sugar levels (GDP), values for fasting blood sugar levels of 80-109 mg/dl (good), 110-125 mg/dl (moderate) and >125 mg/dl (bad). Researchers conducted validity and reliability tests on standard operating procedures for checking fasting blood sugar levels, then researchers conducted consultations with competent experts/experts in the treatment and control of diabetes mellitus.

Intervention

The research process begins with conduct sample selection proporsional random sampling based on gender – male and female. Selected respondents were asked to fill out a sheet informed consent for their willingness to be respondents. Researchers assisted enumerators conducting a pretest on type II DM patients. Researchers and enumerators do a fasting blood sugar test pre-test in the intervention group and the control group. The enumerator's educational background is a nurse who understands how to acupressure the back acupressure which has previously been done apperception in this study. Then, the intervention group in give a combination of acupressure treatment for back acupressure on day 1 to day 21 with cinnamon decoction on day 3, day 5, day 7, day 10, day 12, day 14 , the 17th day, the 19th day, and the 21st day. Meanwhile, the control group only received 5 pillars of managing diabetes mellitus by taking 500 mg of metformin, an anti-diabetic drug obtained from the Community Health centers. Examination of fasting blood sugar levels at the end of the observation (post-test) in the intervention group and the control group after being given the

combination treatment of full-blooded back and cinnamon stew. The measurement results are then entered into the observation sheet of fasting blood sugar levels.

Analysis Data

This research was carried out by researchers in collecting data with the method of identification, observation, interviews and filling out questionnaires. The data that has been obtained is then carried out statistical analysis using the program Statistical Package For The Social Science (SPSS) 24.0 for Window. However, before the analysis test is carried out, the data normality test is first carried out. Where the normality test is used is the test Shapiro-Wilk because the sample is <50 respondents. The average fasting blood sugar level is pretest and posttest normal distribution results (p > 0.05) so that the bivariate analysis uses a parametric test. In the bivariate analysis, the parametric test was carried out using the test Independent T-test. Data processing is used for the basis of discussion of the problem statement which is then presented in tabular form so that conclusions can be drawn.

Ethical considerations

The researcher must first ask for permission to do research from the Head of the Health Applied Masters Study Program at the Semarang Ministry of Health Polytechnic, then the Semarang City Health Office, submit a permit to the research location at the Srondol Banyumanik Semarang Health Center to conduct data collection and the research process. When conducting research, researchers need to pay attention to several considerations or ethical aspects, including: anonymity, confidentially, autonomy, justice and beneficiency. The researcher asked for consent to the participation of the respondents (informed consent) before the research is done.

RESULT

Table 1. Correlation of confounding variables and fasting blood sugar in type II DM patients

Characteristics	Diabetic Client		R
	n	%	
Age			
41-60 years	20	35.7%	0.582
>60 years	36	64.3%	
Gender			
Male	29	51.8	0.389
Female	27	48.2	
Long Suffering DM			
<5 years	11	19.6	
6-10 years	44	78.6	0.105
>10 years	1	1.8	

Homogeneity test

Based on table 1 above, it shows that the age of most respondents is >60 years old. The addition of age can affect blood sugar. And the most gender in this study was male and the average duration of diabetes mellitus was 6-10 years. The results of calculating the confounding correlation of the variable fasting blood sugar in the intervention group and the control group from the results of age with r = 0.582, gender with results of r = 0.389 and duration of suffering from DM with results of r = 0.105.

Table 2. Differences in average fasting blood sugar levels before (pre -test) and after (post-test) treatment in the intervention group and the control group

Group	Variable	Mean	Average difference	p
Intervention (GDP)	Pretest	172.25	35.179	0.040
	Posttest	137.07	33.373	
Control (GDP)	Pretest	167.75	12.786	0.000
	Posttest	154.96	31.295	

Independent t test

Based on table 2 above, it shows that the value of the intervention group is p = 0.040, meaning that acupressure therapy

with cinnamon bark decoction is effective in reducing GDP levels. Meanwhile, the value of p = 0.000 means that the administration of metformin 500 mg in the control group significantly reduced the level of GDP.

Table 3. Differences in the average delta of fasting blood sugar levels before and after treatment between the intervention group and the control group

Variable		Intervention Group	Control Group	With	p
		MR±SR	MR±SR		
GDP	Pre-test	26.16±732.50	30.84±863.50	-1.074	0.283
	Post-test	22.79±638.00	34.21±958.00	-3.757	0.038
(D) Delta GDP		37.43±1048.0	19.57±548.00	-4.108	0.000

Independent t test

Table 3 above shows that the administration of metformin therapy and the intervention of acupressure and a supplement of cinnamon decoction 100 mg 2 x 200 ml for 21 days was effective in reducing fasting blood sugar levels greater than the control group and approaching normal with results (p = 0.000) between groups the combination and control groups after receiving the intervention of giving cinnamon decoction and full-back acupressure for 21 days, in which cinnamon decoction was given as much as 100 grams 2 x1 per day, acupressure 2 times a week for 21 days showed a significant difference with the mean delta value for Fasting blood sugar levels in the intervention group were higher than the control group, namely -43.267 mg/dl in the intervention group and -25.700

mg/dl in the control group with a value p=0,000.

Table 4. Combination therapy with the consumption of cinnamon decoction and back acupressure is effective against fasting blood sugar levels (GDP) in type II DM patients

Variable	Group	Average Difference	Difference IK 95% Lower-Upper	P
GDP	Intervention	137.07	(-35.440)	0.038
	Control	154.96	- (-345)	

Independent t test

Based on table 4 above, it shows that the GDP variable has a significant effect on the statistical test with p = 0.038 and the difference in the mean of the intervention group appears to be better when compared to the control group, the clinical conditions indicated by the 95% CI also present a different situation, namely an increase of more than one from lower to upper (35,440).

DISCUSSION

The results showed the average change in fasting blood sugar levels before and after being given acupressure and cinnamon decoction therapy in the intervention group using a different test with the previous result of 172.25 to 137.07. Statistical test results with independent t-test in the intervention group p = 0.000, in the control group with previous results 167.75 to 154.96 values p=0.040. There was a delta value in the intervention group of 63.45 and the control group of 76.33. The two groups from the delta test got p = 0.000. From the two groups, both the control and intervention groups, the average p-value was less than 0.05, which meant that there were significant changes in both groups. Based on normal values (cut point) on fasting blood

sugar levels of <126 mg/dl. In the treatment group, 11 respondents (39.3%) received normal values for back acupressure therapy and administration of cinnamon bark decoction. And in the control group given the drug metformin 500 mg reached normal values by 7 respondents (25%).Relative Risk Reduction (RRR) for the value of the fasting blood sugar level the intervention received the intervention of buttock therapy intervention and the administration of cinnamon bark decoction can reduce therapy failure by 20% and patients who receive metformin 500 mg drug therapy, with value absolute risk reduction (ARR) or the difference in failure to increase administration in the administration and control groups by 15%, value number of needed (NNT) amounting to 6.7%.

In previous research by Djafar in 2022 Cinnamon decoction therapy was carried out. The results of this study showed statistical significance, p = 0.000 (p ≤ 0.05). The average sugar level before the study in the intervention group was 240.90 mg/dL with a standard deviation of 21.891 mg/dL. Meanwhile, the average blood sugar level in the intervention group after the study was 240 mg/dL with a standard deviation of 15.741 mg/Dl.

Noviana and Dewi Yuliana in 2021 with the results of a study using a sample of 32 people, the average blood sugar level of the patients before treatment was 269.75 and after the acupressure intervention the results were 259.06 with (p = 0.001) effect size 0.04 (weak effect).[25] The difference with previous studies when compared to the calculation of the effect size in the study conducted by Noviana had a weak effect on reducing fasting blood sugar levels, an effect size of 0.04, while the calculation of the effect size in the therapy of back acupressure therapy and administration of cinnamon bark decoction resulted in a value of 0.88 moderate which means it has a stronger

effect on fasting blood sugar levels. From these results it is known that therapy with back acupressure therapy and administration of cinnamon bark seems to have a better effect on reducing GDP levels.

The results of this study are in line with research conducted by Nurayati, 2017 which proved that there is a significant relationship between physical activity and fasting blood sugar levels. Physical exercise is one of the pillars in the management of DM which functions to improve insulin sensitivity and also to maintain body fitness. Physical exercise can help enter glucose into cells without the need for insulin, besides that physical exercise can also reduce the weight of obese diabetes and prevent the rate of progression of impaired glucose tolerance to DM. When the body moves, there will be an increase in the body's need for fuel by active muscles. The results of this study are also supported by research conducted by Komariah et al (2020) that there is a significant relationship between age and fasting blood sugar levels. This is because at this age a person becomes less active. gain weight. muscle mass decreases, and the result of the aging process causes progressive shrinkage of p cells. In addition, the incidence of diabetes increases with age. especially at the age of> 45 years because at that age there is an increase in glucose intolerance.

Cinnamon contains active substances, namely polyphenols with Cinnamaldehyde components which work by increasing insulin receptor proteins in cells so that they can increase insulin sensitivity and reduce blood glucose levels to near normal. metabolism to produce coumarin metabolites, namely 7-hydroxycoumarin. Agree with research conducted by Azmaina entitled the effect of cinnamon decoction on reducing fasting blood sugar levels in type II DM patients. like insulin.

Back acupressure therapy is a therapy non pharmacology by applying pressure and vibration on 2 meridian points acupoint which are around the spine, namely the meridians of which has 12 acupoints along the spine and urinary content meridian which has 25 acupoints along the spine 2 fingers to the right of the meridian. Acupressure can release endorphins in the brain to relax muscles, reduce pain, and increase comfort.[53] Acupressure on points SP6, ST36, and SP10 can also activateglucose-6-phosphate and can act on the pancreas to increase insulin resistance. Acupressure can activate glucose-6-phosphate (a carbohydrate metabolism enzyme) and can have an effect on the hypothalamus. Acupressure works on the pancreas to increase insulin synthesis, increase one of the receptors on target cells, and accelerate the use of glucose in cells, so that the result is lowering blood sugar levels. The acupressure points that are often used are on Pishu (BL 20), Feishu (BL 23), Shenshu (BL 23), Zusanli (ST 36), Sanyinjiao (SP 6), Hegu (LI 4) (Ingle et al, 2011).

CONCLUSION

The results showed that the combination of back acupressure and cinnamon decoction was effective in reducing fasting blood sugar levels in type II diabetes mellitus patients. It is expected that nursing services for nursing service agencies both in hospitals and health centers, especially the working area of the Srondol Banyumanik Health Center Semarang where the research was carried out can provide cinnamon to be boiled by patients and provide acupressure therapy for diabetes mellitus patients.

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ORIGINAL RESEARCH

RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AND HYPERTENSION LEVELS WITH OSTEOARTHRITIS IN THE ELDERLY USING WOMAC (The Western Ontario And Mcmaster Universities Osteoarthritis Index)

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ABSTRACT	Keywords
Osteoarthritis is one _ disease joints usually degenerative _ happens with age further , marked with solving cartilage , change bone joints , damage bone joints , damage to tendons and ligaments . The risk factors for osteoarthritis are divided into 2, primary and secondary, one of which is physical activity and level of hypertension. The occurrence of osteoarthritis has an impact on limitations in social and spiritual interactions, decreased physiological abilities, decreased productivity, and psychological disorders. This study aims to analyze the relationship between physical activity and the level of hypertension with the incidence of osteoarthritis in the elderly using WOMAC. This study uses correlation analysis with a cross sectional approach . The independent variables are physical activity and the level of hypertension and the dependent variable is the incidence of osteoarthritis . The total population of this study was 184 elderly with a sample size of 34 elderly using purposive sampling technique . The instruments used were the observation sheet and the WOMAC questionnaire . The results showed that p value $0.436 > \alpha$ 0.05 with this value indicating that there is no relationship between physical activity and the incidence of osteoarthritis in the elderly and also obtained test results showing that there is a relationship between the level of hypertension and the incidence of osteoarthritis in the elderly with a p value value $0.002 < \alpha$ 0.05. So it can be concluded that there is no relationship between physical activity and the incidence of osteoarthritis in the elderly , but there is a relationship between the level of hypertension and the incidence of osteoarthritis in the elderly using WOMAC. It is recommended for the public to better maintain an ideal body weight, diet, lifestyle and not too strenuous physical activities and exercise to reduce pain in the knee joints.	*Physical Activity, Hypertension Level, Occurrence of Osteoarthritis, WOMAC*

INTRODUCTION

Everyone will experience the addition of age and enter the elderly phase. According to RI government regulation Number 43 of 2004, elderly (elderly) is someone who has reached the age of 60 years and over. Older people are more prone to health problems due to poor physical function due to aging. The process of aging is a process that leads to changes that include physical, psychological, social and mental

changes. Viewed from the health aspect, the elderly will experience a decrease in health status both naturally and due to disease. The decline in health that most often affects the elderly is degenerative diseases (Djawas & Isna, 2020).

One of the most common degenerative diseases is *osteoarthritis* . *Osteoarthritis* is a common joint disease that most often affects middle-aged to elderly people, which is characterized by breakdown of cartilage, changes in joints, damage to joints, damage to tendons and ligaments (Mutmainah & Makmun, 2019).

According to WHO, 2018 stated around 151 million people worldwide and reached 24 million people in the Southeast Asia region. According to Basic Health Research (Riskasdes, 2018), the prevalence of *osteoarthritis sufferers* in Indonesia reached 713,783 people, the prevalence in East Java reached 75,490 people, and the prevalence in Bangkalan reached 1,767 people (Riskesdas, 2018).

Based on a preliminary study in the working area of the Kwanyar Health Center, there were around 184 cases of *osteoarthritis* , in December 2022 the following data was obtained:

Table 1.1 number of cases of *osteoarthritis* in Kwanyar District

No	Village Name	Man	Woman
1	Tebul	5	7
2	West Kwanyar	3	6
3	boarding house	4	6
4	New coral	9	10
5	West brick	3	5
6	Batah east	4	4
7	Kateteng	3	5
8	Morombuh	5	7
9	Dlemer	3	5
10	Janteh	2	4
No	Village Name	Man	Woman
11	Paoran	5	5
12	Elang coral	7	7
13	view	5	5
14	Duwek butter	6	7
15	Well yellow	9	11
16	Mountain whine	8	9
	Total	81	103

Primary *source : Puskesmas Kwanyar , 2022*

The risk factors for *osteoarthritis* are divided into 2, primary and secondary. Primary factors such as age, gender, body mass index (BMI), obesity, anatomical factors, muscle weakness, and joint injuries (work/physical activity). Whereas secondary *osteoarthritis* occurs due to pre-existing joint disorders, including trauma or injury, congenital joint disorders, arthritis (such as *rheumatoid arthritis*), avascular necrosis, septic arthritis, *Paget disease* , osteoporosis, *osteochondritis dissecans* , metabolic disorders (hemochromatosis, *Wilson*), hemoglobinopathy, *Ehlers-Danlos syndrome* , or Marfan syndrome (Istiqomah, 2021).

The impact of *osteoarthritis* often occurs in the joints of the knee, one of which is a disorder in the joints caused by chronic degenerative factors which are characterized by abrasion of joint cartilage and the formation of new bone on the joint surface which can cause muscle and tendon weakness. This limits movement and causes pain. The emergence of this pain results in the emergence of limited movement and decreased functional activity in patients with *osteoarthritis* (Tripathi and Hande, 2017 *et al* 2019; Khruakhorn and Chiwarakranon, 2021).

In addition, *osteoarthritis* also occurs in people who have hypertension due to the effects of vascular injury. Hypertension causes the formation of *atherosclerotic* plaques which can lead to arterial occlusion and cause blood flow

stasis in the subchondral vessels, so that the exchange of nutrients and gases is disrupted into the articular cartilage which is a potential initiator of 3 degradative changes in cartilage (Hoeven, 2007 in Akbar, H 2019).).

According to Sinusas, 2012 in Washilah, et al, 2021, knee *osteoarthritis* is the main cause of pain and disability. In more severe degrees, pain can be felt continuously so that it greatly interferes with the patient's mobility (Alfrisi, 2018). Therefore the severity of knee *osteoarthritis* can be measured based on radiographic results (*Kellgren* and *Lawrance*) as well as measuring the functional ability of *osteoarthritis patients* using two instruments recommended by WHO to measure the severity of knee *osteoarthritis* based on clinical symptoms, namely the *Western Ontario And McMaster Universities Index* (WOMAC) (Kusuma, et al, 2019).

There are various ways of handling and prevention that can be done, such as giving pharmacological therapy and non-pharmacological therapy. Recommended pharmacological therapy such as administration of analgesics, local corticosteroids, systemic, corrective, biologics and also surgery. This pharmacological therapy is highly recommended in order to reduce pain, stiffness, swelling, and also early inflammation and can control these causative factors . The recommended non-pharmacological therapies such as education, physical therapy, diet or weight loss can also be done with warm compress therapy or with other herbal ingredients. In terms of providing this intervention, it is hoped that it can reduce the problems that occur in the elderly who suffer from *osteoarthritis* to increase and maintain independence in carrying out various activities. (*The American College of Rheumatology.* ACR, 2012)

METHOD

The method in this study uses correlation analysis with a cross sectional approach the population used was an average of knee osteoarthritis patients who were in the working area of the Kwanyar Health Center from October to December 2022 2 as many patients or an average of 184 patients per month, with a sample size of 34 people.

The sampling technique used in this study is probability sampling. This research has an update, namely by conducting independent checks using the WOMAC questionnaire and the statistical test used in this study is the purposive sampling correlation test .

RESULTS

General Data

Distribution Frequency Respondents Based on Age

Table 1   Distribution frequency respondent based on age in the health center area Kwanyar February 2023

Age	Frequency	Percentage (%)
Early Seniors	14	41.2
Late Seniors	17	50.0
seniors	3	8.8
Total	34	100

Source : Primary data, February 2023

Based on table 1 above, it was found that most of the respondents were in the early elderly with a percentage of 18 respondents (52.9%).

Frequency Distribution of Respondents by Gender

Table 2 Distribution of the frequency of respondents by gender in the Kwanyar Health Center area February 2023

Work	Frequency	Percentage (%)
Farmer	21	61.8
Housewife _ Ladder	13	38.2
Total	34	100

Source : Primary Data, February 2023

Based on table 2 above, it was found that the majority of respondents were female with a percentage of 24 respondents (70.6%).

Distribution Frequency Respondents Based on Work

Table 3 Distribution of the frequency of respondents based on work in the Kwanyar Health Center area February 2023

Type Sex	Frequency	Percentage (%)
Man	10	29.4
Woman	24	70.6
Total	34	100

Source : Primary Data, August 2022

Based on table 3 above, the data shows that most of the respondents work as farmers with a percentage of 21 respondents (61.8%).

Custom Data

Frequency Distribution of Respondents Based on Physical Activity

Table 1 Distribution of the frequency of respondents based on physical activity in the Kwanyar Health Center area February 2023

Activity Physique	Frequency	Percentage (%)
Light	4	11.8
Currently	17	50.0
Heavy	13	38.2
Total	34	100.0

Source : Primary Data, February 2023

Based on table 1 above, the data obtained is that, physical activity half of the respondents indicated that they were at a moderate level of activity with a percentage of 17 respondents (50.0%)

Frequency Distribution of Respondents Based on Hypertension Level

Table 2 Distribution of the frequency of respondents based on the level of hypertension in the working area of the Kwanyar Health Center.

Hypertension	Frequency	Percentage (%)
Pre Hypertension	18	52.9
Stage I hypertension	9	26.5
Stage 2 hypertension	7	20.6
Total	34	100.0

Source : Primary Data, February 2023.

Based on table 2 above, it shows that most of the patients who experienced pre-hypertension were 18 respondents with a percentage (52.9%).

Distribution Frequency Knee *Osteoarthritis* use *WOMAC*

Table 3 Distribution frequency *osteoarthritis* use *WOMAC* in the work area Public health center Kwanyar February 2023

Knee *Osteoarthritis*	Frequency	Percentage (%)
Light	11	32.4
Currently	19	55.9
Heavy	2	5.9
Very Heavy	2	5.9
Total	34	100.0

Source : Primary Data, August 2022

Based on table 3 above, it shows that most of the respondents had moderate knee *osteoarthritis* , with a percentage of 19 respondents (55.9%).

Cross Tabulation

Cross-tabulation of the Relationship between Physical Activity and Knee *Osteoarthritis* in the Elderly Using *WOMAC*

Table 1 Cross-tabulation of the relationship between physical activity and knee *osteoarthritis* in the Kwanya Health Center area, February 2023 using *WOMAC*

		Knee Osteoarthritis								Total	
		Light		Currently		Heavy		Very Heavy			
		F	%	F	%	F	%	F	%	F	%
Activity Physique	Light	0	0.0	0	0.0	2	5.9	2	5.9	4	11.8
	Currently	0	0.0	4	11.8	10	29.4	3	8.8	17	50.0
	Heavy	1	2.9	2	5.9	7	20.6	3	8.8	13	38.2
Total		1	2.9	6	17.6	19	55.9	8	23.5	34	100.0

Spearman Rank Statistical Test
α = 0.05
p = 0.436
r = -0.138

Source : Primary Data, February 2023

Based on table 1 above , get explained that elderly in the health center Kwanya r part big experienced respondents _ *osteoarthritis* active knee _ physique heavy as many as 19 respondents with percentage (55.9%) and on activity physique half of the active data was obtained currently as many as 17 respondents with percentage (50.0 %) Of statistical test results *Spearman Rank* obtained mark *p Value* 0.436 means mark *p Value* = > α (0.05) . With a correlation coefficient of 0.138 so that H0 is accepted and H1 is rejected. This means that there is no relationship between physical activity and knee *osteoarthritis* in the Kwanyar Health Center area with a very low correlation level.

Cross-tabulation of the Relationship between Hypertension and Knee *Osteoarthritis* in the Elderly Using *WOMAC*

Table 2. Cross-tabulation of the relationship between hypertension and knee *osteoarthritis* in the Kwanya Health Center area, February 2023 using *WOMAC*

		Knee Osteoarthritis								Total	
		Light		Currently		Heavy		Very Heavy			
		F	%	F	%	F	%	F	%	F	%
Hypertension Level	Pre Hypertension	9	26.5	9	26.5	0	0.0	0	0.0	18	52,9
	Hypertension 1	1	2,9	7	20,6	1	2,9	0	0.0	9	26.5
	Hypertension 2	1	2,9	3	8,8	1	2,9	2	5,9	7	20,6
Total		11	32,4	19	55,9	2	5,9	2	5,9	34	100.0

Spearman Rank Statistical Test
α = 0.05
p = 0.000
r = 0.716

Source : Primary Data, February 2023

Based on table 2 above, it can be concluded that almost half of the elderly with pre-hypertension with moderate WOMAC scores were 9 respondents (26.5%), and a small proportion of elderly people with stage 1 hypertension with moderate WOMAC scores were 7 respondents (20.6%) . From the results of the Spearman Rank statistical test, the results obtained were p = 0.002, meaning that the value of p = < α : 0.05 with a correlation value of 0.504. Thus it can be said that H1 is accepted. This means that there is a relationship between hypertension and the WOMAC score.

DISCUSSION

Description of Physical Activity in the Elderly in the Work Area of the Kwanyar Health Center

Based on the results of the study, it was shown that half of the respondents' physical activity was at a moderate activity level with a percentage of 17 respondents (50.0%).

