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## PSYCHOLOGICAL WELL-BEING RELATIONS WITH HYPERTENSION

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ABSTRACT	Keywords
Stressors in life contribute to a person's blood pressure values. High blood pressure can be suffered if you are less able to adapt to these various stressors. Currently hypertension has become a major problem in world health. Based on Riskesdas 2018, the prevalence of hypertension in Indonesia is 34.1%. The aim of this research is to analyze the relationship between Psychological Well-Being and the Degree of Hypertension. This research is a correlational analytical with a cross sectional approach. Sampling used purposive sampling. The instruments used were the PWBS from Ryff and the degree of hypertension according to WHO. Data analysis used the Spearman Rho test with the results of the analysis obtained p value = 0.000 ( $\alpha = 0.05$ ) and correlation coefficient = 0.708. There is a significant relationship between Psychological Well-Being and the respondent's degree of hypertension, with the strength of the relationship being strong and the direction of the relationship being positive, which means that the higher the Psychological Well-Being, the degree of hypertension or blood pressure is in the high normal category. It is hoped that respondents can carry out 10 behaviors that can increase Psychological Well-Being so that they can reduce the risk of hypertension.	Psychological Well-Being, Degree of Hypertension

## INTRODUCTION

Blood Pressure is closely related to stressors. A person will suffer from hypertension if they are less able to adapt to stressors. Currently, hypertension has become a major problem in world health. *World Health Organization* (WHO) stated that from 2000 to 2008 the prevalence of hypertension continued to increase, with the world population affected by hypertension as many as 639 million cases or 26.4% of the population. Hypertension is often referred to as the "silent killer", because people with

hypertension often suffer from it for years years without feeling any disturbance or symptoms.

Hypertension has various risk factors. Risk factors for hypertension include genetics, race, age, gender, smoking, obesity, and psychological stress. Al-firdaus (2012 in Furqon, 2016) stated that an individual's excessive emotional condition also influences the development of hypertension. This shows that psychological factors have a big role in the process of developing hypertension. Negative

emotions can cause a decrease in physical and psychological health (Wells, 2010).

Stress and negative emotions can indicate that someone is experiencing a decline in Psychological Well-being. Psychological Well-Being is the full achievement of a person's psychological potential and a state when an individual can accept one's strengths and weaknesses as they are, have a life goal, develop positive relationships with other people, become an independent person, able to control the environment, and continue to grow personally (Ryff, 1989). So, in hypertensive patients who have problem with Psychological Well-Being such as stress, not being able to control the environment and oneself, anxiety, excessive emotions of anger have the potential to affect one's blood pressure.

# METHOD

The research design used is correlational analytics with a cross sectional approach. The place for this research was carried out at the Posyandu for the Elderly using purposive sampling and obtained a sample size of 35 people .

Hypertension data was taken directly by measuring the respondent's blood pressure using a digital sphygmomanometer whose accuracy had previously been confirmed and then the systole figures obtained from each respondent were compared with the blood pressure classification according to WHO. Psychological Well -Being data was taken using a questionnaire from Ryff which includes components; Autonomy, Mastery of the environment, Personal growth, Positive relationships with others, Purpose in life, and Self-acceptance. Analysis was carried out using the SPSS spearman rho application with  $\alpha \leq 0.05$ .

# RESULTS

**Table 1: Psychological Well - Being**

Psychological Well - Being a Respondent	amount	Percentage (%)
Very high	6	17.1
Tall	8	22.9

Currently	8	22.9
Low	10	28.6
Very low	3	8.6
Amount	35	100

Based on table 1 above, it is known that Psychological Well-Being Nearly half of respondents (28.6%) were in the low category, a small portion of respondents (17.1%) were in the very high category and a small portion of respondents (8.6%) were very low.

**Table 2: Degree of Hypertension**

Respondent's Degree of Hypertension	Amount	Percentage (%)
Normal high	9	25.7
Mild hypertension	14	40
Moderate Hypertension	11	31.4
Severe Hypertension	1	2.9
Amount	35	100

Based on table 2 above, it is known that the degree of hypertension of almost half of the respondents (40%) is in the mild hypertension category, a small proportion of respondents (31.4%) are in the moderate hypertension category, a small proportion of respondents (25.7%) are in the high normal degree. and very few respondents (2.9%) had severe hypertension.

Respondents who have Psychological Well-Being very high, most of them had normal high blood pressure, while respondents who had Psychological Well-Being very low have moderate degrees of hypertension. However, there was one respondent who was Psychological Well-Being he has a severe degree of hypertension. Based on the results of the Spearman Rho analysis test, the  $p$  value = 0.000 ( $\alpha = 0.05$ ) with a correlation coefficient of 0.708 and a positive direction of relationship. This means that there is a significant relationship between

*Psychological Well-Being* with the degree of hypertension of the respondent, with the strength of the relationship being strong and the direction of the relationship being positive, which means that the higher the *Psychological Well-Being*, the degree of hypertension or blood pressure of the respondent is in the normal category.

## DISCUSSION

Hypertension is a cardiovascular disease that is often suffered by elderly people in Indonesia. Hypertension is also a chronic disease that requires intervention over a long period of time, even for life. Some of the risks that cause hypertension include genetics, race, age, gender, smoking, obesity, and psychological stress. Elderly people often experience psychological stress caused by decreased physical function which causes limitations in carrying out daily activities and becomes dependent on other people. Physical limitations in the elderly will ultimately lead to changes in independence in meeting daily needs. For elderly people who have adequate sources of support, it will be easy to adapt to these physical limitations and it may not have much effect on their emotional and psychological condition. On the other hand, elderly people who do not have adequate sources of support will experience psychological stress because there is no one to help them adapt to limited conditions and ultimately find it difficult to accept themselves, which has an impact on their psychological well-being (Santrock, 2013 in Azijah et al., 2021) .

This research shows that elderly people who have high and very high *Psychological Well-Being* have their blood pressure in the high normal range and have mild hypertension. This is in line with the research results of Ramadi et al., (2017) in (Azijah et al., 2021) which shows that *Psychological Well-Being* can improve health status where respondents with good *Psychological Well-Being* have a 10.125 times higher chance of controlling their blood pressure.

*Psychological Well-Being* is full achievement of psychological potential somebody And something circumstances k individual ethics can accept strength And weakness self What existence, own life goals, developing relationships be positive with others, be a person Which independent, capable control environment, And Keep going grow in a way personal (Ryff, 1989 in Ramadi et al., 2017) . Hypertension sufferers Which have problem *Psychological Well-Being* like stress, Nocapable control environment and himself, worried, emotions excessive anger will affect pressure his blood. But If hypertension sufferers own ability *Psychological Well-Being* the high ones will capable develop potency in self as well as capable For own And create environment Which in accordance with condition physical, so pressure blood will be well controlled (Wells, 2010 in (Ramadi et al., 2017) .

The relationship between unfavorable psychological factors such as depression and stress and hypertension is very clear. Evidence from research results shows that good *Psychological Well-Being* , which includes positive thoughts and feelings such as purpose in life, optimism and happiness, has an independent relationship to reducing the risk of hypertension (Ramadi et al., 2017) . Stress can cause activation of the sympathetic nervous system which can lead to increased release of nor-epinephrine from sympathetic nerves in the heart and blood vessels, which causes increased cardiac output and increased systemic vascular resistance. Next, the adrenal medulla secretes more catecholamines (epinephrine and norepinephrine). Activation of the sympathetic nervous system can increase circulation of angiotensin II, aldosterone and vasopressin which can increase systemic vascular resistance. Prolonged elevations in angiotensin II and catecholamine can lead to cardiac and vascular hypertrophy both of which can contribute to sustained increases in blood pressure (Amira et al., 2021) .

Ramadi et al (2017) said that *Psychological Well-Being* has a relationship with behavioral factors that are risk factors for hypertension, namely smoking, physical

activity, diet and *Body Mass Index*. From the research results, it was found that someone has *Psychological Well-Being* those who were tall had a lower likelihood of smoking, had a greater likelihood of engaging in recommended levels of activity such as regular exercise, had a tendency to consume more fruit and vegetables, consumed less sugary foods and processed meats. There is a two-way relationship between *Psychological Well-Being* and physical activity and healthy diet patterns. High *Psychological Well-Being* will encourage regular physical activity and a healthy diet pattern. Likewise, regular physical activity and a healthy diet pattern can also improve physical well-being.

## CONCLUSIONS

There is a significant relationship between *Psychological Well-Being* and the respondent's degree of hypertension, with the strength of the relationship being strong and the direction of the relationship being positive, which means that the higher the psychological well-being of the respondent, the degree of hypertension or blood pressure of the respondent is in the high normal category.

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## LEVELS OF PAIN AND INDEPENDENCE OF DAILY ACTIVITIES (ADL) ON OSTEOARTHRITIS PATIENTS

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ABSTRACT	Keywords
Patients with osteoarthritis will experience pain and limitation of motion which has an impact on difficulty in performing activities of daily living (ADL). Patients with these conditions also require recovery after <i>total knee replacement</i> surgery to restore normal physical, psychological, social, habitual and daily life activities. This study aims to determine the description of pain levels and independence of activity daily living (ADL). This study uses a descriptive design. The population of this study were all <i>total knee replacement</i> patients, 37 samples were selected using <i>purposive sampling</i> . The results showed that a total of 49.7% experienced severe pain and 84.6% of respondents had <i>activity daily living</i> (ADL) activities that were not independent. Nurses are needed to help improve the health status of osteoarthritis patients so that the patient's quality of life can be maintained optimally. Avoid diseases that can aggravate and can fulfill daily needs independently. Health agencies need to further improve health promotion regarding the maintenance of independence and efforts to overcome pain levels in osteoarthritis patients..	<b>activities daily living, pain and osteoarthritis.</b>

### INTRODUCTION

Osteoarthritis is a degenerative disease of the joints that involves cartilage, joint lining, ligaments, and bone, causing pain and stiffness in the joints (The American Rheumatism Association, 1987; Pratiwi, 2015). The most common complaint of osteoarthritis is joint pain, especially when the joint moves or bears weight, and will decrease at rest. Often sufferers feel

pain in asymmetrical joints that increases gradually over several years (Wijaya, 2018).

Pain on movement can arise due to joint capsule irritation, periostitis and periarticular muscle spasm. In the early stages, pain is only localized to certain parts, but if it continues, pain will be felt throughout the joint affected by osteoarthritis. This pain is often

accompanied by swelling, decreased joint motion, and mechanical abnormalities (Imayati & Kambayana, 2011; Arismunandar, 2015).

Joint pain in osteoarthritis often causes sufferers to be afraid to move which over time will result in decreased muscle and joint function. Joint pain also causes a decrease in *activity* so that it can affect the patient's ability to fulfill the needs of daily life (*activity daily living*) or ADL which ultimately causes decreased productivity (Chintyawati, 2014). Older people feel less confident in ADLs due to physical impairment and pain which can result in a low quality of life (Lucić & Grazio, 2018).

*The total knee replacement* (TKR) surgical technique is one of the solutions for the treatment of osteoarthritic knee joints. Kienzle, et al., 1995; Carr, et al., 2012). Total knee replacement is performed by replacing the caput of the femur bone with a spherical prosthesis and replacing the acetabulum with a bowl-shaped prosthesis. Contraindications for hip arthroplasty are if there is still an active infection (Willmott, 2016). Complications that occur are infection, nerve and vascular damage, dislocation, instability, and loosening. Infection can occur during surgery and form a wound after surgery, or it can be years after surgery due to bacteremia from another location. According to O'Brien et al. (2020) nerve damage that occurs can lead to another condition, namely *Drop Foot*. This can lead to an unsafe gait which potentially increases the risk of falls. The prevalence of this event is reported to be 19 per 100,000 people (Carolus et al., 2019). This will make patients who undergo TKR surgery experience limitations in carrying out daily activities (ADL) (Pratiwi, 2015).

According to Andri et al., (2020) the inability of postoperative patients to perform ADLs has a negative impact on quality of life, slower patient discharge, and prolonged

wound healing. The impact of complaints experienced by postoperative bone and joint patients causes a lack of movement activities by patients. Although postoperative total knee replacement patients must still do movement activities to train muscle strength and fulfill ADLs. Moving prevents muscle stiffness, thereby reducing pain, improving blood circulation, restoring the physiological function of organs, increasing metabolism, and accelerating wound healing (Fitamania, 2022). To prevent prolonged disability and to determine the decline in ADLs, postoperative physical abilities are needed (Mustiko & Pristianto, 2021).

ADLs can usually be managed by individuals so that they can live independently. According to Brunner and Suddart (2010), increasing postoperative patient compliance with ADLs will accelerate recovery and improve patient quality of life. According to Alghadir et al., (2016). postoperative recovery is the return to normal physical, psychological, and social functioning, as well as daily routines and activities. Patients will be transferred to a recovery room or ward after surgery. The patient's chances of recovering quickly after surgery are the sooner they get out of bed, start walking, eating, and drinking (Allsop, 2018). Major postoperative patients need the ability to move (Nurhayati and Frayoga, 2017).

The inability to fulfill ADLs in postoperative patients has an impact on wound healing taking longer, patient discharge becomes slower and quality of life becomes worse (Allsop, 2018; Aji & Ediyono, 2022). The impact of complaints experienced by postoperative patients illustrates the lack of activity in patients, resulting in a decrease in movement activity. Meanwhile, almost all operations require movement activity as early as possible. Moving can prevent muscle stiffness so that pain is reduced, blood circulation is smooth,

restore the physiological function of organs, improve body metabolism, and accelerate wound healing (Allsop, 2018). Physical ability after surgery is useful for knowing the decline in ADL and prolonged disability (Aji & Ediyono, 2022).

Based on the above, the researcher considers it very necessary to examine how the description of pain levels, independence of *activity daily living* (ADL) and the characteristics of respondents, namely age, gender and employment status of osteoarthritis sufferers who undergo *total knee replacement*.

## METHOD

This type of research is descriptive analytic research with a *cross sectional* approach. The purpose of this study was to describe the level of pain and the level of independence and dependence of osteoarthritis patients undergoing total knee replacement in the fulfillment of daily activities during hospital treatment. The sample of this study used a *total sampling* technique, namely all knee joint osteoarthritis patients who performed *Total Knee Replacement* at the Surakarta Orthopedic Hospital, totaling 37 respondents. Sample determination using inclusion and exclusion criteria.

The inclusion criteria used were patients diagnosed with grade III and grade IV osteoarthritis of the knee joint who performed *Total Knee Replacement*. While the exclusion criteria used are, patients with a diagnosis of grade I and II osteoarthritis, patients with post Total Knee Replacement prosthesis dislocation due to infection, blood clotting disorders around the surgical area, problematic implants, neurovascular injuries, muscular diseases, for example polio myelitis, patients with a diagnosis of rheumatoid arthritis and patients who are not willing to become respondents.

The measuring instrument used was the *Numeric Rating Scale* (NRS) questionnaire to measure pain (Ornetti et al, 2011) and the *Barthel Index* checklist sheet to measure the independence of daily activities (ADL) (Mahoney & Barthel, 1965). and to measure the degree of joint pain. This study uses univariate data analysis which is displayed in a frequency distribution. This research has obtained ethical clearance number PP.03.01/XXX.3/1.572/2023 and permission with the number 489/SK/FSTK/Usahid- Ska/XI/2022

## RESULTS

The research that has been carried out obtained the following data.

Table 1. Frequency Distribution of Characteristic Based On Age, Gender and Employment Status (N=37)

No	Characteristics	(f)	(%)
1	Age		
	36-45 years	1	2,7
	old	5	13,4
	46-55 years	23	62,4
	56-65 years	8	21,5
	>65 years old		
2	Gender		
	Female	4	12,8
	Male	33	87,2
3	Employment		
	Status	23	61,7
	work	14	38,3
	not working		

Table 1 shows that the majority of respondents were between 56 and 65 years old, 62.4%, and the gender of the respondents was female, 87.2%. While the majority of respondents' employment status is working, as much as 61.7%.



Table 2. Respondents' Pain Level and Activity Daily Living (ADL) Independence (N=37)

No.	Category	(f)	(%)
1	Pain level		
	No pain (0)	0	0
	Mild pain (1-3)	6	24,2
	Moderate pain (4-6)	6	26,2
	Severe pain (7-10)	15	49,7
2	Independence level		
	Independent	8	15,4
	Not independent	29	84,6

Table 2 illustrates that almost half of the respondents experienced severe pain, namely 49.7%. In the ADL independence category, the majority of respondents were not independent as much as 84.6%.

## DISCUSSION

The results of this study showed that most (87.2%) of the respondents were female. Likewise, research conducted by Chintyawati (2014) found 76.9% of respondents with osteoarthritis were female. The results of Wulandari's research (2014) also showed that most respondents were female, namely 69.7%. This is related to the presence of the hormone estrogen which women have as a cause of joint inflammation which increases the incidence of osteoarthritis more in women than men with a ratio of 2-3 : 1 (O'Connor, 2007; Pratiwi, 2015; Rahmadiyahanti et al., 2016)

According to Hakam, et al (2023) and Ochieng, et al (2021) said gender had no significant effect on early postoperative pain and ADL outcomes, although the results for stiffness were better for men. And according to rahmasari, et al (2021) from the results of observations, male patients with independent categories are higher than female patients. because that the behavior between men and women has differences, this occurs due to hormonal influences and physical structure. Therefore, men tend to be

more motivated to do something because of their strong physique.

The prevalence of osteoarthritis increases with age. The disease usually first appears at the age of 25-50 years, and peaks between the ages of 40-60 years. The higher the age of the individual, the more at risk of developing various diseases due to the aging process (Anderson & Loeser, 2010).

According to Hakam et al., (2022) muscle weakness is often seen in the elderly. This is due to progressive congenital damage of neuromuscular connections and impaired trophic function of neurons, resulting in random loss of muscle fibers and consequent reduction in motor unit size. Despite this, rehabilitation can improve muscle strength and muscle activity (neurogenic factors) in the elderly. So that patients experience dependence. The patient's dependence on doing ADL can be caused by the fracture he suffered, namely in osteoarthritis patients in fulfilling ADL needs experiencing limitations due to the pain they feel (Rahmasari et al., 2021). As a result of the pain felt, the patient performs avoidance actions.

The majority of respondents are working. Work is a person's activity as an effort to meet the needs of life or a means of earning income from the rewards for the activities carried out (Nugraha, 2017). Work is quite influential on osteoarthritis sufferers because it can cause interference with work activities and have an impact on reducing the quality of work and reducing income (Utari et al., 2021).

The knee joint is the strongest and most complex large joint in the body. However, among young adults and the elderly, the working function of the knee joint may begin to decrease. Osteoarthritis is a degenerative disease of the joints that involves cartilage, joint lining, ligaments, and bones, causing pain and stiffness in the joints. The Total Knee Replacement (TKR)

surgical technique is one of the solutions for treating knee joints that have osteoarthritis (Washilah et al., 2021; Wijaya, 2018).

Based on this study, it was found that almost half of the respondents experienced severe pain, namely 49.7%. In osteoarthritis, inflammatory mediators play a role in the progressiveness of the disease. In addition to the release of degrading enzymes, pro-inflammatory factors are also induced and released into the joint cavity, such as Nitric Oxide (NO), IL-1 $\beta$ , and TNF- $\alpha$ . These cytokines induce chondrocytes to produce proteases, chemokines, and eicosanoids such as prostaglandins and leukotrienes by attaching to receptors on the surface of chondrocytes and causing transcription of MMP genes so that the production of these enzymes increases. As a result, matrix synthesis is inhibited and cell apoptosis increases (Firestein et al., 2009). The progressivity of osteoarthritis of the knee joint is related to the level of pain caused. Grade III and IV knee joint osteoarthritis will produce more severe pain than grade I and II knee joint osteoarthritis. Conversely, after the action is taken, there is no stimulation of factors that cause inflammation, so the resulting pain will decrease (Pratiwi, 2015; Utari, 2021).

In the ADL independence category, the majority of respondents in the category were not independent as much as 84.6%. The level of pain can affect the independence of Activity Daily Living (ADL) experienced by respondents as sufferers. If it is not resolved, the patient can enter an advanced stage, where the patient cannot carry out daily activities and his quality of life will decrease (Bawarodi et al., 2017). Joint pain has caused at least 97% of sufferers to experience limited movement and 7 out of 10 people experience decreased mobility, even some cannot move (Pratiwi, 2015).

ADL is a basic activity in the form of self-care carried out every day to meet the needs of daily life (Smeltzer & Bare, 2010). The patient's ability to perform activities of daily living (ADL) can be hampered by the condition of lower extremity fractures. The inability to fulfill activities of daily living (ADL) is a problem experienced by postoperative patients with bone parts that experience limited movement (Dewi, et al., 2020). Physical activity limitations increase in patients with high disease activity (Zamroni, 2015). Indications for Total Knee Replacement are carried out in patients who experience severe pain and functional disability due to joint surface damage due to osteoarthritis. Metal and acrylic prosthesis can be used, designed to create a functional, painless, and stable joint (Cho, 2014).

## CONCLUSIONS

Patients with osteoarthritis will experience pain and limitation of movement which has an impact on difficulty in performing activities of daily living (ADL). The results showed that a total of 49.7% experienced severe pain and 84.6% of respondents had activities of daily living (ADL) not independently. Nurses are needed to help improve the health status of osteoarthritis patients so that the patient's quality of life can be maintained optimally and can fulfil daily needs independently.

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## CONTRACEPTION CHOICE WHICH LEAD EXTREMELY CLOSE INTERPREGNANCY DISTANCE

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ABSTRACT	Keywords
Immediate use of contraception during the postpartum period is important to prevent pregnancy again. There are various negative impacts on pregnancy that occur between 3-12 months after giving birth, such as the risk of premature birth, psychological disorders, abortion. The aim of this study was to estimate the number of women who used contraception within 18 months after giving birth and the relationship between the contraceptive method used and the risk of pregnancy within 18 months. This is a qualitative, cross-sectional study chosen as a research approach on mothers who gave birth to their first child in 2021 to 2022, which was conducted in Paiton district, Probolinggo. Data were collected from birth cohort records, contraceptive methods, and information on re-pregnancy $\leq 18$ months later. previous delivery. Data were managed with the Fisher Exact Test. The test results obtained a p value of $0.000 < 0.05$ , CI 99%, which shows that the choice of contraceptive method and length of use influence the re-pregnancy interval. 63.8% who became pregnant again after 18 months of giving birth were primigravida mothers. Based on the research results, it is necessary to provide preference for primigravida mothers which can be carried out from pregnancy continuously until after giving birth..	<b>Postpartum contraceptio n, pregnancy spacing, pregnant women</b>

### INTRODUCTION

The number of married women used family planning decreased from 62% in 2023 to 61.2% in 2018. SDKI data (2017) showed that unmet need for family planning in Indonesia at 10.6% (Sejati, 2021) and back up to numbers 12.4% in 2018 (BPS, 2019); increasing

every year until in 2021, it reaches 18% (BKKBN, 2021). The target for postnatal contraceptive use nationally be appointed at 40% and accumulatively only 35.78% has been achieved. Pamekasan, Sampang, Pacitan, Probolinggo, Malang and Ba-nyuwangi Regency are the areas with the lowest target achievements in

East Java (KemenKes RI, 2021; DinKes Jawa Timur, 2023). Unmet need for family planning, it is percentage figure of the number of women who should have obtained family planning services, want to regulate pregnancy spacing and or no longer want to pregnant (Sejati, 2021). Contraception must be used after the mother gives birth.

Adoption of contraception should take place once the mother has given birth. The nationally determined target for the use of postpartum contraception is 40% and only 35.78% has been achieved. This low value is caused by the husband's perception, knowledge and low support in the immediate use of contraception after giving birth (Riastawaty, 2021; Indrawati and Ulfiana, 2022).

The postpartum period is an important time for women to start using effective contraception because they are more motivated to prevent further pregnancies and they are in a situation where they have access to health services. After delivery, postnatal women would visit midwife at 2 days to 6 weeks postpartum are part of services offered to all women in Indonesian (Juliastuti et al., 2021). The number of encounters midwives have with pregnant women during pregnancy and after childbirth is an opportunity to provide education on prevention of unplanned pregnancies; as one of the main purposes of postpartum visits is to provide contraceptive counselling to the postpartum woman. Midwives usually provide counselling and provide any contraceptive services as mother wishes (Stuebe, Auguste and Gulati, 2018).

Old paradigm of having to start contraception after 6 weeks postpartum has been revolutionized, moving towards choosing the most effective method as soon as possible postpartum (Floyd, 2020).

Every woman at risk of unintended pregnancy; young childbearing couples (15-30 years old) are part of target group in reducing unintended pregnancy (Pan American Health Organization, 2022). This is because unintended or unplanned pregnancies in young mothers often end in abortion (Lichtenstein Liljeblad, Kopp Kallner and Brynhildsen, 2020). One form of unwanted or unplanned pregnancies is a short inter-pregnancy interval. It is said to be a short pregnancy interval when the distance between the previous pregnancy and the next pregnancy that occurs is less than 18 months (Bryant et al., 2019). Short pregnancy spacing cause by various problems such as stunting, fetal quality, low birth weight (LBW), preterm birth, pregnant women with anemia, abnormalities during pregnancy, maternal mortality, and infant mortality (Aini and Kurniawan, 2023; Ali, Bellizzi and Shah, 2023; Khan et al., 2024).

Several studies have demonstrated the safety and effectiveness of providing contraception to women immediately after delivery. Evidence also shows that delaying reversible or permanent contraceptive methods results in a close incidence of recurrent pregnancy (Daniel, 2019; Potter et al., 2019; Cox et al., 2020). As a phenomenon that is still ongoing in the East Java region, one of which is Probolinggo. Postnatal contraceptive adoption rates are low, followed by pregnancy again before the youngest child reaches 18 months of age, which of course is followed by other problems such as high stunting (35.4%), increased MMR (up to 23 cases), high LBW cases (43%) (DinKes Jawa Timur, 2023; Musleh, 2024).

This research was based on the description and phenomena mentioned above. The aim of this study is to estimate the number of women who use contra-ception within 18 months after

delivery and relationship between type of method used and risk of pregnancy within 18 months. The study will also examine the percentage of pregnancies that occur  $\leq 18$  months after delivery that are un-intended

## METHOD

This was cross-sectional study to assess the number of unintended/unplanned pregnancies occurring within less than 18 months of the previous birth and to look at the correlation between contraceptive use after the previous delivery and cases of unintended or unplanned pregnancies. The research was conducted in Paiton Subdistrict of Probolinggo Regency in January 2023.

Population of this study was 2.269 women of childbearing age in Paiton district of Probolinggo Regency. Secondary data used as data research, which obtained from the cohort/register book of pregnant women aged 15-30 years who gave birth in 2021-2022.

Sample taken using cluster random sampling technique from 20 villages. After calculating the total number of samples using the Slovin formula, 340 mothers have given birth to their children in the period 2021-2022. We identified a cohort of women who gave birth to a single live baby and the characteristics of each mother in period 2021-2022, we identified group of women who gave birth to a single live baby and the characteristics of each mother in the 2021-2022 period, ignoring cases of miscarriage or abortion due to a lack of accurate data on this matter.

All mothers who have given birth in Paiton District in the period 2021 to 2022 are identified through mother's register/cohort records. Then researcher had identified all pregnancies occurring in the same subject, which occurred within a period of less than 18 months after the previous delivery from medical records data and mother's register / cohort. Then the data obtained would be checked again by conducting interviews and looking at the mothers' health of both mother and child (KIA) books. The contents of the

interview were only closed questions to verify previously obtained pregnancy and delivery data. The contents of the interview included the identity of the mother, history of her pregnancy and delivery, as well as history of family planning used by mother after giving birth within a year period.

All sample data of mothers who have given birth in 2021-2022, will be tested univariate and bivariate correlation test with SPSS program with CI 95% to count contraceptive users after giving birth within 18 months and asses association of contraceptive method use and risk of returning to pregnancy that occurs  $\leq 18$  months after the previous delivery. Univariate analysis used chi-square test and the association was expressed as odds ratio (OR) with CI 95%. However, if this test didn't meet requirements, Fisher Exact Test used. Analysis of contraceptive method in relation to the risk of becoming pregnant again  $\leq 18$  months after the previous delivery was analyzed using correlation test.

## RESULTS

Research data shows that 25.3% or 86 women out of 340 women who had given live birth had used contraception immediately after giving birth for a period of less than 5 months postpartum (table 1). They chose varied contraceptive methods, ranging from female sterilization methods, the most effective contraceptive methods such as IUDs, implants, pills and injections, to less effective methods such as condoms, termination of intimate relations, and the calendar method. Within 6 months after the post-partum period, data shows an increase in the number of postpartum mothers using contraception, the number increased to 70%. The distribution of choice of contraceptive method used after 18 months postpartum consisted of 2.1% of women choosing female sterilization and 21.5% using long-term contraceptive methods such as IUDs or implants, while 36.8% of women each used fewer method. effective methods or none at all.

**Table 1. Characteristics associated with short inter-pregnancy interval**

	Birth index (n=340)	Bivariat	Multivariabel		
		The interval between pregnancies is short (%)	Communalities	(95% CI)	<i>p</i>
Age at birth					
< 20 year	53 (15.6)	0.000	0.513	(1,42 - 3,96) ‡	
21-25 year	148 (43.5)				
25-30 year	110 (32.4)				
> 31 year	29 (8.5)				
Parity					
1 child	217 (63.8)	0.568	0.507	(0,87 - 1,95)	
2 children	85 (25.0)				
3 children or more	38 (11.2)				
Contraception Time (Adoption Contraception Time)					
6 wk	45 (13.2)	0.002	0.510	(1,01 - 1,83) ‡	
12-18 wk	41 (12.1)				
19-24 wk	78 (22.9)				
25-31 wk	88 (25.9)				
> 32 wk	88 (25.9)				
Contraceptive method					
Female sterilisation	7 (2.1)	0.001	0.568	(6,17 - 72,8) ‡	
Most effective	73 (21.5)				
Less effective	125 (36.8)				
Without methods	135 (39.7)				
Pregnancies					
≤ 18 months	214 (62.9)		0.509		0.000
≥ 18 months	126 (37.1)				

This temporary pregnancy interval occurs more often in women who have only a child, compared to women who have more than one child (63.8%:36.2%). However, the results of the bivariate test on temporary pregnancy intervals with parity, didn't show a correlation ( $0.568 > 0.05$ ), which can be assumed that the situation of a temporary pregnancy interval between the current preg-

nancy and the previous birth is possible for multigravidas to experience.

Based on statistical calculations; the age of the contraceptive method, and the time a woman adopts contraception that is deemed appropriate for her; can explain the variables that are correlation factors in the incidence of short-term pregnancies since giving birth to previous live births with a Measure of Sampling Adequacy/MSA value

of 0.513 – 0.568 more than 0.50, meaning that these variables can explain the factors.

The contraceptive method used immediately after giving birth to the previous child was statistically tested and found to have a significant correlation with becoming pregnant again within 18 months of previous delivery. The result of the statistical value test for female sterilization contraceptive method and the most effective contraceptive method consisting of IUDs, implant, hormonal birth control, and vaginal ring with  $p$  value of  $0.000 < 0.05$ , 99% (table1).

## DISCUSSION

The results of the analysis show that many of the women aged 21-25 years who were research subjects preferred contraceptive methods that were less effective or did not choose any contraceptive method at all within 18 months after giving birth. The result of this study support findings of a recent baseline study and health department reports at both the city/district and provincial levels. These show that more than half of the women didn't choose a contraceptive method immediately after childbirth, as well as research results (Kungu, Agwanda and Khasakhala, 2020; Agula et al., 2022). A women's age cannot always be a benchmark in decision-making to use postnatal contraception, although from many studies, age is often associated with it, such as the study of Rosidah (2020). Recently, the positive attitude towards contraceptive use has increased among young people, with the pill method being the most preferred method of contraception (Mahfouz et al., 2023).

Statistical analysis showed that ineffective contraceptive use was the main predictor of subsequent short intervals between pregnancies. It is both a question and a problem why these women did not use an effective contraceptive method from the start or plan for their next pregnancy. One plausible answer found in the field is that

women have little interest in using more effective methods due to side effects or other perceived problems associated with long-term contraceptive use (Jumetan, Weraman and Junias, 2022). Young women tend to choose contraception not based on goals or needs; but choose contraception that is easy to obtain, practical, and sometimes just comes to mind (Berglas et al., 2021; Ouma et al., 2021). They also oppose the use of long-acting contraceptives such as IUDs and implants due to concerns about foreign bodies and worries about interfering with daily activities (Dalimawaty, 2021). Some women may also choose not to use contraception because they plan to remain abstinent or underestimate their risk of pregnancy.

Effective contraceptive use will help reduce the number of unintended or unplanned pregnancies. Failure to provide postpartum contraception contributes to unintended pregnancies and short child spacing. Delaying a second pregnancy is good for both mother and child in terms of health and socioeconomics (Schummers et al., 2018; Barclay and Smith, 2022; Mayo Clinic, 2022).

In studies of the most effective methods of postpartum contraception, it was found that 34% of women wanted to use a long-acting method after childbirth, but many were unable to access the method of their choice and instead opted for less effective from contraception. This is due to barriers or problems with cost and sometimes difficulties in obtaining both information and reaching the insertion site (Noviasari, 2018).

The use of long-acting reversible contraceptive methods such as intra-uterine devices (IUDs) and implants, can reduce incidence of short inter-pregnancy intervals and unintended pregnancies as they provide effective contraceptive coverage and minimal



user effort. Several studies have shown very low rates of IUD insertion in hospitals after childbirth (Esposito and LoGiudice, 2019; Khurshid et al., 2020). However, there are also studies that provide estimates of young mother using long-acting reversible contraceptive methods immediately after delivery 6-8 weeks later (Artika, 2020). The results of preliminary observation on the number of women of childbearing age in Probolinggo city area from 2021 to 2022, who immediately used postpartum contraception were only around 30%, and 20% of whom were long-term contraceptive users.

Low-income women or families who are out of pocket to cover delivery cost and do not have insurance (Rohaya, Wahyuni and Heni, 2021), may also find it difficult to access postpartum contraception; as this service is not include in insurance services in most developing countries. In addition, some women may lose contraceptive coverage soon after giving birth due to work or other commitments. This may contribute to finding in this study that women's contraceptive method use changed relatively little after three months postpartum.

Barriers of cost, transportation, knowledge itself related to contraception and the importance of spacing pregnancies, family or husband support, beliefs or culture that effect each individual and or family; need to be considered (UNDESA, 2022). Taking steps to increase initiatives in every health service, especially public health, midwives working in villages, independent practice midwives to increase access to the most effective contraceptives or long-term contraceptive methods and reduce the rate of unwanted or unplanned pregnancies. In addition, women who received the implant or IUD immediately after delivery had a significantly lower pregnancy rate in the 12 months after delivery, compared to those

who started contraception after leaving their place of delivery.

This study has several limitations. Our analysis relies on women's retrospective reporting of their contraceptive method use, and therefore may introduce recall bias. However, the calendar method is a well-validated method, which when associated with other important life events reduces reporting error. Researchers used women's contraceptive method use at the start of each interval to assess the risk of having a short inter-pregnancy interval, therefore may not have adequately recorded women's contraceptive method use at the time of pregnancy. In addition, we defined the interval between pregnancies as the time between the index birth and conception of another pregnancy leading to live birth and excluded pregnancies that ended in miscarriage and abortion, this of course ignores the fact women have become pregnant again after giving birth before 18 months. This is because such assumptions are relevant to the maternal and newborn health risk associated with pregnancies carried to term. Finally, the use of more effective methods by women after childbirth may have changed since the period studied.

Despite these limitations, this study shows that many women prefer less effective contraceptive methods or do not use a method within 18 months of giving birth, resulting in short inter-pregnancy intervals and unintended pregnancies. To reduce rates of poor maternal and infant health due to close birth spacing programmes and policies that remove barriers to initiating effective contraception are needed so that women realise the importance of contraceptive to them and achieve their goal of having healthy children.

## CONCLUSIONS

Unplanned or unwanted pregnancies can occur due to not using contraception or choosing an inappropriate contraceptive method that does not provide effective results. Actions aimed at strengthening each woman's knowledge and preferences need to be carried out from the time she becomes

pregnant and continue until the postpartum period. In the future, it is necessary to study more deeply the underlying preferences of women in the Probolinggo area in choosing contraceptive methods so that it will help formulate program plans to promote better contraception.

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## **IMPLEMENTATION OF LOCAL INGREDIENT-BASED SUPPLEMENTARY FEEDING FOR STUNTING TODDLERS WITH ANIMATION MEDIA ON PAITON VILLAGE**

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ABSTRACT	Keywords
<p>The prevalence of stunting in Indonesia based on Riskesdas in 2018 decreased by around 7.2% from 37.2% of the national stunting prevalence in 2017, but this figure is still below the target set by WHO, which is below 20%. The prevalence of stunting in East Java, contributes as much as 20%. The prevalence of stunting in Java is 26.7%. The stunting rate in Probolinggo Regency is quite high. Probolinggo Regency is one of the stunting priority districts in East Java with a stunting percentage of 42.5%, which means that the stunting problem in Probolinggo Regency is a serious problem. The purpose of this study is to analyze the effect of implementing local-based supplementary feeding for stunting toddlers with animation media on Paiton Village. The design used in this study used Pre-Experimental Design One Group Pre-Post-Test design. The number of samples was 40 mothers under five, Data collection techniques in this study by identifying respondents in accordance with research criteria. The primary data was obtained directly by involving the village midwife responsible for Paiton Village. This study used questionnaires as a data collection tool. The analysis used in this study was the Wilcoxon Sign Rank Test. The results of the study found that there was an influence on the application of local-based supplementary feeding for stunting toddlers with animation media on Paiton Village,</p>	<p><b>Mental retardation; Parenting; Learning achievement</b></p>

### **INTRODUCTION**

The problem of malnutrition in developing countries, which includes underweight, stunting, wasting, and micro-nutrient deficiency must receive serious attention (Adepoju and Allen, 2019). The

toddler age period becomes a critical period of individual development. Failure to grow and develop optimally early in life is a problem that requires large financing in the state (United Nations Children's Fund, 2023). The incidence of stunting increases



the risk of child death, adversely affects cognitive and motor development, increases the risk of over-nutrition, increases degenerative diseases in adulthood and non-communicable diseases, and decreases productivity in adults (Roberts *et al.*, 2022; Pibriyanti *et al.*, 2024).

The role of parents becomes very important because parents will nurture, guide, and provide various stimulations so that children's growth and development take place optimally. With proper care, the quality of human resources in Indonesia will improve (Pibriyanti *et al.*, 2024). Developing a parent's understanding of the importance of a child's early years of life is crucial. Parents need to have effective and practical parenting and stimulation skills, as well as a commitment to encourage child growth and development, and protection (Rahmadani, Sumadi and Nurjannah, 2023). Inadequate maternal knowledge will affect mothers' attitudes and behaviors toward providing nutritious food for their children (Bimpong *et al.*, 2022).

The prevalence of stunting in Indonesia based on Riskesdas in 2018 decreased by around 7.2% from 37.2% of the national stunting prevalence in 2017, but this figure is still below the target set by WHO, which is below 20%. The prevalence of stunting in East Java contributes as much as 20%. The prevalence of stunting in East Java is 26.7% and in Kabupaten Probolinggo it is 23.3%, higher than the national prevalence (Kemenkes RI, 2019). The stunting rate in Probolinggo district is quite high. Probolinggo Regency is one of the stunting priority districts in East Java with a stunting percentage of 42.5%, which means that the stunting problem in Probolinggo Regency is a serious problem. Many factors affect the nutritional status of children, both direct and indirect factors. Stunting is caused by problems with nutritional intake during the womb and toddlerhood. Lack of maternal knowledge about health and nutrition before pregnancy, as well as the post-partum period, limited health services such as antenatal services, postnatal services and low access to nutritious food, low access to sanitation and clean water are also causes of stunting (Yuwanti, Mulyaningrum and

Susanti, 2021). Another factor, namely cultural factors, is one of the indirect factors that affect the nutritional status of children. Culture is one of the factors that influence the attitude of mothers during their pregnancy, childbirth, and the care of toddlers (Ardianti, 2023).

Culture, traditions, or customs that exist in society such as abstinence from eating, and wrong eating patterns can result in nutritional problems, especially for toddlers. Low maternal knowledge can cause children/toddler to experience malnutrition, because mothers will lack insight into foods that contain high nutrition which will result in the diversity of foods given to children/toddler. Families, especially mothers, will meet more food needs based on habits, advertisements, and the environment. In addition, nutritional disorders are also caused by the mother's lack of ability to apply information about nutrition in daily life (Widiyanto and Laia, 2021). This can have an impact on the growth and development of toddlers.

World Health Organization shows that weight loss usually begins to occur at the age of 6 months where the end of the period of exclusive breastfeeding. The findings were reinforced by the discovery that two-thirds of toddlers who died had the wrong diet, the causes of which included not getting exclusive breastfeeding, getting nutrition too early or too late accompanied by an incomplete, unbalanced and unhygienic composition of nutrients (WHO, 2023).

Safinatunnaja and Muliani (2021) had stated that 30 people (39%) gave complementary foods under 6 months, and 46 people (61%) gave complementary foods under 6 months. The exact timing of breastfeeding depends on the needs and mental readiness of each baby. MP breast milk begins to be given at the age of 6 months because the baby's development is ready to receive MP ASI. Characteristics of stunted toddlers due to a history of breastfeeding and complementary foods that are not good). Stunting for the first time, it is related to the incidence of stunting also states that nutrition for infants over 6 months must be gradual according to their age stage. Nutrition must be varied,

nutritious, clean, and hygienic so that food does not become infected. The existence of these findings needs to be seen again in the pattern of feeding by mothers in children related to nutritional practices. The worst impact is the occurrence of stunting.

Improper feeding practices can re-sult in malnutrition. The most common types of malnutrition in toddlers in Indo-nesia are short stature (stunted) and very short (severely stunted). Short stature due to malnutrition is called stunting while those caused by genetic factors are called short stature. The practice of fee-ding children under two years of age is strongly influenced by the culture of the community/area where you live. Recom-mendations for the implementation of correct feeding practices appropriate to the local situation are needed (Inggit Primadevi, Febriyanti and Fauziah, 2020).

Government policy in overcoming the lack of knowledge among mothers of toddlers about food processing has been carried out, including socialization to the community (Kemenkes RI, 2023). Assistance in toddler care also increases knowledge, one of which is with anima-ted videos. The use of animation media is widely used in previous research rela-ted to animation media to explain spe-cific information to respondents. By making interesting and relevant stories, data will produce an increase in the absorption of information conveyed (Masitah, Poncorini and Suminah, 2020). Previous research related to stun-ting discusses stunting prevention seen in the context of visual communication in this case using animation media. Based on the above, it is very necessary to provide education to mothers who have stunting toddlers about the use of local food ingredients as processed ingredients to become food alternatives for toddlers. This study used an animated video that explained the importance of fruits and vegetables in improving health and prevention of diseases in children so as to improve nutritional status in children. Jenis and forms of food are prioritized using local ingredients in the form of vegetables and fruits such as spinach, moringa leaves, Sauropus An-drogynus leaves and there are

bananas, papaya, mangoes and so on. These local ingredients can be processed into foods that children like such as vegetable pud-ding, stir-fried vegetables and fruit soup.

## METHOD

The design used in this study used Pre - Experimental Design one Group Pre-Post Test design. The location of this research on Paiton Village, Probolinggo Regency which was carried out in January 2023. The sample of this study is all mothers who have stunted toddlers in Paiton, a total of 40 people from the total number of mothers who have stunted toddlers in that area.

Data collection techniques in this study by identifying respondents in accordance with research criteria. The primary data was obtained directly by involving the village midwife responsible for Sidodadi Village. This study used questionnaires as adata collection tool. The questionnaire "imple-menttation of locally-based supplementary feeding for stunted toddlers with animation media in Paiton Village consisted of 15 questions.

Univariate analysis is an analysis performed on each variable (Sugiyono, 2018). In this study the independent variable was locally-based supplementary feeding. The dependent variable is the know-ledge of the mother of the toddler. Further, it is classified in percentage form. Bivariate analysis is an analysis performed to analyze the relationship between two-variable. The analysis used in this study was the Wilcoxon Sign Rank Test.

## RESULTS

In this chapter, the results and discussion of data obtained from the study will present the implementation of local-based supplementary feeding for stunting toddlers with animation media on Paiton Village. Paiton Village is located at Jalan Yos Sudarso.