According to the analysis of researchers, physical activity is exercise for the body to produce more energy and also to prevent joint stiffness so that the body can be healthier. The body also needs energy, which energy can be generated with light, moderate to heavy activities. With energy, it can prevent the body from stiffness, but if the activity is too heavy, it will also burden the body, especially the joints, because the joints are the parts the body needs to move. Therefore if the activity is too heavy it can have a bad impact on the body, especially on the joints.

This is in line with research (Sahrudi et al., 2019) which states that, someone who has osteoarthritis in the knee joint, will generally show a condition of weakness in the quadriceps muscles with a decrease in strength of 20-45% compared to normal people of different age and gender. The same. Quadriceps muscle weakness in knee osteoarthritis patients is clinically important, because it is associated with impaired knee stability dynamics and physical function. In addition, the quadriceps serve as an important protector of the knee joint which works eccentrically in the initial phase of gait to protect the knee joint and acts as a reducer of impulsive loads when walking or during other physical activities.

This is in line with research (Adithya, 2017) which states that physical activity includes body movements produced by skeletal muscles which result in increased energy expenditure that exceeds energy expenditure at rest. Meanwhile, according to Casperson physical activity is body movement resulting from skeletal muscles that result in increased energy expenditure.

From some of the definitions above, it can be concluded that physical activity is body movement produced by skeletal muscles accompanied by an increase in energy use.

Description of the Level of Hypertension in the Elderly in the Work Area of the Kwanyar Health Center

Based on research conducted at the Kwanyar Health Center, Bangkalan District, the results obtained from 34 respondents indicated that most of the patients had pre-hypertension, as many as 18 respondents.

The results of research (Ayling Soeryadi et al 2017) showed that there were more patients with knee OA in the group with pre-hypertension (51.9%) than normal blood pressure (33.3%) and stage 1 hypertension (14.8%). Overall this study showed that normal blood pressure (33.3%) was lower than patients with OA who came with pre-hypertension – *stage 1* hypertension (66.7%).

Narrowing of blood vessels due to hypertension can also reduce circulation to the *subchondral bone* . We observed significant bone loss at the *subchondral* plate on the medial tibial plateau, in terms of decreased bone mineral density and increased porosity, in patients with knee OA with hypertension and/or type 2 diabetes compared with subjects without these comorbidities. These findings indicate a potential biological relationship between bone loss in the subchondral plate in knee OA and comorbidities (Wen et al, 2012) in (Laksmitasari, 2021).

Researchers suggest that the blood vessels become narrower over time causing limited blood flow to the bone that lies beneath the joint cartilage, then the supply of

blood and nutrients to the cartilage can be adjusted, compensation occurs eventually causing slow damage to the cartilage.

Description of the Occurrence of Knee Osteoarthritis in the Elderly in the Work Area of the Kwanyar Health Center

Based on research conducted at the Kwanyar Health Center, Bangkalan District, the results showed that 34 respondents had moderate knee *osteoarthritis* , 19 respondents (55.9%) with 29 respondents being women.

Based on the results of the study (Arintika et al 2022) which was conducted on 55 respondents, who had already gone through the screening stage with inclusion and exclusion criteria, it was found that female respondents had 4 times greater risk than men. Because at the age of 55, women have a higher prevalence of osteoarthritis than men because women are entering menopause and their levels of estrogen and progesterone, which are initially balanced, decrease, resulting in fat accumulation due to incomplete combustion, bone loss and inelastic ligaments as a starting point for pain complaints . knee.

This is in line with research conducted by (Laksmitasari, 2021) which shows that most OA patients are aged ≤ 60 years (54.3%), this is appropriate that OA is a high disease when someone enters old age where one of the clinical criteria from *American College of Rheumatology* (ACR) 1986 is over 50 years of age. From the data obtained, most OA sufferers are early elderly. There were more female knee OA patients (57.1%) than men, from this figure the incidence of OA tended to be experienced by women.

In addition, these results are also similar to a study by Elvana (2017) in (Laksmitasari, 2021) at Surabaya Hospital Hospital in 160 OA patients with the Spearman correlation test between age and degree of osteoarthritis of the knee joint

according to Kellgren and Lawrence, a significant relationship was found between age and degree osteoarthritis of the knee joint according to Kellgren and Lawrence (p=0.001). *Osteoarthritis* (OA) is an age-related degenerative disease. It is often described as a chronic disease and is considered by many to be an unavoidable consequence of growing old. The aging process results in an imbalance in chondrocyte signaling. In OA cartilage, it appears that inflammatory and catabolic signals outweigh anti-inflammatory and metabolic signals. This signaling imbalance increases the production of matrix-degrading enzymes by chondrocytes, including *matrix metalloproteinases* (MMPs), *aggrecanases* and other proteases that degrade cartilage matrix (Loeser, 2010). This results in reduced ability of chondrocytes to respond to growth factor stimulation in elderly patients and less responsive osteoarthritic cartilage to convert TGF β and insulin-like growth factor-1. Ultimately, there is thinning of the joint space due to thinning of the cartilage, subchondral cysts develop, while the cartilage loosens due to synovial inflammation, followed by the formation of new bone orosteophytes (Anderson & Loeser, 2010).

According to the researcher's analysis, this situation is also in accordance with the conditions in the field. Where, women are more dominant than men. Women have a higher prevalence than men because during menopause there is a decrease in estrogen levels.

The Relationship between Physical Activity and the Occurrence of Knee Osteoarthritis in the Elderly in the Working Area of the Kwanyar Health Center

Based on the results of the study, the results of the *Spearman Rank statistical test*

obtained a *p value of* 0.436, meaning that *the p value = >* α (0.05) . With a correlation coefficient of 0.138 so that H0 ₍is₎ accepted, H1 ₍is₎ rejected. This means that there is no relationship between physical activity and knee *osteoarthritis* in the Kwanyar Health Center area with a very low correlation level.

Researchers are of the opinion that there are many factors that have a risk of *osteoarthritis* , not only physical activity, because there are other factors such as body mass index, smoking, and so on, there are also factors that cannot be changed such as genetic factors, and diabetes. There are many other factors that can increase the risk of *osteoarthritis* , so it cannot be concluded that physical activity is the main cause of *osteoarthritis.*

This is in line with Hsu & Siwiec's research (2020) that the prevalence of knee *osteoarthritis* in women has a greater risk factor for knee *osteoarthritis* than men. Older women have an increased risk of knee *osteoarthritis* because it is associated with decreased levels of the hormone estrogen, less cartilage volume, and greater loss of articular cartilage elasticity than men.

This is also in line with research (Duha, 2019) the number of respondents who were female was more than male, namely 26 people (78.8%) of 33 respondents. In this case, it shows that most of the respondents who are prone to experiencing *knee osteoarthritis* are female because more women have the habit of working with heavy loads, strenuous physical activity where the level of joint use is higher but the ability of cells to regenerate decreases and reduced muscle ability. where from the data obtained by the researchers most of the female respondents worked as housewives (IRT), and also the role of sex hormones affecting the increase in *osteoarthritis rates* during or immediately after menopause in women.

The Relationship between Hypertension Level and the Occurrence of Knee Osteoarthritis in the Elderly in the Work Area of the Kwanyar Health Center

Based on the results of the study, it was found that there was a relationship between hypertension and the incidence of *osteoarthritis* using *WOMAC with the Spearman Rank* statistical test results obtained *p value* = 0.002, meaning that *p value = < α* : 0.05 with a correlation value of 0.504.

Many risk factors cause *osteoarthritis* , one of which is hypertension due to the effects of vascular damage. Hypertension is defined as systolic blood pressure >140mmHg and/or diastolic blood pressure >90mmHg. Hypertension causes arterial occlusion and causes static blood flow in the subchondral vessels, a subchondral ischemia occurs so that the exchange of nutrients and gases is disrupted into the articular cartilage which becomes a potential initiator of degradative changes in cartilage. Research conducted by Ishaan Vohra et al in 2015, showed a significant relationship between hypertension and *osteoarthritis* .

Based on research conducted by (Laksmitasari, 2021) the relationship between hypertension and the degree of KL, patients who suffer from grade 3-4 (moderate-severe) knee OA suffer more from OA patients who do not experience hypertension (70%), while patients with grade OA 1-2 (doubtful) the number is the same between patients who suffer from hypertension and do not suffer from hypertension. The test results showed that the p value was 0.797 (> 0.05), which means that there was no relationship between hypertension and the degree of KL. In contrast to a similar study by Azmi (2016) regarding the relationship between the degree and length of suffering from hypertension and the severity of knee

osteoarthritis at RSUDZA Banda Aceh in 58 OA patients, it was found that all patients had a history of hypertension with the most degree I and the duration of hypertension was 1-10 years with statistical analysis. obtained p value = 0.00 so that there is a significant relationship where grade 1 hypertension can lead to the development of knee OA 4.2 times more at risk of becoming grade 1-2 while grade II hypertension can cause development of knee OA 12 times more at risk of becoming grade 3-4.

According to researchers, the occurrence of *osteoarthritis* caused by hypertension is due to the effects of the vascular damage it causes. Thus causing atherosclerosis which can cause arterial occlusion thus causing blood flow in the subchondral vessels to be disrupted. The amount of blood pressure is different so that it will cause pain when standing and walking so that it is possible for knee *osteoarthritis to occur* in the elderly.

CONCLUSION

Based on the research that has been done, the following conclusions can be drawn:
a. Half of the respondents showed a moderate level of physical activity as many as 17 elderly people with a percentage of 50% in the working area of the Kwanyar Health Center
b. Most of the respondents experienced pre-hypertension as many as 18 elderly people with a percentage of 52.9% in the working area of the Kwanyar Health Center
c. Most of the respondents experienced knee *osteoarthritis* as many as 19 elderly with a percentage of 55.9% in the working area of the Kwanyar Health Center.

d. The existence of risk factors for the occurrence of *osteoarthritis* is not only triggered by physical activity as the main cause, but there are other factors, so that a very low correlation level is obtained, therefore, there is no relationship between physical activity and the occurrence of *osteoarthritis* in the working area of the Kwanyar Health Center
e. There is a relationship between the level of hypertension and the incidence of *osteoarthritis* in the elderly using *WOMAC* in the working area of the Kwanyar Health Center.

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ORIGINAL RESEARCH

THE DIFFERENCE IN BLOOD PRESSURE BEFORE AND AFTER THE APPLICATION OF RELAXATION TECHNIQUES IN HYPERTENSIVE PATIENTS

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ABSTRACT	Keywords
Hypertension is an increase in high blood pressure above normal. Finger grip relaxation is a simple relaxation technique with the touch of a hand which involves breathing to balance the energy in the body, so as to be able to control emotions which will make the body relax. This study aims to determine the effect of finger grip therapy on changes in blood pressure in hypertensive patients at the Indonesian Workers' Imelda Hospital This study uses quantitative research methods with Quasy experimental design with the Pre Test-Post Test One Group approach. The number of respondents in this study were 30 respondents who were taken by accidental sampling. The instrument used is an observation sheet to find out how blood pressure changes before and after being given therapy. The intervention was in the form of an independent act of holding fingers for 3-5 minutes. The research tool used was a sphygnomanometer to measure blood pressure. The results of the analysis with the comparative test obtained a p-value of 0.000 (p <0.05) on systolic and diastolic blood pressure, so that there was an effect of finger grip therapy on blood pressure in hypertension sufferers at the Indonesian Workers' Imelda Hospital (IPI) Medan.	*Finger Grip, Hypertension, Blood Pressure*

INTRODUCTION

Blood pressure is one of the forces or force that blood exerts against the walls of the arteries and can be measured using millimeters of mercury (mmHg). Blood pressure is assessed in two forms, namely systolic and diastolic. Systolic blood pressure is the value when the heart is contracting, while diastolic is the blood pressure value when the heart is relaxing (Prasetyaningrum, 2014). Normal blood pressure 120/80 mmHg, Hypertension 140/90 mmHg, Stage I 160/90 mmHg, Stage II ≥ 160/100 mmHg.

The World Health Organizatin (WHO) said the number of people with hypertension will continue to increase in 2025 (Handayani, 2020). Hypertension is only realized when it has caused organ disorders, such as impaired heart, coronary, kidney function, impaired cognitive function, or stroke. Basically hypertension will reduce life expectancy in sufferers (Sunaryati, n.d.)

The American Heart Association (AHA) says that there are 75.5 million people with hypertension in America, but 90-95% of cases have no known cause (Rizky, 2022). The cause of hypertension is caused by genetic and environmental factors, including salt intake, obesity, occupation, lack of exercise, alcohol intake, psychosocial stress, gender, and age. Symptoms found in people with hypertension include dizziness, red face, headache, sudden bleeding from the nose, sore neck, muscle weakness, nausea, vomiting, shortness of breath, blurred vision which occurs due to damage to the brain eyes, heart and kidneys.

Changing blood pressure can be done by holding finger therapy to manage stress by involving breathing. Grasping the fingers on the hands can warm the points of entry and exit of energy on the meridians located on the fingers when accompanied by deep breathing can reduce the work of the sympathetic nerves, causing blood pressure to decrease. The meridian points on the hands will provide spontaneous stimulation in the form of electrical waves to the brain. These waves are received by the brain and processed quickly to the nerves in the affected organ, so that the energy pathway becomes smooth (Sulistiani, 2020).

To do the finger grip technique can be done as follows:

1. Position the patient in a lying position, and instruct the patient to catch his breath and relax all muscles.
2. The nurse sits beside the patient, relaxation begins by holding the patient's thumb with gentle pressure, holding it until the patient's pulse is throbbing.
3. Instruct the patient to adjust the pattern of breathing with a regular count.
4. Hold the thumb for about 3-5 minutes with additional deep breaths then proceed

to the other fingers one by one for the same duration
5. After about 15 minutes, do a finger grip relaxation on the other finger (Agustin et al., 2019)

The aim of this study was to perform relaxation techniques to change blood pressure in hypertension sufferers according to (SOP).

METHOD

The type of research used in this research is quantitative research with *Quasy experimental design* to test by examining the variables before and after treatment. By using the Pre Test-Post Test One Group approach. This research was conducted at the Medan Indonesian Worker Imelda Hospital from May to August 2023. The number of respondents in this study were 30 respondents who were taken by accidental sampling. The instrument used is an observation sheet to find out how changes in blood pressure before and after therapy are given. The intervention carried out was in the form of an independent act of holding finger for 3-5 minutes. The research instrument used was a sphygnomanometer to measure blood pressure. The results of the analysis using the comparative test (Noor, Juliansyah.,2022*).

RESULTS

Based on the results of this study it was found that most of the respondents were based on type

Table 1. Characteristics of respondents

Characteristics	N	%
Gender		
Man	13	43,3
Woman	17	56,7
Education		
SD	12	40.0
Junior High School	10	33,3
Senior High School	8	26,7
Profession		
Self-employed	16	53,3
Laborer	12	40.0
Doesn't work	2	6,7
Age		
Early Adult (36-45 years)	4	13,3
Early Elderly (46-55 years)	18	60.0
Late Elderly (56-65 years)	8	26,7
Total	**30**	**100.0**

Based on the table above it can be seen that characteristics of respondents based on gender the majority were female as many as 17 people (56.7%) and the minority of respondents were male as many as 13 people (43.3%). Characteristics of respondents based on education, the majority had elementary school education as many as 12 (40.0%), and a minority of high school students were 8 (26.7%). The majority of respondents based on occupational characteristics worked as entrepreneurs as many as 16 people (53.3%), and a minority of laborers as many as 2 people (6.7%). Respondent characteristics based on the age of the majority were early elderly (46-55 years) as many as 18 people (60.0%), and a minority of early adults (36-45 years) were 4 people (13.3%).

Blood pressure before (Pre) given the hand-held technique to hypertensive patients at the Imleda Indonesian Workers' Hospital in Medan

The results of the blood pressure study before (Pre) being given the finger-holding technique at the Medan Indonesian Worker Imelda Hospital found blood pressure 140/90 – 159/99 in 20 (66.7%) and blood pressure > 160/100 in 10 (33.3) %)

Table 2. Blood Pressure before (Pre) given the finger holding technique to hypertension sufferers at the Imleda Indonesian Workers Hospital in Medan

Pretest TD	N	%
140/90 – 159/99	20	66,7
>160/100	10	33,3
Total	30	100.0

Blood Pressure After (Post) given the hand-held technique to hypertensive patients at the Imleda Indonesian Workers' Hospital in Medan

The results of the blood pressure study before (Pre) being given the finger holding technique at the Medan Indonesian Workers Imelda Hospital found blood pressure <120/80 in 3 (10.0%) and blood pressure 120/80-139/89 in 21 (70.0) %) 140/90 – 159/99 as much as 6 (20.0%).

Table 3. Blood Pressure After (Post) given the finger holding technique to hypertensive patients at the Indonesian Workers' Imleda Hospital in Medan

TD posttest	N	%
<120/80	3	10.0
120/80 - 139/89	21	70.0
140/90–159/99	6	20.0
Total	30	100.0

Based on research, the effect of finger hold therapy on changes in blood pressure in hypertensive patients can be seen in the test results table *Comparative* below this :

Table 4. The Effect of Finger Grip Therapy on Changes in Blood Pressure in Hypertension Patients

TD	Means	P,Values
Pre	156.23	**0.000**
	97.73	
Post	147.20	**0.000**
	89.33	

DISCUSSION

Based on the Sig table. (2-tailed)/value in the Comparative test is 0.000. These results when compared with a significance level of 5% (0.05) then the value of Sig. (2-tailed) <0.05, meaning that there is a difference between before and after giving the finger grip technique to changes in blood pressure. In other words, it can be said that there is an effect of finger grip therapy on changes in blood pressure at the Indonesian Workers' Imelda Hospital (IPI) Medan.

This research is in line with research conducted by Rahmawati I and Suryandari D (2020) which said that there were changes before and after being given finger grip therapy. In relaxed conditions can reduce heart contractions and heart rate. The size of blood vessels widens the diameter of blood vessels resulting in a decrease in blood pressure by reducing preload and reducing afterload (Sulistyarini, 2013). Blood pressure is influenced by heart rate, stroke volume and total peripheral resistance (TPR). Therefore, if there is an increase in one of them, it can cause hypertension (Rahmawati, 2020).

According to Liana (2008) in Pinandita (2012) holding fingers while taking deep breaths can reduce and heal physical and emotional tension, because holding fingers warms the points of entry and exit of energy located on our fingers. Relaxed muscles will spread the stimulus to the hypothalamus so that the human soul and internal organs feel calm and comfortable. This situation will suppress the sympathetic nervous system so that the production of the hormones epinephrine and norepinephrine in the blood decreases. Decreased levels of epinephrine and norepinephrine in the blood will cause the heart's work to pump blood to decrease so that blood pressure also decreases (Rofacky & Aini, 2015).

Changes in structure and function in the peripheral vascular system are the basis for changes in blood pressure that occur in people with hypertension. These changes include the appearance of atherosclerosis, decreased vasoconstriction and relaxation of vascular smooth muscle, and loss of connective tissue elasticity will reduce the ability to distend and stretch blood vessels. As a result, the aorta and large arteries experience a decreased ability to accommodate the volume of blood pumped by the heart (stroke volume), resulting in decreased cardiac output and increased peripheral resistance. A simple relaxation technique with a touch of the hand that involves breathing to balance the energy in the body, so as to be able to control emotions which will relax the body (Upoyo, 2019). Finger held relaxation therapy can calm the soul and body so that it can have a relaxing effect on the body (Agustin et al., 2019). Relax breathing on the abdomen with a slow and slow frequency, rhythmic and comfortable by closing your eyes when you inhale. The effect of this therapy is distraction or diversion (Hartanti et al., 2016). Patients with high blood pressure

need blood pressure management to keep blood pressure stable (Setyawan & Ismahmudi, 2018)

CONCLUSIONS

Based on the results of research that has been conducted at the Medan Indonesian Worker Imelda Hospital for hypertension sufferers, it can be concluded:

The results showed that before (Pre) being given the finger holding technique at the Medan Indonesian Workers Imelda Hospital, blood pressure was found 140/90 – 159/99 in 20 (66.7%) and blood pressure > 160/100 in 10 (33.3) %).

The results of the blood pressure study after (Post) were given the finger-holding technique at the Medan Indonesian Worker Imelda Hospital found blood pressure <120/80 in 3 (10.0%) and blood pressure 120/80-139/89 in 21 (70.0) %) 140/90 – 159/99 as much as 6 (20.0%).

There is an effect of finger grip therapy on changes in blood pressure in hypertensive patients at the Indonesian Workers' Imelda Hospital (IPI) Medan. With the results of the comparative test showing a significant value (p) of 0.000. the significant value is below 0.05.

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ORIGINAL RESEARCH

THE INFLUENCE OF PREGNANT WOMEN'S KNOWLEDGE ABOUT THE USE OF INSECTICIDAL MOSQUITO NETS ON THE INCIDENCE OF MALARIA BY READING POCKET BOOKS AT PUSKEMAS SENTANI

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ABSTRACT	Keywords
Background: Malaria is an infectious disease caused by Plasmodium, which is a one-celled living creature that belongs to the group of protozoa, malaria is transmitted through the bite of a female anopheles mosquito containing plasmodium in it, plasmodium carried through mosquito bites will live and multiply in human blood cells. Pregnant women belong to the group that is prone to malaria due to the decrease in various pathological conditions in pregnant women and the fetuses they contain. The implementation of malaria control towards elimination is carried out gradually from one island or several islands until all islands are covered in order to realize a healthy living community and free from malaria transmission until 2030. The use of insecticidal mosquito nets is one of the preventive efforts towards malaria elimination. Public knowledge, especially pregnant women, about the use and benefits of insecticidal mosquito nets is an obstacle. Objective: Knowing pe. Methods : The design of this study is an experimental research with a type of quasy experiment with the approach of One Group Pre Test / Post Test Design. The population in this study was pregnant inu who visited the Sentani Health Center with sampling techniques using Non Probability Sampling selected by Perposive Sampling consisting of 30 respondents. The variable measured in this study is the knowledge of pregnant women. This study used the Wilcoxon signed rank test (a<0.05). Result: The results showed that pregnant women's knowledge about the use of berymunu berisktiside after being carried out was higher than before. with a value of p=0.005. Thus it can be concluded that the accepted hypothesis means that there is an influence of the knowledge of pregnant women on the use of insecticidal mosquito nets. Conclusion : there is an influence of pregnant women's knowledge on the development of the use of synsecticide mosquito nets.	*Knowledge, Insecticidal Mosquito Nets*

INTRODUCTION

Malaria is an infectious disease caused by Plasmodium, which is a one-celled living creature that belongs to the group of protozoa, malaria is transmitted through the bite of a female anopheles mosquito containing plasmodium in it, plasmodium carried through mosquito bites will live and multiply in human blood cells. The disease affects all age groups of both men and women. People affected by

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malaria will have symptoms: chills, sweating, headache, nausea and vomiting. Patients who show clinical symptoms should undergo laboratory tests to confirm their malarial positive status. (Budiyanto & Wuriastuti, 2017)

Pregnant women belong to the group that is prone to malaria due to the decrease in various pathological conditions in pregnant women and the fetuses they contain. In pregnant women, malaria can result in the onset of fever, anemia, hypoglycemia, acute pulmonary disease, kidney failure and can even cause death. In fetal premature labor, low birth weight and fetal mortality (Rahmah, 2017).

The implementation of malaria control towards elimination is carried out in stages from one island or several islands until all islands are covered in order to realize a healthy living community and free from malaria transmission until 2030. The use of insecticidal mosquito nets is one of the preventive efforts towards malaria elimination. The lack of use of insecticidal mosquito nets is one of the challenges in prevention efforts towards malaria elimination. Public knowledge, especially pregnant women, about the use and benefits of insecticidal mosquito nets is an obstacle (Ministry of Health, 2017).