In this general data, general data are presented from the research sample on the application of local based supple-mentary feeding for stunting toddlers with animation

media on Paiton Village. These general data include: age, education, sources of information. Based on table 1, it is known that 57.5% (23) of respondents are aged 36-45 years. Of the 40 research subjects, the majority of their last education was senior high school 42.5% or 17 people. information related to supplementary feeding 40% comes from health workers

**Table 1 Characteristics of Respondents (n=40)**

Characteristics of Respondents	n	Persen (%)
Age		
26-35	15	37,5
36-45	23	57,5
46-55	2	5,0
Education		
No School	10	25,0
Elementary School	3	7,5
Junior High School	9	22,5
Senior High School	17	42,5
Bachelor	1	2,5
Source of information		
Health Workers	16	40
Health Cadres	10	25

### DISCUSSION

#### *Knowledge of Mothers of Toddlers Who Experienced Stunting Before Being Given Animation Media*

Based on table 1 above, it shows that before being educated, the most respondents with a lower knowledge level (20%) were 8 respondents and fair knowledge were 65%. According to Amelia, et al, 2021 education affects the level of knowledge and attitudes of individuals. The higher a person's level of education, the easier it is for that person to receive information. With higher education, a person will tend to get information both from others and from the mass media; otherwise, a lack of education will hinder one's development and attitude towards newly introduced values (Dhirisma and Moerdhanti, 2011). Good maternal knowledge of toddler nutrition in supplementary food fulfillment can prevent serious complications in the nutritional status of toddlers and can even improve stunting in toddlers regardless of nutritional

Family	9	22,5
Media	5	12,5

**Table 2. Implementation of Locally-based Supplementary Feeding for Stunting Toddlers with Animated Media on Paiton Village (n=40)**

Knowledge	Animation Media			
	Before		After	
	Sum	%	Sum	%
Good	6	15,0	27	67,5
Fair	26	65,0	10	25,0
Lower	8	20,0	3	7,5
Sum	40	100,0	40	100,0
P Value =0,00		a = 0,05		

Based on table 2 above, it shows that before being educated, the most respondents with lower knowledge level (20%) were 8 respondents. After being given education, good knowledge increased to 67.5% (27 respondents) and sufficient knowledge increased to 7.5% in 3 respondents. Based on the results of the analysis test using the Wilcoxon test shows a sig value of 0.000.

problems. Lack of knowledge about the management and fulfillment of nutrition will result in reduced ability to apply information in daily life, which is one of the causes of nutritional problems in toddlers.

Based on the results of the study, it is known that respondents obtained the most sources of information from health workers. Providing education from health workers can increase the knowledge of stunting mothers under five. Mothers of toddlers who have a level of knowledge lack additional knowledge about understanding the importance of toddler nutrition. Knowledge is something that comes from the five senses and experiences that have been processed by the mind and arise spontaneously, knowledge is also true because it is in accordance with existing reality (Farunik and Kresna, 2023). Good nutritional status is the main requirement for the realization of a strong and quality generation, especially for toddlers. Toddlers who experience disorders or malnutrition at an early age will interfere with growth and

development which is more fatal can cause death. Generally, nutritional disorders are caused by lack of nutritional intake, infection, and lack of parental attention in this case know-ledge of the nutritional needs of children under five. The level of knowledge can be influenced by several factors such as education, information/mass media, so-cio cultural and economic, environment-tal, knowledge and age. (Kadir, 2019).

Understanding of the community, especially mothers, about the risk factors for the causes of stunting toddlers during pregnancy and birth is not fully known one of the factors that causes the lack of understanding among mothers is the mother's own knowledge for fulfilling good nutrition during pregnancy. How-ever, the incidence of malnutrition in children under five can be avoided if the mother has good knowledge about how to maintain nutrition and manage food in children (Arimaswati *et al.*, 2022)). Because by having good knowledge, especially about health, a person can know various kinds of health problems that may arise besides that with know-ledge of good nutrition, the information obtained can be applied in everyday life to reduce the occurrence of nutritional disorders (Wu Y *et al.*, 2022).

#### ***Knowledge of Toddler Mothers Who Are Stunted Sese Given Animation Media***

Based on table 2 above, it shows that after being given education, good know-ledge increased to 67.5% (2, 7 respondents) and fair knowledge increa-sed to 7.5% in 3 respondents. The implementation of education on sup-plementary feeding using local food ingredients is needed by stunted mothers of toddlers. Because before getting an education, some toddler mothers give them additional food in the form of instant milk, bread, and biscuits. At the time in the field, it was found that 6.5% of mothers said that the additional food could not be consumed by the child. Additional feeding

was found not to meet the target due to several factors, among others, less attractive dishes and dishes and tastes that were not liked by children. For this reason, it is necessary to innovate additional processed foods that can be accepted by stunted children. So that with innovation, it will increase the number of stunting tanks consumed.

The health education process by involving village midwives from Public Health Center as resource persons with the playback of animated videos about additional food made from local ingredients, made it easier for respondents to understand the material provided. The process of giving with mentoring methods and two-way communication, namely between health education provi-ders and questions from respondents, makes the knowledge provided easy to understand and audio-visual video media can facilitate the delivery of material because in the video there is a virtual message that is easy to remember and easy to apply in life in the era of digital technology. The audience is more attar-cted to media that they consider easier in their lives. The results showed that there was an increase in action after getting educational interventions, animated vi-deos and mentoring about supplemen-tary food in toddlers. Education carried out for approximately two weeks in approximately 15 minutes carried out with midwives in the community gained increased knowledge of mothers in understanding the importance of toddler nutrition such as understanding what a balanced menu is according to the age of toddlers, mothers understanding the nutritional status of toddlers by looking at card towards health (Kartu Menuju Sehat/KMS), In health education for 45 minutes. There is also a demonstration of food processing for toddlers and how to choose food nutrients according to the age of toddlers.

Knowledge is the result of knowing, and this happens after people sense a certain object. This process of figuring out includes a variety of methods and concepts, both through the process of education and experience (Geuthèe *et al.*, 2021). This is reinforced by research by Eko, Darsini and Fahrurrozi (2019) which said that counseling can increase knowledge. In addition to the above research, there has also been research conducted and showing that there are differences in knowledge about balanced nutrition between before and after providing nutrition education through comics and mentoring. Society is by providing nutrition education during early life. Mothers' knowledge about supplementary feeding for stunted toddlers with animated media improves the ability of mothers of toddlers to manage food made from children.

The level of knowledge is influenced by several factors including experience, exposure to mass media, economics, environment, social relations, access to health services, age, education, and employment. (Kemenkes RI, 2018) Explained that in an effort to prevent and handle patients with stunting is important to provide knowledge and education so that they can increase their level of knowledge about stunting so that patients can do better education and can prevent stunting from an early age. Based on table 2, it shows that the results of observing the level of knowledge in each respondent before being given education on the management of additional foods based on local food ingredients mostly have sufficient knowledge. After being given education using animation media, there is an increase in knowledge, that is, some knowledge increases to be good. Although there are still respondents who have lower knowledge. It depends on some factors. The process of changing from sufficient or fair maternal knowledge to

good because respondents receive sources of information related to the management of additional food made from children under five by health workers who are there, in health education contains information in the form and videos that are interesting for respondents to understand the importance of adding food or nutrition for their toddlers so that toddler mothers understand the importance of supplementary food in stunting toddlers (Suriani, Adelima and Nova, 2022).

#### ***Application of locally-based supplementary feeding for stunting toddlers with animated media***

Based on table 2 above, the results of the analysis test using the Wilcoxon test show a sig value of 0.000. Knowledge is a very important factor in the formation of new behaviors. It starts with an understanding of certain materials or objects. The results of this study are in line with research conducted by Lubis *et al.*, (2021) and Mutiarasari *et al.*, (2021) which states that there is a relationship between parents' knowledge about nutrition and the incidence of stunting. One of the efforts to increase knowledge by providing education or consultation activities related to nutrition, especially knowledge related to nutrition. Education cannot be separated from the media, because through the media information can be easily communicated and understood. Health counseling media is an extension tool where these tools will be used by extension workers in delivering education (Hapsari, Sulis-tiawati and Rahmadhony, 2023). One type of media that can be used in counseling or health education is animated videos. Animated video is a type of audio-visual media depicting moving objects with natural sound or appropriate sound. As a medium, video can provide more real information, can be received evenly, can be repeated, or stopped as needed, which is very suitable for



explaining the process (Kemenkes RI, 2018).

In animation media, content is poured to provide information, explain concepts, explain processes, teach skills, and also act as a medium that influences knowledge and attitudes. So that maternal knowledge about nutrition in toddlers is achieved. Mothers of toddlers who get education using animated educational media show a very good response because they are not bored and interested in the presentation of images that

can increase concentration on the material provided. Animation media can be used as an alternative health.

Education media that is applied to people with certain characteristics, namely language inability. Providing proper education on food management will improve the ability of mothers to carry out stunting parenting. Improved parenting coupled with proper care in the presentation of food further accelerates the return of toddler health status.

## CONCLUSIONS

The study's findings revealed that Paiton Village's use of animation media had an impact on the application of locally based supplemental feeding for children who were stunted. It is beneficial to educate moms about providing extra food for their toddlers who are stunted by eating only what they can find by using the audio-visual method of

cartoon animation. A shift in knowledge level is a sign of this. Studying behavior changes and offering interventions more than once during the study is required to increase understanding of the impact of audio-visual media on health status.

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## **EFFECTIVENESS OF THE SELF-HELP GROUP (SHG) METHOD ON BLOOD PRESSURE IN PRODUCTIVE WOMEN WITH HYPERTENSION**

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ABSTRACT	Keywords
Productive women are an age group that is vulnerable to experiencing health problems. This problem increases as a person gets older. The increase in age experienced by productive women causes all systems and functions to decline. This shows that hypertension sufferers' awareness of taking medication is still low. So this can be minimized with community empowerment activities, one of which is a self-help group (SHG). The aim of this research is to determine the effect of self help group (SHG) on the blood pressure of productive women with hypertension. The design used was "Quasi experimental pre-post test with control group" with Self Help Group intervention. The sampling method was purposive sampling with a sample of 48 women. Self Help Group is measured using SOP, and a blood pressure measuring device.	<b>Productive women, Hypertension, Self Help Group , Blood Pressure</b>

### **INTRODUCTION**

Productive women are an age group that is vulnerable to experiencing health problems. This problem increases as a person gets older. The increase in age experienced by productive women causes all systems and functions to decline. One of the functions that has decreased is physiological function. This decrease in function gives rise to non-communicable and infectious diseases. Some of the non-communicable diseases experienced by productive women include hypertension, arthritis, stroke and diabetes mellitus. Hypertension ranks first among the health problems for productive women. The prevalence of productive women who experience hypertension in the

2016 Productive Women Infodatin data states that those aged 55-64 years are 45.9%, those aged 65-74 years are 57.6% and those aged over 75 years are 63.8% (Tasić, Tadić, & Lozić, 2022).

The prevalence of hypertension according to Riskesdas 2018 states that hypertension sufferers in Central Java among people aged over 18 years are 8.4% (Riskesdas, 2018). Semarang City Department Health Profile Data (Wen & Wei, 2021) in 2018, the number of hypertension was 161,283 cases . Based on health profile data from Central Java Province, the number of hypertensive sufferers in Semarang City was 6.88% (Suharto, Jundapri, & Pratama, 2020). This



indicates that the majority of hypertension cases in the community have not been diagnosed and health services have not been reached. The further impact that is obtained is an increase in complications because hypertension that occurs over a long period of time and continuously can trigger strokes, heart attacks, heart failure, and is the main cause of chronic kidney failure. The prevalence of hypertension according to diagnosis by health workers and doctors and according to medication, showed that in 2013 it was 9.5%, decreasing to 8.8% in 2018 . This shows that hypertension sufferers' awareness of taking medication is still low. So this can be minimized with community empowerment activities, one of which is a self-help group (SHG).

Hypertension is an abnormal increase in blood pressure in the arteries continuously for more than a period (Sitepu, Sipayung, & Hayati, 2023). Hypertension is also defined as persistent elevation of systolic blood pressure (BP) at a level of 140 mmHg or more and diastolic blood pressure (BPD) at a level of 90 mmHg or more (Wen & Wei, 2021) . High blood pressure can be caused by several factors, namely age, obesity, smoking, or stress. This can be minimized by the role of health workers, especially nurses, in the community. The task of nurses in providing nursing care in the field of public health efforts is that nurses are authorized to carry out public health nursing assessments at the family and community group level, carry out public health nursing actions or health promotion, carry out health education and counseling, and carry out community empowerment (Anthony, Damasceno, & Ojjii, 2016). One of these community empowerment activities is group therapy activities.

Types of group therapy that can be used are supportive groups, task groups, activity therapy, and self-help groups (SHG) (Fithria, Hartaty, & Susanti, 2023). The implementation of SHG which was carried out based on Ahmadi in Utami's research revealed that the SHG/self-help group is a group in which each member shares problems both emotionally and physically. This activity discusses solving problems faced together, the result is that each

member benefits from being given the SHG method (Biswas, Asokan, Lenka, & Subhransupatro, 2018). Other research related to SHG shows that the SHG method is effective in improving the health status and life satisfaction of productive women with hypertension (Reni Nurhidayah & Prima Dewi Kusumawati, 2023). Other research shows that there is an increase in knowledge about hypertension after being given SHG from a mean value of 9.20 to 13.20 11 . The influence of SHG is also effective in improving the self-management of productive women with diabetes with a result of 5.37 increasing to 6.58 12. The aim of this research is to determine the effect of self-help groups (SHG) on the blood pressure of productive women with hypertension

### METHOD

This research is a quantitative study with a quasi-experimental design, namely a pre-post control group design aimed at analyzing the effect of the effectiveness of the Self-Help Group (SHG) Method on Blood Pressure in Productive Women with Hypertension (Lê & Schmid, 2022).

Table 3.1 Quasi experimental research design pre-post test with control group.

Subject	Pre Test	Treatment	Post-Test
KA	OA	I	OI-A
KB	OB	-	OI-B
<i>Time 1</i>		-	<i>Time 2</i>
Information			
KA	: Intervention group (Self Help Group)		
KB	: Control group (Self Help Group)		
OA	: Pre test intervention observation (Self Help Group)		
OB	: Control group pre-test observation (Self Help Group)		
I	: Self Help Group Intervention		

OI-A : Post test intervention observation  
(Self Help Group)

OI-B : Control group post test  
observations (Self Help Group)

This research will be conducted on productive women in Bangkalan sub-district. The research was carried out by measuring blood pressure before (pre-test) and after (post-test) the SHG was carried out. The research design was a quasi-experimental pre-test post-test with control group. The research sample was determined by purposive sampling with certain criteria, namely: 1) age under 45 years, 2) sufferers of hypertension, 3) can read, write, communicate well, 5) do not experience cognitive, hearing and movement disorders, 6) follow all activities with 100% attendance. The group division was 24 people for the intervention group and 24 people for the control group. Group division for the intervention group was divided into small groups, namely 3 groups @ 8 people. SHG actions are carried out in 3 meetings over 3 weeks. In the control group, only education regarding hypertension was given. The independent variable in this research is the Self-Help Group (SHG) Method and the dependent variable in the research is Blood Pressure. Data from female students in each group will then be reviewed for *editing, scoring, coding and tabulating processes* before being analyzed. Data analysis was carried out univariately with a frequency distribution table and bivariate, namely:

- If the data is normally distributed, then use the "Paired T Test" statistical test.
- If the data is not normally distributed, then use the statistical test "Wilcoxon Signed Rank Test"

## RESULTS

The results and discussion of this research are as follows, involving 47 productive women, and this group was divided into 2, namely 25 for the intervention group and 25 for the control group. The characteristics of respondents in this study describe the distribution of respondents based on age, gender, education level, religion, occupation, in the

intervention group and the control group. The following are the results of the characteristics of respondents in this study. Table 1. Characteristics of Respondents Group Intervention And Group Variable Control

	Intervention Frequency (%) (n=25)	Control Frequency (%) (n=25)
Age		
20- 30	13 (54)	6 (26)
30- 40	6 (25)	13 (57)
40- 45	5 (21)	4 (17)
Type sex		
Man	12 (50)	8 (35)
Woman	12 (50)	15 (65)
Education		
Elementary school	5 (21)	10 (43)
Junior high school	4 (18)	5 (22)
Senior high school	9 (37)	5 (22)
D3	3 (12)	-
S1	3 (12)	3 (13)
Religion		
Islam	21 (88)	18 (78)
Catholic	3 (12)	5 (22)
Work		
Irt	10 (43)	12 (52)
Laborer	-	2 (9)
Private	1 (4)	2 (9)
Teacher	1 (4)	-
Civil servants	2 (8)	1 (4)
Self-employed	2 (8)	3 (13)

Based on the results in table 1, it shows that the dominant age group in the intervention group was 13 people (54%) in the 20-30 year age range, 13 people (57%) in the control group were in the 30-40 year age range. The results of the education level show that the intervention group at the high school level was 9 people (37%) and the control group at the elementary school level was 10 people (43%). Results test *T-test* on group intervention and control on *systolic* blood pressure results :

### T-test test results:

Independent Samples Test									
Levene's Test for Equality of Variances					t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference
Selisih Sistole dan Diastole	Equal variances assumed	5.860	.019	5.70	48	.000	12.8000	2.24490	8.28614
	Equal variances not assumed			5.70	43.02	.000	12.8000	2.24490	8.27273
Group Statistics									
	Selisih	N	Mean	Std. Deviation	Std. Error				
Selisih Sistole dan Diastole	Selisih Sistole	25	24.8000	9.18332	1.83666				
	Selisih Diastole	25	12.0000	6.45497	1.29099				

### Interpretation :

The average value (mean) for systole pressure is 24,800 while the r for diastole pressure is 12,000. Thus, from descriptive statistics it can be concluded that there is a difference in the average blood pressure results between systole and diastole.

### Interpretation :

Based on the output above, the Sig value is known. Levene's Test for Equality of Variances is  $0.019 < 0.05$ , which means that the data variance between group A and group B is not homogeneous or different. Based on the "Independent Samples Test" output table in the "Equal variances assumed" section, it is known that the Sig. (2-tailed) is  $0.000 < 0.05$ , so as is the basis for decision making in the independent sample t test, it can be concluded that  $H_0$  is rejected and  $H_a$  is accepted. Thus it can be concluded that there is a significant (real) difference between the average blood pressure results in the systole and diastole group and group B.

Furthermore, from the output table above it is known that the "Mean Difference" value is 12,800. This value shows the difference between the average blood pressure results in the systole group and the average student learning outcomes in the diastole group.

## DISCUSSION

Results from table 2 shows that the *T-test results* of the SHG method on systolic blood pressure on productive women in group intervention decreased from before SHG treatment, namely the *mean value* of 155.83 mmHg decreased to

148.75 mmHg after being given SHG with a significance value of  $0.0001 (p < 0.05)$ . This is different from the results in the control group where systolic blood pressure increased from 145.65 mmHg to 147.17mmHg even with a significance value of  $0.0001 (p < 0.05)$ .

*T-test* results of the SHG method on pressure systolic blood in productive women in the intervention group and control is equally significant with a result of  $p=0.0001 (<0.05)$ , will but results the looks different in mark mean of each group. The mean systolic blood pressure value of the intervention group was 155.83 mmHg, decreasing to 148.75mmHg after being given SHG. This is different from the results in the control group, where systolic blood pressure rose from 145.65mmHg to 147.17mmHg. The results of this research are in line with previous research conducted by Salmiyati in 2018. This research explains that the average systole value in the intervention group decreased from 164 mmHg to 139.5 mmHg after given SHG act (Fithria et al., 2023). The series of SHG activities in the research conducted by this author was divided into 3 groups, each group consisting of 8 people. SHG actions are carried out in 3 meetings over 3 weeks. The first meeting is for the respondent to have their blood pressure measured first, then the respondent grouped become 3 groups.

Material meeting First is formation of the SHG organizational structure, group regulations, confidentiality of participants, program objectives, goals of group members, socialization of SHG formation, and building relationships (self-introduction between group members). As well as filling in the list problem health family written in columns problem, date activity done in the date column. The list of health problems was completed by all respondents being given the SHG module/guide created by the author. The results of the first meeting with this first

material were that respondents were enthusiastic, and respondents wrote a list of health problems they had experienced so far, namely frequently feeling dizzy in the neck and nape, some also complained of diabetes mellitus, gout and cholesterol. The material for the second meeting is a list of solutions to health problems experienced, and the material for the third meeting is a list of ways to prevent recurrence of the disease experienced.

The results of reducing diastolic pressure are in line with research conducted by Salmiyati year 2018, Which mention that there was a decrease in diastolic blood pressure from 91 mmHg to 80.5 mmHg after the procedure was given SHGs<sup>11</sup>. Action SHGs on This research in the Bangkalan area was carried out in 3 sessions, between member group each other provide input and suggestions as well as problem solving for health problems experienced, namely hypertension. According to Notoatmodjo in 2010, if a productive woman gets the correct information, the productive woman can implement a healthy lifestyle and reduce risk of degenerative diseases, especially hypertension (Braunthal & Brateanu, 2019).

The results showed that there was a significant influence of systolic blood pressure in the intervention and control groups on the blood pressure of productive women ( $p = 0.001$ ). The results of the *Independent T-Test Delta Test* of the SHG Method on Blood Pressure in Productive Women in the Intervention Group showed a  $p$  value of 0.001, which means that the *self-help group* (SHG) method was significant in reducing blood pressure in the intervention group compared to the control group who were not given treatment. SHGs.

This action is in line with research conducted by Salmiyati in 2018 which stated that there was a difference in the level of knowledge of productive women after being given the SHG method with a

value of  $p=0.000$  for systolic blood pressure, and  $p=0.001$  for diastolic blood pressure (Tasić et al., 2022). The SHG method is also effective in improving *the self-management* of productive women who experience diabetes mellitus with a *mean value* of 5.37 to 6.58 (Jiang, Lu, Zong, Ruan, & Liu, 2016).

The mechanism for providing the SHG method is carried out in 3 sessions over 3 weeks. these activities attended by 25 participants with shared 3 small groups. SHG activities for women are given SHG modules/guidelines modified by the author. The first session was on the theme of forming the SHG organizational structure, group regulations, participant confidentiality, program objectives, group members' goals, socialization on the formation of SHGs, as well as a list of health problems.

The theme in the second session was a list of solutions to health problems experienced by productive women, And For session third containing about a list of ways to prevent recurrence of the problem health Which experienced productive women Which is in the second session. This is also in line with research conducted by Sari, et al in 2018 which stated that the *self-management process* in productive women with diabetes mellitus effectively increased after being given SHG measures (  $p<0.05$  ) (Mills, Stefanescu, & He, 2020).

Implementation method SHGs Which implemented by researcher is give This module is so that productive women can write about what they feel while suffering from hypertension. Productive women are also given knowledge regarding hypertension, both in terms of understanding, signs and symptoms, and also treatment at the beginning of the meeting. As a result of this first meeting, the entire group understood well and were able to accept the explanation well. The group also shared information and discussed hypertension. Research according to (Flack & Adekola, 2020) states that sharing knowledge and



experience can be done if each group member has ample opportunity to express opinions, ideas, criticism and comments to other members .