An effort to increase the knowledge of pregnant women about the benefits of using insecticidal mosquito nets is to provide information, one of which is by reading a pocket book. A pocket book is a small book,

Research Results

practical because it can be carried anywhere that contains information in the form of material or other information. (Baroroh et al., 2017).

Based on the above problems, the author is interested in conducting a study with the title "The Effect of Pregnant Women's Knowledge about the Use of Insecticidal Nets on Malaria Events by Reading Pocket Books at the Sentani Health Center

METHOD

This research is an experimental research with a quasi-experimental design with a One Group Pre Test / Post Test Design approach, the instrument used is a questionnaire to measure the knowledge of pregnant women before reading a pocket book. After reading the pocket book, the same questionnaire was given to see the knowledge of pregnant women in the use of insecticidal mosquito nets. The research site is in Puskesmas Sentani, Jayapura regency. The study was conducted for 2 months. The population in this study was all pregnant women at the Sentani Health Center who came to visit the Puskesmas. The sample was a representative of a population of 30 pregnant women. The sampling technique in this study was to use accidental sampling. The instruments used are questionnaires and pocket books. Univariate analysis is to describe the characteristics of each variable contained in the research instrument, namely the characteristics of pregnant women which include age, education, occupation, grav.

RESULTS AND DISCUSSION

Table 4.1 Age characteristics of pregnant women at the Sentani Health Center Year 2023

Pregnant Women		Frequency	(%)
1. Age			
< 20 years		3	10,0
20-35 years		25	83,3
> 35 years		2	6,66
	Sum	30	100
2. Education			
Elementary schools		2	6,7
Junior High School		2	6,7
High School		23	76,6
College		3	10,0
	Sum	30	100
3. Work			
Work		29	96,6
Not working		1	3,3
	Sum	30	100
4. Parity			
Primigravida		13	43,3
Multigravida		17	56,6
Grandemultigravida		0	0

1. Univariate Analysis

What is distributed is the knowledge of pregnant women about the use of insecticidal mosquito nets before and after reading pocket books.

Table 4.2Distribution of Respondents Based on Knowledge of the Use of Insecticidal Nets in 2023

Knowledge	Before	%	After	%
Good	2	6,6		66,6
Enough	19			26,6
Less	9	20		6,6
		63,3	8	
		30	2	
Total	30	100	30	100

Table 4.3 Differences in Respondents' Knowledge About the use of insecticidal mosquito nets Before and After reading pocket books in 2023

Knowledge	∑ Mean	Standard deviation		P-value
Before	333	1,749	0,05	
After				

Table 4.3 Wilcoxon test results showed an increase showing an average knowledge of the use of sexicidal mosquito nets before and after reading a pocketbook of 3.3 with a standard deviation of 1.749. The results of the paired t test statistical test at a meaningfulness value of 95% ((= 0.05) obtained a p-value of 0.005 p > α (0.05) thus there was an influence on increasing knowledge of the use of insecticidal mosquito nets on reading books in pregnant women with malaria.

DISCUSSION
Knowledge of pregnant women before reading a pocketbook on the use of insecticidal mosquito nets

Based on the results of research on pregnant women before reading books on the use of mosquito nets with a medical system, 10 pregnant women who lacked knowledge. Knowledge is a very important domain for the formation of a person's behavior, including behavior in malaria prevention and treatment efforts.

A pocket book is defined as a book with a small size, light weight, and can be stored in a pocket, so it is practical to carry everywhere, and at any time it can be read". Another definition states that "a pocketbook is a small pocketbook the size of a pocket so that it is effective to carry everywhere and can be read at any time when needed". (Asyhari & Silvia, 2016)

According to research conducted by (Subhi Isnaini & Bahrah, 2019) that lack of knowledge about the means of transmission, prevention, eradication and treatment of malaria can lead to less community attitudes and actions, especially in malaria prevention and eradication efforts. This is because before a person behaves he must first know what the behavior means and benefits for himself, so that lack of knowledge can lead to less behavior as well.

Pocket book health promotion is one of the efforts that can be made to increase knowledge. The success of health counseling in pregnant women depends on the learning component. Pocketbook media is proven to have an effective influence where attracting will provide confidence, thereby increasing the knowledge of pregnant women. (Simanjorang et al., 2020)

This research is in line with the research conducted (Baroroh et al., 2017) at the Adriana Tarigan Belawan Clinic that the lack of knowledge of pregnant women about malaria infection in kahamilan is very detrimental to the mother and the fetus they contain, because this infection can increase the number of morbiditis and mortality of the mother and fetus. Mothers suffering from malaria can develop anemia, cerebral malaria, pulmonary edema, kidney failure, and can even cause death. In the fetus causes abortion, premature delivery, low baby weight, and fetal death. Infection in pregnant women by changes in the humoral immunization system, as well as allegedly also due to an increase in the hormone cortisol in women during pregnancy.

Previous research by at the Adriana Tarigan Belawan Clinic revealed that the lack of maternal knowledge was found especially in mothers who were poorly educated and lacked experience about malaria which had an impact on malaria prevention measures that mothers take to their children. In (Notoatmodjo (2014 &), n.d.) factors that affect the health status of public or individual health degrees include behavior, where mothers act as nurses for their families, such as caring for their toddler children.

Knowledge of pregnant women after reading a pocket book about the use of insecticidal mosquito nets

Sur la base des résultats de recherches sur les femmes enceintes avant de lire des Knowledge is the result of human sensing or knowing a person's knowledge of objects through the senses he has (eyes, nose, ears and so on). By itself, at the time of sensing to the point of acquiring such knowledge livres sur l'utilisation des moustiquaires avec un système médical, 10 femmes enceintes qui manquaient de connaissances. La connaissance est un domaine très important pour la formation du comportement d'une personne, y compris le comportement dans les efforts de prévention et de traitement du paludisme.

Knowledge is the result of human sensing or knowing a person's knowledge of objects through the senses he has (eyes, nose, ears and so on). By itself, at the time of sensing to the point of knowledge is strongly influenced by the intensity of attention and perception of the object. Most of a person's knowledge is obtained through the sense of hearing (ears), and the sense of sight (eyes).

It is agreed according to (Ludyaningrum, 2016) that the existence of information can increase a person's knowledge even though the person is poorly educated. Therefore, after the respondent was able to receive information in the form of counseling about malaria, the respondent's knowledge about malaria increased.

This research is in line with research

conducted at the Adriana Tarigan Belawan Clinic that the lack of knowledge of pregnant women about malaria infection in kahamilan is very detrimental to the mother and the fetus they are carrying, because this infection can increase the morbiditis and mortality of the mother and fetus. Mothers suffering from malaria can develop anemia, cerebral malaria, pulmonary edema, kidney failure, and can even cause death. In the fetus causes abortion, premature delivery, low baby weight, and fetal death. Infection in pregnant women by changes in the humoral immunization system, as well as allegedly also due to an increase in the hormone cortisol in women during pregnancy.

The Effect of Pregnant Women's Knowledge about the Use of Insecticidal Mosquito Nets on Malaria Events by Reading Pocket Books at Puskemas Sentani

The results showed that the results of the paired t test statistical test at a meaningfulness value of 95% ((= 0.05) obtained a p-value of 0.005 or p > α (0.05). This shows that there are differences in pregnant women's knowledge about the use of sexicidal mosquito nets against malaria events by reading pocket books.

One of the efforts to increase knowledge is to hold health counseling to the community. Research by (Mustafa et al., 2018) found that counseling has a significant influence on increasing maternal behavioral knowledge about malaria. Increasing health knowledge will increase health awareness and will further result in changes in healthy living practices.

According to the researchers' assumptions, there are still respondents who are knowledgeable, this happens because knowledge is influenced by as many factors as: age, education, and occupation. Older respondents have better knowledge than younger mothers, working responses have broader knowledge insights than non-working respondents, as well as respondents who are poorly educated, because respondents who are poorly educated will find it difficult to understand and absorb any information they receive so that they have less knowledge. Therefore, it is necessary to have a good interaction between respondents and health officials to provide information or counseling about malaria in pregnant women. (Niu Flora, 2018)

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ORIGINAL RESEARCH

DEVELOPMENT OF SPIRITUALITY ASSESSMENT OF NURSING INSTRUMENTS IN NURSES AT LABUANG BAJI HOSPITAL MAKASSAR

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ABSTRACT	Keywords
Spiritual care is carried out by nurses for patients, to prevent more severe health effects and warn of their illness, besides fulfilling spiritual needs that are holistic care to improve patient rehabilitation and quality of life when patients are treated. The aim of the study was to find out the development of an instrument for assessing the spiritual aspects of patients. This research is a qualitative research, the researcher synthesizes and constructs an instrument for assessing the patient's spiritual aspects, while the informants are five expert nurses, nursing practitioners and experts in the field of nursing science specifying spiritual aspects. The stages of the instrument development process are the construction stage, the preparation of the grid, the development of variable dimensions and indicators, theoretical and empirical validation, expert panels and review revisions based on input from the expert panel. The results show that after carrying out the instrument development process, this research has found five dimensions of spiritual aspects assessment, namely: the dimensions of spiritual experience, positive emotions, the meaning of life, rituals (for non-Muslims) and rituals (for Muslims). While discussing spiritual experience is a manifestation of spirituality within a person in the form of specific and unique experiences related to his relationship with God at various levels, one's spirituality is related to the purpose and meaning of life as a whole as a manifestation of his relationship with God, spirituality has four dimensions, namely the meaning of life, positive emotions, spiritual experiences, and rituals	*Development, Instruments, Treatment, Assessment, Spiritual*

INTRODUCTION

Research has proven that the nursing process is a scientific method used in providing nursing care to patients in a professional manner. A nurse is always confronted with patients with all kinds of cases both in the hospital and in the community and is required to be able to serve clients at all age levels using the nursing care process approach. The demand for nurses to understand the concept of the nursing care process is absolute and it is hoped that nurses will be able to apply and compile it in a client's health status document (Susantiningsih et al., 2015). Spiritual care in nursing care is an integral part of providing holistic care to all patients. An important aspect of nursing care that is given but often neglected is spiritual care. This is a task that needs to be carried out by

all nurses in providing nursing care. Nurses are required to be able to provide comprehensive nursing care to clients who are being treated at the hospital, not only on their physiological problems but also on their spiritual aspects holistically, (Kasiati, 2019) .

Meeting the spiritual needs of patients and families is an increasingly important aspect of nursing care provided at all ages. The results of research put forward by Mc Sherry and Jamieson in Taiwan explain that 83% of nurses believe spiritual aspects and spiritual care are a very basic part of nursing care. The United States and Canada are two countries that incorporate aspects of spiritual care practices into the quality standards of health services provided to patients and families. The United Kingdom also started to compile recommendations so that the role of nursing in spiritual services can be maximized, (Juwita et al., 2019). The condition of ICU patients, where most of them are intubated, can certainly affect the psychological, social and spiritual conditions of the patient.

Various studies have found that the role of nurses in providing spiritual care is still not optimal in these conditions. Nurses recognize that patients desperately need spiritual support, but they don't do it because they don't know how to do it. Nurses' knowledge about assessments or procedures or interventions that can be carried out to provide spiritual care is still lacking. Nurses in the application of spiritual nursing, need the ability to communicate effectively and also the ability to work together with the patient's family or spiritual healers in the hospital, (Laili et al., 2019). The concept that spirituality is part of holistic care that produces a state of well-being has been put forward in various literatures. Spiritual care provided by nurses to patients aims to prevent more severe health effects and can

warn of the illness they are suffering from, (Styana et al., 2017).

Meeting the patient's spiritual needs that are holistic in nature improves patient rehabilitation and improves the quality of life when the patient is hospitalized. Fulfilling the needs of the spiritual aspect can help raise the patient's enthusiasm towards the process of solving his health problems. Spirituality is the main aspect to be given by nurses, because fulfilling the spiritual aspect is useful as a coping strategy for patients and a source of strength, in helping patients optimally deal with illness and can also reduce the value of the difficult situations they face so that they can quickly achieve a complete healing process. Ngesti W. Utami, et al., 2016). The science of mental health views the spiritual aspect as containing psychotherapeutic elements, as well as psychoreligious therapy as a force that can generate self-confidence and optimism in patients towards healing their illness. This is important for a cure for patients in addition to administering drugs and other medical measures, (Ruslinawati, 2017) (Zambezi et al., 2022).

Research shows that there is a relationship between religious coping with the patient's anxiety level which shows that spiritual and religious elements are very important in overcoming patient anxiety. Research also shows that a person's level of faith is related to immunity and endurance overcoming problems, research conducted by TIME magazine, CNN and USA Weekend (1996) shows that there are more than 70% of patients believe in God's role in the healing process, by praying and dhikr play a role in healing the disease, (Dudi Hartono, Ners., 2016).

The data obtained by researchers from Laburan Baji Hospital Makassar, there were

8 nurses out of 10 people interviewed, who said they did not carry out an assessment because the assessment format presented did not yet reflect a comprehensive patient assessment of patient spirituality, and argued that there was still a need for instrument development. assessment that facilitates nurses in conducting assessments of aspects of spirituality so that more comprehensive data is found in making diagnoses related to aspects of spirituality. In addition, 7 out of 10 nurses said they did not have good knowledge and skills in conducting spiritual assessments. Based on the background, what is traced is the influence of developing a spiritual aspect assessment instrument on the level of knowledge and skills of nurses.

LITERATURE REVIEW
Nursing process

The nursing process is an approach to problem solving that enables nurses to organize and provide nursing care. (Hasibuan, 2019) While the purpose of the nursing process is to identify the client's health care needs, determine priorities, provide nursing interventions designed to meet client needs, and evaluate the effectiveness of nursing care in achieving the expected client outcomes and goals, (Nursalam, 2014). The application of the nursing process in providing nursing care has several objectives, namely: as a standard for providing nursing care, practicing problem-solving methods in nursing practice, obtaining systematic and rational standard methods, obtaining methods that can be used in various situations, obtaining nursing care results with high quality, (Muhlisin; 2011). The function of the nursing process is very important because it serves as a framework for thinking about carrying out the functions and responsibilities of nursing in a broad scope. In addition, it also serves as a tool to identify patient problems, systematically compile plans, carry out actions and assess the results of actions. (Styana et al., 2017)

There are several steps in the nursing process, namely: 1) Assessment; the assessment stage requires accuracy and thoroughness to identify problems, 2) Nursing Diagnosis; clear, concise and definite statements about patient problems and developments that can be solved or changed through nursing actions, 3) Nursing Planning; Preparation of a nursing action plan that will be implemented, to address the problem in accordance with a predetermined nursing diagnosis. The purpose of nursing planning is to fulfill the patient's needs, 4) Nursing Actions; Implementation of a predetermined action plan, with the intention that the patient's needs are optimally met. Nursing actions may be carried out in part by the patient himself, by the nurse independently, or may be carried out in collaboration with other members of the health team, for example nutritionists and physiotherapists. What will be done is highly dependent on the type of action, on the abilities/skills and desire patients and the nurses themselves. Thus, it appears that the implementation of nursing is not solely the duty of the nurse, but involves many parties. However, those who have the overall responsibility are the nurses, 5) Evaluation; Measure the client's response to nursing actions and the client's progress toward achieving goals. ((Dinarti & Mulyanti, 2017)

Nursing Assessment

Assessment is collecting, organizing, validating, and documenting client data with the aim of establishing a baseline about the client's response to health problems or illness and ability to manage health care needs. Assessment can be interpreted as the initial stage of the nursing process and is a

systematic process of collecting data from various data sources to evaluate and identify the client's health status. As well as the rationale in providing nursing care according to client needs. A complete and systematic assessment according to the facts or conditions that exist on the client is very important for formulating a nursing diagnosis and in providing nursing care in accordance with individual responses. So, it can be concluded that assessment is the basic thinking of the nursing process which aims to collect information or data about the client, in order to identify, recognize the client's health and nursing needs, both physical, mental, social and environmental. Activities in the assessment carried out by a nurse in collecting basic data are examining the identity, or biographical data of the client. Data collection is an activity to gather information about the client's health status, the client's health status which is normal or gaps should be collected. This is intended to identify the pattern of the client's health function, both optimally effective and problematic

Spiritual aspect

Spirituality is a noun related to spirit, related to phenomena and supernatural beings, (Sagala et al., 2019). Spirituality means awareness or belief in a higher power or energy that inspires individuals to give meaning and purpose beyond themselves and their lives, (Fitriyah, 2017). Spirituality is a broad conceptual concept containing various dimensions and perspectives which are marked by feelings of attachment to something bigger than ourselves, accompanied by efforts to find the meaning of life or also explained by experiences that are universal and touching, (Aditama, 2017). Individuals also describe spirituality into various life experiences such as a feeling of being connected to sacred things and reassuring. Spirituality consists of three aspects, namely the existential aspect, the cognitive aspect, and the relational aspect, namely the stage of unity where a person feels one with God and or with His love. (Zambezi et al., 2022)

Preparation step, instrument development

To understand the concept of constructing and developing instruments, the steps taken in compiling instrument items in a study are based on a synthesis of the theories studied about a concept of the variable to be measured, then the construct of the variable is formulated, based on the construct it is developed. variable dimensions and indicators, making instrument grids in the form of specification tables, setting quantities or parameters that move in a continuum range from one opposite pole to another, writing instrument items which can be in the form of statements or questions, items has been written, the validation, revision or improvement stage based on expert advice, doubling the instrument, testing the instrument in the field, testing the validity is carried out using criteria, based on these criteria a conclusion is obtained about whether an item or an instrument is valid or not , reviewing the validity of the content based on the grid, calculating the reliability coefficient, and assembling valid instrument items to be used as the final instrument. (Muljono, 2002)

Kinds of Data

Subjective data is an expression of client complaints directly from the client or indirectly through other people who know the client's condition directly and convey the problems that occur to you as a nurse based on the conditions that occur to the client. To obtain subjective data, anamnesis was carried out, such as: "feeling dizzy", "nausea", "chest pain", and others.

Subjective data is also obtained from interviews such as asking the client's identity, the client's medical history, how the client is feeling, the client's coping patterns, and others. Objective data is data that you obtain directly through observation and examination of clients. Objective data must be measurable and observable, not an interpretation or assumption from you, for example: blood pressure 120/80 mmHg, anemic conjunctiva. Objective data can also be generated from inspection, palpation, percussion, auscultation. Basic data is data relating to all aspects of the patient, consisting of geographic data, pre-illness history, current medical history, family health history, environmental health history, physico-social conditions, daily habits, physical aspects, social aspects and spiritual aspects. Usually the basic data is obtained the first time the nurse contacts the patient. It is possible that all of the basic data was not collected at the first time. focus data; is data that is focused on the health problems experienced by the patient at that time. For example, if a patient has visual impairment, an assessment that focuses on the patient's visual function is called focal data.

METHOD

This research is a type of qualitative research, while the data sources are primary and secondary data. Primary data, namely the client as the main source of data and can dig up actual information about the client's health problems and objective data (if the client is in an abnormal condition), clarification of subjective data (conducting the client's family history), informants in the first validation stage, this study involved 5 expert nurse at Laburan Baji Hospital, Makassar, nursing practitioner and expert in the field of spiritual aspects of nursing, (Syamsuddin AB). While secondary data, namely medical records and other health team members, medical history,

consultations with specialist health team members, results of diagnostic examinations, other nurses if the client is a referral from other health services, literature, and supporting data, namely laboratory data, researchers synthesize and construct instruments. assessment of the patient's spiritual aspects. The research variable is instrument development. The flow of research on the preparation and development of instruments for assessing spiritual aspects is carried out based on the flow, namely variable construction, development of variable dimensions and indicators, trials, compiling instrument grids, determining parameter values, writing instrument items, theoretical and empirical validation of expert panels, revisions based on advice from expert panels, validity and reliability tests, and assembly of instrument items to be used as the final instrument. The research process uses data reduction analysis techniques, presenting data drawing conclusions.

RESULTS

The results of the research on the influence of the development of instruments for assessing spiritual aspects on the level of knowledge and skills of nurses at Laburan Baji Hospital, Makassar City are described as follows:

The Spiritual Aspect Assessment Construction Stage

In the construction phase of the study of spiritual aspects, the researcher decided to develop an assessment of the spiritual aspects of the Indonesia Spiritual Health Assessment which was developed by the Center for the Study of Bioethics and Islamic Medical Law, Faculty of Medicine, Islamic University of Indonesia.

Preparation Of Grids, Development of Dimensions And Variable Indicators

At this stage the researchers developed dimensions and indicators for measuring spiritual aspects of the patient. The dimensions of measuring the study of spiritual aspects through the results of theoretical constructs are as follows: spiritual experience, positive emotions, meaning of life, rituals (for non-Muslims) and rituals (for Muslims). Indicators for each aspect are determined as statement items that will be filled in by the patient for further measurement parameters to be determined. The development of the ritual dimension is carried out so that the assessment of spiritual aspects can be more valid and objective so that the results of the ritual assessment can be used as a reference for further interventions for nurses. In detail, the dimensions and indicators for assessing the spiritual aspect show the following results: a). The spiritual experience of the manifestation of spirituality in a person is in the form of specific and unique experiences related to his relationship with God at various levels. indicators: feeling close and friendly with the universe, finding god behind the illness, feeling the presence of god in everyday life, feeling good when you are right and feeling sick when you are wrong, feeling a special impression on certain events, experiencing non-empirical religious experiences. b). Positive emotions are manifestations of spirituality in the form of the ability to manage thoughts and feelings in intrapersonal relationships so that a person has life values that underlie the ability to behave appropriately. indicators: being happy about other people's happiness, enjoying with the awareness that everything is created for a specific purpose/taking wisdom, being optimistic about God's help, being able to make peace with difficult circumstances no matter how bad, being able

to control yourself, being happy when doing good, c). The meaning of life is a manifestation of spirituality in the form of a unique intrapersonal appreciation, shown in social (interpersonal) relationships that are beneficial, inspiring and bequeathing something of value to human life. indicators: helping spontaneously, keeping promises, forgiving oneself or others, behaving honestly, prioritizing harmony and togetherness, d). Rituals (for religions other than Muslims) manifestations of spirituality in the form of repeated systematic structured actions, involving motor aspects of cognition and affection which are carried out according to a certain procedure both individually and communally. indicators: praying, praying, visiting places of worship, making donations, being involved in religious communities, e). Ritual (for Muslims) is a manifestation of spirituality in the form of repeated systematic structured actions involving motor aspects of cognition and affection which are carried out according to a certain procedure both individually and communally. indicators: praying five times a day, praying, fasting circumcision, fasting, praying at the mosque, giving alms, engaging in recitation or religious activities involving more than two people

Theoretical and empirical validation

After determining the dimensions, indicators and statement items for assessing the spiritual aspects, theoretical and empirical validation is then carried out in the form of a Focus Group Discussion (FGD) with experts in the spiritual nursing field.