The three groups in this study provided each other with input, ideas, suggestions and input regarding the hypertension health problems they were experiencing between member in group the. Some members complained that they felt dizzy, felt heavy in the nape of the neck. The members stated that they regularly take medication from the doctor/health center they are going to for control and have minimized consumption salt in food everyday.

Member other groups mention that they like with held group This SHG, because the existence of this group can each other share experience And solutions related to health problems experienced. It is hoped that this productive women's group will continue to exist during productive women's posyandu meetings, so that they not only measure blood pressure, but there is an opportunity to share experiences with each other regarding the health problems of hypertension they are experiencing. This is in accordance with Bose's SHG objectives in 2020, namely SHG aims to improve ability social, increase self-confidence, self-efficacy and mutual sharing experience in knowledge knowledge . This research is also in line with previous research done by Hidayati et al year 2018 which states that there has been a positive change in attitude in preventing recurrence hypertension productive women in Mojokerto East Java was 83.4% after being given the support group technique (Wiles, Damodaram, & Frise, 2021).

## CONCLUSION

Giving the SHG method has an effect on reducing blood pressure in productive women with hypertension. This is proven by the results of reducing blood pressure before and after implementing SHG in the group

intervention. Recommendations for further research are that it can be carried out over a longer period of 3 to 6 months. It is also hoped that this SHG activity can be included in the routine activities of Prolanis Health Center

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## IMPROVING THE PERFORMANCE OF EMMA MOJOKERTO HOSPITAL THROUGH SWOT ANALYSIS AND *SKILL-DRIVEN STRATEGY*

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ABSTRACT	Keywords
Hospital management plays a crucial role in ensuring more efficient hospital operations, quality health services, and good financial sustainability. The need for dynamic health services, the role of hospital management is not only limited to administrative aspects, but also involves innovation, adaptation to technological developments, and response to market demands and health policies . This research aims to analyze the SWOT which then forms a Human Resources development strategy through a <i>Skill-Driven strategy</i> for Emma Mojokerto Hospital with several steps, including at the <i>Inching stage Learning and Development</i> will be implemented , at the <i>Progressing stage Workforce Planning</i> will be implemented , at the <i>Transforming stage Reward and Punishment</i> will be implemented , and at the <i>Actualizing stage Organization of Work</i> will be implemented .	<b>SWOT, Skill-Driven, Learning and Development, Workforce Planning, Reward and Punishment, Organization of Work</b>

## INTRODUCTION

Hospital management plays a crucial role in ensuring more efficient hospital operations, quality health services, and good financial sustainability. The need for dynamic health services, the role of hospital management is not only limited to administrative aspects, but also involves innovation, adaptation to technological developments, and response to market demands and health policies. Hospital management is a series of planning, organizing, coordinating, implementing, supervising and evaluating activities carried out to achieve the hospital's vision and mission. This management covers various aspects, including administration, finance, human resources, health services, and long-

term strategy development (Hemawati, 2019)

Implementing appropriate Hospital Management can improve Hospital Performance, namely the form of work achievement carried out by all employees and the Hospital medical team. Hospital performance includes aspects of quality, efficiency, finance, patient service, and impact on public health. In practice, hospital performance should be assessed objectively and systematically so that collecting, analyzing and implementing a policy can be carried out effectively and efficiently, such as measuring patient safety incidents which can reduce the risk of patient accidents, measuring patient waiting times starting from reception to medical services, to

evaluating patient satisfaction levels through feedback and surveys (Hemawati, 2019). One of the hospitals that is trying to improve its management to produce better performance is Emma Mojokerto Hospital. It is known that Hospital Emma Mojokerto received a review of 4.2 / 5 on *Google Business*. After analyzing the reviews one by one, it was found that patients gave a "one star" rating which indicated dissatisfaction with the services provided.



Setia Arya  
2 ulasan · 5 foto

★★★★★ 6 hari lalu BARU

Selalu selalu dan selalu always terjadi prakteknya jam berapa, disuruh datang jam brp, yang disuruh masuk siapa, kejadian hari senin 22 Januari 2024, praktek ke dr spesialis kulit dan kelamin, praktek harusnya pukul 07.30 di pendaftaran katanya praktek 07.00 itupun 30 menit sebelum pk 07.00 harus sudah dilokasi, oke sampai RS 06.30, nunggu lama sekali akhirnya konfirmasi ke perawat yang nunggu ternyata prakteknya 07.30, kan kan ngapain di awal bilang 07.00, dapet no 1 masuk jam 8.15, dan yang di panggil duluan ada, padahal saya nomor 1, mungkin yg dipanggil duluan nomor 0 saya juga tidak paham bagaimana mekanismenya, ini google maps masih baik tetap ada bintangnya, kalau semisal ada mines bintang mungkin lebih enak, sudah begitulah. Ini ngasih penilaian sembari ngantri, dengan hati yg umep mongkal<sup>2</sup>, padahal ini pakai umum dan pasien sudah tua 65 tahun lebih, tapi tetap tidak ada kata prioritas, prioritas hanya ada di bank "mungkin"



Roza Febrianti  
1 ulasan

★★★★★ 5 hari lalu BARU

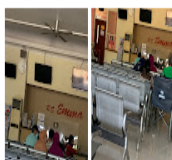
Pelayanan admin sangatlah kurang tenaga kerja  
Masak ada kerabat saya yang mau periksa di UGD dikasih antrian loket A namun petugas loket A melasih melayani pasien dan dikarenakan petugas2nya pada melayani dan rame akhirnya kerabat saya menunggu lama dan akhirnya pulang kama trlalu lama, padahal disitu ada 1 meja komputer yg kosong tapi kenapa tidak pakai dan di isi petugas buat melayani. Kalau kayak gini kan kasian pasien2 yg sdah nunggu lama  
Tolonglah di evaluasi agar tidak mengecewakan pasien yang berobat. Terimakasih



Dian Setiyo  
3 ulasan · 2 foto

★★★★★ 7 bulan lalu

saya rencana memeriksakan anak saya kontrol post mrs dijadwal 10-12 tapi sampai 11.30 belum kunjung datang, apakah antrian poli seperti ini setiap harinya? selalu molor? kasian orang yg punya kesibukan selain hanya harus menunggu antrian kontrol karena menunggu dokter. apalg ini bayi. mohon time managemennya di perbaiki lagi. kan sayang rs nya sudah berbenah tapi didalamnya / SDMnya tidak berbenah juga



Source: *Google Business* Emma Mojokerto Hospital

### Figure 1 Negative Patient Reviews

Based on reviews from the three patients, it can be concluded that the queuing mechanism at Emma Mojokerto Hospital is

still inadequate, apart from that the queues at the health clinic and payment counters are too long, causing patients and their families to waste a lot of time queuing, resulting in dissatisfaction. After conducting a simple interview with Triska Ramdhani, the Administration Department of Emma Mojokerto Hospital, an explanation was obtained that the patient wanted to be in queue number 1 and was advised to register one day in advance *online*. Then an evaluation was carried out on the negative reviews which turned out to occur at the Skin and Venereology Specialist practice where the morning practice schedule was 07.30 - 09.00 and registration had to be done H-1 (17.00-19.00).

### Theoretical basis

#### Hospital management

Hospital management is a series of planning, organizing, coordinating, implementing, supervising and evaluating activities carried out to achieve the hospital's vision and mission. This management covers various aspects, including administration, finance, human resources, health services, and long-term strategy development. In the management of Hospital Management, there is a system known as the Management Information System which aims to process and organize data and information that is useful in supporting the implementation of tasks, especially in the hospital environment. So that the information provided by the Management Information System can be useful for management, it is necessary to analyze various kinds of information needed by hospitals and patients, such as management activities that will be carried out and what decisions can be taken to resolve a problem in the hospital (Hemawati, 2019).

The importance of hospital management is ensuring the provision of high quality health services, because with efficient management, patients can receive care that suits their needs, making the hospital a safe and effective place to receive medical care. Hospital Management also helps in organizing and managing resources efficiently in employees, medical teams, medical equipment, and facilities thereby

helping to avoid wastage of resources and increase productivity. In addition, implementing appropriate hospital management can increase patient satisfaction by providing services that are friendly, timely and in accordance with patient needs. Patient satisfaction is not only a moral aspect, but can also influence a hospital's reputation and patient visit rates(Masyhudi, 2019).

### Hospital Performance

Hospital performance is a form of work achievement carried out by all employees and the hospital medical team. Hospital performance includes aspects of quality, efficiency, finance, patient service, and impact on public health. In practice, hospital performance should be assessed objectively and systematically so that collecting, analyzing and implementing a policy can be carried out effectively and efficiently, such as measuring patient safety incidents which can reduce the risk of patient accidents, measuring patient waiting times starting from reception to medical services, to evaluating patient satisfaction levels through feedback and surveys (Hemawati, 2019).

### SWOT Analysis

SWOT is an abbreviation of *Strength* , *Weakness* , *Opportunity* and *Threat* . SWOT analysis is a tool used by managers to develop business, because through SWOT you can assess the impact of a policy and then carry out effective strategic planning. SWOT is a system or process for considering internal and external factors that influence an organization's performance in relation to competitors or market situations, where strengths and weaknesses are internal to the organization being evaluated, while opportunities and threats refer to the broad context or environment in which the organization operates. operate(Hatta et al., 2018)

Kusuma (2016) explains that *Strength* is an internal factor in the form of excellence that an organization has and can be maintained or developed in order to achieve maximum performance. *Weakness* is an internal factor in the form of deficiencies that harm or

hinder organizational performance, thereby causing inefficiency in operational implementation. *Opportunity* is an external factor in the form of an opportunity that can be utilized by an organization so that it can generate profits for the organization. Meanwhile, *threats* are external factors that can threaten or harm an organization because they can pose risks or obstacles.

### Skill-Driven Strategy

*Skill-Driven* Strategy is a strategy where the organization no longer just manages work, but also includes certain skills and competencies. The *Skill-Driven* Strategy focuses on developing and applying the skills possessed by employees, especially on developing data analysis skills and data-based decision making to improve the company's operational performance and effectiveness (Knispel, 2022).



Source: (Knispel, 2022).

### Figure 2. Stages of Skill-Driven Strategy

Based on this picture, there are four stages of the *Skill-Driven* strategy , including:

1. *Inching* Stage is the initial stage in implementing a *Skill-Driven* strategy , where individuals or organizations begin to slowly develop the specific skills required in a particular context, for example, developing data analysis skills in business decision making.
2. *Progressing* Stage is the stage where the development of specific skills continues and progresses. This stage can involve improving skills in planning effective strategies and identifying opportunities.
3. *Transforming* Stage is the stage where the skills that have been developed undergo transformation and begin to be applied more widely. Additionally, this stage can also involve applying data analysis skills for more informed and effective decision making
4. *Actuating* Stage is the stage where the skills that have been developed are applied and implemented in real action, thus

involving the execution of product strategic plans based on the skills possessed.

RESEARCH METHODS

This research is a qualitative type of research, namely research that aims to find in-depth information and describe and explain the quality of a phenomenon. Qualitative research tends to use very small samples or sources, so it cannot be considered representative of the entire population. Characteristics of qualitative research include the use of inductive thinking patterns, emphasis on analysis or description, and a focus on explaining phenomena in depth (Abdussaman, 2021). Researchers have selected 5 informants who work at Emma Mojokerto Hospital to conduct interviews with the aim of analyzing the SWOT of the hospital. Next, the results of the interview were processed using 3 stages of Qualitative Data Analysis Techniques, namely data reduction, data presentation, and drawing conclusions.

RESULTS AND DISCUSSION

Interviews were conducted with five informants, including the Administration Department, Head of the Medical Records Unit, Marketing, Hospital Management, and Staff. Based on the results of the interview, the following analysis was obtained:

Table 1. Informant Interview Results

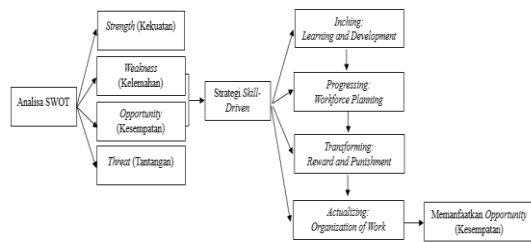
N o	Informan t Identity	Analysis	Statement
1	Yuriska 24 years old, Head of Medical Records Unit	Strength	EMMA Hospital is a hospital that has been accredited by PARIPURNA, EMMA Hospital also serves patients from BPJS, General and other Insurance. At EMMA Hospital there are also VVIP, VIP, Class 1, Class 2 & Class 3 rooms available.
2	Barce	Weakness	• The image of Emma

	31 years old, Staff		Hospital is that it is an expensive hospital and the service is not fast enough, which still sticks with patients/local residents • Communication between staff and speed of service is very poor which results in a long time in providing service
3	Triska 26 years old, Administr ation	Opportun ities	The expected opportunity is that with the opening of the new Emma Hospital building, it will become the hospital of choice for the local community and the Hemodialysis service will be opened, the service will be better.
4	Emi 24 years old, Hospital Managem ent	Opportun ities	• The location is strategic so that many people will come to Emma Hospital • Many are already familiar with Emma Hospital • Collaborating with several companies
5	Sulistiyani ngsih 37 years old, Marketing	Threats	• Many hospitals are close to Emma Hospital • The more people understand the digital world and understand the world of health, the more patients they want to serve well • Equaliza tion between classes 1,2,3 according to JKN Kris standards

Source: Researcher, 2024  
In accordance with the information from the five informants, a *Skill-Driven Strategy* will



be formed to improve Weaknesses and develop Opportunities



Source: Researcher, 2024

**Figure 3. Skill-Driven Strategy Process**

Based on this process, after exploring the problems that occurred at Emma Mojokerto Hospital using SWOT Analysis, where the main focus of the research problem was on *the Weaknesses* of Emma Mojokerto Hospital and *Opportunities* that had not been fully utilized, then a Human Resources development strategy was implemented in the form of a *Skills Strategy*. Driven by 4 process stages ( *Inching*, *Progressing*, *Transforming*, and *Actualizing* ) which are expected to form a work plan for the development of Emma Mojokerto Hospital by utilizing existing *opportunities so that the performance of Emma Mojokerto Hospital can be better*.

1) At the *Inching stage*, *Learning and Development* will be implemented, namely a development and learning approach to improve employee skills which aims to develop employees' special skills in accordance with their respective responsibilities.

2) In the *Progressing stage*, *Workforce Planning* will be implemented, namely a workforce planning process which aims to ensure the organization has the right number, type and skills of employees in the right work division.

3) In the *Transforming stage*, *Reward and Punishment* will be implemented, which is an approach that involves giving rewards and punishments as part of the organization's transformation strategy, such as developing an incentive system based on the skills and competencies of employees.

4) In the *Actualizing stage*, *Organization of Work* will be implemented, which is a strategy that involves

reorganizing work structures and processes to support the application of the skills that have been developed. This includes reorganizing tasks and responsibilities to support the application of skills in real work contexts.

## CONCLUSIONS AND RECOMMENDATIONS

Emma Mojokerto Hospital has a *strength*, namely that Emma Hospital is a hospital that has been accredited by PARIPURNA, Emma Mojokerto Hospital also serves patients from both BPJS, General and other insurance. At Emma Hospital there are also VVIP, VIP, Class 1, Class 2 & Class 3 rooms available. The next *weakness* is the image of Emma Mojokerto Hospital, which is an expensive hospital and the slow service is still attached to patients/local residents, communication between staff and The speed of service is very poor which results in a long time in providing service.

Then *the opportunity* that is had is the opportunity that is expected with the opening of the new building at Emma Mojokerto Hospital to become the hospital of choice for the local community and the Hemodialysis service will be opened, the service will be better, and the location is strategic so that many people will come to Emma Mojokerto Hospital, many who is already familiar with Emma Mojokerto Hospital, and has collaborated with several companies. Meanwhile, the threat is that there are many hospitals close to Emma Mojokerto Hospital, the more people understand the digital world and understand the world of health, the more patients want to be served well, as well as equalization between classes 1, 2, 3 according to JKN Kris standards.

Therefore, based on the SWOT analysis carried out, suggestions can be given for developing *Skill-Driven strategies* to improve the performance of Emma Mojokerto Hospital, including:

1. *Learning & Development*: Hospitals can implement development and training programs for medical and non-medical staff to improve clinical, leadership and communication skills. For example, training on improving skills in caring for

critical patients or stress management training for staff working in demanding environments.

2. *Workforce Planning* : Hospitals need to plan human resource needs to ensure the availability of adequate staff in various units, such as nurses, doctors and supporting medical personnel. This planning also involves staff placement according to expertise and specialization, as well as anticipating future workforce needs.

3. *Reward & Punishment* : Incentive systems can be implemented to encourage superior performance, such as giving awards to staff who provide high quality service. On the other hand, sanctions or warnings are needed to ensure compliance with medical protocols and patient safety procedures to prevent errors that could harm patients

4. *Organization of Work* : Hospitals need to organize efficient and effective work procedures, including task assignments, work schedules, and work flow. For example, in the emergency unit, work arrangements must be designed to treat patients quickly and appropriately, while in long-term care units, work arrangements must support continuous and holistic care for patients.

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## CONNECTION SUPPORT FAMILY AND EDUCATION LEVEL WITH POST STROKE DEPRESSION (PSD) IN STROKE PATIENTS

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ABSTRACT	Keywords
Stroke is the main cause of death globally and the main cause of disability with an increasing incidence in developing countries . Stroke is divided into two types, namely ischemic stroke and hemorrhagic stroke. Stroke can cause disturbances in areas of the brain that function as <i>neurobehavior</i> , which can cause psychiatric symptoms such as post-stroke depression. Depression occurs as a result of one of the complications after experiencing a stroke (post-stroke) and is associated with decreased healing function, activity or social support and cognitive function . Meanwhile, <i>Post Stroke Depression</i> (PSD) is a post-stroke <i>neuropsychiatric complication</i> that most often occurs in around half of all stroke patients. Several hypotheses are involved in the incidence of PSD, namely psychosocial vulnerability and biological determination . The aim of the research is to find out i There is connection support family and level education with <i>post stroke depression</i> in stroke patients.This use <i>cross-sectional</i> . Amount population as many as 94 stroke patients with sample of 76 respondents , with technique <i>purposive sampling</i> . Instruments used is questionnaire support family and HDRS. Test statistics use correlation test <i>sperman rank</i> with <i>a</i> 0.05. Researcher suggestions expected can increase understanding about stroke, increase draft self so that spared from depression	<b>Stroke, Support Family , Education Level, Depression Level</b>

## INTRODUCTION

Stroke is reason main death Good globally and causes main disability with ongoing incidents increasing in developing countries . Split stroke become two types , namely ischemic stroke and hemorrhagic stroke . Ischemic stroke happen when vessels supplying blood blood to brain blocked This type of stroke is the most common occurs ( almost 90% of strokes are ischemic strokes ). Meanwhile, hemorrhagic

stroke caused by leaks or broke vessels blood in the brain or around brain so that stop supply blood to network target brain . Disturbance nerve This give rise to a number of complaint including paralysis face or limbs , talk No smooth , talk No clear ( pelo ), change awareness , and distraction sight . Strokes have number high pain so that cause disability or weakness in one side body , confusion , difficulty walk , lose balance , and pain head (Mufidah., et al. 2021).

Stroke can cause disturbances in areas of the brain that function as *neurobehavior*, which can cause psychiatric symptoms such as post-stroke depression. Depression occurs as a result of one of the complications after experiencing a stroke (post-stroke) and is associated with decreased healing function, activity or social support and cognitive function (Pribadhi H, 2019). Meanwhile, *Post Stroke Depression* (PSD) is a post-stroke *neuropsychiatric complication* that most often occurs in around half of all stroke patients. Several hypotheses are involved in the incidence of PSD, namely psychosocial vulnerability and biological determination (Nurhasanah et al., 2023).

According to *the World Stroke Organization* (WHO) globally, more than 12.2 million or one in four people over the age of 25 will experience a stroke or more than 101 million people alive today, more than 7.6 million or 62% of strokes are ischemic new every year. More than 28% of all strokes are intracerebral hemorrhages, 1.2 million are subarachnoid hemorrhages. About 795,000 people in the United States suffer a new or recurrent stroke. Around 610,000 of them were first-time strokes, while 185,000 were recurrent strokes (WHO, 2022).

Prevalence (per mile) of Stroke based on Doctor's Diagnosis in Population Aged  $\geq 15$  Years according to Province, Riskesdas 2018 has a result of 10.9% (RISKESDAS, 2018). Meanwhile, stroke data in East Java is 1.24 per 1,000 population, this figure has decreased significantly compared to the previous year (Putri, 2023).

Factor affecting level depression against post stroke, namely level low education, social status economy low, support family and concept self (Egypt et al., 2020). Whereas according to (Reni et al., 2020) reason depression in post stroke, namely level education, length of time suffering from stroke and disorders motor.

The impact of the level of depression on stroke, namely, a negative effect on the recovery of cognitive function and daily activities, a worse functional recovery process, a worse quality of life, a higher risk of mortality, depression not only has an effect on the quality of life, but also reduces

functional ability, worsen healing outcomes and increase mortality (Baihaki et al., 2021).

There are treatments for *post stroke depression* two type that is pharmacotherapy and non-pharmacotherapy. Pharmacotherapy normal use Antidepressants SSRI (*Selective Serotonin Re-uptake Inhibitor*) and SNRI (*Serotonin and Norepinephrine Re-uptake Inhibitor*) groups can used in PSD patients are Escitalopram, Citalopram, Fluoxetine. Whereas non-pharmacotherapy can considered as PSD adjuvant ie combination electroacupuncture and *psychological intervention*, *Cognitive Behavior Therapy* (CBT), *Computerized Cognitive Training* (CCT), *Behavior Activated therapy*, and *Mindfulness-based intervention*. (Nurhasanah et al., 2023).

## METHOD

Type of research used is *cross sectional*. This research carried out at the Anna Medika Madura General Hospital in March – April 2024. Population study of 94 stroke patients with amount sample of 76 stroke patients. Retrieval technique sample use

*porposive sampling*. Variable in study This adalan support family, education level, and PSD. Instrument use questionnaire support family and HDRS. Data analysis using univariate (distribution frequency) and bivariate (tabulation cross and *spearman rank statistical test*)



## RESULTS

**Table 1. Distribution Respondent Based on Age**

Characteristics Respondent	Frequency	Percentage (%)
Age		
46-55 Years ( Early Elderly)	40	53%
56-65 Years (Late Elderly)	25	33%
>65 Years ( Seniors )	11	14%
Total	76	100%

Based on table 1 shows that half of the respondents are categorized as Late Elderly with a percentage of 53% (40 respondents).