Expert panels

The expert panel is the next stage after theoretical and empirical validation which is also carried out in the form of a Focus Group Discussion with scientific experts and expert

nurses who are held at Laburan Baji Hospital, Makassar. Thus the dimensions of the spiritual aspect are found; spiritual experiences, positive emotions, meaning of life and rituals for non-Muslims and rituals for Muslims. Spiritual experience is a manifestation of spirituality in a person in the form of specific and unique experiences related to his relationship with God at various levels. A person's spirituality is related to the purpose and meaning of life as a whole, as a manifestation of his relationship with God. Spirituality has four dimensions, namely the meaning of life, positive emotions, spiritual experiences, and rituals (Afifi, 2005). They have the ability to take lessons from all the realities, situations and conditions that must be faced as leprosy patients, they are able to live life despite all the suffering they have to face. Other findings reveal (Nugroho et al., 2019) that female participants with Chronic Kidney Disease (CKD) experience changes in terms of worship, namely an increase in worship.

DISCUSSION

This research starts from the construction of spirituality theories with the involvement of experts in the spiritual field, as well as expert nurses in the spiritual aspect. Some of the theories constructed include: the definition of spiritual aspects (Suseno, 2019) is an aspect of human self-esteem related to the purpose and meaning of life, in relation to intrapersonal relationships, between humans (social-interpersonal) and life as a whole, as a manifestation of its relationship with God. According to him, it is necessary to develop an instrument to measure "spiritual health". The Indonesia Spiritual Health Assessment (ISHA) is an instrument intended to determine a person's spiritual profile and brain dominance. This research (Suseno, 2019) was carried out starting from the construction of the theory of spirituality with

the involvement of experts in the fields of neuroscience, spirituality and psychometry, then the process of writing test items and testing validity. Furthermore, this research is strengthened by the existence of Health Law Number 36 of 2009 (Menkumham, 2009) which states that health is a healthy state, both physically, mentally, spiritually and socially which allows everyone to live productively socially and economically.

The dimension of spiritual experience

The stages of compiling the grid, developing dimensions and variable indicators of assessing the spiritual aspects of patients were carried out by researchers by reviewing the results of previous studies which were then reviewed by the research team. The dimensions of the spiritual aspect found are: spiritual experience, positive emotions, meaning of life and rituals for non-Muslims and rituals for Muslims. Spiritual experience is a manifestation of spirituality in a person in the form of specific and unique experiences related to his relationship with God at various levels. A person's spirituality is related to the purpose and meaning of life as a whole, as a manifestation of his relationship with God. Spirituality has four dimensions, namely the meaning of life, positive emotions, spiritual experiences, and rituals. (Afifi, 2005)

This research is in line with several other research studies (Endriyani, 2014) which found that the life of leprosy patients in hospitals requires various sources of strength that can be used as a guide in living their daily lives in hospitals. Leprosy patients are able to find the true meaning of life and hope for life in the future through experience and spiritual strength. They have the ability to take lessons from all the realities, situations and conditions that must be faced as leprosy patients, they are able to live life despite all the suffering they have to

face. Other findings reveal (Nugroho et al., 2019) that female participants with Chronic Kidney Disease (CKD) experience changes in terms of worship, namely an increase in terms of worship. Other research (Mailani et al., 2015) concludes that there are 4 themes that reflect the phenomenon researched. These themes include getting closer to God, support from the closest people, having great hopes for recovery, and accepting the illness sincerely. According to the researcher's assumption, the dimension of the spiritual aspect is very important to explore so that information can be obtained to what extent the patient feels God's presence and God's intervention in the healing process of his illness.

The dimension of positive emotions

Positive emotion is a manifestation of spirituality in a person in the form of specific and unique experiences related to his relationship with God at various levels. Other researchers found that cancer patients have a high level of positive emotions with a good quality of life, the higher the level of positive emotional experience, the higher the quality of life for cancer patients (Yuliani et al., 2020). A study (Terrill et al., 2019) also revealed that positive emotions are common in the communication of nurses, caregivers and patients at the end of life and do not decrease towards death. Research related to positive emotions reveals that emotions and feelings are phenomenal conditions that refer to or affect human health. It was further revealed that the positive emotions experienced by humans are not born spontaneously, various good and pleasant things make humans experience positive emotions. That feeling makes humans enjoy the moments of life. positive emotions make people healthier physically and mentally (Terrill et al., 2019).

Positive emotions towards other people will also foster trust and affection and keep someone away from stress (Ching & Chan, 2020). The results of other studies state that the less a person has positive emotions at one point, the more they tend to increase their use of positive strategies from this time to the next time, which in turn generates the next higher level of positive emotion. This prototype of positive regulation can be seen as a highly adaptive mechanism that makes it possible to compensate for the lack of positive emotions by increasing the adoption of positive strategies (Colombo et al., 2021). It can be assumed that basically everyone has the potential to increase the positive emotions that exist within him, very much depending on the experience and ability of a person to take positive lessons from every incident he encounters.

The dimension of the meaning of life

The meaning of life is a manifestation of spirituality in the form of an intrapersonal appreciation that is unique, and shown in social (interpersonal) relationships that are beneficial, inspiring and bequeathing something of value to human life. The absence or lack of meaning in life is associated with the need for therapy, depression, anxiety, suicidal tendencies, and drug abuse, while the acquisition of a good and quality meaning in life is positively related to work enjoyment, life satisfaction, and happiness (Afifi, 2005). A study conducted on post-stroke patients found that the meaning of life resulted from a combination of self-concept and experiences experienced by a person, post-stroke patients who experienced recovery resulted in an increase in the meaning of life they felt (Iszakiyah et al., 2019)

Ritual dimension

Rituals are human actions to give birth to spiritual experiences or to feel related to something great. Ritual is a way for humans to bring out spirituality in themselves. Spiritual experience is a manifestation of spirituality in a person in the form of specific and unique experiences related to his relationship with God at various levels. Positive emotions are spiritual manifestations in the form of the ability to manage thoughts and feelings in intra-personal relationships so that a person has life values that underlie the ability to behave appropriately. Religious teachings and spiritual practices really give the power of positive thoughts to humans. Apart from being related to physical health, religion and spirituality are also important for human mental health (Afifi, 2005). Rituals are manifestations of spirituality in the form of structured, systematic, repetitive actions, involving motor aspects, cognition and affection which are carried out according to a certain procedure both individually and communally. .

The third stage of this study was theoretical and empirical validation in the form of Focus Group Discussions with experts in the spiritual nursing field. FGDs were conducted to provide reinforcements for the dimensions, indicators and points of the statement regarding the study of spiritual aspects that had been prepared. At this stage the experts conduct a study of the dimensions, indicators and points of statement regarding the study of spiritual aspects to proceed to the next stage.

The expert panel stage of assessing the spiritual aspects of patients was carried out at Laburan Baji Hospital, Makassar by presenting 5 expert nurses with the following criteria: the lowest education is Nurses, more than 5 years work experience as an executive nurse. At this stage the nurse experts provide input as many as 5 indicators and statement items to correct and reconstruct the editorial words and sentences with the aim that patients can more easily digest and understand the intended statement points

CONCLUSION

Based on the factual results regarding the influence of developing a spiritual aspect assessment instrument on the level of knowledge and skills of nurses as follows: 1). At the construction stage of studying the spiritual aspects of patients, researchers decided to develop an assessment of the spiritual aspects of the Indonesia Spiritual Health Assessment which was developed by the Center for the Study of Bioethics and Islamic Medical Law, Faculty of Medicine, Islamic University of Indonesia, 2). At the stage of compiling the grid, developing dimensions and variable indicators of assessing spiritual aspects of patients, dimensions and ;non-Muslims) and rituals (for Muslims), 3). In the theoretical and empirical validation stage, the spiritual aspects of the patient are assessed, 4). At the expert panel stage for the study of the spiritual aspects of patients, an adaptation process of 12 statements from 5 dimensions of spiritual aspects was carried out. spiritual aspect.

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ORIGINAL RESEARCH

THE RELATIONSHIP BETWEEN FAMILY SUPPORT AND ELDERLY ACTIVENESS IN JOINING ELDERLY POSYANDU ACTIVITIES

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ABSTRACT	Keywords
Along with the increasing elderly population, the government has formulated various health service policies aimed at the elderly, one of which is the elderly Posyandu. This health service is intended to improve the health status of the elderly. The purpose of this study was to determine the relationship between family support and the activeness of the elderly in participating in elderly Posyandu activities in Alley 7, Sawahan Village, Mojosari District. The research design used was an analytic correlation with a cross-sectional study approach. The population is all elderly people who are registered at the gang 7 elderly Posyandu as many as 34 people and are taken using a non-probability sampling technique, namely the saturated sampling technique. The independent variable is family support and the dependent variable is the activeness of the elderly in participating in elderly Posyandu activities. Data collection was carried out by distributing questionnaires and KMS observation sheets, after the data was collected, the data was processed using the chi-square test with the help of SPSS 16 at the error level (α) = 0.05 value (ρ) value = 0.012 <0.05 then H1 was accepted and H0 is rejected, which means that there is a relationship between family support and the activeness of the elderly in participating in elderly Posyandu activities in alley 7, Sawahan Village, Mojosari District. The existence of family support for the elderly causes peace of mind and happiness in the elderly. Family support will affect the activity of the elderly because the role of the family is very important in encouraging and motivating the interest of the elderly to be active in Posyandu	**Family support, Elderly Posyandu, Elderly**

INTRODUCTION

Along with the increasing elderly population, the government has formulated various health service policies for the elderly. Health services are aimed at improving the health status and quality of life of the elderly in order to achieve a happy and efficient old age in family and community life in accordance with their

existence. As a concrete manifestation of health services for this elderly group, the government has launched a service for the elderly in the form of an elderly posyandu (Purnama, Sudirman, & Yusuf, 2018). In carrying out Posyandu activities for the elderly, there are often obstacles faced by the elderly, including low knowledge of the elderly about the benefits of the Posyandu, the distance between their homes and the Posyandu which is far away and lack of family support. In this Posyandu activity, family support plays a very important role. Family support plays a very important role in encouraging the interest or willingness of the elderly to participate in elderly Posyandu activities. The family can be a strong motivator for the elderly if they always make themselves available to accompany or accompany the elderly to the Posyandu, remind the elderly if they forget the Posyandu schedule, and try to help overcome all problems with the elderly (Al-Hijrah, Masri, Irwan, & Mubarak, 2022).

According to SURKESNAS, of all Posyandu spread across Indonesia, only 36.4% of Posyandu are actively running, this is due to the lack of interest of the elderly to come to Posyandu

One of the factors that influence the low number of elderly people coming to posyandu is family support. Family support can be obtained from individuals or groups. Forms of family support in the form of emotional support, appreciation support, material support and information support(Vaughan et al., 2018). Family and community participation in elderly Posyandu activities will increase the activity of the elderly in participating in Posyandu activities which include: physical examinations, blood pressure checks, exercise for the elderly, and distribution of food which has a big influence on actively coming to the Posyandu. The participation

of health cadres to provide counselling about the importance of the elderly to come actively to the Posyandu will increase public awareness, especially families to accompany their elderly family members to come to the elderly posyandu ((Sumardi, Seweng, & Amiruddin, 2020).

RESEARCH METHODS

The design of this study was an analytic correlational cross-sectional study. The number of this population is all the elderly who are registered at the Elderly Posyandu Gang 7, Sawahan Mojosari Village, namely 34 people.Sampling using a non-probability sampling technique, namely total sampling. The measuring tool uses a questionnaire and an elderly KMS register sheet.Data analysis in this study used the Chi-Squere test to determine the relationship between family support and the activeness of the elderly in participating in Posyandu activities for the elderly in Gang 7, Sawahan Mojosari Village.

In this study the independent variable is family support. While the dependent variable is the activeness of the elderly in participating in the elderly Posyandu activities.The instruments used in the study were questionnaires and KMS observation sheets

This research was conducted in Sawahan Village, Mojosari District. Data collection began with managing the head of Sawahan Village, Mojosari District. Then proceed to the village midwife and get 34 respondents. After that, the research was carried out by giving the intent and purpose of the research to the respondents, providing a letter of application to become a respondent and providing a letter of approval to become a respondent for those who were willing to become a respondent.

RESEARCH RESULT

1. General Data

Table 1   Frequency distribution of respondents based on gender.

No	Gender	Frequency	Percentage (%)
1	Female	24	70,6
2	Male	10	29,4
	Total	34	100

Based on the table, it was found that most of the elderly were female, namely as many as 24 people (70,6 %).

Table 2   Frequency distribution of respondents based on age.

No	Age (Year)	Frequency	Percentage (%)
1	45-59	4	11,8
2	60-74	29	85,3
3	75-90	1	2,9
	Total	34	100

Based on the table above, most of the elderly are aged 60-74 years, namely 29 respondents (85.3%)

Table 3   Frequency distribution of respondents based on employment status.

No	Relationship status	Frequency	Percentage (%)
1	Work	11	32,4
2	Dosn't Work	23	67,6
	Total	34	100

Based on the table above, it was found that most of the elderly were not working, namely as many as 23 respondents (67.6%)

Table 4 Frequency distribution based on the last education of the elderly

No	Education	Frequency	Percentage (%)
1	SD	19	55,9
2	SMP	10	29,4
3	SMA	5	14,7
	Total	34	100

Based on the table above, it was found that most of the elderly graduated from elementary school, namely 19 respondents (55.9%)

2. Custom Data

Table 5   Frequency distribution based on family support

No	Family Support	Frequency	Percentage (%)
1	Support	20	58,8
2	Doesn't Support	14	41,2
	Total	34	100

Based on the table above, it was found that most of the respondents received support from their families, namely 20 respondents (58.8%)

Table 6 the frequency distribution of the characteristics of the respondents based on the activity of the elderly

No	Elderly activity	Frequency	Percentage (%)
1	Active	12	35,3
2	Less active	19	55,9
3	Not Active	3	8,8
	Total	34	100

Based on the table above, it was found that most of the elderly were less active at Posyandu, namely 19 respondents (55.9%)

Tabel 7 Tabulation of family support with the activity of the elderly.

No	Support family	Elderly Activeness						Total	
		Aktive		Less Active		Not Active			
		F	%	F	%	F	%	F	%
1	Support	8	40,0	11	55,0	1	5,0	20	100
2	Doesn't Support	4	28,6	8	57,1	2	14,3	14	100
	Total	12	35,3	19	55,9	3	8,8	34	100

The results of the study based on table 7 above show that of the 20 respondents who received support from their families, 8 respondents (40.0%) were active, 11 respondents (55.0%) were less active, and 1 respondent was inactive (5.0%). While 14 respondents did not receive support from families who were active in posyandu as many as 4 respondents (28.6%), less active 8 respondents (57.1%) and inactive 2 respondents (14.3%).

The results of the chi square test analysis with the help of SPSS 16 for windows obtained (ρ) value = 0.012 < (α) = 0.05, which means H0 is rejected and H1 is accepted. It can be concluded that there is a relationship between family support and the activity of the elderly coming to the elderly posyandu in alley 7 sub-district Mojosari fields.

DISCUSSION

Identifying Family Support at the Elderly Posyandu Gang 7 Sawahan Mojosari

The results of the family support study found that 20 respondents (58.8%) supported the elderly to come to Posyandu, while 14 respondents (41.2%) did not receive family support.

The basic functions of the family include effective functions, namely the internal functions of the family to fulfill psychosocial needs, care for and give love to each other, and accept and support each other. (Masithoh, Kulsum, Parastuti, & Widiowati, 2022) Family support plays a very important role in encouraging the interest or willingness of the elderly to attend and participate in elderly Posyandu activities. The family is a strong motivator for the elderly if they always provide themselves to accompany, and escort the elderly, remind the elderly if they forget their schedule to visit the Posyandu, listen to the complaints of the elderly, help solve problems with the elderly (Agustina, 2017)

Good family support can be seen from the extent to which the family pays attention to the physical and psychological needs of the elderly and this can be seen from how family members care for the elderly which in this case is very influential in their development in old age which is often a problem for the elderly and their families.

Identifying the activeness of the elderly at the Elderly Posyandu Gang 7 Sawahan.

The results showed that some of the elderly were less active in coming to the Posyandu, namely 19 respondents (55.9%), respondents who were active in the elderly Posyandu as many as 12 respondents (35.3%) and who were not active in the elderly Posyandu as many as 3 respondents (8.8 %).

The activeness of the elderly in participating in Posyandu activities is influenced by several factors including education, knowledge, family support and age ((Hanapi & Arda, 2018). The first factor is knowledge. Education is a process in a series of influences and thus will lead to changes in behaviour in themselves because it cannot be denied that the higher a person's education level, the easier it is for them to receive health information. and new values

are introduced. The experience and knowledge of the elderly drives their interest or motivation to always attend and take part in Posyandu activities (Hanapi & Arda, 2018)

Support from the closest people such as family can make the elderly to be enthusiastic and have an interest in being active in the elderly Posyandu. From the activity of the elderly at the Posyandu, they will know about their current condition and will be told how to deal with their health problems.

Analisis relationship between family support and the activeness of the elderly in participating in elderly Posyandu activities in Alley 7, Sawahan Village.

The results of the study in table 7 above show that of the 14 respondents who did not get support from their families, 4 respondents (28.6%) were active, 8 respondents (57.1%) were less active, and 2 respondents were inactive. (14.3%). Meanwhile, 8 respondents (40.0%) received support from active families, 11 respondents (55.0%) were less active and 1 respondent (5.0%) was not active .

The results of the chi-square test analysis with the help of SPSS 16 for windows obtained (ρ) value = $0.012 < (\alpha) = 0.05$, which means that H0 is rejected and H1 is accepted. It can be concluded that there is a relationship between family support and the activity of the elderly coming to the elderly Posyandu in alley 7 sub-district of Sawahan Mojosari.

Family support plays a very important role and encourages the interest or availability of the elderly to attend the elderly Posyandu. The family becomes a strong motivator if they always make themselves available to escort and

accompany the elderly to the Posyandu, remind the schedule of the elderly Posyandu and try to solve all problems with the elderly (Agustina, 2017)

The existence of family support for the elderly can cause inner peace and feelings of pleasure in the elderly. The family has a major role in providing encouragement to the elderly in checking the health of the elderly. The level of activeness of the elderly in posyandu is also influenced by family support. Good family support will also improve the level of activeness of the elderly in posyandu activities. Good and correct information received by the family is also important for the elderly, so that the elderly who receive information from the family will understand the importance of being active in Posyandu activities for the elderly. However, the elderly who are not active are also caused by the lack of desire of the elderly themselves who think they do not need to check their health conditions at the posyandu.

CONCLUSION

There is a relationship between family support and the activeness of the elderly in participating in Posyandu activities for the elderly in alley 7, Sawahan Mojosari village. The existence of family support for the elderly causes peace of mind and happiness in the elderly. Family support will affect the activity of the elderly because the role of the family is very important in encouraging and motivating the interest of the elderly to be active in Posyandu.

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ORIGINAL RESEARCH

KNOWLEDGE AND PREPAREDNESS IN DEALING WITH EARTHQUAKE DISASTER IN NURSING STUDENTS IN SURABAYA AND BANGKALAN

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ABSTRACT (200 kata)	Keywords
Introduction : Knowledge in dealing with disasters is one part of disaster mitigation in the application of disaster preparedness in the campus environment. The death toll from an earthquake will increase along with the knowledge of the community and the level of preparedness they have. This study aims to see the significance of the relationship between knowledge and student preparedness in dealing with earthquake disasters in the campus environment. **Method** : Research design with descriptive correlational cross sectional approach. Sampling using non-probability sampling technique random sampling The research sample was 237 students at STIKES Hang Tuah Surabaya & STIKES NHM with questionnaires in the period of June- July 2022. Test data analysis using ChiSquare. **Results** The results showed that the majority of STIKES Hang Tuah Surabaya students had good knowledge of 205 (86.9%) and moderate preparedness of 226 (95.4%). Statistical test results show the value of $\rho=0.011$ ($\rho<\alpha=0.05$) which means that knowledge has a close relationship with preparedness in the face of earthquakes. **Conclusion** The implications of this research can be concluded that increasing knowledge is an important part of mitigation in increasing preparedness in the campus environment in dealing with disaster threats, especially earthquakes in particular	**Knowledge, Preparedness, Earthquakes**

INTRODUCTION

Disaster incidents have recently increased, especially in Indonesia. This is because Indonesia is an archipelagic country which is prone to disasters, especially earthquakes. (Widyastuti et al., 2021). The large number of fatalities that occurred due to earthquakes occurred due to a lack of public knowledge and the level of earthquake disaster preparedness, this shows the importance of knowledge and earthquake disaster preparedness (Manulu, 2019). Preparedness is important and needs to be owned by everyone because disaster preparedness

is useful for anticipating disasters (Dewi & Satria, 2018). Professional nurses are expected to be ready for emergency and disaster situations. Therefore, it is necessary to prepare nursing students to create a disaster-resilient campus (Juanita, Suratmi, & Maghfiroh, 2017)

Disaster knowledge related to disaster mitigation is one of the things that needs to be done in implementing disaster preparedness in the campus environment. Oktarina, Nurhusna and Saputra, (2019) explained that using an application could be an effort to increase the motivation of student nurses in increasing their knowledge in the disaster area. Therefore, research is still needed regarding the study of the knowledge of nursing students with the level of earthquake disaster preparedness to create a disaster resilient campus.

According to data from the Disaster Management Agency (BNBP) it is noted that the incidence of natural disasters will continue to increase every year, in the last 10 years (2009-2019) there have been 216 cases of earthquakes with a total of 637 missing and dead victims, 8,687 injured. - injured, 495,855 refugees, 602,223 residential units were damaged and 131 public facilities (public facilities) were damaged (BMKG, 2021). The latest earthquake occurred in Surabaya, East Java on January 15 2022, according to the Meteorology, Climatology and Geophysics Agency (BMKG) this earthquake was a tectonic earthquake of magnitude 4.1 which had no potential for a tsunami, real earthquake vibrations were felt in people's homes in Juanda, East Surabaya and North Surabaya (Pratama, 2022)

In this regard, the study of knowledge and level of disaster preparedness is one of the most important things that every student must know, supported by government regulations related to disaster preparedness campuses which have the aim of increasing knowledge and increasing student capacity in disaster preparedness efforts (Mahsyar et al., 2012). Based on the disaster event data above, knowledge of STIKES Hang Tuah Surabaya students is needed in disaster preparedness, both individual and even community knowledge. Disaster preparedness is a series of activities that are useful for anticipating disaster hazards through organization and through appropriate and effective steps so as to minimize the adverse effects arising from disasters, both physical damage and loss of life (Budimanto, 2017).

The urgency of this research is related to examining student knowledge about disasters with preparedness in dealing with natural disasters, in this case, earthquakes. So that it can become one of the basic studies in creating a disaster-resilient campus and be included in the curriculum for disaster courses for nursing students.

RESEARCH METHODS
The design of this research is correlation analytic with cross sectional research design. The population in this study were all nursing students at STIKes Hangtuah Surabaya and STIKES Ngudia Husada Madura Bangkalan. The sample in this study were all nursing students at STIKes Hangtuah Surabaya and STIKES Ngudia Husada Madura Bangkalan with a total of 237 students. The independent variable in this study is student knowledge about earthquake

disasters and the dependent variable in this study is student preparedness in dealing with earthquake disasters. The research instrument used a knowledge questionnaire and a disaster preparedness questionnaire. The instrument has been tested for validity and reliability. The validity test value was 0.444 and the reliability test value obtained a Cronbach'ch Alpha value above 0.6 so that it can be said that the questionnaire used in the study was reliable. This research was conducted on Hang Tuah Surabaya STIKES students and Bangkalan NHM students in June - July 2022. Before data collection, respondents were given an explanation of the intent, purpose and benefits of this research. This study carried out ethical eligibility tests at KEPK Stikes Hang Tuah Surabaya to obtain ethical clearance and obtain ethical certificates PE/18/VI/2022/KEP/SHT

RESEARCH RESULT

General data results in this study is a description of the characteristics of respondents consisting of gender, age, level and information owned by respondents about earthquake disaster preparedness.