**Table 2. Distribution Respondent Based on Stroke Length**

Characteristics Respondent	Frequency	Percentage (%)
Long Stroke		
<6 Months	4	5%
>6 Months – 2 Years	53	70%
>2 Years	19	25%
Total	76	100%

Based on table 2 , it shows that half of the respondents were categorized as having a stroke duration of >6 months – 2 years with a percentage of 70% (53 respondents).

**Table 3. Distribution Respondent Based on Support Family**

Support Family	Frequency	Percentage (%)
Support Family Low	10	13%
Support Medium Family	38	50%
Support High Family	28	37%
Total	76	100%

Based on table 3 , it shows that half of the respondents were categorized as moderate family support with a percentage of 50% (38 respondents).

**Table 4. Distribution Respondent Based on Education Level**

Level of education	Frequency	Percentage (%)
basic education	42	55%
Middle education	27	36%
higher education	7	9%
Total	76	100%

Based on table 4, it shows that the majority of respondents are categorized as moderate self-concept with a percentage of 55 % (42 respondents).

**Table 5. Distribution Respondent Based on Level of Depression**

Depression Levels	Frequency	Percentage (%)
Major Depression	10	13%
Moderate Depression	21	28%
Depression Light	17	22%
Not depressed	28	37%
Total	76	100%

Based on table 5 , it shows that the majority of respondents are categorized as experiencing depression with a percentage of 63% (48 respondents).

**Table 5. Cross Tabulation Between Supports Family with *Post Stroke Depression***

		Depression Levels				Total	
			Heavy	Currently	Light	No Depression	
Support Family	Low	Count	10	0	0	0	10
		% of Total	100%	0.0%	0.0%	0.0%	100%
	Currently	Count	0	21	17	0	38
		% of Total	0.0%	55.3%	44.7%	0.0%	100%
	Tall	Count	0	0	0	28	28
		% of	0.0%	0.0%	0.0%	100%	100%
		Total					
Total		Count	10	21	17	28	76
		% of Total	13.2%	27.6%	22.4%	36.8%	100%
Spearman Rank Statistical Test							
$\alpha = 0.05$							
$P = 0.000$							
$r = - 0.898$							

Based on table 5 above show that patients at the Neurology Polyclinic of RSU ANNA Medika Madura were partially recovered small from respondents has support value family tall with No There is depression as many as 28 respondents (36.8%). From the results of the *Spearman Rank* statistical test, a *P value* of 0.000 is

obtained , meaning the *P value* <  $\alpha$  (0.05). With a correlation value of -0.898 , which means that the correlation coefficient between the two variables is very strong , so H1 is accepted. This shows that there is a support relationship family with level depression at the Neurology Polytechnic of RSU ANNA Medika Madura.

**Table 6. Cross Tabulation Between Education Level and *Post Stroke Depression***

		Depression Levels				Total	
		Heavy	Currently	Light	No Depression		
Level of education	basic education	Count	10	16	16	0	42
		% of Total	23.8%	38.1%	38.1%	0.0%	100%
	Middle education	Count	0	5	1	21	27
		% of Total	0.0%	18.5%	3.7%	77.8%	100%
	higher education	Count	0	0	0	7	7
		% of Total	0.0%	0.0%	0.0%	100%	100%
Total		Count	10	21	17	28	76
	% of Total	13.2%	27.6%	22.4%	36.8%	100%	

*Spearman Rank Statistical Test*

$\alpha = 0.05$

$P = 0.000$

$r = -0.737$

Based on table 6 above show that patients at the Neurology Polyclinic of RSU ANNA Medika Madura were partially recovered small from respondents own level education base with depression heavy as much 10 respondents ( 23.8 %) were depressed moderate 16 respondents (38.1%),

and depression mild 16 respondents (38.1%) . From the results of the *Spearman Rank statistical test*, a *P value* of 0.000 is obtained, meaning the *P value* <  $\alpha$  (0.05). With a correlation value of -0.737 , which means that the correlation coefficient between the two variables is strong , so H1

is accepted. This shows that there is a level relationship education with level depression at the Neurology Polytechnic of RSU ANNA Medika Madura.

## DISCUSSION

### Connection Support Family With Post Stroke Depression in Stroke Patients at the Neurology Polyclinic at RSU Anna Medika Madura

Based on the research results, there is a very strong relationship of support family with *post stroke depression* in stroke patients at the Nerve Polytechnic RSU ANNA Medika Madura . This is also appropriate with research that has been carried out (Budianto et al., 2022) . That support family influence conditions in stroke patients , if support good family will suffer minimally depression because presence environment psychosocial good family in stroke patients .

This is also supported by research (Cahyaningrum et al., 2023) . That character function families who are supported family have great influence to well-being member family Good in a way physical , mental, material and spiritual . Family explained as structure interconnected complex depend on and have a strategy for fulfil needs of members family in a way the whole For fulfillment need *Activity of Daily (ADL)*, so lighten up burden patient and family give solution so that patient feel motivated and not experiencing PSD.

Results on research This age patient show that part big from respondents categorized as elderly end with percentage 53% 40 respondents ). According to assumption researcher age is influencing things health physique nor biological someone , where the more old age somebody so the more vulnerable person caught Sick matter This because activity reduced and due to the aging process .

According to researcher sufferer strokes can experience disability and dependency life in activity everyday you can faced by everyone , because That stroke sufferers need exists support family For do continuity life a day - days and recovery process . Family plays a very important role in give support For recovery patient and

helpful need during the recovery period patient . The more Good support family Which given so can minimize patient For No experience *post-stroke depression* because presence environment psychosocial good family .

Based on analysis item questionnaire For questionnaire support family get the highest domain that is support emotional . This matter in line with study (Fahrizal & Darliana, 2020). Support emotional is the most important aspect in support family , support emotional family works as a safe and peaceful place For Rest as well as help mastery emotional patient . Support emotional considered prevent or reduce stress effects as well increase individual mental health or family in a way direct . Reduce stress that occurs is one of necessary factors in post stroke care for reach healing and prevention recurrence .

According to researcher support families of post- stroke patients more about support emotional not just on material support because support strong emotional for For increase *slef efficacy* patient in increase post-stroke rehabilitation and encouragement to sufferers to accept conditions and more speed up the healing process . Patient will more Spirit in operate maintenance self .

Based on analysis item questionnaire For HDRS questionnaire was obtained frequent questions appear It's about " feelings. " guilt , insomnia and genital symptoms ". This matter in line with study (Putri & Herlina , 2021) that happen decline organ function in stroke causes emergence various problem . Problems aside physicality also occurs problem ultimately psychological will influence patient in evaluate himself Alone with circumstances the illness he suffered . Impact psychological from Patients who have had a stroke include is worried or stress as well depression consequence from stress can give rise to disturbance to the individual form change style life , for example as searcher living will lost source income Because No can Work like again , so patient become Afraid No capable For return Work

. One of complications psychiatry in stroke patients is emergence depression .

According to researcher besides problem Many physical symptoms in post-stroke patients also arise is problem anxious , stressed up depression is one of complications most common after stroke . *Post-stroke depression* is outer bad Because can increase limitation in activity everyday , annoyance cognitive function and increased premature death risk kill yourself , as well decline outer rehabilitation nor outer function social .

#### **The Relationship between Education Level and Post Stroke Depression in Stroke Patients at the Neurology Polytechnic of RSU Anna Medika Madura**

Based on the research results, there is a strong relationship between levels education with *post stroke depression* in stroke patients at the Nerve Polytechnic RSU ANNA Medika Madura. This is supported by research (Asmila et al., 2021) . Education generally will influence a person's ability to understand information, so that it can protect a person from bad developments in dealing with mental disorders and can increase the ability to recover from mental disorders. Because higher levels of education are found to use mental health services more often. Education is essentially an effort to help someone improve their ability to achieve optimal health so they don't experience PSD.

According to researcher , p This show that stay Low education in stroke patients will cause lack of resulting knowledge No Can utilise service health with Well , actually education is business For help somebody in increase ability For reach optimal health so No experience disturbance emotional .

Based on analysis item questionnaire For questionnaire level education obtained patient with education low as many as 42 patients . This matter in line with study (Jessyca & Sasmita, 2021). It happened *post-stroke depression* can caused by a lack of knowledge , understanding , and experience about disease That Alone . Low level of education hinder somebody For think more critical and inhibited For understand or draw wisdom from something incident . Ideally

the more tall education somebody the more good knowledge too somebody .

According to researcher Education also has an effect on patients *post t* stroke because caused by a lack of knowledge , understanding , and experience about disease That Alone . Education level plays a role important in obtain knowledge . Low level of education hinder somebody For think more critical and inhibited For understand or draw wisdom from something incident . Because it's ideal the more tall education somebody the more good knowledge too somebody .

#### **CONCLUSIONS**

(No need write Conclusions and suggestions are sufficient written in One points conclusion without numbering )

There's a relationship between support family and level education with *post-stroke depression*

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## ANALYSIS OF THE EFFECT OF PATIENT EXPERIENCE AND PATIENT SATISFACTION ON PATIENT LOYALTY

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ABSTRACT	Keywords
Hospitals have been competing to provide the best services in order to gain patient loyalty. Patient loyalty can be assessed from patient satisfaction and experience during hospitalization. This study aims to analyse the influence of patient experience and patient satisfaction on patient loyalty in the Outpatient Installation of Darmo Hospital. An analytical observational study using a cross-sectional approach was used in this study. The sample used in this study was 181 patients who were treated in the outpatient installation of Darmo Hospital Surabaya, selected using proportionate stratified random sampling technique. The independent variables in this study were patient experience and satisfaction, while the dependent variable was patient loyalty. Data was collected using a questionnaire and analyzed using logistic regression. The results showed a significant influence of patient experience on satisfaction (0.0001), patient experience on loyalty (0.0001), and satisfaction on loyalty (0.0001). Patient loyalty can be achieved by improving and enhancing patient experience, as better patient experience leads to increased patient satisfaction and loyalty towards the hospital. To gain patient loyalty, hospital services must be improved based on feedback in accordance with patients' wishes.	<b>Patient Experience, Satisfaction, Loyalty.</b>

### INTRODUCTION

Patient satisfaction occurs when the needs, desires and expectations of patients can be met through the products or services received. Therefore, patient satisfaction is the quality felt by patients compared to patient needs, wants, and expectations (Supriyanto & Ernawati, 2015). Loyalty is a long-term effect of patient satisfaction. At some level, satisfaction is able to build patient loyalty by making repeat purchases.

Patient satisfaction and loyalty are the result of the perception of service from the value of a product (Elvina & Lestari, 2022; Hendra, 2017).

Outpatient services are a "gateway" for hospitals, because they can influence patients' decisions to return to use hospital services. If when receiving outpatient services, patients get services that are in accordance with patient expectations,

patients will have a good experience and positive assessment. This positive experience and assessment will affect the patient's decision to make a repeat visit to the hospital (Anggraini et al., 2020; Parante et al., 2022).

Patient experience measurement is more effectively used as an indicator of service quality so that *the National Health Services* (NHS) England sets patient experience as one of the indicators of service quality in addition to clinical effectiveness and patient safety (Darzi, 2018). Patient experience and satisfaction are 2 variables that need to be identified to determine steps to solve the problem of old patient visits that continue to decline, so that the hospital can determine policies, strategies and improvements to maintain and increase patient loyalty in the hospital, besides that the hospital can also develop and improve the quality of patient-oriented services in accordance with what is needed and expected by patients (Liu et al., 2021; Sari W et al., 2021; Sofia, 2023).

Observations in the last 5 years of patient loyalty at Darmo Hospital have decreased, this can be seen from the decrease in old visits at Darmo Hospital since 2017-2021 which continues to decrease. The percentage of old visits at Darmo Hospital Outpatient Installation decreased from 81.0% in 2017 to 79.3% in 2018 then decreased again in 2019 to 77.4% and in 2020 continued to decrease to 73.1%, until 2021 to 70.7%. It can be concluded that the number of old visits has a downward trend of 15.02% obtained from the difference in the number of old visits in 2021 and 2017 divided by the patient's old visits in 2017, so this is a problem because loyal patients can become marketers of cheap "promotional tools".

Based on the description of the problem data above, the research problem raised was a decrease in patient loyalty at the Darmo Hospital Outpatient Installation by 15.02% over the last 5 years from 2017-2021. The purpose of this study was to analyze the effect of *patient experience* and patient satisfaction on patient loyalty in the Darmo Hospital Outpatient Installation.

## METHOD

Observational studies of analytical with a cross sectional approach have been used in this study. The research location is at the Outpatient Installation of Darmo Hospital Surabaya from October 2022 to May 2023. In this study the samples to be taken are in all poly: General Poly; specialist poly; dental poly; Darmo Children Center (DCC); Mother and child Poly; Psychology Poly; Mental Health Poly; Nutrition Poly; Hearing Center/Audiometry. The population were all patients who visited and used services at the Outpatient Installation at Darmo Hospital Surabaya for the period January - September 2022. The instrument used was a questionnaire given to respondents after signing the informed consent.

Inclusion criteria included: (1) All patients aged 17 years and over. Patients who are less than 17 years old (starting from the age of toddlers, children, early adolescents) and Patients over 65 years old (Seniors) in filling out the questionnaire can be assisted and accompanied by parents / relatives who escort the patient. Patients who are unable in condition and age to fill out the questionnaire will be represented by parents/siblings who escort the patient; (2) The patient can communicate well; (3) The patient has used the services at the Darmo Hospital Outpatient Installation; (4) The patient is willing to fill out a questionnaire; (5) The patient already has a medical record number. So that as many as 181 respondents were obtained for this study (table 1).

**Table 1** Number of Patient Samples per Polyclinic based on the proportion of average visits.

No.	Poly	Average patient visits per month (N <sub>i</sub> )	Proportion (%)	Number of respondents (n <sub>i</sub> )
1.	Darmo Children Center	190	8.20	15
2.	Surgical poly + thorac and cardiovascular surgery poly	25	1.07	2
3.	Digestif surgery poly	39	1.68	3
4.	Oncology surgery poly	89	3.84	7
5.	Orthopedic poly	50	2.15	4
6.	Neurosurgery poly	9	0.38	1
7.	Plastic surgery poly	14	0.60	1
8.	General dentist Poly + specialist dentist poly	96	4.14	8
9.	Cardiovascular poly	114	4.92	9
10.	Dermatologist poly	45	1.94	4
11.	Ayes poly	21	0.90	2
12.	Gynaecology and obstetrics poly	146	6.30	11
13.	Urology poly	149	6.43	12
14.	Intern poly	833	35.96	65
15.	Neuro poly	87	3.75	7
16.	Pulmonary poly	88	3.79	7
17.	Ears, Nose, throat poly	47	2.02	3
18.	General Poly	221	9.54	17
19.	Mother and Child Poly + Nutrition Poly	9	0.38	1
20.	Audiometry Poly	31	1.33	2
	Total	2.316	100.0	181

**Test Validity and Reliability**

The significance test was performed by comparing the calculated *r* value with the table *r* for *degree of freedom* (df) = n-2, in this case n is the number of samples. The next step was to compare the *Correlated Item-Total Correlation value* with the calculation results of the *r*-table. If the calculated *r* was greater than the table *r* and the value is positive, then the question or indicator was declared valid. While the reliability test was carried out by comparing the calculated *r* value with the table *r*

(*Cronbach's alpha*) with reliable conditions if the *Cronbach Alpha* value was >0.602.

**Data Analysis**

Data processing was carried out in stages: *Editing, Coding, Scoring Processing, Cleaning*. In the variables *Patient Experience* and *Patient Satisfaction*, the values of all indicators in each variable were composite and totaled to calculate the Mean value and then calculate the SD value. The division of categories on the variables of *patient experience*, *patient satisfaction*, and

patient loyalty were based on the range of mean and SD values.

Data analysis was carried out in two ways, namely descriptive analysis and quantitative analytics. Data were collected and statistical influence tests were carried out to look for influences between variables. The influence test used ordinal logistic regression analysis techniques with the aim of analyzing the influence of the independent variable on the dependent variable then the data is used to conclude the results. Influence analysis was conducted to see the probability of the influence of *patient experience* variables on patient satisfaction, the influence of *patient experience variables* on patient loyalty and the influence of patient satisfaction variables on patient loyalty.

Determine Strategic Issues based on: (1) Descriptive Analysis by looking at the mean value of each indicator that was less than the mean on the overall indicator; (2) Influence Analysis by looking at variables whose results are significant. The results of descriptive analysis and influence analysis were presented in *Focus Group Discussion* (FGD). The purpose of conducting *Focus Group Discussion* (FGD)

was to confirm the cause and solve problems with hospital management and compile recommendations for improvement of the problems found based on the researcher's review.

**RESULTS**  
**The Effect of *Patient Experience* on Patient Satisfaction**

The cross-tabulated results of each variable used to see an overview of the influence between the variables. Cross-tabulated results between *Patient Experience* variables and Patient Satisfaction (table 2). Based on Table 2, it can be seen that the better the patient's experience while getting treatment at the Darmo Hospital Outpatient Installation, the level of satisfaction will also increase. Patients who have a very bad experience tend to give a very dissatisfied rating, and conversely patients who have a very good experience tend to give a very satisfied rating. There is a positive relationship or correlation between *Patient Experience* and Patient Satisfaction. In addition, it also shows an indication of a significant influence between the patient's experience and satisfaction.

Table 2. Cross-Tabulation of *Patient Experience* with Patient Satisfaction

<i>Patient Experience</i>	Patient Satisfaction								total	
	Very satisfied		Satisfied		Not Satisfied		Very Not Satisfied			
	n	%	n	%	n	%	n	%	N	%
Excellent	22	53.7	19	46.3	0	0.0	0	0.0	41	100.0
Good	6	11.1	32	59.3	16	29.6	0	0.0	54	100.0
Less good	1	1.8	14	23.7	31	52.5	13	22.0	59	100.0
worse	0	0.0	0	0.0	4	14.8	23	85.2	27	100.0

To determine the effect of the *Patient Experience* variable on Patient Satisfaction, an influence test was carried out using ordinal logistic regression. Test results of the effect of ordinal logistic regression on *Patient Experience* on Patient Satisfaction (table 3). The results of ordinal logistic regression of the effect of *patient experience* variables on patient satisfaction showed a significant assessment of very satisfied. This is indicated by the significance value in column *p* where all values below  $\alpha$  which is less than 0.05. Estimate *b* shows a positive value which means that *patient experience* in all categories is more *likely* to get a very good level of satisfaction with patients.

**Table 3** Results of Ordinal Logistic Regression Effect of Patient Experience on Patient Satisfaction

No	Variable	Estimate (b)	Significant (p)
1	Excellent Patient Experience (1)	+7.883	0.0001
2	Good Patient Experience (2)	+5.365	0.0001
3	Worse Patient Experience (3)	+3.186	0.0001

The *patient experience* with the very good category has a greater probability of 7.8 times getting patient satisfaction, while the *patient experience* with the bad category has a 3 times smaller probability of getting patient satisfaction. This shows that the better the *patient experience*, the greater the probability of getting patient satisfaction.

### The Effect of *Patient Experience* on Patient Loyalty

The cross-tabulated results of each variable used to see an overview of the influence between the variables. Cross-tabulated results between *Patient Experience* variables and Patient Loyalty (table 4). The better the patient's experience while getting treatment at the Darmo Hospital Outpatient Installation, the loyalty also tends to increase. Patients with very unfavorable experiences tend to give very dissatisfied judgments. Patients with excellent experience tend to give very satisfied ratings. This indicates a positive relationship between the two variables and indicates a significant influence of patient experience on patient loyalty. To determine the effect of the *Patient Experience* variable on Patient Loyalty, an influence test was carried out using ordinal logistic regression.

**Table 4** Cross-Tabulation of *Patient Experience* with Patient Loyalty

<i>Patient Experience</i>	Patient Loyalty								Total	
	Very Loyal		Loyal		Disloyal		Very Not Loyal			
	n	%	n	%	n	%	n	%	N	%
Excellent	31	75.5	10	24.5	0	0.0	0	0.0	41	100.0
Good	13	24.1	25	46.3	16	29.6	0	0.0	54	100.0
Less Good	2	3.4	18	30.5	35	59.3	4	6.8	59	100.0
Very Not Good	0	0.0	0	0.0	10	37.0	17	63.0	27	100.0



The results of ordinal logistic regression, the effect of *patient experience* variables on patient loyalty to get a very loyal assessment is significant. These results are shown in all significance values below 0.05, namely  $p = 0.0001$ . Estimate b shows a positive value, which means that *patient experience* in all categories is more likely to gain a very good level of patient loyalty (table 5).

Table 5 Results of Ordinal Logistic Regression of the Effect of *Patient Experience* on Patient Loyalty

No	Variable	Estimate (b)	Significant (p)
1	Excellent Patient Experience (1)	+7.683	0.0001
2	Good Patient Experience (2)	+5.201	0.0001
3	Worse Patient Experience (3)	+3.450	0.0001

The *patient experience* with the very good category has a greater probability of 7.6 times getting patient loyalty, while *the patient experience* with the bad category has a 3.4 times smaller probability of getting patient loyalty. This shows that the better the *patient experience*, the greater the probability in creating loyalty to patients.

#### The effect of patient satisfaction on patient loyalty

Based on table 6, the better patient satisfaction with the service at the Darmo Hospital Outpatient Installation, the loyalty also tends to increase. Patients who are dissatisfied with Darmo Hospital's Outpatient Installation services tend to show bad loyalty. When patients were satisfied with their services, it will have an impact on increasing patient loyalty to the Darmo Hospital Outpatient Installation, and vice versa. This indicates a positive relationship between the two variables and indicates a significant effect of patient satisfaction on patient loyalty.

Table 6 Cross-Tabulation of Satisfaction with Patient Loyalty

Patient Satisfaction	Patient Loyalty								Total	
	Very Loyal		Loyal		Disloyal		Very Not Loyal			
	n	%	n	%	n	%	n	%	N	%
Very satisfied	27	93.1	2	6.9	0	0.0	0	0.0	29	100.0
Satisfied	18	27.7	41	63.1	6	9.2	0	0.0	65	100.0
Not Satisfied	0	0.0	7	13.7	40	78.5	4	7.8	51	100.0
Very dissatisfied	1	2.8	3	8.3	15	41.7	17	47.2	36	100.0

To determine the effect of the Patient Satisfaction variable on Patient Loyalty, an influence test was carried out using ordinal logistic regression. Based on table 7, the results of ordinal logistic regression, the effect of patient satisfaction variables on patient loyalty in order to get a very loyal

assessment was significant. These results were shown in all significance values below 0.05, namely ( $p = 0.0001$ ). Estimate b shows a positive value which means that patient satisfaction in all categories is more likely to get a very good level of loyalty to patients.

Table 7 Results of Ordinal Logistic Regression  
Effect of Patient Satisfaction on Patient Loyalty

N o	Variable	Estimate (b)	Significant (p)
1	<i>Excellent Patient Experience (1)</i>	+8.988	0.0001
2	<i>Good Patient Experience (2)</i>	+5.443	0.0001
3	<i>Worse Patient Experience (3)</i>	+1.680	0.0001

Patient satisfaction with the highly satisfied category had a greater probability of 8.9 times obtaining patient loyalty, while patient satisfaction with the dissatisfied category had a 1.6 times smaller probability of gaining patient loyalty. This shows that the better the patient satisfaction, the greater the probability in creating loyalty to patients.

## DISCUSSION

Patient satisfaction is defined as a person's assessment of product performance in relation to expectations (Kotler, 2000). In patient satisfaction, there are several indicators that have low values, namely *Financial Aspect*, *Accessibility and Convenience*, and *Facilities and services* (Alfarizi & Ngatindriatun, 2022; Ferreira et al., 2023; Manzoor et al., 2019). In the *Financial aspect* indicator, patients feel that the suitability of the costs incurred with the facilities obtained is still not appropriate and cannot use BPJS facilities at Darmo Hospital. Patients will be interested in making repurchases if the price is affordable, thus patients will feel comfortable to purchase services, because this is considered in accordance with the patient's ability to buy services and the patient's expectations to get good services. The more attractive the price offered; the more patients will make repeat visits to the hospital.

In the *Accessibility and Convenience indicator*, some patients find it difficult to make an appointment and consultation with one of the specialists at Darmo Hospital because the quota is limited based on the results of the FGD which causes quota restrictions due to the length of consultation and examination time for doctors in each patient. General poly that is only available in the morning is also a complaint because some patients who want to go to the public poly in the afternoon will be directed to the ER while patients feel that the room in the ER is not as comfortable as in the general poly room in the Outpatient Installation.

In the *Facilities and services indicator* based on the results of analysis and interviews with patients, patients feel that the building looks old-fashioned scary, the interior design is less updated even though the patient feels that he has paid a high price. Lighting at the front of the hospital is still lacking, road access from the parking lot to the Outpatient Installation needs to be improved so that it is flatter and does not endanger patients.

In this study patient satisfaction was measured using 7 indicators. The indicators that have the highest value are *technical quality* and *communication*. This shows that the ability, thoroughness, accuracy, and explanation given by specialist doctors at Darmo Hospital in conducting examinations and then establishing diagnoses and treating patients are very good and make patients feel satisfied with the services provided. A study shows that to increase patient satisfaction, hospitals need to touch consumers' hearts through a good patient experience (Maghfiroh, 2017).

Loyalty is defined as a commitment and willingness of patients to make repeat visits, reuse existing services at the hospital and recommend to others (Arman et al., 2023; Prakoeswa et al., 2022; Winda Trisnawati Utami & Sentot Imam Suprpto, 2022). In this study, patient loyalty was measured

using 4 question indicators, namely the patient's willingness to say positive, recommend Darmo Hospital to others, make repeat visits to the hospital, and reuse the services and services at Darmo Hospital. Darmo Hospital not only provides excellent service to patients but also needs to provide a good experience to patients when and after receiving services from Darmo Hospital so that the service products provided by the hospital can be memorable and stick in the hearts of patients.

In the test results, the effect of *patient experience* variables on patient satisfaction shows that patient experience has a significant influence on patient satisfaction. The better the patient experience while getting services at the Darmo Hospital Outpatient Installation, the level of satisfaction will also increase. Patients with very bad experiences will feel very dissatisfied with the services provided (Ling et al., 2021). Based on these results, it can be concluded that a good patient experience will have a higher level of satisfaction than patients with a less good experience.

Patient satisfaction depends on the quality of service provided by the hospital in meeting patient expectations (Mardikaningsih, 2022). If the hospital can create satisfaction in patients, patients will feel comfortable, happy, and patient loyalty will be well formed. When the patient is satisfied, the patient will have the desire to come and reuse the services at the hospital, with repeated visits made by the patient, the patient's loyalty to the hospital will be well formed. Extreme patient satisfaction obtained from patient experience can develop into loyalty (Prasanthi & Budiasni, 2022). If the hospital cannot create a very good experience for patients, then patients will feel disappointed so that it can reduce patient retention to return to service at the hospital (El-Haddad et al., 2020; Lateef, 2011).

Based on the results of the influence test in this study shows that *Patient Experience* has a significant positive effect on patient loyalty of Darmo Surabaya Hospital, of the five indicators only 1 indicator has less value. This shows that the application of *patient experience* carried out by Darmo Surabaya Hospital has provided real experience to patients before, during and after receiving services so that it really makes patients memorable and sticks in the patient's heart. Specialists at Darmo Surabaya Hospital are doctors who are quite popular with old patients and new patients and have been widely recommended by friends and family. This can indirectly bind patients to continue to choose Darmo Hospital as an option in getting health services.

In this study, based on the results of interviews with several new patients who visited Darmo Hospital knowing Darmo Hospital from *online google reviews*, this shows that the use of social media also plays an important role in creating *patient experience* because good reviews and experiences from previous patients will be able to attract people who read it to visit Darmo Hospital. Therefore, Darmo Hospital needs to intensify filling in *google reviews* and other social media because in the era of digitalization it will also make it easier for hospitals to find and capture the market. Based on the results of research 60% of patients at Darmo Hospital come from the city of Surabaya and 40% come from outside the city of Surabaya, showing that the need to create *patient experience* on the *relate* indicator because it is very possible and easier for new patients outside the city of Surabaya who want to find good doctors and hospitals, if Darmo Hospital succeeds in improving and implementing this then *good experience* that patients have during treatment at Darmo Hospital can increase the rating of Darmo Hospital on social media so that patient visits will increase and patient loyalty to Darmo Hospital will also increase

because more patients will recommend and invite other new patients to entrust treatment and choose services to Darmo Surabaya Hospital.

## CONCLUSIONS

This study indicates that there is an influence of *Patient Experience* on patient satisfaction that affects loyalty in using hospital services. The three variables in this study, namely *Patient Experience*, Patient Satisfaction, and Patient Loyalty, have a positive and significant influence. Recommendations to improve patient loyalty based on *patient experience* analysis and patient satisfaction at the Darmo Hospital Outpatient Installation were carried out in discussions with Darmo Hospital management which included the Deputy Director of Medical Services, Head of Nursing, Marketing Team, Head of Outpatient Installation, Outpatient Nursing Coordinator and PMKP Team with the aim of providing concrete solutions in increasing loyalty through the number of patient visits.

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Not Applicable

## Ethical Consideration

This study has received a Certificate of Passing the Ethical Review published by the Health Research Ethics Committee of RS Darmo Surabaya.

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## Conflict of Interest statement

The authors declared that there is not any conflicting interest in this study.

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## COGNITIVE IMPAIRMENT IN CHRONIC RENAL FAILURE PATIENTS UNDERGOING HEMODIALYSIS

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ABSTRACT	Keywords
Hemodialysis is a therapy to control uremia, fluid overload, and electrolyte imbalance in patients with chronic renal failure. However, the long time undergoing hemodialysis can risk causing cognitive function instability. The purpose of this study was to determine the presence of cognitive impairment chronic renal failure patients undergoing hemodialysis. Type of quantitative research using cross-sectional correlational analysis research design, conducted on 121 samples with purposive sampling technique. Data collection was done using the Montreal Cognitive Assessment questionnaire using the Pearson Product Moment test. The results showed that the long time undergoing hemodialysis is 120 months, with an average of 46 months. Most respondents experienced mild cognitive function impairment with memory domain, followed by visuospatial and attentional cognitive domains that cause the risk of dementia. There is a significant relationship between the long time undergoing hemodialysis and the cognitive function of chronic renal failure patients at RSUP Dr Kariadi Semarang ( $p = 0.000$ ), with a strong relationship in the opposite direction ( $r = -0.610$ ). The need to improve cognitive memory domain, such as conducting periodic cognitive screening with high-sensitivity instruments on hemodialysis patients who have a risk of severe dementia.	<b>Long Time Undergoing Hemodialysis, Cognitive Impairment, Chronic Renal Failure</b>

### INTRODUCTION

Chronic renal failure (CRF) is a condition in which the kidneys experience progressive and irreversible damage so that their function fails (Ariani, 2020). Chronic renal failure affects more than 10% of the world's population, or more than 800 million people, and has become a global public health problem in recent decades (WHO, 2021). According to the Survei Kesehatan

Indonesia (SKI) by Munira et al., (2023), the number of patients with chronic renal failure in Java Central recorded 88,180 patients in 2023. According to Indonesia Nephrology Association (Perinefri) in 2018, hemodialysis patients in Central Java had an increase of 1,050 cases from 2,065 patients in 2017. Then according to the Survei Kesehatan Indonesia (SKI) by Munira et al., (2023) the largest number of people aged 25-

34 years with a total of 133,887 people with a majority of male genus of 321,060 out of 638,178.

Chronic renal failure is characterized by decreased kidney function (Ariani, 2020). If the kidney function does not work optimally, then the removal of fluids is not maximized so that there is a buildup of fluid in the body (Rahman et al., 2019). One of the replacement therapies for end-stage renal failure is hemodialysis (Mustikasari & Dewi, 2019). Hemodialysis therapy aims to control uremia, fluid overload and electrolyte imbalances (Hadrianti, 2021). Hemodialysis is a therapy that must be under taken for life (Ariani, 2020). However, the results of research by Purnama and Armelia, (2021) show that hemodialysis will affect cognitive function, and the longer you undergo hemodialysis, the more at risk you are of experiencing cognitive function instability.

Impaired cognitive function in patients with chronic renal failure is thought to be related to the length of hemodialysis (Handini & Hunaifi, 2022). Research by Purnama and Armelia, (2021) on 102 patients with chronic renal failure found a significant relationship ( $p=0.002$ ). Research Triyono et al., (2023) on 30 respondents also showed a significant relationship ( $p=0.031$ ). However, research by Wahyuni et al., (2019) on 83 respondents found no significant relationship ( $p=0.375$ ). Likewise, research by Zahroh and Amalia, (2019) on 26 respondents found no significant relationship ( $p=0.311$ ).

Researchers are interested in conducting similar research at RSUP Dr Kariadi Semarang based on the results of previous studies, which show both a positive and negative relationship. In addition, at RSUP Dr Kariadi Semarang, there has never been a study on the long time undergoing hemodialysis on the cognitive function of chronic renal failure patients (Medical Record Hemodialisa, 2023).

## METHOD

The type of research used is a quantitative research design and cross-sectional correlational analysis method. The population of this study were chronic renal failure patients who underwent hemodialysis at RSUP Dr Kariadi Semarang in the July-September 2023 period, namely 175 patients and 121 respondents were obtained. Sampling used purposive sampling techniques in accordance with the inclusion and exclusion criteria. The instrument in this study was The Montreal of Cognitive Assestment Indonesian version (MoCA-Ina) questionnaire which has been tested for validity (range of 0,456-0,797) and reliability (Cronbach's Alpha 0.667) by the researcher. Bivariate analysis in this study used Pearson Product Moment

## RESULTS

**Table 1. Respondents' Frequency Distribution Based on Age, Gender, Education, Jobs with Chronic Renal Failure who undergoing hemodialysis at RSUP Dr. Kariadi Semarang (n=121).**

Variables	Frequency (f)	Presentation (%)
<b>Age</b>		
12-25 years old	9	7,4
26-45 years old	24	19,8
46-65 years old	68	56,2
>65 years old	20	16,5
<b>Gender</b>		
Female	48	39,7
Male	73	60,3
<b>Level of Education</b>		
Not School	3	2,5
Elementary School	13	10,7
Junior High School	12	9,9
Senior High School	44	36,4
Bachelor	49	40,5
<b>Work</b>		
Work	54	44,6
Doesn't work	67	55,4
<b>Jumlah</b>	<b>121</b>	<b>100</b>

According to table 1, the majority of respondents were aged 46-65 with 68 (56.2%) persons, 73 (60.3%) being male, 49

(40.5%) being bachelor, and 67 (55.4%) being unemployed.

**Table 2. Distribution of Frequencies Long Time Undergoing Hemodialysis in Chronic Renal Failure Patiens at RSUP Dr. Kariadi Semarang (N=121).**

Variables	N	Min	Max	Mean	SD
Long time undergoing hemodialysis ( months)	121	24	120	46	14

Table 2 shows the average long time undergoing hemodialysis of 46 months with the shortest outcome of 24 months and the longest of 120 months.

**Table 2. Distribution of Frequencies Cognitive Impairment in Chronic Renal Failure Patiens at RSUP Dr. Kariadi Semarang (N=121).**

Variables	N	Min	Max	Mean	SD
Cognitive Functin in Chronic renal failure Patients	121	9	30	22	4

Table 3 shows the average cognitive function score of 22 points with the lowest score of 9 points (severe cognitives) and the highest point of 30 points. (normal). Here is a table of cognitive function domains:

**Table 4 Domains of Cognitive Function Most Influential in Chronic Kidney Failure Patients undergoing**

**Hemodialysis in Dr. Kariadi Semarang Hospital (n=121).**

Domain	Mean	Normal Value	Percentation (%)
Memory (Delayed Recall)	2,3	5	46%
Visuospasial	3,6	5	72%
Language	2,3	3	76%
Attention	4,9	6	81%
Abstrct Thinking	1,7	2	85%
Orientation	5,1	6	85%
Naming	2,7	3	90%

Based on table 4 of the 7 most influential cognitive function domains, the majority suffered from delayed recall with the lowest percentage of 46%.

**Table 5 The Cognitive impairment in Chronic Renal Failure (CRF) Patients Undergoing Hemodialysis at RSUP Dr. Kariadi Semarang (n=121).**

Variables	Cognitive Function	
Long Time Undergoing Hemodialysis	Correlation Coefficient	-0,061
	<i>p value</i>	0,000

Table 5 explains after performing the Pearson Product Moment correlation test obtained a significance value of p (0,000), (p<0,05). So there is a relationship between long time undergoing hemodialysis and the cognitive impairment of patients with chronic renal failure in RSUP Dr. Kariadi Semarang with a corelation coefficient of - 0,610 which means strong relationship strength

**DISCUSSION**

### **1. Long Time Undergoing Hemodialysis in Chronic Renal Failure (CRF) Patients**

From the results of the study, it was found that the average long time undergoing of hemodialysis was 46.42 months, with the shortest result of 24 months and the longest of 120 months. Research conducted by (Rafika & Armelia, 2020) at Anna Medika Bekasi Hospital on 73 respondents with chronic kidney failure, the majority of hemodialysis duration was 12-24 months as many as 23 (31.5%) people with an average of 2 years. Wahyuni et al., (2019) research at Achmad Mochtar Bukittinggi Hospital for 83 respondents with chronic renal failure stated that the average length of hemodialysis was 21 months and the longest was 96 months. (Purnama & Armelia, (2021) research also stated that the majority of the long time undergoing hemodialysis was >13 months as many as 62 (69%) people. Furthermore, Herman et al., (2019) explained that the majority of hemodialysis patients underwent for 2-4 years as many as 67.8%. Research by Mustikasari and Dewi, (2019) also stated that the majority of hemodialysis had a long time of 2 years (32.19%).

The high number of years of undergoing hemodialysis indicates that most hemodialysis patients are able to survive long enough despite the condition of the kidneys that are not functioning properly and the various complications they experience (Nakamura-Taira et al., 2021). The adaptation time carried out by each patient is different in length, the longer the patient undergoes hemodialysis, the better the patient's adaptation because the patient has received health education or information from health workers (Damayantie et al., 2022). Furthermore, Damayantie et al., (2022), explained that the long time undergoing of hemodialysis makes patients understand the importance of compliance

with the hemodialysis process so that patients can benefit from hemodialysis therapy.

According to Hadrianti, (2021) the reason for undergoing hemodialysis for a long time is routine hemodialysis therapy, taking regular medication, controlling blood pressure and following a food diet such as limiting protein, sodium, potassium, and fluid intake which can maintain health and minimize the burden on damaged kidneys (Handini & Hunaifi, 2022). Routine laboratory monitoring is also very important to detect and treat kidney health problems early (Herman et al., 2019).

### **2. Cognitive Impairment in Chronic Renal Failure (CRF) patients**

From the results of the study, the average score of cognitive impairment was 22 points (mild cognitive impairment) with the lowest score of 9 points (severe cognitive impairment) and the highest score of 30 points (normal) with the majority experiencing impaired cognitive dimensions of memory (delayed recall) with the worst percentage of 46%. Purnama and Armelia, (2021) research, shows the majority experienced mild cognitive decline in 56 (54.9%) people with the majority experiencing impaired cognitive dimensions of memory (delayed recall). Zahroh and Amalia, (2019) research, stated that 70% of respondents experienced mild cognitive impairment with the majority experiencing impaired cognitive domain memory (delayed recall). Research by Herman et al., (2019) found that 70% of patients with chronic renal failure also experienced mild impairment with the majority experiencing cognitive memory domain impairment as much as 56%. Research by Alirudin et al., (2020) also stated that the majority of chronic renal failure patients undergoing hemodialysis experienced mild cognitive impairment as many as 36 (90%) people



with memory domain disorders (delayed recall) as many as 30 (27.5%) people, followed by the visuospatial domain as many as 24 (22%) people.

Cognitive impairment in patients with chronic renal failure who are undergoing hemodialysis worsens because patients undergoing dialysis have reached end-stage renal failure (Husein et al., 2020). One of the causes that aggravates the decline in cognitive function in the end stage is azotemia syndrome which occurs due to increased levels of ureum and creatinine in the blood, the hemodynamic stress cycle associated with hemodialysis coupled with extensive vascular disease can accelerate the cognitive decline characteristic of cerebral vascular disease (Lestari et al., 2021). Lestari et al., (2021) further explained that patients who experience mild cognitive impairment will suffer from alzheimer's dementia within the next 5-7 years.

Alzheimer's dementia is a neurodegenerative disorder that causes a progressive decline in cognitive abilities, especially memory, which ultimately impairs the daily functioning and independence of individuals (Nindela et al., 2023). Nindela et al., (2023) further explained that in alzheimer's dementia, impaired memory cognitive function is usually the beginning of the disease, followed by impaired visuospatial, language and attentional cognitive domains later on. Conversely, in vascular dementia (disorders caused by blood supply problems to the brain that cause strokes), it is usually the visuospatial cognitive domain that appears earlier than the memory cognitive domain (Hadrianti, 2021). The state of uremia causes the activity of making the hormone erythropoetin to be suppressed, causing disturbances in the hematopoiesis system which results in a decrease in the number of red blood cells and hemoglobin levels (Rahman et al., 2019).

### **3. The Cognitive Impairment on Chronic Renal Failure (CRF) Patients Undergoing Hemodialysis**

The results of the Pearson Product Moment correlation analysis show that there is a relationship between the long time undergoing hemodialysis and the cognitive impairment of chronic kidney renal failure patients at RSUP Dr. Kariadi Semarang ( $p=0.000$ ) and ( $r=-0.610$ ), meaning that the longer the hemodialysis, the cognitive impairment of chronic renal failure patients decreases. Purnama and Armelia, (2021) research on 102 respondents found a relationship between the long time undergoing hemodialysis and cognitive impairment  $p$  (0.002), Herman et al., (2019) research on 74 respondents found a relationship between the long time undergoing hemodialysis and cognitive impairment, namely  $p$  (0.001) with  $r$  (0.371), Triyono et al., (2023) research on 30 respondents found a significant relationship between the long time undergoing hemodialysis and the cognitive impairment of chronic renal failure patients  $p$  (0.031).

The long time undergoing hemodialysis is closely related to the efficiency and adequacy of hemodialyzes, so the long time is also influenced by the rate of uremia due to the progressivity of the deterioration of kidney function and its comorbidity factors, as well as the speed of the blood flow and the dialytic flow rate, so it is stated that the longer the haemodialytic process, the longer blood is outside the body, so more anticoagulants are needed so that there is an intradialytic hypotension. (Luthfiana & Harliansyah, 2019). Patients who receive repeated hemodialysis then episodes of hypotension during treatment can cause further damage to ischemia of the sensitive frontal subcortical circuit (Drew et al., 2020). If a deficiency of nitric oxide can interfere with brain flow, it can cause

physical stress, fatigue, headaches and cold sweating as a result of low blood pressure (hypotension) so that the patient's thinking patterns and concentration will be disrupted and will experience a decrease (Drew et al., 2020).

However, the study of Wahyuni et al., (2019) in 83 respondents found no significant relationship between long time undergoing hemodialysis and cognitive impairment of patients with chronic kidney failure  $p(0,375)$ . Thus, Zahroh and Amalia, (2019) of 26 respondents stated that the absence of long relationship undergoing hemodialysis with cognitively functioning of patients of chronic renal failure  $p(0,337)$ . According to (Radic et al., 2020) long time undergoing hemodialysis and cognitive function of patient with chronic renal failure is unrelated because of cognitive functional problems not only experienced by patients with long periods of hemodialysis, but rather quite a number of patients who have just undergone hemodialysis but have severe cognitive function problems.

## CONCLUSIONS

There is a significant relationship between the long time undergoing hemodialysis and the cognitive function of chronic renal failure patients at RSUP Dr Kariadi Semarang ( $p = 0.000$ ), with a strong relationship in the opposite direction ( $r = -0.610$ ). The need to improve cognitive memory domain, such as conducting periodic cognitive screening with high-sensitivity instruments on hemodialysis patients who have a risk of severe dementia.