Table 1 Characteristics of Respondents based on age , gender , level and information about earthquake disaster preparedness (n=237)

Characteristics Respondent	Frequency	Prosentase
Age		
18-19 years old	81	34,2%
20-21 years old	86	36,3%
22-23 years old	70	29,5%
Semester		
2	42	18%
4	64	27,%
6	90	38%
8	40	17%

Experience Participating in Disaster Seminars		
Yes	75	32%
No	162	68%
Experience Following a self-rescue Simulation		
Ever	60	25%
Never	177	75 %

In the research data, it was found that 75 respondents (31.7%) had attended various disaster nursing seminars. The majority of respondents had participated in the disaster simulation but the majority of students in semester 2 had not participated in the earthquake disaster simulation activity with the number of respondents being 42 (18%) but having a moderate level of knowledge of 32 (13.5%) respondents and good knowledge of 10 (4.2%)) respondents. From the research data above, 177 (75%) respondents had never taken a disaster nursing course and 60 (25%) respondents had taken a disaster nursing course, while for the data of respondents who had attended a disaster nursing seminar, there were 162 (68.3%) respondents never attended a seminar and 75 (31.7%) of respondents had attended various kinds of emergency nursing seminars.

Table 2. Knowledge and Earthquake Disaster Preparedness for Nursing Students (n= 237)

Knowledge	Earthquake Disaster Preparedness		
	Poor(n=0)	Moderate (n=32)	High (n=205)
Poor	0	1 (3,1%)	7 (3,4%)
Moderate	0	8 (25%)	16 (7,8%)
High	0	23 (71,9)	182 (88,8%)

The results of the research analysis using the Chi Square test between knowledge and earthquake disaster preparedness obtained a value of ρ = 0.011 (ρ = 0.05) so that it was concluded that there was a relationship between the two variables. According to the static test measurements, data obtained from 182 (88.8%) students who had good knowledge with less preparedness. Knowledge is an important factor in earthquake disaster preparedness. Student experience in earthquake disaster preparedness is also very important to increase student preparedness in dealing with earthquake disasters in nursing students

DISCUSSION

In general, the results of the research that has been conducted show that the majority of respondents have good knowledge about earthquake disasters. The results of this study are the same as the results of research conducted by previous researchers, namely by Rofifah, (2019) who examined the relationship between knowledge level and disaster preparedness in nursing students at Diponegoro University Semarang. The level of student knowledge is usually influenced by several factors such as experience attending seminars, experience participating in disaster simulations, and formal or non-formal education (Fauzi et al., 2017). In this research data, most of the respondents had been involved in an earthquake disaster simulation that was held at the Hang Tuah Surabaya STIKES campus, but there were also respondents, especially in semester 2 respondents who had not participated in the earthquake disaster simulation activity.

This research is in line with research by Rofifah (2019) which states that the formation of knowledge, skills and attitudes that must be mastered by students as predetermined competency standards. Learning methods that have been applied such as seminars or lectures with earthquake disaster simulations as a learning evaluation process are easily understood by students. However, there is still limited access to information related to earthquake disasters in campus facilities such as booklets, posters and videos about earthquake disasters which attract students' interest to see and understand related disasters. With this in mind, there is still a need for more interesting learning media that will arouse students' interest in understanding earthquake disasters, therefore researchers will load interesting booklets so that students' interest in understanding more about earthquake disaster preparedness must be carried out either before or after disaster, researchers will also suggest showing videos related to earthquake evacuation at certain times.

Behavior that will last a long time is created with awareness related to knowledge and a positive attitude. Student awareness and willingness to learn is also one of the things that determines the level of knowledge each individual has. With this there is still a need to increase earthquake disaster preparedness for students. Several factors affect the level of earthquake preparedness, namely education, experience, age, environment, and economy (Novi, 2017). Most of the inaccuracies in the answers from respondents were in questions about how to take shelter during an earthquake, evacuation routes during an earthquake and efforts to restore environmental conditions after an earthquake.

Most of the respondents chose the answer how to take cover with the answer Protect (Cover), kneel (Drop), hold (Hold) the correct answer about how to take cover was Kneel (Drop), protect (Cover), hold (Hold), while for the question of the path earthquake evacuation many respondents misread the symbol so they are wrong in answering the question. This result shows that the awareness and willingness of STIKES Hang Tuah Surabaya students in dealing with earthquake disasters on campus is still lacking. Awareness about the dangers and risks of disasters both knowledge and potential impacts and losses have a major influence on the level of disaster preparedness (Husna, 2012). With other journals that are aligned with disaster education, the aim is to instill a responsive and responsive attitude, not just to know and understand about disasters (Setyowati, 2019). Thus the researchers strongly suggest to increase

the reading on disaster preparedness, especially earthquakes in the library such as illustrated booklets that explain campus evacuation routes in the event of an earthquake. The limitation in this study is data collection using a questionnaire via Google form which is distributed to class administrators, so it is possible for respondents to answer dishonestly but it is certain that the data provided is valid besides that the characteristics of the respondents have not been homogeneous regarding whether they have ever received a disaster nursing course.

CONCLUSION

Based on the results of the research findings and the results of the tests that have been carried out, it can be concluded that the knowledge about the earthquake disaster of the majority of students is good. As for preparedness in dealing with earthquake disasters, the majority of respondents have a moderate level of preparedness. Thus it can be concluded that knowledge has a relationship with preparedness in dealing with earthquake disasters

RECOMMENDATION

From this research, it can be recommended that all academics are very important to increase knowledge about disaster insight in learning and understanding self-rescue techniques during earthquake disaster situations. Some strategies that can be done are by participating in seminars and workshops as well as simulating self-rescue during a disaster. And for further research, other methods can be developed to increase insight and disaster preparedness as an act of earthquake disaster mitigation.

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ORIGINAL RESEARCH

RESPIRATORY AND CIRCULATORY PROBLEMS OF COVID-19 IN THE CONTEXT OF ESTABLISHING INTENSIVE CARE UNIT NURSING DIAGNOSIS

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ABSTRACT	Keywords
Introduction: The novel coronavirus disease 2019 (COVID-19) is a virus that attacks the respiratory tract with rapid spread and high mortality. Initial reports that COVID-19 associated with critical care due to the severity of the disease requiring mechanical assistive devices in its treatment. The purpose to identify the nursing diagnosis related to respiratory and circulatory problems of COVID-19 in the critical care unit. **Method:** An integrative review highlights the issue that nursing problems related to respiratory and circulatory in COVID-19 patients admitted to the Intensive Care Unit (ICU). This study focuses on papers published from 2020 to 2021 using the keyword "clinical manifestation of COVID-19" which was accessed through the Pubmed database. **Result:** The results showed that findings in articles that were reviewed and integrated with the SDKI. Nursing diagnosis related to respiratory problems such as 1) Ineffective airway clearance; 2) Dysfunctional ventilatory weaning response; 3) Impaired gas exchange; 4) Impaired spontaneous ventilation. Nursing diagnosis related to circulatory problems such as 1) Risk / decreased cardiac output; 2) Risk for bleeding; 3) Risk for effective renal perfusion; 4) Risk for ineffective cerebral perfusion. **Conclusion:** Critical care nurses carry out a series of treatments based on the nursing process stages, one of which is the enforcement of a nursing diagnosis. The nursing diagnosis is needed to develop nursing plans and strategies for implementation so that the goals of nursing care are achieved.	**Covid-19, Nursing Diagnosis, Intensive Care Unit**

INTRODUCTION

The novel coronavirus disease 2019 (COVID-19) is a virus that attacks the respiratory tract with a rapid spread and high mortality. The COVID-19 pandemic is having a major impact on the provision of health services. The spread of the virus is very fast, high cases, and the prognosis of acute critical illness. Initial reports that COVID-19 is linked to critical care because

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of the severity of the disease requiring mechanical aids in its treatment. The results of the study Al Aljuhani et al (2020) showed that the median length of stay in the ICU was 10.00 days with the fastest treatment duration of 6.00 days and the longest duration of 17.50 days. Patients with ICU readmissions within 3 months were 9.15 respondents.

In the condition of the severity of COVID-19, most of the patients experienced complications of Acute Respiratory Distress Syndrome (ARDS) of 78.36%, Acute Cardiac Injury of 55.97%, Acute Kidney Injury (AKI) of 47.01%. Besides, COVID-19 patients also need treatment management that involves mechanical aids and other forms of therapy. The results also showed that all COVID-19 patients treated in the ICU used mechanical ventilation (MV), the median of MV duration was 9.00 days with the fastest duration of 3.00 days and the longest duration of 17.00 days, patients with Extracorporeal Membrane Oxygenation (ECMO) of 15%, patients with Continuous Renal Replacement Therapy (CRRT) of 18.9%, and patients with Vasopressors/Inotropes of 54.6% respondents (Al et al., 2020; L. Zhang et al., 2020).

The achievement of treatment goals, especially the Intensive Care Unit (ICU), involves multidisciplinary disciplines, one of which is the nursing profession. Nurses provide nursing care to patients with 5 stages of the nursing process, such as assessment,

RESULT

The study results obtained 12 appropriate articles arranged in a table that provided

nursing diagnosis, intervention, implementation, and evaluation. Nursing diagnosis is one of the most important in the nursing process because by establishing a proper nursing diagnosis and following the patient's condition, the goals of nursing care will be achieved during the treatment process. Therefore, this study aims to identify the nursing diagnosis related to respiratory and circulatory problems of COVID-19 in the Intensive Care Unit (ICU).

METHOD

This integrative review highlights the issue that nursing problems related to respiratory and circulatory in COVID-19 patients admitted to the Intensive Care Unit (ICU). This study focuses on papers published from 2020 to 2021 using the keyword "clinical manifestation of COVID-19" which was accessed through the Pubmed database. The criteria for selecting papers to be reviewed include clinical manifestations of COVID-19, problems related to respiratory and circulatory, and patients who were treated in the ICU. The first results obtained were 2725 articles then screened based on appropriate titles found that 166 articles and 15 articles were selected based on abstracts and 12 studies matched the criteria (exploring problems related to respiration and circulation in COVID-19 patients who were treated in the ICU).

information about the author and year published, research methodology, samples used, and research results.

Table 1 Review of Article

Author & Research Method	Finding
Author: (Zeng et al., 2020) **Method:** A Single-Center Retrospective Study **Sample:** The total sample was 416 patients with COVID-19 (ICU and non-ICU) from January 11 to April 1, 2020, at Shenzhen- hen Third People's Hospital in China	**Laboratory finding:** The median of Fibrinogen was 4.55 g/L (min-max: 3.60-5.99); (NR: 2-4 g/L) The median of D-dimer was 1.25 μg/L (min-max: 0.62-3.02); (NR: 0-0.5 μg/L) The median of Troponin I was 0.029 ng/mL (min-max: 0.007-0.063); (NR: <0.026 ng/mL) The median of Myoglobin was 65.45 μg/L (min-max: 39.77-130.57); (NR: <100 μg/L) The median of C-reactive protein was 55.30 mg/L (min-max: 11.32-124.53); (NR: 0.8-8 mg/L) The median of Procalcitonin was 0.21 ng/mL (0.16-0.26); (NR: <0.05 ng/Ml) The median of Interleukin 6 was 46.18 pg/ml (min-max: 27.39-150.40); (NR: <7 pg/ml) The median of Ph was 7.45 (min-max: 7.43-7.47); (NR: 7.35-7.45) The median of PaO_2 was 76.65 mmHg (min-max: 59.10-96.60); (NR: 83-100 mmHg) The median of PaO_2/FIO_2 was 267.38 (min-max: 145.50-355.17); (NR: 400-500) **The echocardiographic finding:** Left Ventricular Ejection Fraction (LVEF) <55% by 16% of respondents, There is a significant difference to LVEF <55% in ICU and non-ICU COVID-19 patients (p-value <0.05) Left-Ventricular Posterior Wall Depth (LVPWd) >11 mm by 39% of respondents **The complication:** Acute Cardiac Injury by 60% of respondents Atrial or Ventricular Tachyarrhythmia by 9% of respondents Acute Heart Failure (AHF) by 14% of respondents **Oxygen support:** Non-Invasive Ventilation (NIV) by 49% of respondents Invasive Mechanical Ventilation (IMV) by 51% of respondents ECMO by 15% of respondents
Author: (Amaratunga, Corwin, Moran, & Snyder, 2020) **Method:** Retrospective Case Series **Sample:** Four patients with COVID-19 in ICU St. Luke's University Health	The study results showed that 1 in 4 patients (25%) experienced a prolonged QTc of 539 ms that persisted. However, in patients experiencing episodes of bradycardia, the patient was experiencing a prolonged QTc of 491 ms occurred.
Author: (Sadeghi et al., 2020) **Method:** The observational, retrospective, single study **Sample:** The total sample was 214 patients with COVID-19 who were admitted to ICU and Non-ICU in Taleghani	**Clinical manifestation:** Cough by 45.45% of respondents Dyspnea by 50.90% of respondents The mean of admission O2 saturation was 86.08% with a standard deviation of 9.79%

Author:	Clinical manifestation:
(McGovern, Conway, Pekrul, & Tujjar, 2020)	Increased work of breathing and shortness of breath
	SpO2 of 68% on room air
Method:	Pulmonary auscultation was fine crepitations and wheeze were heard throughout
Retrospective Case Report	The peak value of D-dimers was 7655 ng/mL (during fourteen days in ICU)
	The peak value of Troponin T-hs was 115 ng/L (during fourteen days in ICU)
Sample:	The peak value of Fibrinogen was 680 mg/L (during the first week in ICU)
Patient with COVID-19 was admitted to the ICU in Sligo University Hospital, Ireland	
	Diagnostic examination finding:
	X-ray diagnostic showed elevated inflammatory markers
	Treatment:
	The patient was given mechanical ventilation within 24 hours of admission
	Enoxaparin (1 mg/kg SC BD)
	Dual Antiplatelet Therapy (ASA 300 mg and ticagrelor 180 mg STAT followed by ASA 75 mg OD and ticagrelor 90 mg BD)
Author:	**Clinical manifestation:**
(Widysanto et al., 2020)	Couhg, dyspnea
	SpO2 of 77% on room air
Method:	Pulmonary auscultation was rhonchi in bilateral lungs
A Case Report	Disseminated Intravascular Coagulation (DIC) on day 18 hospitalization
Sample:	**Diagnostic examination finding:**
The patient male, 48 years old with COVID-19 was admitted to ICU	Chest CT scan showed ground-glass opacity (GGO) and multifocal crazy paving pattern involving both lungs, predominantly in a peripheral distribution
	Chest X-ray showed bilateral lung opacities on perihilar and middle to inferior lung fields
	Blood Gas Analysis (BGA) showed pH 7.5, PaO2 57 mmHg, PaCO2 29 mmHg, HCO3 22.4 mmoL/L, SpO2 92.2%
	The median of D-dimer was 4.49 μg/L (min-max: 0.62-3.02); (NR: 0-0.5 μg/L)
	Bronchoscopy result (at fourteen hospitalizations) showed a very thick mucous plug on the right and left main bronchus and
	Treatment:
	The patient was given mechanical ventilation on day 4 of hospitalization
	The patient was given Water Seal Drainage (WSD) due to developed right lung hydropneumothorax and atelectasis as seen on serial thorax X-ray (removed on day 37 hospitalization)
	The patient was given tracheostomy on day 14 of hospitalization (removed on day 37 hospitalization)
Author:	**Clinical manifestation:**
(J. Zhang et al., 2020)	Cough by 42.10% of respondents
Method:	**Diagnostic examination finding:**
A Retrospective Analysis	Chest CT scan showed ground-glass opacity (GGO) of 100% respondents
Sample:	
The total sample was 19 patients with COVID-19 from the ICU Liyuan Hospital	
Author:	**Clinical manifestation:**
(Díaz-Pérez et al., 2020)	Cough by 42.10% of respondents
	Disseminated Intravascular Coagulation (DIC)
Method:	Neurological examination: inattention, disorientation, revealed drowsiness, and slow speech with no focal neurologic deficits
Clinical presentation and diagnostic work-up of the patients	

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	Diagnostic examination and laboratory finding: Lymphopenia of 300 cells/μl (NR: 1000-4000) Fibrinogen of 631 mg/dl (NR: 150-400 mg/dl) D-dimer of 124.86 μg/ml (NR: 0.15-0.50) Ferritin of 538 ng/ml (NR: 30-400) Lactate Dehydrogenase (LDH) of 338 U/l (NR: 35-225) C-reactive protein (CRP) of 10.2 mg/dl (NR: <0.50) The EEG showed moderate diffuse encephalopathy A brain MRI showed multiple ischemic lesions CT pulmonary angiogram showed a bilateral pulmonary embolism **Treatment:** The patient was given mechanical ventilation Low-Molecular-Weight Heparin (LMWH) of 60-80 mg q.d
Author: (L. Zhang et al., 2020) **Method:** The study collected cases **Sample:** The total sample was 134 patient with COVID-19 in ICU at the Wuhan Jinyintan Hospital	**Clinical manifestation:** Dyspnea by 64.93% of respondents Productive cough by 35.07% of respondents **The complication:** ARDS by 78.36% of respondents Acute Cardiac Injury by 55.97% of respondents Acute Kidney Injury (AKI) by 47.01% of respondents **Treatment:** Invasive Mechanical Ventilation (IMV) by 58.96% of respondents ECMO by 5.22% of respondents CRRT by 5.97% of respondents
Author: (Gul et al., 2021) **Method:** A retrospective, cross-sectional, and descriptive study design **Sample:** The total sample was 20 patients with COVID-19 admitted to the ICU of DHQ Hospital, Faisalabad (Pakistan)	**Clinical manifestation:** Dyspnea by 80% of respondents Cough by 80% of respondents The mean respiratory rate (RR) was 29.30 bpm with a standard deviation of 7.21 bpm Respiratory rate >24 bpm by 70% of respondents **Diagnostic examination and laboratory finding:** D-dimer >1 mg/mL by 75% of respondents LDH >245 U/L by 85% of respondents
Author: (Chen et al., 2021) **Method:** A retrospective, single-center study **Sample:** The total sample was 92 patients with COVID-19 admitted to the ICU of the Sino-French New City Branch of Tongji Hospital	**Clinical manifestation:** Cough by 78.3% of respondents Productive cough by 44.6% of respondent Dyspnea by 60.9% of respondents **Laboratory finding:** The median LDH was 483 U/L (min-max: 37-1,867); (NR: 120.0-250.0) The median Hs Troponin I was 108.9 pg/ml (min-max: 2.4-19,731.4); (NR: 0-34.2) The median Hs CRP was 76.2 mg/L (min-max: 0.0-5.0); (NR: 1.3-300) The median IL-6 was 207.4 pg/ml (min-max: 2.37-5,000); (NR: 0.0-7.0) The median Serum Ferritin was 1,889.2 μg/L (min-max: 2.4-19,731.4); (NR: 0-34.2) The median D-dimer was 3.48 μg/mL (min-max: 0.25-21); (NR: 0.0-1.5) **Treatment:** IMV by 56.5% of respondents ECMO by 5.4% of respondents Antiviral by 68.5% of respondents

Author:	Treatment:
(Al et al., 2020)	The median of mechanical ventilation duration was 9.00 days (min-max: 3.00-17.00)
Method:	The median of ICU length stay was 10.00 days (min-max: 6.00-17.50)
A multicenter, non-interventional cohort study	ICU readmission within 3 months of 9.15% respondents
	Mechanical Ventilation by 71.4% of respondents
	ECMO by 1.8% of respondents
Sample:	CRRT by 18.9% of respondents
The total sample was 560 patients with COVID-19	Conventional dialysis by 15.7% of respondents
	Anticoagulation therapy by 30.2% of respondents
	Hydroxychloroquine therapy by 7.5% of respondents
	Vasopressors/Inotropes by 54.6% of respondents
Author:	**Laboratory finding:**
(Lipcsey et al., 2021)	The median of D-dimer was 1.40 µg/ml (min-max: 0.88-2.65; (NR: 0.15-0.50)
	The median of Fibrinogen was 6.5 g/L (min-max: 5.1-7.6); (NR: 2.0-4.2)
Method:	
A prospective single-center observational study	**Treatment:**
	Invasive Mechanical Ventilation by 63% of respondents
	CRRT by 11% of respondents
Sample:	
The total sample was 66 patients with COVID-19 in the ICU of a mixed surgical and medical unit at Uppsala University Hospital	

NR: normal range

DISCUSSION

Ineffective Airway Clearance

According to the Standard Diagnosis Keperawatan Indonesia (SDKI), ineffective airway clearance is an inability to clear secretions or airway obstruction to keep the airway patent (PPNI, 2016). The etiology of problems are airway hypersecretion and inflammatory processes (associated condition: respiratory tract infection). The nursing problem is integrated with the findings, such as 1) the majority of respondents with cough by 45.45-80.00%; 2) the majority of respondents with dyspnea by 50.90-80.00%; 3) increased work of breathing and shortness of breath; 4) productive cough by 35.07% of respondents; 5) the mean of respiratory rate (RR) was 29.30 bpm with standard deviation of 7.21 bpm; 6) respiratory rate >24 bpm by 70% of respondents; 7) pulmonary auscultation was rhonchi in bilateral lungs; 8) the median of C-reactive protein was 55.30 mg/L (min-max: 11.32-124.53); 9) the median of

Procalcitonin was 0.21 ng/mL (0.16-0.26); 10) the median of Interleukin 6 was 46.18 pg/ml (min-max: 27.39-150.40); 11) chest CT scan showed ground-glass opacity (GGO) of 100% respondents Chest X-ray showed bilateral lung opacities on perihilar and middle to inferior lung fields; 12) bronchoscopy result (at fourteen hospitalizations) showed a very thick mucous plug on the right and left main bronchus (Gul et al., 2021; McGovern et al., 2020; Sadeghi et al., 2020; Widysanto et al., 2020; Zeng et al., 2020; J. Zhang et al., 2020; L. Zhang et al., 2020).

Mucous secretion is the physiology of the respiratory tract to protect the respiratory tract as a physical barrier against inhaled microbes and incoming particles. The increased secretion of excess from the respiratory mucosa is caused by the inflammatory response of SARS-CoV-2. The role of IL-4 and IL-5 is mediated by TH2 cells in mucus production and cell

recruitment. IL-4 activates CD4 T cells resulting in differentiation of th0 cells into th2 cells (active IL-4 secretion) and maintains a positive feedback loop. IL-4 activates the JAK3 / STAT 6 pathway so that MUC54C transcription is induced. CLCA1 (calcium-activated chloride channel 1) is activated by STAT 6 to signal MAPK to produce mucin production and Th2 cells recruit lymphocytes and eosinophils into the lungs. This process can cause excess mucus secretion in the airway (Khan et al., 2021).

Dysfunctional Ventilatory Weaning Response

According to the SDKI, dysfunctional ventilatory weaning response is an inability to adapt to reduced mechanical ventilator assistance which can hinder and prolong the weaning process (PPNI, 2016). The etiology of the problem is a history of ventilator dependence >4 days (associated condition: respiratory failure). The nursing problems were integrated with the findings, such as 1) most of the respondents with MV by 71.4%; 2) the median of MV duration was 9.00 days (min-max: 3.00-17.00); 3) the patient was given tracheostomy on day 14 of hospitalization (removed on day 37 hospitalization). Most of the COVID-19 patients who undergo intensive care are reported with IMV assistance. The median of MV was 9 days with the shortest day being 3 days and the day being 17 days long. This is in line with a study conducted by Schenck et al (2020), where the median patient with MV was 18 days with the fastest duration of 14 days and the longest duration of 24 days. The results of this study indicate that most of the COVID-19 patients with MV cannot wean the ventilator so that the patient experiences a dysfunctional ventilatory weaning response (Ferri et al., 2020).