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## **ELECTRONIC MEDICAL RECORDS AS DIGITAL TRANSFORMATION IN INDONESIAN HEALTH SERVICES 4.0**

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ABSTRACT	Keywords
<p>The application of Electronic Medical Record in the era of Digital Transformation Indonesia 4.0 is the main pillar in revolutionizing health services. EMR presents a fundamental shift in medical information management by replacing traditional medical records with integrated electronic forms. Thus, this makes quickly access and share patient data, improve coordination between providers, and inform more accurate clinical decision making. This study aims to systematically review the implementation Digital Transformation in Indonesian as a planning to achieve Health Services 4.0. This study implements systematic reviews using Preferred Reporting Systematic Reviews and Meta-analysis (PRISMA) approach. Research articles published from google scholar, PubMed and sagepub. To take appropriate and relevant article research, relevant keywords or terms are constructed as the following words: Digital transformation OR digital revolution OR digital 4.0; Health services OR health care OR Health facilities; Digital medical records. 30 articles were collected from: Google Scholar, PubMed and Sagepub. The quality of these articles was evaluated, resulting in 7 articles being synthesized in the final literature review report. The results show that EMR analyzes in-depth data, supports the development of evidence-based health policies, and personalizes care according to patient characteristics. The adoption of EMR also presents challenges, including data security and privacy protection where cybersecurity and regulatory compliance are critical.</p>	<p><b>Electronic Medical Records, Digital Transformation, Health Services</b></p>

## **INTRODUCTION**

Digital transformation has brought profound changes in almost all aspects of human life, including healthcare. In Indonesia, digital transformation in health services, known as Health Indonesia 4.0, has become the main focus in improving accessibility, efficiency, and quality of health services for the community. One of the main pillars of this transformation is the application of Electronic Medical Records or Rapid Medical Evaluation (RME) as the foundation for modernizing health facilities (Ricciardi et al., 2019).

As an archipelagic country with a large population spread across various regions, Indonesia has challenges in providing equitable and quality health services. Digital transformation is the solution adopted to overcome these challenges. In Indonesia Health 4.0, the application of information and communication technology has shifted from conventional to technology-based systems. RME is a central component in this transformation, with its potential to change the way health services (Baetens, 2015; Doan et al., 2023).

RME is a medical information management system in digital form that records patient medical history, diagnoses, test results, treatment plans, and other patient-related information. The implementation of RME provides several significant benefits for health services, including administrative efficiency, better information accessibility, increased coordination between health services, and more accurate clinical decision-making. In the context of Indonesia Health 4.0, RME has a broad positive impact (Hapsari & Mubarakah, 2023). One of the main aspects of digital transformation in health services is increasing the accessibility of services for the community, especially those who are in remote or outmost areas (Laksono et al., 2023). Through the implementation of RME, patient health information can be accessed remotely by competent medical personnel, reducing the need for patients to travel long distances to get consultations or services. This has the impact of reducing

costs and time required, as well as helping to bridge the service gap between urban and rural areas.

In addition, RME also contributes to increasing the operational efficiency of health facilities. Administrative processes that are sometimes complicated and time-consuming in conventional medical records can be simplified through digital systems. Patient medical records can be input, managed, and accessed quickly and easily, enabling medical personnel to allocate more focus on treatment and care.

The RME system also allows data integration between various health services, such as hospitals, clinics, pharmacies, and laboratories, which can improve service coordination and avoid unnecessary test repetitions. (Kurniadi & Pratiwi, 2017). Security and privacy aspects are also the major focus in implementing RME. Digital management of patient medical data requires strong protection against potential cybersecurity threats (Lase et al., 2021), especially for patient privacy rights and related regulations, such as the Health Act and the Personal Data Protection Act. In developing and implementing an RME system, it is important to ensure that sensitive patient data is safe and can only be accessed by authorized parties (Kementerian Kesehatan Republik Indonesia, 2020).

The application of RME also has a positive impact on clinical decision-making. By having easier and more comprehensive access to a patient's medical history, medical personnel can do a more precise diagnosis and a more appropriate treatment plan. Data collected from various patients can also be used for more in-depth analysis of disease trends, treatment effectiveness, and public health patterns, which in turn can help better health policy planning (Koten et al., 2020).

Some challenges may occur during implementation of RME, such as the lack of adequate technology infrastructure in some areas of Indonesia, lack of digital awareness and skills among medical personnel, and regulatory and compliance issues related to data privacy. Therefore, digital transformation in health services must be



followed by educational efforts, infrastructure investment, and development of appropriate regulations (Arie Gunawan, 2023). Governments need to play a role in providing enabling regulations, investing in technology infrastructure, and supporting training for medical personnel. Health institutions need to properly adopt and integrate the RME system, while ensuring the security and privacy of patient data (Yamin, 2018). The technology industry plays a role in developing RME solutions that are safe, reliable, and easy to use. Meanwhile, the community must be empowered through education to understand the benefits and how to use RME wisely (Herlina et al., 2022).

This study aims to systematically review the implementation Digital Transformation in Indonesian as a planning to achieve Health Services 4.0. This study focus on the utilisation of Electronic Medical Records as the Main Pillar of Health Facilities in the Modern Era.

METHOD

This study was implemented systematic review design and illustrated using the *Preferred Reporting Systematic Reviews and Meta-analysis* (PRISMA) approach to collect and analysis the included documents, as presented in figure 1. *The Systematic Literature Review* (SLR) method is a systematic and structured approach to compiling and analysing literature that is relevant to a particular research topic or research question. This method is designed to provide a comprehensive and objective review of the existing literature, taking into account the strict research standards (Purnomo & Usman Husaini, 2008).

Search criteria and sources

Published article research from a wide range of database were used, including google scholar, PubMed and sagepub. To retrieve the appropriate and relevant article research, relevant keywords or terms were constructed as the following words: (1) Digital transformation OR digital revolution OR digital 4.0; (2) Health service OR healthcare OR Health facilities; (3) Digital medical record.

In the initial search, 30 articles were selected from two databases: Google Scholar, PubMed and Sagepub and examined based on inclusion and exclusion criteria as depicted in table 1. After going through the screening stage, 7 articles were included for the next step. The quality of these articles was evaluated, resulting in 7 articles being synthesized in the final literature review report.

Table 1. Inclusion and Exclusion Criteria

Inclusion/Exclusion	Criteria
Inclusion	Article published between 2003 to 2023.
Inclusion	Article published in Indonesian and English.
Inclusion	Article published in reputable peer-reviewed journals.
Exclusion	Articles covering digital transformation in health sectors.
Exclusion	Duplication article from various databases.
	Short-paper, editorial and thesis report

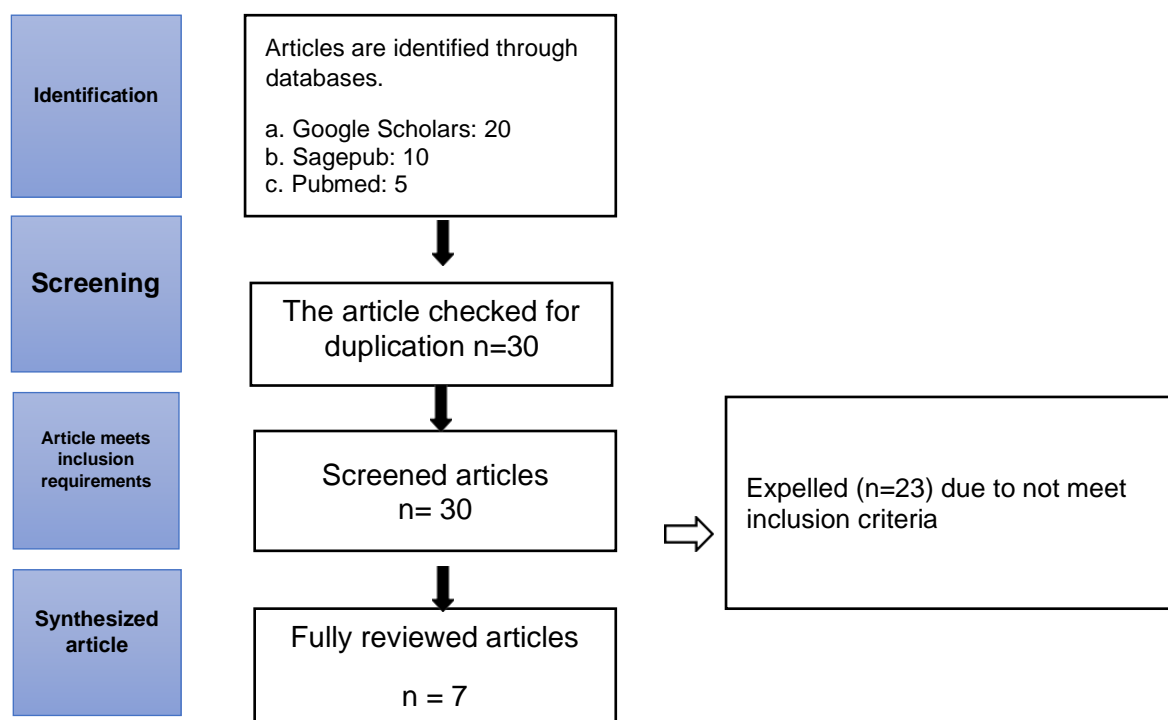


Figure 1. Diagram of PRISMA

Selected articles were extracted to gather data from prior to reviewed with a focus on two aspects, namely Digital Transformation

in Indonesian Health Services 4.0: Electronic Medical Records as the Main Pillar of Health Facilities in the Modern Era.

**Table 2.** Articles of Digital Transformation in Indonesian Health Services 4.0 Included in Review

Title and Researcher	Objective	Results
Analysis of Readiness for Electronic Medical Record (RME) Implementation (Hapsari & Mubarakah, 2023)	To evaluate the readiness of implementing RME through the Doctor's Office Quality-Information Technology (DOQ-IT) approach at the Polkesmar Primary Clinic.	The results showed that the Primary Polkesmar clinic had achieved a high level of readiness to adopt RME, reflecting strong readiness in the aspects of human resources, organizational work culture, governance and leadership, and IT infrastructure. Human resources show high enthusiasm for RME. Leadership policies also motivate staff to comply with RME provisions. Adequate IT infrastructure has also supported the implementation of RME.
Analysis of Patient Information Security Aspects in the Implementation of RME in Health Facilities	To understand how the level of security of patient data information in the context of implementing RME, seen from the perspective of	The results of the analysis of the articles reviewed regarding 6 aspects of information security show that it focuses on things such as usernames and passwords, actions to change data by administrators, application of electronic signatures and PINs, use of data backup processes to prevent hacking, restrictions on access rights through the use of IDs user and password, and log file utilization. In general, health facilities have taken

(Sofia et al., 2022)	information security aspects.	steps to secure data in their information systems. System managers need to consider developing methods to maintain data security more effectively, focusing on the six aspects of information security in the use of electronic medical records.
Electronic Medical/Health Records (RMKE): Health System Integration (Gunawan et al., 2020)	This article will explain in detail the use of electronic medical or health records, the essential steps for implementing them, as well as potential problems that may arise in the implementation process.	The use of electronic medical records has changed the way conventional health services, interactions between doctors and patients, and the utilization of health information and data. There are three main aspects in the application of electronic medical records related to medical ethics, namely privacy, confidentiality, and security. Health care providers need to develop a comprehensive electronic medical record system and carry out effective outreach efforts. Full support from all parties involved is very important to ensure smooth handling of potential problems.
Electronic Medical Records as a Support for Patient Service Management at Gadjah Mada University Hospital (Rika Andriani et al., 2022)	Investigate experiences and positive impacts felt by users on the implementation of Electronic Medical Records (RME) in managing patient care.	The results of the study show that the advantages of implementing RME in patient care management involve support for patient safety, reduction of double examinations, smoothness of care and service planning, efficiency in service, and collaboration across health workers. To optimize this benefit, it is necessary to develop a reminder feature for patients. In addition, periodic training conducted by the SIRS Installation and IT team, for both new and experienced staff, is also required.
Perceptions of Health Workers on the Role of Electronic Medical Records as Supporting Patient Service Management (Rosyada et al., 2017)	This study aims to investigate the views of health workers on the use of electronic medical records in managing patient care, as well as to investigate barriers and successful approaches to implementing electronic medical records from the perspective of health workers.	Problems that still arise lie in the input and process stages of using electronic medical records, where difficulties in entering complete medical record data are still an obstacle, and there are errors in the process that disrupt services. Within the UTAUT framework, this problem falls under the category of "facility conditions". To increase the full adoption rate of Electronic Medical Records, it is necessary to improve the behavioral aspects of use or acceptance. This can be achieved by improving the path of the factors that influence these aspects.
Electronic Media Records: Exploring Benefits in the Context of Basic Health Services	The purpose of this study was to evaluate the advantages of using an electronic-based system in terms of time efficiency and	Even though the implementation of the electronic-based system has just started for two weeks, it appears that the socio-technical aspects provide significant support for the successful transition from paper medical records to electronic medical records. The main advantage of this switch is the

(Erawantini et al., 2022)	completeness of patient medical records in basic health care facilities. The research will also examine socio-technical factors in the adoption of electronic medical records.	improvement of patient medical records, effectively supporting clinical decision making and potentially improving patient safety.
Implementation of Electronic Medical Records with Clinical Decision Support Systems (Erawantini & Wibowo, 2019)	The purpose of this study is to implement the Electronic Medical Record (RME) application in educational clinics and assess the level of user satisfaction with the implementation of the RME application.	Over a period of 2 months, RME with the support of a clinical decision system was implemented in the Educational Clinic without eliminating the use of paper medical records. The evaluation results from users of RME applications with clinical decision support systems show that users agree with the content, format, ease of use, and the application's ability to provide timely data. The RME application also has clinical decision support features such as blood pressure assessment, risk of Diabetes Mellitus, risk of stroke, drug interactions with a history of allergies, as well as alerts for abnormal laboratory and radiological examination results.

## RESULTS & DISCUSSION

### The Implementation of Electronic Medical Records (RME) in Health Facilities

The implementation of Electronic Medical Records (RME) in the era of digital transformation in Indonesian health facilities has had a significant impact on operational efficiency and accessibility of health services. Concretely, the use of RME has resulted in administrative efficiency that frees medical personnel from routine administrative work. The process of making medical records, visiting schedules, and prescription management can be automated, providing more space for medical personnel to focus on direct services to patients (Prasetya, 2019).

RME expands the accessibility and mobility of health services, especially for those who are in remote or hard-to-reach areas. With digital facilities, patients can easily access their medical records and communicate with medical personnel

remotely, reducing geographical barriers and travel costs that are often an obstacle. In addition, this platform also enables medical professionals who work mobile or are based in various places to engage in patient care without barriers (Mursalat et al., 2022).

Improving the quality of health services is another key aspect affected by the implementation of RME. With quick and detailed access to patient medical information, medical professionals have more powerful tools to make informed diagnostic decisions and plan more individualized care. This impact contributes to a better quality of care and reduces the potential for medical errors (Nirwana & Ata, 2023).

Health service integration is also enhanced through RME. Medical data can move seamlessly between different healthcare facilities, avoiding unnecessary duplication of checks and treatments. This saves time, costs, and resources, and allows healthcare providers to have a more holistic

view of a patient's condition. In addition, the application of RME enables long-term health monitoring in a more effective manner. Medical personnel can monitor disease progression and response to treatment over time, especially important in the management of chronic diseases (Erawantini et al., 2022).

However, while recognizing the benefits, implementing RME also faces challenges that must be overcome. Substantial investment in technology infrastructure and training of medical personnel is required to ensure smooth implementation. Data security and patient privacy are also a top concern, given the potential risks of cyberthreats and privacy breaches (Kusnadi et al., 2021). Therefore, close cooperation between governments, healthcare institutions, and the technology industry is essential in addressing this challenge, while ensuring that the benefits of RME are maximized without compromising patient safety and privacy.

#### **Positive Impacts and Obstacles: Security, Privacy, and Patient Data Protection Aspects of RME**

The adoption of Electronic Medical Records (RME) in Indonesian health services requires a mature approach to respond to positive impacts and overcome obstacles that arise. The main focus should be placed on several key aspects. First, data security and protection is a priority with the adoption of advanced cybersecurity technologies such as end-to-end encryption and strong authentication protocols to prevent cyberthreats and hacking of patient data. Second, it is important for health facilities to comply with data privacy regulations and related laws, so revisions to the RME system need to be made in order to comply with applicable legal standards (Silalahi, 2022).

In-depth training efforts for medical personnel and staff are key. They need to gain a solid understanding of data security, electronic medical information management, and ethics in the use of RME.

Not only that, the privacy awareness program also needs to be emphasized so that all parties understand the importance of maintaining the confidentiality of patient data (Amin et al., 2021). Close cooperation with the authorities and related institutions also cannot be neglected. Their involvement in developing regulatory compliant RME implementation guidelines will help ensure regulatory compliance. Support from the authorities will also facilitate enforcement and oversight.

Equally important, there needs to be an effort to bring the technology to remote areas. The government and related institutions must prioritize the development of technological infrastructure in the region. This includes providing affordable internet access, technology training, and providing the necessary equipment. By overcoming technological barriers in remote areas, digital transformation in healthcare can be more equitable.

RME implementation through this approach, has the potential to provide significant positive impacts, while successfully overcoming obstacles that may arise. Collaboration between the government, health institutions, the technology industry and the public will build a solid foundation for the digital transformation of healthcare services in Indonesia, while upholding the integrity, security and privacy of patient data.

#### **An Effective Clinical Decision Making, Patient Management, and The Quality of Medical Care**

The application of Electronic Medical Records (RME) in the era of digital transformation in the health sector has a significant impact on clinical decision making and more effective patient management, as well as making a real contribution to improving the overall quality of medical care. In various interconnected aspects, RME presents positive changes that benefit patients, medical personnel, and the health care system as a whole (Dhopeshwarkar et al., 2018).



Quick and centralized access to patient information through RME allows doctors to access patient medical data more easily. This helps in making more informed and responsive clinical decisions, especially in emergency or treatment situations that require prompt action. Then, RME also enables more robust data-driven decision making. By analysing data from multiple patients, medical personnel can identify disease trends, response to treatment, and expected outcomes (Tan et al., 2017). Decisions based on evidence and data reduce the risk of misdiagnosis and improve the quality of care. Furthermore, RME enables better personalization of care. With access to more complete information about each patient, doctors can design treatments that suit individual needs and preferences. This results in more effective care and ensures patients feel individually treated.

The use of RME also helps in monitoring patients in real-time. Doctors can monitor patient health parameters continuously and respond quickly if there are changes that require medical intervention. In addition, coordination between healthcare providers is enhanced through centralized sharing of medical information. This ensures that patients receive holistic and coordinated care, avoiding unnecessary duplication of tests or treatments (Sari & Rahman, 2018).

It is also important to note that RME helps in reducing the risk of human error that can occur in the management of physical medical records. Data that is structured and easily accessible through electronic systems reduces the potential for misinterpretation or loss of information (Irmawati, 2018). RME also allows for more accurate tracking of medication history. Doctors can easily access medical history and previous medical procedures for patients, ensure proper follow-up care and avoid duplication of procedures.

The implementation of RME (Real-Time Medical Evaluation) in healthcare practice has yielded significant positive outcomes. It not only facilitates well-informed clinical decision-making and

personalized care but also enhances patient management, minimizes the risk of errors, and contributes to the overall enhancement of medical care quality. By leveraging this technology, the healthcare system can progress towards a future characterized by increased efficiency, effectiveness, and responsiveness to patient requirements.

### **Technical, Regulatory and Social Challenges of RME**

Facing the complex challenges of adopting Electronic Medical Records (RME) as an integral part of digital transformation in Indonesian health services 4.0, proactive and collaborative steps are urgently needed. Technical, regulatory and social challenges require a holistic and integrated approach to ensure the success and sustainability of RME implementation. In addressing the technical challenges, the government and related institutions need to do things such as invest in technology infrastructure, especially in remote areas, to ensure adequate connectivity for RME adoption. Develop uniform and compatible interoperability standards to ensure smooth exchange of data between health facilities. As well as, providing intensive and ongoing training to medical personnel and health staff so that they are able to operate RME properly and understand the principles of cybersecurity.

However, addressing regulatory challenges also requires steps such as collaborating with regulators in formulating guidelines and regulations that are in line with the dynamics of digital transformation in the health sector. In fact, it can also form a special team that is responsible for monitoring and quick adaptation to regulatory changes that may occur. Meanwhile, in overcoming social challenges, efforts are needed to increase public understanding and acceptance of RME, namely conducting a comprehensive educational campaign that highlights the benefits of RME in improving the quality of health services and maintaining patient data security. Presents successful real-life case examples to strengthen the evidence that

RME is safe and beneficial. Also, involve various parties such as community leaders, health experts, and influencers in order to build public confidence and support for the adoption of RME.

The involvement of all stakeholders, including governments, healthcare institutions, technology providers, regulators, as well as the community, is critical to creating an ecosystem that supports the successful adoption of RME. By prioritizing transparency, data security, public education, and prudent regulations, the implementation of RME can be a milestone in providing better, more efficient and affordable health services for all Indonesians in the era of digital transformation 4.0 (Wulandari et al., 2019).

## CONCLUSIONS

Indonesia's Digital Transformation Era 4.0, the application of Electronic Medical Records (RME) has brought profound changes in health services, as it plays a key role in improving the efficiency, accuracy and quality of medical care. These advantages are realized through more informed clinical decision making based on integrated data and in-depth analysis. The ability to access real-time patient information allows for better coordination between healthcare providers and better personalization of care according to individual needs. However, challenges related to data security and privacy must be taken seriously through sophisticated cybersecurity measures and regulatory compliance. The application of RME must prioritize transparency, trust, and safety of patient data. With all the challenges and potentials, RME brings positive changes in Indonesian health services. This encourages the healthcare system to become more adaptive, responsive and patient-focused.

**Declaration  
Ethical Approval and Consent  
Participant**  
Not Applicable

## Conflict of Interest

The authors declared that there is not any conflicting interest in this study.

## Availability of Data and Materials

Data and material research can be provided at open data repository (Google Scholar, PubMed and Sagepub). Data Sharing is not applicable to this article as no new data were created or analysed in this study.

## Author Contributions

Authors have made substantial contributions to the conception; design of the work; the acquisition, analysis, and interpretation of data; the creation of new software used in the work and have drafted or substantively revised it.