The European Archives of Otorhinolaryngology publish the timing of tracheostomy in COVID-19 patients to reduce ICU care for patients with prolonged IMV. Tracheostomy is recommended within 7 and 14 days of treatment with IMV to avoid potential damage to the trachea. In another study, it was stated that tracheostomy was performed on the 14th to 25th day of the intubated patient during the COVID-19 pandemic, but the condition of COVID-19 patients is generally unstable, so it is better if tracheostomy is done early within 10 days of intubation. Tracheostomy is the most common surgical procedure performed in the ICU to facilitate the MV weaning process, expedite the airway, reduce laryngeal injury due to endotracheal intubation (ETT), prevent long-term complications (eg tracheal stenosis), and increase patient comfort (Ferri et al., 2020; Mattioli et al., 2020).

Impaired Gas Exchange

According to the SDKI, impaired gas exchange is excess or lack of oxygen and/or elimination of carbon dioxide in the alveolar-capillary membrane (PPNI, 2016). The etiology of the problem is alveolar-capillary membrane changes (associated conditions: pneumonia, respiratory infection). The nursing problem is integrated with the findings, such as 1) the median of pH was 7.45 (min-max: 7.43-7.47); 2) the median of PaO_2 was 76.65 mmHg (min-max: 59.10-96.60); 3) pulmonary auscultation was rhonchi in bilateral lungs, Chest CT scan showed ground-glass opacity (GGO) and multifocal crazy paving pattern involving both lungs, predominantly in a peripheral distribution; 4) Chest X-ray showed bilateral lung opacities on perihilar and middle to inferior lung fields; 5) Blood Gas Analysis (BGA) showed pH 7.5, PaO_2 57 mmHg, $PaCO_2$ 29 mmHg; 6) The median of Interleukin 6 was 46.18 pg/ml (min-max: 27.39-150.40); 7) the mean of admission O2 saturation was 86.08% with a standard

deviation of 9.79 (Widysanto et al., 2020; Zeng et al., 2020).

In the condition of the severity of COVID-19, the process of viral infection progresses from the upper respiratory tract to the bronchial epithelial cells. Coronavirus 2 (SARS-CoV-2) enters via ACE2 and many in alveolar type II (makes and releases pulmonary surfactant needed for gas exchange) then alveolar macrophages respond and infected phagocytosis and apoptotic epithelial cells, promote viral clearance, increase secretion pro-inflammatory, and chemotactic cytokines (IL-6 and IL-8). This process can increase surface tension and increase alveolar flooding, resulting in disruption of the diffusion process in the alveolar-capillary membrane (Mihaescu et al., 2020).

Impaired Spontaneous Ventilation

According to the SDKI, impaired spontaneous ventilation is decreased energy reserves resulting in the individual unable to breathe adequately (PPNI, 2016). The etiology of the problem is a metabolic disorder (related condition: ARDS). The nursing problem is integrated with the findings, such as 1) SpO2 of 68% on room air; 2) BGA showed pH 7.5, PaO2 57 mmHg, PaCO2 29 mmHg; 3) the median of PaO2/FIO2 was 267.38 (min-max: 145.50-355.17); 4) NIV by 49% of respondents; 5) IMV by 51-71,4% of respondents; 6) the patient was given mechanical ventilation within 24 hours of admission; 7) ECMO by1.8-15% of respondents; 8) Chest CT scan showed ground-glass opacity (GGO) of 100% respondents; 9) ARDS by 78.36% of respondents (Al et al., 2020; Chen et al., 2021; Lipcsey et al., 2021; McGovern et al., 2020; Widysanto et al., 2020; Zeng et al., 2020; L. Zhang et al., 2020).

ARDS is a serious respiratory disorder caused by fluid buildup in the alveoli (alveolar flooding) with protein-rich edema fluid. ARDS causes diffuse alveolar damage in the lungs by forming a hyaline membrane in the alveoli (acute stage) and fibroblast proliferation that can cause lung injury (epithelial cell prolonged inflammation) characterized by a PaO2 FiO2 ratio of less than 300. Respiratory failure (intrapulmonary ventilation-perfusion mismatch) resulting in impaired spontaneous ventilation. In COVID-19 patients, ARDS IS developed in 42% of patients with pneumonia. Oxygen-assisted strategies are important in the management of ARDS in COVID-19 patients. Mechanical aids such as IMV and ECMO are required under these conditions. ECMO is given to patients with mechanical ventilation and continued hypoxemia. Mechanical ventilation (MV) is the cornerstone of management in patients with severe respiratory failure. MV to ensure oxygenation and carbon dioxide clearance and significantly defines the principle and practice of invasive MV in ARDS patients in the last five decades (Gibson, Qin, & Puah, 2020; Lowe et al., 2021).

Risk/Decreased Cardiac Output

According to the SDKI, risk/decreased cardiac output is a risk or the inability of the heart to pump blood to meet the body's metabolic needs (PPNI, 2016). The etiology of the problem is changes in heart rhythm and changes in cardiac contractility.

The changes in heart rhythm. A study conducted by Zeng et al (2020), that COVID-19 patients admitted to ICU showed Atrial or Ventricular Tachyarrhythmia was 9% of respondents. The study results showed that 1 in 4 patients (25%) experienced a prolonged QTc of 539 ms that persisted. However, in patients experiencing episodes of bradycardia, the patient was experiencing a prolonged QTc of 491 ms occurred

(Amaratunga et al., 2020). Atrial tachyarrhythmia occurs in patients with severe pneumonia, which is an increase in atrial pressure as a result of increased lung resistance. Long-QT interval can also occur due to side effects of drugs given to COVID-19 patients, namely hydroxychloroquine. The results of the study also showed that most respondents received 68.5% antiviral therapy and some respondents received 7.5% Hydroxychloroquine therapy (Al et al., 2020; Chen et al., 2021). Hydroxychloroquine can significantly cause QT prolongation and Torsade de Pointes (TdP). TdP is a form of polymorphic ventricular tachycardia. This occurs in the setting of QT prolongation and changes in complex amplitude in the isoelectric line and can develop into lethal arrhythmias, namely ventricular fibrillation (Li et al., 2020; Saleh et al., 2020).

The changes in myocardial contractility. The change in cardiac output caused by changes in myocardial contractility is supported by the results of studies including an increase in Troponin I, an increase in Myoglobin, some respondents show LVEF <55%, some respondents show LVPWd, most respondents experience complications of acute cardiac injury, most respondents experience acute Heart Failure. The mechanisms for myocardial injury in COVID-19 patients include 1) respiratory failure and hypoxemia, which causes damage to myocytes of the heart; 2) cytokine storms mediated by pathological T-cells cause myocarditis; 3) hypercoagulability and progression of coronary microvascular thrombosis; 4) downregulation of ACE2 expression; 5) endothelium resulting from diffuse endothelial injury (one of which is to the heart); 6) rupture of coronary plaque due to stress or inflammation that causes ischemic or myocardial infarction. These conditions can cause a decrease in myocardial contractility function and cause a decrease (actual or risk) cardiac output (Bavishi et al., 2020).

Risk for Bleeding

According to the SDKI, the risk for bleeding is the risk of experiencing blood loss both internally (occurs in the body) and externally (occurs until it leaves the body) (PPNI, 2016). A risk factor for such problems is the effect of pharmacological agents (associated condition: Disseminated Intravascular Coagulation, DIC). The nursing problem is integrated with the findings, namely that the anticoagulant therapy obtained by the patient included 1) Enoxaparin (1 mg/kg SC BD); 2) Dual Antiplatelet Therapy; 3) Low-Molecular-Weight Heparin (LMWH) of 60-80 mg q.d, and Anticoagulation therapy of 30.2% respondents (Al et al., 2020; Díaz-Pérez et al., 2020; Zeng et al., 2020). The COVID-19 patients receive anticoagulant therapy because they experience coagulopathy abnormalities. This was in line with the findings that the majority of respondents experienced an increase D-dimer >1 mg/mL of 75%, D-dimer of 124.86 μg/ml (NR: 0.15-0.50), the peak value of D-dimers was 7655 ng/mL (during fourteen days in ICU), the median of Fibrinogen was 4.55 g/L (min-max: 3.60-5.99), and peak value of Fibrinogen was 680 mg/L (during the first week in ICU) (Díaz-Pérez et al., 2020; Gul et al., 2021; McGovern et al., 2020; Zeng et al., 2020).

The observed pattern of abnormal coagulation in COVID-19 patients is an increase in fibrinogen and D-dimers. D-dimers are the main breakdown fragments of fibrin. D-dimers are used as biomarkers of fibrin formation and degradation as well as markers of coagulation and fibrinolysis activation. The condition of the severity of COVID-19 is the occurrence of a cytokine storm. Cytokine storm is an excessive

release of pro-inflammatory cytokines that affect the pathophysiology of coagulopathy associated with COVID-19. Pro-inflammation activates endothelial cells and leukocytes (particularly neutrophils in response) to produce neutrophil extracellular traps (NETs) and the process of formation is called NETosis. NET is tasked with strengthening cytokine production and promoting thrombus formation. Besides, innate immune systems such as plasma prekallikrein and factor XII (FXII) contribute to increased fibrin formation (micro thrombosis), thrombin formation, and increased D-dimer levels (Yao et al., 2020).

Risk for Ineffective Renal Perfusion

According to the SDKI, the risk for ineffective renal perfusion is a risk of having decreased blood circulation to the kidneys (PPNI, 2016). Risk factors for such problems are hypoxia, kidney dysfunction, and inflammatory processes. The nursing problem is integrated with the findings, such as 1) increased C-reactive protein; 2) the median IL-6 was 207.4 pg/ml (min-max: 2.37-5,000); 3) Acute Kidney Injury (AKI) by 47.01% of respondents; 4) most of the respondents were carried out by CRRT amounting to 5.97-18.9% of respondents; 5) conventional dialysis by 15.7% of respondents (Al et al., 2020; Chen et al., 2021; Díaz-Pérez et al., 2020; Lipcsey et al., 2021; Zeng et al., 2020; J. Zhang et al., 2020). AKI results from an increase in pro-inflammatory cytokines, direct viral injury to receptors (ACE2) that are highly expressed in the kidneys, unbalanced Renin-Angiotensin-Aldosterone System (RAAS), and microvascular thrombosis. Another mechanism can occur due to ARDS, such as decreased gas exchange and severe hypoxemia that occurs in COVID-19 patients (Gabarre et al., 2020). This was in line with the study results L. Zhang et al (2020) there were most of the respondents experienced ARDS of 78.36%.

Risk for Ineffective Cerebral Perfusion

According to the SDKI, the risk for ineffective cerebral perfusion is the risk of having decreased blood circulation to the brain (PPNI, 2016). The risk factor for this problem is Disseminated Intravascular Coagulation (DIC). The nursing problem is integrated with the findings, such as 1) Disseminated Intravascular Coagulation (DIC) on day 18 hospitalization; 2) the EEG showed moderate diffuse encephalopathy; 3) a brain MRI showed multiple ischemic lesions (Díaz-Pérez et al., 2020; Widysanto et al., 2020). According to the International Society on Thrombosis and Haemostasis (2001), DIC can be defined as "an acquired syndrome characterized by intravascular coagulation activation." In general, DIC occurs with low platelet counts, increased D-dimer, and (slightly) prolonged coagulation times.

Abnormalities of coagulopathy that occur in patients with severe forms of COVID-19, especially in patients who experience severe infections will cause systemic coagulopathy, namely Disseminated Intravascular Coagulation (DIC). Systemic levels of pro-inflammatory cytokines in severe COVID-19 patients such as interleukin (IL)-1 and IL-6 and tumor necrosis factor-α (TNF-α) are markedly increased. IL-6 induces tissue factor expression in macrophages and monocytes that can lead to thrombin formation. There is a cytokine storm characterized by high levels of pro-inflammatory chemokines and cytokines. Microvascular thrombosis can cause hemodynamic disturbances. DIC causes multi-organ dysfunction, one of which is impaired cerebral function (Levi & Iba, 2021; Papageorgiou et al., 2018).

CONCLUSION

Nursing diagnosis is one of the stages of the nursing process. It can be enforced in COVID-19 patients who are undergoing treatment in the ICU are based on the results of a review article which is integrated with the criteria in the SDKI. Nursing diagnosis related to respiratory problems such as 1) Ineffective airway clearance; 2) Dysfunctional ventilatory weaning response; 3) Impaired gas exchange; 4) Impaired spontaneous ventilation. Nursing diagnosis related to circulatory problems such as 1) Risk / decreased cardiac output; 2) Risk for bleeding; 3) Risk for effective renal perfusion; 4) Risk for ineffective cerebral perfusion.

CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

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ORIGINAL RESEARCH

INDICATORS OF COMPLIANCE PRESSURE FOR NURSE IN IMPLEMENTING PROCEDURES : A QUALITATIVE APPROACH

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ABSTRACT	Keywords
Various rules and regulations applied by hospital management haven't fully warranted nurse compliance in performing standard procedures. Evidence suggests that there was a high level of an adverse event, as phlebitis, infection, and the incidence of risk of falling. The purpose of this research was to find indicators of compliance pressure for nurses in implementing procedures. This study used a phenomenological qualitative study and in-depth interviews were conducted with 20 respondents, taking into account the selection criteria of respondents. Semi-structured questions were delivered to all participants which explored their experience in implementing and complying with procedures. Analyzes thematically, taking into account the results of the field notes. Findings were that Rules and policies, Standard procedures, Communication, Corrections, and confirmations, Accreditation Standards, Professional Standards, Value, and Co-worker support are indicators of compliance pressure for nurses in implementing procedures. It can be concluded that the eight indicators of compliance pressure are appropriate controls and complement the regulatory pillars and normative pillars in building nurse compliance in carrying out procedures.	*Compliance Pressure, Nurse, Organization, Procedurs*

INTRODUCTION

Safety is a fundamental principle of patient care and a critical component of quality management. Health care service providers contribute to the occurrence of errors threatening the client's safety. Nurse compliance in the application of the standard procedure is the success parameter in nursing services and one of the most important goals in human resource management (Hall, 2003).

Even though every hospital already had its own standard procedure regarding patient safety, some work behavior shown by nurses suggests that they are still lacking in complying with the administering of measure procedures. Hospital's Patient Safety Committees in Indonesia reported 145 patient safety incidents, 11% of which were in East Java (Systems & City, n.d.). The result of initial research at Islamic Hospitals in March 2018, suggested the happenings of phlebitic (6.6%), wound infection (5.3%) at several wards exceeded the minimum standard of $\leq$ 1,5%.

Nurse behavior in performing compliance with the standard procedure is affected by many factors, both internal from personal characteristics like intelligence level, experience, attitude, or external factors like

others' influence, environment, leadership, organizational culture, and system. Both factors are affecting each other in shaping one's behavior (Werder & Ees, 2007).

Interligi (2010), describing that the process of employee compliance is developed upon the interaction between the environment and the organization as well as the interaction between the organization and the employees, where the purpose of the organization is to influence and shape their employees' behavior. The organization applies various policies, rules, processes, and procedures as well as norms in influencing employee behavior (Anthony, Johnson, & Anthony, 2009).

An organization needs to develop other mechanisms to complete the existing rules, guidelines, and procedures to improve employee awareness to comply with the procedure of patient safety. The Mechanism should not be obtained through policymaking or pressing regulation, but instead, it is developed from the basis of values applied in the organization of which can be positive pressure to employees when they are made habits in the working process (Ciancio, 2004).

Pressure, not always assumed negative. The organization is obliged to establish mechanisms that are based on rules and work culture, so that something that is considered negative by employees if implemented positively, will be able to change one's work behavior. Behavioral change and compliant habituation can be encouraged by growing an individual's internal values, feeling comfortable, feeling autonomy, and recognition from the organization. The strengthening can be obtained from the leadership of the head of space at the smallest level and management at the organizational level. It is undeniable that the role of the leader and the values that are implanted are closely related to encouraging employee performance achievement (Amenta, Ramsey, Amenta, & Ramsey, 2010).

Previous explanations show that building compliance behavior is not easy. Compliance pressure from organizations perceived as positive pressure and internalized will be a strong basis for compliance. Finally, the researchers focused on new things in this study is to find what indicators are the basis for building nurse's compliance in carrying out procedures

METHOD

The design of the study was using a qualitative study with a phenomenological approach. This type of research design provides a thick description of the phenomenon what indicators are the basis for building nurse's compliance in carrying out procedures. The study was conducted at Islamic Hospitals and Public Hospitals in Mojokerto. This qualitative study used the purposive sampling method to choose participants to contribute to the research. The study used 20 respondents, taking into account the selection criteria of respondents, namely senior nurses, having experience as team leaders, working for a minimum of 5 years, having good qualifications based on the results of leadership monitoring. The data collected in this study used in-depth interviews with open-ended and semi-structured questions to all participants by the primary author. All data were recorded to a tape recorder for verbal data and field notes for non-verbal expressions. The interview terminated when the data attained the information depth justified by the researcher as the instrument itself. Afterward, the data were listened to repeatedly and shifted into a verbatim transcript. The transcripts and field notes were combined to complement the suitability of the data collected. The transcripts were then sorted to find significant statements of the participants. These were then classified into categories, which were grouped into themes and sub-themes. The themes were written in a thoughtful and

representative narrative form, to make them easy to understand. The analysis and the results were obliged to the qualitative data validities by ensuring credibility, transferability, dependability, and conformability. This research strictly provides autonomy, beneficence, non-maleficence, confidentiality, and justice.

RESULTS

Table 1 Distribution of respondent characteristics

Participans code	Sex	Education	Age	Frequency of training	Working period
1	Female	Diploma	35	3 time	8 years
2	Female	Bachelor	40	2 time	>10 years
3	Male	Bachelor	36	2 time	9 years
4	Female	Diploma	30	2 time	5 years
5	Female	Diploma	45	> 3 time	>10 years
6	Male	Bachelor	40	3 time	>10 years
7	Female	Diploma	36	2 time	6 years
8	Female	Diploma	38	3 time	7 years
9	Female	Diploma	30	2 time	5 years
10	Male	Bachelor	37	> 3 time	8 years
11	Male	Bachelor	40	3 time	>10 years
12	Female	Diploma	41	3 time	>10 years
13	Female	Diploma	43	> 3 time	>10 years
14	Female	Bachelor	39	3 time	>10 years
15	Female	Bachelor	38	> 3 time	9 years
16	Male	Diploma	38	3 time	9 years
17	Female	Diploma	43	> 3 time	>10 years
18	Female	Diploma	40	3 time	>10 years
19	Male	Bachelor	35	2 time	6 years
20	Male	Bachelor	35	> 3 time	5 years

Table 1 shows, the majority of respondents, female sex, middle age, three diploma education, working period span >5 years, and have attended training 2-3 times.

In addition to the characteristics of the respondents, the results of in-depth interviews obtained 8 dimensions of compliance pressure for nurses in implementing procedures as follows:

1. Guidelines in the form of rules and policies.

   Obligation to obey the rules and policies implemented by the hospital is a concern that is the basis for the emergence of compliance in implementing SPO. The following are excerpts from the participants:

   > *… I obey the procedure, mainly because I have to meet the rules and policies set by the hospital. I think this is the main guideline at work, where the rules are legally binding on us … (P3).*

2. Patient safety procedure

   Adherence to procedures is a factor driving compliance. The following are excerpts from the participants:

   > *… for me, the procedure guideline is the driving force to comply with the procedure … (pause) … the stages of the steps are clear, so it is easier and must be done so that problems do not appear … (P20).*

3. Hospital Accreditation

   Accreditation is one of the drivers in complying with patient safety procedures. The following are excerpts from the participants:

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.... This new accreditation does require us to work according to standards, and this motivates me to comply with the standards .... (P2)

4. Professional Standards

Professional standards as a reference in work are one of the drivers of compliance for participants, although indeed not all participants consider professional standards as pressure. The following are excerpts from the participants:

... o yes ... of course, professional standards also encourage compliance ... if I want to be considered professional at work ... then I must also pay attention to the rules of the profession ... (P1).

5. Risk perception

Participants, almost all of them stated that there might be risks in the realm of law, injury or personal safety and risks for patients to encourage them to comply with the procedure, as stated below::

... I adhere to the procedure because ... from the legal domain so as not to be exposed to risk ... until my work safety is also guaranteed .... (P5).

6. Leadership mechanism

Communication is one of the leading mechanisms that is expected to take place both ways, supportive, giving positive and constructive feedback. As stated by the following participants:

..... when the head of the room complimented and mentioned my name when we reconsidered and said I was working well, it encouraged me to be more positive in providing procedural services .... (P17).

The form of leadership mechanism, in addition to communication that influences as pressure is a way of evaluation or monitoring.

7. Co-worker support

Support from peers is an important component of encouragement or compliance pressure for participants. The following are excerpts from the participants:

.... I can say that co-worker support is the driver of my compliance .... when I do the infusion, for example, it is not according to the procedure ... my colleague reminds me ... sometimes it is directly spoken, sometimes it is also practiced ... so I am reluctant and I will certainly try to be better .... hmm ... it's not good to be reminded too ... (P14)

8. Value.

Values that are familiarized and developed in the work environment, provide a comfortable work atmosphere, build conducive behavior. The following are excerpts from the participants:

.... what is it ... I think your family values are cultivated, it is often conveyed by the leadership that in work we are a big family, so to friends especially to patients must be kind, serve with heart .... (P13).

DISCUSSION

Compliance is a critical management function in the organization. Compliance management contains organizational rules and processes for complying with rules and policies. Management must be able to monitor the implementation of the stability of policies, procedures, and responsibilities for employee performance. The presence of internal and external pressures has an impact on changes

that policies, procedures, and controls added to the management structure will affect employee compliance (Chen, 2004).

Implementation of quality services requires employees and leaders who are proactive and willing to contribute to investigations, problem-solving, and continue to strive to perform well. One important thing is culture, which impacts proactive behavior. Employees will be motivated to comply if they work in a culture where there is trust, good relations between leaders and employees, effective communication, and a process of control with integrity. A culture of obedience is very much needed to create conditions where everyone will work by understanding the goals, communicating clearly and consistently, effective reporting and monitoring, and efficient corrective actions (Dan, Uji, & Teori, 2007).

The description of various compliance pressure indicators that contribute to building nurse compliance in implementing standard procedures is as follows:

1. Rules and policies
   Rules and policies are legally binding guidelines, including written guidelines, performance indicators, and sanctions (Organizations, n.d.). Rules and standards form the basis for organizations and employees about how to behave. The rules must be perceived by employees as behavioral retention and used as a standard at work (*No Title*, n.d.); (*Isbehavior in*, n.d.) .
   Individuals need to understand the importance of compliance with rules, while management is obliged to see compliance as a mandate. The main health service activities that guarantee patient safety requires compliance with formal and informal rule, so the rules set by management become an indicator of compliance pressure for employees (*Quality Management Theory and Application*, n.d.).

2. Standard procedure
   Determination and implementation of standard operating procedures can maintain consistency in performance levels, minimize failures, errors, and omissions, parameters for assessing performance quality, ensure efficient and effective use of resources, explain task flow, authority, and responsibility, direct adequate documentation and accurate (Morris & Epes, n.d.).

3. Communication
   Every task, rule must be communicated, and the way of communication gives different values to each person, meaning that the form and mode of communication become an important element in an organization (Amenta et al., 2010). Leaders' communication with employees is a form of compliance pressure. At the leadership level in the organization, norms, values, rules, policies, procedures must be communicated to all personnel, and every employee must accept every policy (Ciancio, 2004).
   The leadership has a role in ensuring procedures are carried out correctly. One of the influential factors is communication. The communication process here is expected to take place both ways, supportive, giving positive and constructive feedback. This means that communication delivered by the leader can be a stimulus or verbal reward and ultimately build nurse compliance (Anthony et al., 2009); (Systems & City, n.d.).
   When the reward is in the form of positive information, they will feel satisfied and feel more competent and give rise to intrinsic motivation. The verbal reward can be an unconscious control mechanism because subordinates will experience positive and good interpersonal experiences with their leaders (Werder & Ees, 2007).

4. Corrections and confirmations

In addition to communication, the leadership mechanism that has influences as pressure is correction and confirmation. (Wendt & Wendt, n.d.). Confirmation of every action and document that has been implemented is a way to increase compliance with employees. The important thing that must be considered is the way or procedure in conducting confirmation should be done while respecting employees and supported by the use of competent language (Tallberg, 2002).

Sieburg and Larson (1971) state that confirmation should be a behavior that should cause others to feel they have more value. Confirmation occurs when participants in a system do not understand something and that requires proper communication and confirmation processes to make people feel competent (Ramus & Oppegaard, 2007); (Scott, 2004). Positive feedback cannot change behavior directly, but will slowly build self-compatibility and empowerment of personal qualities (Price & Cambas, 2012).

5. Value

Values are strategies, goals, principles or qualities, passion as a result of creativity in organizational behavior. (Dajani, 2009). Values are often associated with work and organization including prestige, control, authority, pleasure, independence, creativity, tolerance, respect that is the culture in the workplace (Lynham & Chermack, 2006).

The results of the review journal that the values applied and culture in both hospitals are family, togetherness, spirituality, and empathy (Chen, 2004). These four values produce conclusions of meaning, that the value of family and togetherness at work makes the work atmosphere more comfortable and conducive. Spiritual value, giving multidimensional meaning in work. Empathy in patients who are nurses, encouraging more positive work attitudes, increasing moral awareness, triggering the desire to provide the best service, maintaining the quality of service with the hope that does not add to the burden on patients (Umit, 2004). Beliefs and values developed as organizational culture specifically increase willingness to comply with safety procedures (Gupta, 2011).

6. Professional Standards

Professional standards are a minimum expectation in providing safe, effective, and ethical nursing care. The obligation to provide nursing services properly and appropriately in terms of service and administration becomes one of the drivers of compliance because of the professional obligations that have been listed in professional standards (Hall, 2003). Professional standards set by the organization are mandatory signs that guide nurses in implementing nursing services to patients (Lou & Judith, 1997).

7. Accreditation Standards

Accreditation is an attempt by the government to provide a tool that encourages hospitals to continuously improve quality and safety services (Trisnantoro & Bachtiar, 2010). Rules and indicators of accreditation standards are some of the drivers for nurses in complying with procedures. Hospitals that obtain international accreditation must apply several conditions set for patient safety, namely six patient safety targets (Martin & Julius, 2005).

8. Co-worker support

Co-worker support is the ability of co-workers to make the work environment pleasant or unpleasant when spending time at work (Terry, Steve, Beth, & Marshall, 2000). Co-worker support is an

important component of compliance pressure for participants. The support of co-workers will also encourage colleagues to work better, with appropriate procedures (Elanain, 2008). Sheng & Chen (2010), the influence of co-worker support is to build motivation and self-efficacy. The motivation here is focused on the formation of internal motivation. This is in line with the theory of "Self Determinant Theory" from Deci & Ryan (1985), where with support for autonomy and competence, they will feel more capable and will try to do their jobs better (Bishop, Scott, 2000).

Effective safety behavior and positive feedback will increase interpersonal trust between co-workers. The feedback comes from friends, it will build self-confidence in ability, making pressure and motivation for self-improvement (Ronald & Shelby, 2000).

Vincent (2007), "Social support at work and affective commitment to the organization", support becomes a positive pressure that will affect employee commitment to the organization primarily affective commitment (Ajzen & Ajzen, 2011); (Barry, 2000).

Employees will feel more valuable as individuals, feel meaningful as part of service success, and be more motivated when leaders give positive appreciation when they do the job right (Richard & Paul, 1986). Another culture that also has a contribution as an indicator of mimetic pressure is the correction and confirmation of the leadership. Monitoring and evaluation conducted by the leadership should refer to clear supporting evidence, not just assumptions. When stating true wrong work employees must use the same checklist and get an amplifier from the document. What has happened so far is often to blame without referring and listening to the evidence first. How to do the correction also does not judge but still provides support to

employees (Cameron, 1996); (Organizations, n.d.).

Many organizations implement obedience by establishing rules, rewards, sanctions, and policies that serve as controls for employees. But actually, it is just an initial driver, it is hoped that an internalization response will emerge from the employee as a form of internal pressure that will affect the employee in acting. The findings of the 8 indicators of compliance pressure above are appropriate controls and complement the regulatory pillars and normative pillars in building nurse compliance in carrying out procedures.

CONCLUSIONS

Qualitative results of the eight indicators can be used by managerial as one of the alternatives in managing quality improvement and enhancement of service satisfaction.

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ORIGINAL RESEARCH

INFLUENCE OF FAMILY MONITORING AND SEXUAL COMMUNICATION TO ADOLESCENT CYBERSEX BEHAVIOR

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ABSTRACT	Keywords
Cybersex is the activity of accessing pornography on the internet, engaging in real-time, like conversations about online sexuality with others. The purpose of this study was to analyze the influence of family monitoring and sexual communication adolescent cybersex behavior in Sidoarjo. The study used cross-sectional analytics. Probability sampling technique with simple random sampling. Samples were 121 adolescent students of SMK Antartika 2 Sidoarjo. The research instrument used sexual communication questionnaires, family monitoring, and ISST questionnaires to assess cybersex behavior. Statistic test using rho sperman test. Results showed adolescent sexual communication with parents was 56.2% in the low, 29.8% moderate and 14% high categories. Family monitoring related to sexual behavior was 39.7% in the low category, 33.1% in the medium category, and 27.2% in the high category. Teen cybersex behavior was 61.9% riskless, 17.4% were low-risk, and 20.7% had high-risk behavior. The results of the spearman rho test between sexual communication and cybersex behavior showed p value = 0.000 which means that there is a relationship between sexual communication and cybersex behavior. In the family monitoring variable with cybersex behavior, it is obtained p value = 0.000, meaning that there is a relationship between family monitoring and adolescent cybersex behavior. It is hoped that families will pay more attention to adolescents in monitoring their sexual behavior. In addition, it also implements open communication with adolescents regarding their sexual behavior, so that adolescents avoid cybersex behavior.	**Sexual Communication, Family Monitoring, Cybersex**

INTRODUCTION

The progress of time is growing rapidly. One of them is the internet, where the internet provides everything we need, ranging from information, entertainment, and various media facilities to communicate. Often the internet is abused by teenagers with a form of cybersex behavior. Cybersex behavior is the activity of viewing pornography, engaging in sex chat, using devices such as web-cams (web cameras/external portable cameras) to engage in sexual activity online and seeking sexual partners online or engaging in 3D sex role play. (Lonyka & Ambarwati, 2021). Cybersex behavior is an activity that increases sexual arousal and is carried out online such as looking for a sex partner, communicating between two people discussing sex and seeking sexual content in the form of photos or audio. (Lonyka & Ambarwati, 2021).

In the United States there are many internet users, especially teenagers who engage in cybersex behavior. About 60% of internet users visit sites or websites that are sexual in nature and 87% of students have virtual sex (Hendarto & Ambarini, 2019). According to survey data from the Ministry of Information and Communication (Yunita et al., 2020), ranking of porn site users in Indonesia in 2013 Indonesia was ranked sixth for porn site access, then in 2014 it increased to third place, and in 2015 to second place. Sexual cases involving school-age children continue to increase from year to year Ali & Asrori, (2006). The number of cases increased by 50% from 2014 to 2015. Of these, 10% of cases occurred in schools. In Indonesia, the result was that of the 238 respondents who accessed pornographic or sexual content found, there were around 175 respondents who were in the adolescent age category. (Refwan, 2019). Research in East Java also shows the results of 76.8% of cybersex connoisseurs aged 15-17 years by watching porn on gadgets (Yunita et al., 2020). Based on a preliminary study on February 2022 at SMA Antartika 2 Sidoarjo, researchers conducted interviews with 10 class XI students and found that 100% of students said they had accessed pornographic films out of curiosity and then they searched for pornographic films on the internet.

The cause of cybersex behavior is due to the low level of knowledge about reproductive health and the high behavior of premarital sex (Marchianti et al., 2017). Factors that cause cybersex behavior are because parents are not open enough to talk about sex with adolescents, there is parental prejudice against adolescents and internal and external problems do not really affect adolescent monitoring (Novitaningrum, 2020). Excessive Cybersex behavior can lead to problematic Cybersex behavior such as premarital sex. Problematic cybersex is generally defined as excessive and uncontrolled involvement in online sexual activity which is characterized by several symptoms such as a persistent desire to behave Cybersex (Wery, 2015). Cybersex behavior is the lack of parental supervision in supervising adolescent activities so that they run well and are not misdirected. The importance of the role of parents is needed for adolescents by limiting youth activities to positive activities, parents must also know with whom teenagers associate and establish good and positive communication between parents and adolescents. The role of the teacher is also important in providing guidance and counseling and providing additional activities in positive learning.

RESEARCH METHODS

The design used in this study is a correlation analytic research design with a cross-sectional approach. This research was carried out on 02 June – 20 June 2022 at

SMA Antartika 2 Sidoarjo. The population is students who have and do not know Cybersex Behavior at SMA Antartika 2 Sidoarjo with a total of 169 students. The sample size taken at SMK Antartika 2 Sidoarjo was 121 samples. This sampling technique is probability sampling using simple random sampling. The independent variables in this study were sexual communication and family monitoring at SMK Antartika 2 Sidoarjo. The dependent variable in this study is the Cybersex behavior. Cybersex behavior measurement tool with ISST, sexual communication questionnaire and family monitoring questionnaire. Data analysis with non-parametric test with the Spearman Rho method. This study was granted by ethical clearance from institutional review board (IRB) Stikes Hang Tuah Surabaya, number PE/103/VIII/2022/KEP/SHT.

RESEARCH RESULT

1. General data

Table 1 Characteristics of respondents

No	Characteristics	Frequency	%
1	Age (year)		
	16	47	38,8
	17	74	61,2
	Total	121	100
2.	Sex		
	Women	72	59,5
	Man	49	40,5
	Total	121	100
3.	Stay with		
	Parents	105	86,8
	Family	11	9,1
	Boarding	5	4,1
	Total	121	100
4	Paternal Education		
	Kindergarten	1	0,8
	Elementary School	10	8,3
	Junior High School	5	4,1
	Senior High School	70	57,8
	Bachelor	35	29,0
	Total	121	100
5	Maternal Education		
	Kindergarten	3	2,5
	Elementary School	12	9
	Junior High School	14	11,5
	Senior High School	72	60
	Bachelor	20	17
	Total	121	100

Table 1 shows that of the 121 respondents, most were 18 years old, 61.2% (74 respondents), 17-year-olds were 38.8% (47 respondents). Most were female as much as 59.5% (72 respondents), male as much as 40.5% (49 respondents). Most resided in parents' homes as much as 86.8% (105 respondents), residing with guardians as much as 9.1% (11 respondents), residing in boarding houses as much as 4.1% (5 respondents). Most of paternal education is senior high school. Most of maternal education is junior high school.

Table 2 Characteristic of sexual communication

No	Communication	Frequency	%
1.	Low	68	56,2
2.	Medium	36	29,8
3.	High	17	14
	Total	121	100

Table 2 shows sexual communication in students of SMK Antartika 2 Sidoarjo from 121 respondents most of them have a low category of 56.2% (68 respondents), a medium category of 29.8% (36 respondents), a high category of 14% (17 respondents).

Table 3 Characteristic of family monitoring

No	Monitoring	Frequency	%
1.	Low	48	39,7
2.	Medium	40	33,1
3.	High	33	27,2
	Total	121	100

Table 3 show that family monitoring in students of SMK Antartika 2 Sidoarjo, most of them had a low category of 39.7%, a moderate category of 33.1%, high category of 27.2%.

Table 4 Characteristic of cybersex behavior

No.	Cybersex	Frequency	%
1.	No risk	75	61,9
2.	Low risk	21	17,4
3.	High risk	25	20,7
	Total	121	100

Table 4 shows cybersex behavior in students of SMK Antartika 2 Sidoarjo from 121 respondents, most of them did not have a risk of 61.9%, low risk 17.4%, high risk 20.7%.

DISCUSSION

The results showed that the distribution of respondents based on the type of sexual communication in the respondents showed that the majority of parents' sexual communication with adolescents was in the low category of 56.2%, the medium category was 33.1%, the high category was 27.2%. There are several factors that cause this, including the perception of parents that talking about sex is taboo and parents of teenagers showing negative attitudes towards access to cybersex behavior, as well

as a lack of parental knowledge (Kartikasari & Setiawati, 2020). The majority of mothers do not provide sexual and reproductive communication to their children, and one of the contributing factors is the low knowledge of parents about cybersex behavior (Nair et al., 2012). There are several factors that trigger low cybersex behavior, namely self-control, where a negative relationship between self-control and adolescent cybersex behavior is acceptable, the higher self-control that adolescents have, the lower cybersex behavior occurs in adolescents who use the internet (Glagah & Yogyakarta, 2014). Self-control is needed when accessing the internet, when a person does not control himself and uses the internet inappropriately it can cause addiction to cybersex behavior (Khairunnisa, 2013).

The results showed that the majority of family monitoring of adolescents was in the low category as much as 39.7%, the medium category was 33.1%, the high category was 27.2%. Family monitoring or parental supervision is how closely parents monitor their teenagers. Low family monitoring, where parents do not monitor and control their children will tend to experience violations, in contrast to parents who control or supervise their children properly (Savira et al., 2017). When teenagers don't get enough self-monitoring from their parents, this can be an opportunity for teenagers to engage in risky behavior. Supervision from parents can form an environment that requires adolescents to obey and minimize risky behavior (Nengsih, 2021). From the statement above, low family monitoring relationships affect the incidence of cybersex behavior, the role of mothers in parenting such as directing adolescent behavior by advising adolescents, involvement of family members, trust and expectations of mothers (mothers believe in

activities carried out by children but still feel worried, mothers hope that adolescents do not repeat the act of accessing pornographic content and get better), communication and the quality of the relationship between mothers and adolescents (in communicating adolescents are open but sometimes there are some obstacles). Meanwhile, internal and external problems did not really affect the monitoring of adolescents causing cybersex behavior to be influenced by family monitoring.

CONCLUSIONS

There is a relationship between sexual communication and family monitoring to adolescent cybersex behavior. It is hoped that families will pay more attention to adolescents in monitoring their sexual behavior. In addition, it also implements open communication with adolescents regarding their sexual behavior, so that adolescents avoid cybersex behavior.

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ORIGINAL RESEARCH

LEARNING PROBLEMS OF CHILDREN DURING THE COVID-19 PANDEMIC: THE APPLICATION OF HOME LEARNING IN EARLY CHILDHOOD EDUCATION

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ABSTRACT	Keywords
The objectives to be achieved in this study were to find out the factors causing the problem of implementing learning from home, to find a solution in overcoming the problems of implementing learning from home at Early Childhood Education children during the Covid-19 pandemic in PAUD Yaminna, Mojokerto City. This study used a descriptive approach. The technique used in this research is the technique of interview, observation, and documentation. Data analysis in this study includes data reduction, data presentation, and drawing conclusions. Checking the validity of the data using triangulation of data sources. The results of this study conclude In the learning process from home the teacher experiences problems or obstacles first, problems related to teacher competence, second, students' understanding problems, third, problems of parents who do not have android, fourth lack of cooperation between parents and students , the five limitations of facilities and infrastructure; The solutions to solve problems that arise when learning from home are first, increasing teacher competence in using/operating technology, secondly providing counseling to guardians about the importance of using android, fourth providing understanding to parents about the importance of parent-student cooperation.	**Learning from Home, Learning Problems. Early Childhood Education children**

INTRODUCTION

The spread of the corona virus globally, both in terms of the number of cases and the death toll, is still increasing day by day. As of October 27, 2020, the total number of confirmed cases of Covid-19 in the world is 43,767,925 million. Of these, 32,161,971 million patients have recovered, and 1,164,227 people have died. Currently, there are 10,441,727 active cases or patients in care spread across various countries(Sutarsa, Astuti, Choy, &

Moore, 2020). In order to prevent the spread of Covid-19 transmission to school residents in particular and the wider community in general, the Ministry of Education and Culture issued several circulars related to the prevention and handling of Covid-19. Circular Letter Number 2 of 2020 dated March 9, 2020 regarding the Prevention and Handling of Covid-19 in the Ministry of Education and Culture (Abidah, Hidaayatullaah, Simamora, Fehabutar, & Mutakinati, 2020). Circular Letter Number 3 of 2020 dated March 9, 2020 concerning Prevention of Covid-19 in Education Units. Circular Letter Number 4 of 2020 dated March 24, 2020 regarding the Implementation of Education Policies in the Emergency Period for the Spread of Coronavirus Disease (Covid-19), which among other things contains directions on the process of learning from home. Law No. 20 of 2003 concerning the national education system(Wajdi et al., 2020).

Home Learning or learning from home aims to make the educational process of students continue even though they are at home. Such conditions require educational institutions to innovate in the learning process. One form of innovation carried out by educational institutions through the Indonesian Ministry of Education and Culture is by conducting online or online learning (in a network)(Yuzulia, 2021). Online learning is learning that is carried out without face to face through available media. The management of the online learning system is different from the face-to-face system. Online learning systems require the existence of supporting infrastructure and technology, such as computers, televisions, and gadgets(Ismail, Bakar, & Wafa, 2020).

The Challenges of Learning from Home The learning process from home through distance learning should ideally still be able to accommodate the learning needs of students to develop talents and interests according to their education level(Rosyada & Sundari, 2021). To achieve this, it is necessary to prepare educators, appropriate curriculum, availability of learning resources, and support for stable devices and networks so that communication between students and educators can be effective(Tamboto, Tambingon, Lengkong, & Rotty, 2021). The current state of distance learning cannot be called ideal because there are still various obstacles to be faced.

This obstacle is also a challenge in the implementation of distance learning considering that the implementation of distance learning is a must so that educational activities can still be held in the midst of the current Covid-19 pandemic emergency(Sulistiyo Nugroho, Wahab Syakhrani, Hardiansyah, Jacob Pattiasina, & Yunita Rahma Pratiwi, 2021). The obstacles faced in implementing distance learning are related to the readiness of human resources, lack of clear directions from local governments, the absence of an appropriate curriculum, and limited facilities and infrastructure, especially technology support and internet networks(Lubis, Harahap, & Armanila, 2021).

REVIEW LITERATURE

Research on the problems of studying from home in Early Childhood Education childrenwas conducted for the first time, but there were previous studies that discussed online learning as an effort to study from home.

Asio 2021, This study aims to identify online learning activities in Any student can access learning as an effort to support government programs, namely study from home during the COVID-19 pandemic and student responses to online learning while schools are still closed. The subjects of this study were students who did online learning while schools were closed during the COVID-19 pandemic. The difference is that this journal only discusses online learning and does not discuss the problems of studying from home. The similarity discusses studying from home during the Covid-19 pandemic.(Asio, Gadia, Abarintos, Paguio, & Balce, 2021)

Erawati 2021, The purpose of the study was to obtain an overview of the implementation of online learning in the Biology Education Study Program. The difference is that this research is centered on the Biology Education Study Program. The similarity discusses online learning during the Covid-19 period(Erawati, Widiana, & Japa, 2021).

Tanamal 2021, Corona Virus or known as COVID-19 has now spread to various countries in the world. WHO (World Health Organization) has declared COVID-19 a global emergency or pandemic on March 11, 2020. COVID-19 is reported to be quite contagious with a relatively high mortality rate and is reported to continue to increase. Indonesia is the fourth most populous country in the world, thus it is estimated that it will suffer greatly from the COVID-19 pandemic, and is even expected to be free in a longer period of time when compared to other less densely populated countries. The difference is that this journal discusses students' thoughts about learning from home. The similarity is discussing learning from home during the Covid-19 pandemic (Nurhayati, Angkarini, & Tanamal, 2021).

Tyaningsih 2021, The purpose of this study was to identify the impact of the WFH (Work From Home) system on the performance teachers during the COVID-19 pandemic. The research uses the quantitative method. The data collection process in this study came from an online questionnaire of 8 teachers at SD Negeri Dengkek 01 Pati. The difference is that this journal uses a qualitative method. The similarity is discussing online learning activities (Tyaningsih, Arjudin, Prayitno, Jatmiko, & Handayani, 2021).

Asvial 2021, in the field of education, COVID-19 has also drastically changed the learning model; All learning activities are carried out online from elementary school to university level. This research is a qualitative descriptive study that describes online learning activities after all learning activities are carried out at home with online mode. The difference is that this journal is centered on universities. The similarity is discussing the impact of Covid-19 on the online learning process (Asvial, Mayangsari, & Yudistriansyah, 2021).

METHOD

This research is a type of field research (field research) with a qualitative descriptive approach, which is a study that intends to understand the phenomena experienced by research subjects such as behavior, perception, motivation, action, holistically, and by way of description in the form of words. and language, in a particular natural context and by utilizing various natural methods(Moen & Middelthon, 2015). This research was conducted at PAUD Yaminna, Mojokerto City. The research subjects were students, parents and teachers of PAUD Yaminna Mojokerto City.

Data collection methods are ways that can be used by researchers to collect data. Data collection techniques in this study were collected by means of observation, interviews, and documentation. To test the validity of a data in qualitative research, an examination technique is needed(Moen & Middelthon, 2015). The implementation of the inspection technique is based on certain criteria. There are four criteria used, namely the degree of trust (credibility), transferability (transferability), dependability (dependability), and certainty (confirmability). There are various ways to check credibility in qualitative research, namely, extended observations, increased persistence, discussions with friends, triangulation, negative case analysis, and member checks. In this study the sources are students, parents and teachers. So, to test the credibility of the data from the results of collecting data from observations, interviews, and documentation, triangulation is used. Triangulation of this research by comparing and checking the degree of trust and the results of observations, interviews, and documentation.

According to Calvert (Calvert, 2013), data analysis is the process of systematically searching and compiling data obtained from observations, interviews, and documentation. Thus the data that has been reduced will provide a clearer picture, and make it easier for researchers to collect data. After the data is reduced, the next step is to display the data. Presentation of data is done in the form of brief descriptions, charts, relationships between categories, flowcharts, and so on. Miles and Huberman in Sugiyono stated that the most frequently used to present data in qualitative research is narrative text. The conclusions put forward are still temporary, and will change if no strong evidence is found to support the next stage of data collection. However, if the conclusions put forward at the initial stage are supported by valid and consistent evidence when the researcher returns to the field to collect data, then the conclusions put forward are credible conclusions. Therefore, researchers try to get evidence by looking for the meaning of each symptom obtained from the field.

RESULT

Based on the results of the analysis of the Problems of Application of Learning from Home for Basic Early Childhood during the Covid-19 Pandemic at PAUD Yaminna, Mojokerto City for the 2020/2021 academic year, there are several things that can be outlined, namely:

a. The implementation of learning from home has been going well because the teacher gives assignments and provides material during the online learning process via Android by utilizing class groups.

b. The problems or problems faced in the learning process from home are as follows:
   a. Problems related to teacher competence.
   b. The problem of differences in the level of understanding of students.
   c. The problem of parents who do not have Android and do not know how to use it.
   d. Lack of cooperation between parents and students.

c. Solutions taken to solve the problem of learning from home:
   a. Teachers can attend seminars or training on information technology and learn from peers.
   b. Provide guidance or assistance to children in groups or individually.
   c. Provide counseling and hold meetings with parents about the importance of using Android in the learning process.
   d. Provide an understanding of the importance of parental cooperation in supervising their children learning from home.

Based on the results of interviews and direct observations in the field, it can be seen that there are problems with the application of learning from home for early childhood during the Covid-19 pandemic at PAUD Yaminna, Mojokerto City. Based on the results of interviews with PAUD Yaminna teachers, Mojokerto City Nantal obtained by researchers: "Teachers have prepared lesson plans before teaching online learning, during the Covid-19 pandemic online lesson plans also exist, just need to be developed by the teachers themselves. We use whatsapp to deliver learning, but we still accept assignments that are delivered directly to home or school because of the many obstacles faced by parents, some do not understand how to use technology and lack of signal, even poor parents. So we accept if there are parents who deliver assignments directly so that learning continues"

In creating the intensity of communication with students at the teacher's home using applications in delivering learning, the authors also asked about the obstacles experienced by the teacher during the learning process from home. The following are the results of interviews with PAUD Yaminna teachers, Mojokerto City: using zoom is due to poor signal and lack of knowledge in using technology. So we communicate with students only using whatsapp, some directly face to face when students deliver assignments to home or to school, for the collection of assignments itself is done on Mondays and Thursdays. In the process of learning from home, there must be obstacles, both in terms of delivering material to students and collecting assignments. Most students do not understand how to use technology, but we can deal with that by giving assignments directly, namely when collecting assignments face-to-face at home or at school, why do we do two ways in giving assignments and collecting assignments so that students are not hampered in following learning process during the

COVID-19 pandemic. We also do this method so that students can follow the lesson so they don't miss lessons and get grades.

The results of student learning during the learning process from home have differences between students. The following is the result of an interview with a Yaminna PAUD class teacher, Mojokerto City: "The students' scores differ from the previous year because students have different intelligences, some are able to learn independently, others still need direction. For students who are able to study independently their scores are stable but there are students who still need direction from teachers or parents who are not good, here we give advice to parents to supervise their children during learning because during the pandemic the teacher cannot play a full role in supervising students in learning. We also do not limit students to ask when they have difficulties in the lessons we provide, students may ask directly or through the whatsapp group.

Apart from teachers, parents also face obstacles when collecting assignments and lack of knowledge about technology and communication with children during learning. The results of the interview are as follows: "When we talk about the obstacles we as parents are confused about using technology, it is better for us to collect assignments directly at the teacher's house, and as parents we cannot supervise children optimally while they are doing assignments. For our own children's lessons, sometimes we don't understand which makes us confused to answer children's questions. As parents, we only help supervise children's learning if they haven't gone to work so that children do their schoolwork, and answer if there are lessons that children don't understand."

The parents' responses to learning from home, and the researchers also asked about how people learn from home. The following are the results of interviews with parents of PAUD Yaminna students, Mojokerto City: "In our opinion it is better to study at school than study at home. . Sometimes children use gadgets more often to play games than study and do assignments, and children's grades are also not good, maybe there is a lack of supervision from us as parents. Because so far at school children get supervision from the teacher in learning. As parents, we only help supervise children's learning if they haven't gone to work so that children do their schoolwork, and answer if there is a lesson that the child does not understand.

Apart from teachers and parents, students also have problems in the learning process from home. The results of interviews with PAUD Yaminna students, Mojokerto City are as follows: "My mother likes to get angry when asked and is not a good teacher anymore. When you want to find an answer, sometimes the signal is not good and you don't understand when asked, so ask a friend's mother who understands the lesson.

From the results of observations and interviews, it can be concluded that problematic is a gap between expectations and reality which is expected to be completed or can be needed or in other words can reduce the gap.

DISCUSSION

Factors causing problems with the application of learning from home for early childhood during the Covid-19 pandemic

After the data is known as presented in the facts above, then as a further action of this research, namely analyzing the data collected using descriptive qualitative methods in detail. In an effort to use learning media effectively, teachers and students often experience various obstacles, both concerning themselves and those outside of themselves. Based on the previous findings, it can be seen that teachers, parents and students experience problems in the learning process from students' homes. The following are the problems of implementing learning from home Early Childhood Education PAUD Yaminna, Mojokerto City, namely:

The problem of teacher competence Competence is the knowledge, skills and behavior that must be possessed and mastered by a teacher in carrying out his teaching duties. There are still teachers who have difficulty in using and utilizing technology-based learning, this is because teachers lack the skills and knowledge or lack of technology (technology stuttering) about the importance of operationalizing information technology-based learning media. This causes students to become passive and feel bored during the learning process, because there are still teachers who are still confused in using technology. Whereas as a teacher he is required and should have basic competence in the use of information technology. It has become a demand in the curriculum that a teacher must have adequate competence, including in using learning media. In the field, it was found that there were teachers who had not been able to operate information technology tools such as difficulties in choosing learning media and were less familiar with information technology-based media. How sophisticated the learning tools are if the teacher is skilled then it will be in vain.

Different levels of understanding of students Students have different characters and understanding of the material or assignments given by the teacher. Because children who are still at the elementary school level, it becomes difficult to grasp abstract material. Especially in the current learning process from home, and the teacher immediately gives assignments without explaining the material first. Each individual has a different level of intelligence, the learning process from home that has been going on for a long time makes it difficult for students to receive lessons from the teacher. Sometimes in the learning process the teacher feels the maximum but the response given by the students is also relatively passive. This is one of the tough challenges that teachers must pass in the learning process

Parents who do not have android and lack of understanding in its use in the learning process from home are done with a lack of communication with the students themselves because many parents of students do not have android/sophisticated communication tools. In this case, Android is very important for the realization of the learning process from home. On the other hand, parents who are mostly rural people find it very difficult to use sophisticated communication tools. Parents and guardians of students do not use android as a technology use to achieve the learning process from home.

Lack of cooperation between parents and students, parents tend not to accompany their children to study from home due to various reasons, namely reasons because they are busy working, busy taking care of the house and busy with other things. Parents let their children study and do their own work without being accompanied by their parents. Even after interviews with classroom teachers, many parents are not patient in accompanying their children to study at home during this pandemic. This makes the right of a child to learn to be out of control because many are even playing gadged and playing kites with other friends. A solution in overcoming the problems of implementing early childhood learning from home during the Covid 19 pandemic at PAUD Yaminna, Mojokerto City

Based on the previous findings, it can be seen that teachers, parents and students experience problems in the learning process from students' homes (Susila, Qosim, & Rositasari, 2020). The following are solutions to overcome the problems of implementing learning from home for Early Childhood Education children during the Covid 19 pandemic Early Childhood Education PAUD Yaminna, Mojokerto City, namely: The solution to overcome teacher competence in an effort to overcome teacher competence, actually from the teacher's side has made several attempts to overcome it. These include studying with other teachers and participating in training in certain forums. All efforts or efforts to overcome the problems above are considered appropriate and good. However, there is a drawback that sometimes the teachers who attend the training and seminars are actually chatting with themselves. However, it all goes back to each individual because of the age factor or being old, not being able to operate a computer or information technology is a mistake.

The solution to overcome differences in the level of understanding of students and individual differences is related to "personal psychology" which makes a way of receiving a lesson and in thinking(Tamboto et al., 2021). To overcome various kinds of students in the online learning process, teachers and schools have been looking for solutions so that students have the same understanding, namely by paying attention to the differences that exist in their students by motivating them to continue learning in any condition between others: first, the teacher provides assistance to students either in groups or individually. The method taken in an effort to overcome this problem above is considered appropriate, but teachers do not have to provide special services between individuals.

The solution to dealing with parents who don't have Android is by means of a parent or student who is not in the group, one of the students provides information related to assignments and can come directly and ask the teacher by coming to school because the teacher is there every Monday and Thursday during the day. work. The solution to overcome the lack of cooperation between parents and students, the parents who are busy with their respective interests and are not painstaking in accompanying children in the distance learning process, make students who should be studying play with their peers. The school and teachers have their own solution to overcome this problem, namely by providing motivation and

understanding to parents to continue to accompany their children to study at home because parental control and supervision is very important when learning from home like this.

CONCLUSION

Based on the results of the analysis and discussion of the problems of implementing learning from home in early childhood, the problems or problems encountered in the learning process from home are problems related to teacher competence, problems with differences in the level of understanding of students, problems of parents who do not have android and don't know how to use it. lack of collaboration between parents and students. The solution taken to solve the problem of learning from home is that teachers can attend seminars or training on information technology and learn from peers, provide guidance or assistance to children in groups or individually, provide counseling and hold meetings with parents about the importance of using Android in the learning process. . provide an understanding of the importance of parental cooperation in supervising their children learning from home.

To improve teacher competence in operating technology-based media, teachers continue to learn from peers/peer tutors and teachers should further develop their respective competencies, including skills in the use of information technology-based media. Teachers should understand the characteristics of students so as to facilitate the online learning process. For parents, they should pay more attention to their children's learning process when learning from home and learning to use technology in order to monitor their child's learning process. students, should keep learning even from home and don't play much with their friends.

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ORIGINAL RESEARCH

CALCIUM SUPPLEMENTATION DURING PREGNANCY AGAINST DISORDERS OF GROWTH AND DEVELOPMENT OF TODDLERS

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ABSTRACT	Keywords
Golden age is the initial stage of growth and development of toddlers starting covering the first 1000 days of life starting from the womb until toddlers are 2 years old which parents should not miss. This golden period can affect the quality of toddlers in the future, therefore the attention of parents must be maximally devoted to this period. Indonesia is a developing country with a national prevalence of under five nutritional status consisting of 3.9% poor nutrition, 13.8% malnutrition, 79.2% good nutrition and 3.1% excess nutrition. The growth of Indonesian toddlers under 5 years of age who experience deviations was reported by WHO in 2016 with a prevalence of 7,512.6 per 100,000 population (7.51%) (WHO, 2018). The results of the analysis obtained a correlation value of 0.547 indicating that there is an effect of calcium supplementation on the growth and development of toddlers. Good calcium supplementation during pregnancy which starts to be consumed in the 2nd trimester using prophylactic doses is very good for the growth of toddlers, especially those related to bones and teeth, as well as gross motor development.	*Growth and Development, Toddler, Calcium, Pregnancy*

INTRODUCTION

The golden age or golden period is the most important period in the growth and development of children covering the first 1000 days of a child's life starting from pregnancy until the child is 2 years old. This phase requires more attention from parents because 80% of a child's brain works at this time, which will affect the formation of children's character, therefore the process of growth and development must receive optimal attention from parents, especially during the golden period. There are several aspects of toddler growth and development including gross motor, fine motor, language and personal social. Monitoring of child growth and development must be carried out regularly and continuously. This monitoring can be done independently by parents at home, or it can be done with the community and health workers in posyandu activities(Briawan, galih 2016). This activit(Yulia and Darningsih 2016)y is carried out in order to find out the growth and development disorders experienced by children so that they can be overcome as early as possible.

The problem of developmental disorders is not a problem that can be considered easy, referring to the results of research that has been carried out by world

researchers for WHO, it is stated that globally, there are 52.9 million children younger than 5 years, 54% are boys. have developmental disabilities in 2016. About 95% of children with developmental disabilities live in low- and middle-income countries. Nationally, the prevalence of nutritional status of children under five in Indonesia consists of 3.9% malnutrition, 13.8% malnutrition, 79.2% good nutrition, and 3.1% excess nutrition. WHO reported the prevalence of developmental deviations in Indonesian children under 5 years of age in 2016 was 7,512.6 per 100,000 population (7.51%) (WHO 2018). Children who are estimated to experience developmental delays of around 5 to 10%. It is not yet known with certainty the data on the incidence of general developmental delays, but around 1-3% of children under the age of 5 years are estimated to experience general developmental delays (Zulaikha 2021).

To overcome this condition, parents need to prepare for early child growth and development, starting from the moment the mother is declared pregnant. Nutrition consumed by pregnant women greatly affects the growth and development of children under five, therefore the nutrition that must be consumed by pregnant women must meet good nutritional standards, especially high in calories and high in protein.

There are several factors that affect the process of growth and development of a child including genetics, stimulation or environment and optimal nutritional intake. The influence of these factors is very supportive and interrelated in creating an optimal growth and development process(Purnasari, Briawan, and Dwiriani 2016). The process of growth and development really requires good nutrition, one of which is the need for Calcium, because calcium is an important mineral for humans. The largest composition of calcium is found in bones, namely 99 percent, while the remaining 1 percent of calcium is found in

body fluids such as blood serum, in body cells, in extra-cellular and intra-cellular fluids. Calcium has many vital functions in the body, including playing a role in the process of bone and tooth growth, the process of coagulation or blood clotting, the function of the muscles including the heart muscle, metabolism at the cellular level, the respiratory system and so on. Meanwhile, for the development of toddlers, calcium can affect the development of gross motor movements such as the ability to lift the head, lie on the stomach and walk (.

METHOD

This research is a correlation research that aims to determine the influence between the two variables and how far the influence is. In this study, we wanted to know how the effect of calcium supplementation on growth and development disorders of toddlers. This research is a type of cross-sectional research because it is carried out at the same time. The research was conducted at the Jungcancang Polindes from January to December 2022 with 43 toddlers as respondents. The statistical test used in this study is the Contingency Coefficient to determine the effect between the two variables and strengthen the results of data analysis.

RESULTS

Table 1. Respondents' Frequency Distribution Based on Calcium Suplementation in pergnancy.

Calcium Suplementation	Frequency	Presentase
≥ 90 tablet	28	73,68
< 90 tablet	10	26,32
Total	38	100

Based on the table above, it can be concluded that there are more respondents who regularly

consume calcium during pregnancy ≥ 90 tablets as many as 28 respondents (73.68%)
.

Table 2. Respondents' Frequency Distribution Based on Toddler Growth and Development.

DDST	Frequency	Presentase
Normal	30	78,95
Delay	8	26,32
Total	38	100

Based on the table above, it can be concluded that more respondents did not experience growth and development delays, namely 30 respondents (78.95%)

The data were then analyzed by obtaining a correlation value of 0.547. This value is then determined by the correlation coefficient interpretation table where it is found that the value of 0.547 indicates the effect of calcium supplementation on the growth and development of toddlers.

DISCUSSION

Growth is identical with the increase in physical size in children, especially the increase in the child's height. The size of the child's head circumference and body circumference must also be monitored because they are also related to the child's development. Growth related to the child's nutritional status and fluid balance in the body can be measured by the child's weight. While development is synonymous with increasing the function of body parts which include gross motor skills, fine motor skills, language, personal social including morals and intelligence in them. (Soedjatmiko 2016).

Many factors affect the growth and development of children such as internal factors and external factors which are interrelated and interact between the two factors. Internal factors are direct factors from within the child's body, such as age, sex, hereditary history, genetic disorders and chromosomal abnormalities(Adyani 2020). Apart from internal factors, external/environmental factors also have a major influence on the growth and development of children. One example of environmental factors that can affect the growth and development of children include socio-economic, nutrition consumed by children, stimulation provided by parents, psychology, and knowledge possessed by parents(Bingan 2019).

The role of parents includes the two factors above, because genetic influences contribute the most to the formation of the fetus, during pregnancy the mother is a source of nutrition for the fetus. After birth the first stimulation is also given by parents, for that to be good parents need to be prepared as early as possible. Increasing knowledge about the process of forming a fetus and caring for children during the golden period is urgently needed in order to be able to give birth to children with excellent quality both physically and intellectually (Tikar, Dini, and Age 2021).

To get maximum growth and development of children, the World Health Assembly has endorsed the Scaling Up Nutrition program which focuses on addressing nutritional problems in mothers and children (Dahniarti, Idris, and Am 2018). The goal of the Global SUN Movement is to reduce nutritional problems, with a focus on the first 1000 days of life (270 days during pregnancy and 730 days from birth to 2 years of age), namely in pregnant women, breastfeeding mothers and children aged 0-23 months. Indicators of the success of the Global SUN Movement program are reducing the incidence of stunting (short babies), reducing the birth of Low Birth Weight (LBW) babies, and overcoming the condition of children with wasting, underweight and overweight problems (Medicine and Indonesia 2020).

The existence of the Global SUN Movement is expected to have a positive impact on changing the behavior of pregnant

women to be able to consume vitamins and calcium regularly. Adequate calcium intake can form a child's bone mass perfectly. Good bone conditions can make it easier for the limbs to carry out their functions perfectly. (Utami, Cahyaningrum, and Wirawan 2016)

To achieve optimal growth and development conditions, adequate and adequate nutrition is needed. Poor quality and quantity of food can be one of the causes of malnutrition(R Ariyana and Rini 2009). Children with malnutrition conditions can cause growth and development disorders, even the development of children with malnutrition status can result in changes in brain structure and function. Changes in brain structure and function usually occur at the 24th to 42nd week of gestation after fertilization, and then continue until the baby is born until the age of 2 or 3 years, the fastest period in this process takes place at the age of the first 6 months of life or normal called the golden period of life. The growth of brain cells continues until the child is 3 years old(Marfuah 2021). Malnutrition that occurs at the age of under 2 years can cause a reduction in brain cells by 15%-20%, so that children later in life have brain quality of around 80%-85%.

Therefore children should not experience malnutrition during the golden period which is an important period as the beginning of the growth and development of children. If during pregnancy the mother lacks nutrition, it will affect the physical and cognitive development of the child. If a child experiences this disorder at the beginning of its growth, the disorder tends to be permanent. Therefore, pregnant women must consume vitamins, minerals, iron, DHA, and calcium, because these compounds can help increase the growth and development of children from an early age.

Daily nutritional needs for mothers increase during pregnancy, as well as calcium needs. As with other nutrients, the mineral calcium is not only important for mothers, but also needed by babies during pregnancy. Calcium cannot be produced by the body naturally, so it needs to be obtained through intake, either through food or supplements. (Briawan, Galih 2016) In the human body the highest mineral content is calcium. The composition of human bones is 99% composed of calcium. Calcium has a very important role in various processes of development of physiological functions in the body that can affect the process of blood clotting, calcium is also responsible for maintaining cell membrane potential which works together with sodium and potassium, connecting signals between several hormone receptors, cell membrane integrity, neuromuscular excitability, and the most important thing is the formation of bone structure as well as the body's calcium reserves (Gustirini 2019).

Calcium is indeed synonymous with bone growth in the mother and fetus, but the incidence of hypertension during pregnancy can be prevented with adequate calcium intake. Transfer of calcium from mother to fetus during pregnancy is about 30g(Ulfah, Dimyati, and Putra 2021). This condition causes calcium absorption and bone turnover to increase to meet the needs of calcium in the fetus. In the third trimester, fetal bones undergo a rapid process of mineralization so that the body experiences a significant increase in calcium needs. The results of the research that has been done show that calcium consumption in pregnant women still does not meet the EAR rate of calcium. It is known that the EAR for calcium for pregnant women in Indonesia is 1167.7 mg/day for ages 16-18 years, 1083.3 mg/day for ages 19-29 years and 1000 mg/day for ages 30-49 years. 19,20 This study showed that the majority of subjects (81.2%) could not meet the needs of calcium which should be obtained from daily food consumption

During pregnancy the mother's need for calcium increases compared to before pregnancy, this is because the fetus has been forming bones and fetuses since in the womb. Pregnant women who experience calcium deficiency can have side effects for both mother and fetus in the form of muscle cramps, tremors, osteopenia, tetanus, low mineralization in the fetus can even cause low birth weight and stunted fetal growth (Villar et al. 2006).

The use of calcium during pregnancy increases twofold compared to non-pregnant women, this condition is caused because the fetus requires large amounts of calcium to support growth and development. As much as 80% of fetal calcium needs are obtained in the third trimester of pregnancy, because the fetus stores a minimum of 28.2 g of calcium. The mother's body undergoes calcium adjustment to compensate for increased calcium secretion to meet the needs of the mother and fetus during pregnancy. The absorption of calcium in the gastrointestinal tract, and the formation of calcium in the bones and excretion of calcium in the feces, urine and sweat are determined by the level of calcium present in the plasma. Parathyroid hormone, vitamin D and calcitonin can also affect the balance of calcium in the body. (Gustirini 2019)

Calcium needs can also be met by consuming milk and its processed products such as yogurt and cheese, legumes are also rich in calcium such as almonds, soybeans and the like, not forgetting green vegetables such as pakcoy and broccoli. These foods contain lots of calcium and are very good for fulfilling nutrition in pregnant women. The increased need for calcium during pregnancy causes mothers to still have to consume supplements that contain calcium. Recommendations given to pregnant women to consume supplements that contain 500 mg of calcium. To meet the needs of calcium as much as 1000 mg, pregnant women can take calcium supplements 2 times a day(Farida 2016).

However, the dosage must still be adjusted according to the doctor's recommendations. because calcium intake should not be excessive. Pregnant women should not consume more than 2500 mg of calcium per day. Too much calcium intake can cause bloating, constipation, kidney stones, heart palpitations, and heart rhythm disturbances, as well as prevent the body from absorbing other important minerals needed during pregnancy, such as zinc and iron. The right dose of calcium for pregnant women is very good for the growth and development of children during the golden period

The formation of bones and teeth that is balanced with good calcium intake, makes bones and teeth stronger and grow normally. Calcium intake is very important for pregnant and lactating women, so they can give birth to children who have healthy teeth and bones.

Adequacy of calcium consumed by the mother is able to build bone strength during infancy of the baby (0-11 months). Child development related to bone strength, among others, at the age of 0-3 months raises the head 45° and moves the head right and left. At the age of 3-6 months turning face down to supine, lifting head 90° and maintaining an upright and stable head position. At the age of 6-9 months the child is able to sit and learn to stand on two legs. At the age of 9-12 months, children can hold objects while standing. (RI. 2010)

Calcium is synonymous with the growth of bone mass, but apart from that calcium is also closely related to the growth of toddler teeth, especially the teeth. Growth abnormalities are closely related to genetic factors and a lack of maternal calcium intake during pregnancy. However, this condition is not a guarantee that mothers who consume enough calcium can give birth to babies with faster teeth growth(Saripudin 2019). The growth of baby teeth begins in the womb, to be precise from the time the fetus is four weeks old until the baby is born. Therefore, a

lack of calcium intake in pregnant women will affect the growth of the baby's teeth after birth. After birth, the condition of calcium deficiency can not be corrected(Atika Putri and Yelda Andespa 2021). Because, the period of formation of milk tooth buds has been completed. Delayed growth of milk teeth related to nutritional problems

CONCLUSIONS

Perception of Nurse Ability in Increasing Hope and Motivation of Patients Hypertension is very important in helping hypertensive patients in hospitals so that this becomes an important component that needs to be considered in helping hypertensive patients.

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