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## DECREASED EXPIRATORY PEAK CURRENT IN COPD PATIENTS WITH BUTEYKO BREATHING TECHNIQUES

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ABSTRACT	Keywords
Chronic obstructive pulmonary disease is still a threat to the world community COPD will have a negative impact on the health of sufferers. The purpose of this study was to analyze the effect of buteyko breathing on expiratory peak currents in COPD patients. This research is a type of quantitative research with a pre-experimental design through a one group pre-post test design approach. The sample in this study was 58 COPD patients who fit the inclusion criteria. The tools used for data collection are peak flow meters to measure expiratory peak flows and SPO for buteyko breathing exercises. The results of the study included the average value of the peak expiratory current before giving buteyko breathing was 158.34 L / minute with a standard deviation of 69.1899. The average peak expiratory current after buteyko breathing is 144.42 L/min with a standard deviation of 16.21961. The difference in the increase in expiratory peak current before buteyko breathing and after buteyko breathing was 24.91. The paired t test results are p value of 0.001, it was found that there was a significant effect of buteyko breathing on the increase in expiratory peak current of COPD patients. Structured breathing exercises from buteyko exercise have the potential to increase lung capacity, allow for more efficient oxygen uptake, help achieve deeper and more efficient breathing, potentially affect oxygen saturation levels.	<b>Buteyco exercise, COPD, Expiratory peak current</b>

### INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a group of chronic lung diseases that last a long time and are accompanied by increased resistance to airflow (Paramitha, P, 2020). Chronic obstructive pulmonary disease is a preventable and treatable disease, characterized by persistent airflow limitation, is progressive, and is

accompanied by a chronic inflammatory response in the pulmonary airway due to harmful gases or particles. Exacerbations and comorbidities contribute to the worsening of the disease. Chronic obstructive pulmonary disease is a chronic inflammatory process of the lung, including chronic bronchitis with fibrosis accompanied by small airway obstruction,



and emphysema with dilation of the air cavity accompanied by destruction of the lung parenchyma, decreased lung elasticity, and obstruction of the small airway Chronic obstructive pulmonary disease (Prastyanto, D., & Kushartanti, W. (2019). Chronic obstructive pulmonary disease still a threat to the world community (Quaderi, S. A., & Hurst, 2018). COPD will negatively affect the health of the sufferer. This disease has a prognosis that will continue to worsen over time, One of the impacts that will be felt by patients is the presence of productive cough that occurs continuously. One risk factor for COPD is secondhand smoke exposure (PDPI, 2017).

COPD is associated with a high prevalence of comorbid conditions that will further negatively impact prognosis and quality of life. Exacerbations are the most important cause of morbidity in COPD. Once a patient comes to an emergency facility or undergoes hospital treatment for worsening or exacerbation, there is a high risk for re-treatment and mortality. Mortality in patients hospitalized for exacerbations with hypercapnia and acidosis is estimated at 10%. Mortality was 40% in patients requiring mechanical ventilation 1 year after treatment and mortality was 49% due to various causes 3 years after the patient was discharged from previous treatment (Ananta Wijaya, I. K., Mertha, I. M., & Ari Rasdini, I. G. A. (2020).

Based on the World Health Organization (WHO) report in the World Health Report 2000 states, five major lung diseases constitute 17.4% of all deaths in the world, each consisting of lung infections 7.2%, COPD (Chronic Obstructive Pulmonary Disease) 4.8%, Tuberculosis 3.0%, lung / tracheal / bronchial cancer 2.1% and COPD 0.3% (Kementrian Kesehatan RI, 2014).

The incidence of COPD in Indonesia is increasing. The results of the Basic Health Research of the Indonesian Ministry of Health in 2018, found the prevalence of chronic obstructive pulmonary disease (COPD) in Indonesia as much as 3.7%. A

high prevalence indicates that the management of COPD has not been successful. Various factors are the cause of the situation, namely various deficiencies in terms of knowledge about COPD, conducting evaluation after therapy, systematics and implementation of management, prevention efforts and counseling in the management of COPD. Given this, the best management of COPD must be done early with various preventive measures so that sufferers do not experience COPD attacks (Smeltzer. 2011).

The assessment of the degree of obstruction can be determined by monitoring the Expiratory Peak Current (APE). APE monitoring is important to assess the severity of COPD, degree of diurnal variation, treatment response during an acute attack, detection of worsening before it becomes serious, long-term treatment response, and identification of triggers such as environmental exposure. In patients with COPD, the APE value is at normal values. APE examination is easy and simple to assess the weight of airway obstruction using a Peak Flow Meter. Peak Flow Meter is relatively cheap and can be carried everywhere, so the examination can not only be done in clinics, hospitals but can be done at the patient's home independently, but not many COPD sufferers understand and use it (PDPI, 2017).

The problem of peak expiratory current also occurred in the previous study conducted by Wijaya et al., 2020, namely the average peak expiratory current of patients before the administration of Buteyko breathing technique was 75.764%, which if interpreted that the average flow of 22 respondents experienced mild obstruction (APE 60-80%). From the 22 respondents, the average respondent expiratory peak current was 75.764% (95% CI: 72.72-78.81%) with a standard deviation of 6.872%, the lowest respondent expiratory peak current was 63.68% and the highest expiratory peak current was 85.75%. Based on the results of the interval estimation, it

can be concluded that 95% is believed to be the average peak current of expiration before the administration of Buteyko's breathing technique. This shows that respiratory obstruction still has a great influence on the peak flow of expiration.

The number of COPD sufferers in Indonesia, of course, requires a solution so that COPD can be reduced, in addition to doctor treatment, there must be treatment outside that that serves as therapy to help reduce COPD symptoms. The right therapy in order to help and reduce COPD sufferers in Indonesia, namely with complementary (nonpharmacological) therapies, one of which can be done by breathing techniques. In this technique, breathing techniques are taught when patients have COPD. One of the methods developed to improve breathing in COPD patients is breathing techniques, which can include aerobic exercise, gymnastics, and breathing techniques such as Thai chi, Yoga, Mahatma, Buteyko and Pranayama. Buteyko is a therapy that studies breathing techniques designed to slow and reduce the entry of air into the lungs, if this technique is practiced frequently and regularly, it can reduce the symptoms and severity of breathing problems. The advantages of Buteyko's breathing exercises are, (1) encouraging the patient to breathe slightly, (2) training the patient's breathing pattern using a series of breathing exercises, (3) improving control of COPD symptoms and the recurrence rate of COPD (Juwita, L., & Sary, I. P., 2019).

Buteyko breathing techniques have been shown to be effective in lowering the recurrence rate of COPD. This buteyko breathing technique can be seen results in one week if done 1 time a day for 20 minutes regularly by holding your breath through the nose and exhaling through the nose in a comfortable position (Arif, M., & Elvira, M., 2018). Buteyko Breathing Technique is a series of breathing exercises that are carried out simply as COPD management management which aims to reduce airway constriction with the principle of shallow

breathing exercises. Buteyko is a therapy that studies breathing techniques designed to slow and reduce the entry of air into the lungs, if this technique is practiced frequently and regularly, it can reduce the symptoms and severity of breathing problems (Juwita, L., & Ine, P. S., 2019). From the background above, researchers are interested in conducting research on the effect of buteyko exercise on decreasing expiratory peak current in COPD patients.

## METHOD

This research is a type of quantitative research with a pre-experimental design through a one group pre-post test design approach. The pre-experimental design is carried out through the provision of intervention in the form of buteyko breathing exercises, where the intervention or provision of buteyko breathing exercises will be applied to one group while the measurement process is carried out before the intervention or pre-test is applied and after the intervention or post-test is applied. The population in this study is all COPD patients in Sumberkembar hamlet. Samples were obtained by taking some members of the population using purposive sampling techniques. There are two variables in this study, namely Buteyko breathing exercises and peak expiratory current. The action is given to the sample object for 15 minutes. 5 minutes before and 5 minutes after the measurement of the peak expiratory flow. The tools used for data collection are peak flow meters to measure expiratory peak flows and SPOs for buteyko breathing exercises. Data collection is tabulated with general and special data tabulation formats. Data analysis using univariate and bivariate

analysis. The statistical test used is the paired t test.

The Paired T Test statistical analysis test found that the expiratory peak current has a p value =  $0.000 < \alpha 0.05$ , it can be concluded that  $H_0$  is rejected or  $H_a$  is accepted which means that there is an effect of buteyko breathing on the expiratory peak current in COPD patients in the Working Area of public healthcare Pandan Mojokerto.

This research has been conducted an ethical test and has received an ethical approval with a number 114/KEPK-SM/2023.

## RESULTS

**Table 1. Frequency Distribution of Respondents The Effect of Buteyko Breathing on Expiratory Peak Current in COPD Patients**

Characteristics of Respondents	Frequency	
	f	%
<b>Age</b>		
Early elderly	30	52
Middle elderly	20	34
Old elderly	8	14
<b>Gender</b>		
Male	4	7
Female	54	93
<b>Education</b>		
No school	2	3
Elementary school	51	89
Primary High School	5	8
Senior High School	0	0
<b>Smoking Habits</b>		
Smoke	55	95
No Smoking	3	5
Total	58	100

**Table 2. Expiratory Peak Current Before (Pre Test) Buteyko Breathing**

Variabel	Mean	Median	Standar Deviasi	Min-Max
Expiratory peak current	195.95	195	69.1899	65-340

(Table 2) shows that the average value of expiratory peak current before buteyko breathing is 158.34 L/min with a standard deviation of 69.1899.

**Table 3. Expiratory Peak Current Before (Post Test) Buteyko Breathing**

Variabel	Mean	Median	Standar Deviasi	Min-Max
Expiratory peak current	220.86	200	76.3943	120-350

(Table 3) shows that the average peak expiratory current after buteyko breathing is 144.42 L/min with a standard deviation of 16.21961.

**Table 4 The effect of buteyko breathing on the peak expiratory current in COPD patients**

Variabel	Mean		Seli sih	95% CI		P Value
	Pre	Post		Lower	Upper	
EPC	195.95	220.86	24.91	39.354	10.47	0.001

(Table 4) shows the results of the Paired T Test statistical analysis test found that the expiratory peak current has a p value =  $0.000 < \alpha 0.05$ , it can be concluded that  $H_0$  is rejected or  $H_a$  is accepted which means that there is an effect of buteyko breathing on the expiratory peak current in COPD patients.

## DISCUSSION

The difference in the increase in expiratory peak current (APE) before buteyko breathing and after buteyko breathing was 24.91 with a p value of 0.001, it was found that there was a significant effect of buteyko breathing on the increase in expiratory peak current (APE) of COPD patients.

Expiratory Peak Current is the maximum velocity value of current generated during expiration or exhalation, which usually occurs in the first 150 milliseconds of the forced expiratory maneuver (Mangunnegoro, 2011, in Ariyastuti, 2018). According to Laim, et al, (1998) in Emi (2016) the normal APE rate for adult men is around 500-700 L / minute, while for adult women ranges from 280-500 L / minute. The decrease in the value of the expiratory peak current indicates a narrowing of the respiratory tract (Indonesian Association of Lung Doctors, 2003).

There are several breathing therapies that aim to correct hyperventilation and restore normal carbon dioxide tension. Breathing biofeedback using a manometer to monitor end-tidal carbon dioxide levels during breathing training is one approach to treating hypomania. Biofeedback training that employs the use of a capnometer aims at normalizing end-tidal CO<sub>2</sub> at approximately 5%. There are various systems for capnometry biofeedback available to the practitioner and in recent years these have become increasingly available. Other breathing therapists use no instrumentation and rely on a combination of slow controlled breathing, breathing pattern correction and relaxation strategies. The Buteyko Breathing Technique (BBT) is yet another technique whose primary aim is the correction of acute and chronic hypocapnia. It uses a unique set of breathing techniques in which breath holding is combined with reduced volume breathing. BBT exercises aim to increase carbon dioxide and reset chemoreceptor thresholds however they may also be useful in reducing hyperinflation (Chauhan, R, 2013).

The main breath control technique of the Buteyko Breathing method is reduce volume breathing, where the individual tries to decrease minute volume and raise alveolar

CO<sub>2</sub> by reducing tidal volume, i.e. the size of the inhalation and exhalation phase of each breath. It is particularly important that patients relax during reduce volume breathing to counteract their body's natural tendency to increase respiratory rate as a response to decreased tidal volume (Courtney, R. 2014).

The Buteyko method is a purported method of "retraining" the body's breathing pattern to correct for the presumed chronic hyperventilation and hypocapnea, and thereby treat or cure the body of these medical problems (Sharma et al, 2019).

Buteyko Breathing Technique is a series of breathing exercises that are carried out simply as COPD management management which aims to reduce airway constriction with the principle of shallow breathing exercises. The buteyko breathing technique is a technique to correct hyperventilated diaphragmatic (chest) breathing and slow down the frequency of breathing to normalize. This technique is done by breathing through the nose (Juwita, L., & Ine, P. S., 2019).

This breathing approach teaches a more controlled breathing pattern, by lowering the rapid, shallow breathing rate, avoiding hyperventilation and decreased levels of carbon dioxide in the blood. Structured breathing exercises from the Buteyko Exercise Technique have the potential to increase lung capacity, allowing for more efficient oxygen absorption. A focus on relaxation and stress reduction can help achieve deeper and more efficient breathing, potentially affecting oxygen saturation levels. The potential reduction of inflammation in the respiratory tract may also play a role in increased airflow and oxygen saturation (Baig, B. et al, 2024).

According to the Bohr effect, when there is enough carbon dioxide pressure in the blood and lungs, oxygen is more easily released. Conversely, when

carbon dioxide levels are low, hemoglobin molecules are less able to remove oxygen from the blood. Another function of carbon dioxide is to relax smooth muscles found in the airways, arteries and capillaries, allowing breathing and blood flow to be smooth. Loss or reduction of carbon dioxide due to excessive breathing will cause narrowing of the respiratory tract. Breathing calmly will maintain carbon dioxide levels in the body and blood vessels and respiratory tract will not narrow. Healthy breathing is breathing from the nose because it allows the body to utilize nitric oxide gas and carbon dioxide which both play a role in opening blood vessels. The way of breathing determines the amount of carbon dioxide in the blood (Mckeown P, 2019).

This is in line with the results of Afiyah's research, 2018 with the results of the analysis The buteyko technique aims to improve the breathing patterns of COPD patients by maintaining a balance of CO<sub>2</sub> levels and cellular oxygenation values which can ultimately reduce COPD symptoms. The buteyko method is used primarily as a natural technique to reduce the symptoms and severity of COPD.

Decreased physical activity (PA) in patients with COPD is related with a poor prognosis. A study was conducted to show that PA is a key therapeutic approach. Meanwhile far few approaches have been found effective in this group. The result found the intensity and amount of PA can be suggestively augmented by using a 12-week semi-automated tele coaching intervention in patients of COPD for the management of patients of chronic obstructive disease, PR with multiprofessional education core components of exercise training has a vital role. As the exercise indices of cardiopulmonary efficiency and recovers clinical symptoms (Saeed, A. ,2022).

In the process of giving buteyko breathing, there was 1 respondent who experienced an increase of 150 L / minute and was in the green zone with a figure of 450 L / minute. This is because the gender of the respondent is male. Physiologically, men have a greater lung capacity so that the peak expiratory current also increases significantly. According to Yunus (2007), based on normal APE values, APE values in men are greater than female APE values. The average vital capacity of young adult men is approximately 4.6 liters and young females approximately 3.1 liters. Men have stronger muscles in the respiratory system compared to women so the ability to expirate tends to be greater than women (Guyton and Hall 2012).

In addition, there was 1 respondent who did not experience an increase / fixed. This is due to the lifestyle of respondents who are not awake as in male respondents, namely they have a habit of smoking. Smoking is one of the main factors that can accelerate the decline in lung function, most of the smokers will experience obstructive pulmonary disease and some will experience severe lung function damage. This causes changes in the airway and pulmonary parenchyma. Smoking habits have an impact on damage to organs, especially the lungs. Smoking can cause changes in the structure of the airway and pulmonary parenchyma. This change in airway structure can be in the form of hypertrophy and hyperplasia of the mucous glands, so that it can affect the APE value (Yunus 2007).

These results are in accordance with the results of Anhar et al's research 2022, APE values in patients who performed Buteyko breath exercises before and after the Buteyko breath exercises showed a significant change in APE values, the group before the intervention, the APE score was  $p = 0.00$ .



Meanwhile, the average ACT value after the intervention was  $p = 0.00$  (Ihwan, A., Nugraha, A., & Negara, C. K. 2022).

## CONCLUSIONS

Based on the results of the study it can be concluded; The average increase in expiratory peak current (APE) in COPD patients before buteyko breathing was 158.34 with a standard deviation of 69.1899. The average peak expiratory current after buteyko breathing is 144.42 with a standard deviation of 16.21961. The difference in the increase in expiratory peak current (APE) before buteyko breathing and after buteyko breathing was 24.91 with a  $p$  value of 0.001, it was found that there was a significant effect of buteyko breathing on the increase in expiratory peak current (APE) of COPD patients.

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## MANAGEMENT INTERPROFESSIONAL EDUCATION OF ETHICS COURSE ON HANDLING NONCOMMUNICABLE DISEASES

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ABSTRACT	Keywords
Interprofessional education has been defined as a process learning program which includes learning outcomes, lecturers, material topics and skills enabling a synergistic influence of grouped student competence, so that interprofessional education becomes one of the initial stages for introducing collaboration and teamwork to students so that they can be applied of work. The explore the appropriateness and meaningfulness of Ethics and Health Law Course-based learning for nursing students. The research is a research and development design whose stages were carried out for 6 months with a research sample of 40 respondents, namely first semester students of the postgraduate nursing program. The results of this study showed that the significant for the materials of ethics, curriculum, learning outcomes ( $P=0.000$ ). The students showed active participation, communication and good collaboration regarding health problem solving on handling non-communicable diseases. Management of interprofessional education (pretest = 54.32 and posttest mean 67.48) is needed in health education, as an approach to the learning process, includes the flexibility to respond to the specific ( $P=0.002$ ), self-identified learning needs of students ( $P= 0.000$ ). The results of the focus group discussion showed that knowing how to learn, having high expectations in problem solving, applying competencies to case tasks, collaborating with others, and being creative are all signs of a capable practitioner. There are important characteristics that determine the effectiveness of interprofessional education ethics courses, including faculty and students who consider their roles important to the team, open communication, autonomy, and equality of resources so that interprofessional education has a positive impact on the development of holistic care to improve the quality of patient care.	<b>Management, interprofessional education, ethics course, noncommunicable diseases</b>

## INTRODUCTION

The complexity of patient problems and service management involving many health workers can cause fragmentation of services that have an impact on patient health problems, thus requiring interprofessional collaboration for collaborative and mutually beneficial patient services so that patients get complete and comprehensive services (Gaghauna, 2021). In interprofessional collaboration requires various fields of education so that it requires interprofessional education in the world of education.

Interprofessional education has been defined as a learning process program that includes learning outcomes, lecturers, material topics and skills that allow the synergistic influence of grouped student competencies, so that interprofessional education is one of the initial stages to introduce collaboration and teamwork to students. Interprofessional education minimizes the occurrence of differences in status between professions, feelings of superiority and inferiority, and the number of actions that are instructional from other professions still dominate the practice of collaboration so that the need for the application and training of interprofessional collaboration in the world of education (Fitri et al., 2021). Educators are required to be able to teach and train students to collaborate with other professions to carry out comprehensive care to improve the quality of life of patients.

The stages of implementation of interprofessional education are carried out in the form of clinical learning and community learning using various levels of real health services that meet the requirements as a place of practice (Fathya et al., 2021). The implementation of interprofessional education can result in the availability of health workers who are able to carry out their roles optimally, both in one profession

(intraprofessional) and between health professions (interprofessional) (Cuff, 2013). Interprofessional education can change the professional attitude of individuals into professionals in teamwork so that it requires coordination, communication, mutual respect and acceptance of opinions, and decision making carried out together (IPEC, 2023; Orchard et al., 2018).

Research conducted by (Endah et al., 2024) shows that interprofessional collaboration and interprofessional education that focus on collaboration between professions related to the handling of non-communicable diseases by applying a systematic approach to address local health problems, encouraging community empowerment through strengthening health services; this approach can increase health awareness, improving health services and facilities, and developing effective collaboration between students, lecturers, and the community so as to effectively address health issues at the village level and improve the quality of life of residents. Another study that discusses interprofessional education for the management of non-communicable diseases was conducted by (Dalimunthe & Astuti, 2022) which shows that the implementation of interprofessional education on non-communicable diseases, namely hypertension and diabetes mellitus by conducting health checks, health consultations, physical exercises, and disease counseling shows that there is an increase in understanding of hypertension and diabetes mellitus, as well as changes in people's behavior by implementing balanced nutrition by limiting sugar, salt, fat, consuming more vegetables and fruits, and limiting preservatives.

The learning process in collaboration in interprofessional education is carried out in several stages of learning starting from problem identification, then

formulating priority problems based on the impact and urgent needs of the community, identifying key health problems, then planning problem solving which is then carried out the implementation of problem solving and evaluation to assess the success of solving health problems (Endah et al., 2024). The learning process of interprofessional education teaches collaborative competencies that do not conflict with ethics so that they can be applied in the real world of work so that professional education is the first step to train students to collaborate with various fields of health science to improve patient health. This research utilizes ethics courses to explore suitability and meaningful learning for nursing students in an educational setting to inform the curriculum in Health Ethics and Law.

## METHOD

This research a research and development design whose stages were carried out for 6 months by utilizing ethics courses to explore the suitability and meaningfulness of Ethics Course-based learning for nursing students in an educational environment to inform the curriculum in Ethics and Health Law. The sample of this study was 40 respondents, namely first-semester students in nursing students in postgraduate programs. The research design uses several steps of development carried out for six months, namely students are able to identify ethical conflicts, identify the values of professional health services, develop ethical principles, and develop resolutions for each contribution of each profession.

## RESULTS

The results of this study showed that it was significant for ethical material, curriculum, learning outcomes ( $P = 0.000$ ).

The students showed active participation, communication and showed good collaboration on solving health problems in the management of non-communicable diseases. Interprofessional education management (pretest = 54.32 and posttest = 67.48) is required in health education, as an approach to the learning process, including flexibility to respond to specific learning needs ( $P = 0.002$ ) identified by the student ( $P = 0.000$ ). The results of focus group discussions show that knowing how to learn, having high expectations in problem solving, applying competencies to case assignments, collaborating with others, and being creative are all signs of a capable practitioner.

In the problem-solving process, students are able to apply ethical principles with the results of applying autonomy of the patient as much as 85% with a mean of 4.35; beneficence of 94% with a mean of 4.50; justice as much as 75% with a mean of 4.5; advocacy as much as 80% with a mean of 4.75; and telling the truth as much as 85% with a mean of 4.50. As for ethical conflicts, namely not perfect services as much as 86% with a mean of 3.8; there are some not justice as much as 45% with a mean of 3.5; the are not enough facilitation as much as 40% with a mean of 2.3; not a good services as much as 75% with a mean of 3.7; and not enough information as much as 91% with a mean of 4.5.

## DISCUSSION

Interprofessional Education (IPE) is an education for health workers consisting of two or more professions who study together to improve knowledge and / or skills so that they are able to collaborate effectively to achieve physical, mental and social welfare of the community (Barr et al., 2017). The implementation of Inter Professional Education practices in the health sector in Indonesia has been carried out as a learning



process in the field for students in collaborating various disciplines and at the same time as a vehicle for empowering family health in the community so that it is planned and implemented systematically and integratedly based on problems dug from the family, formulated and implemented with the family (Gaghauna, 2021). The application of interprofessional education in the world of education has a very positive impact on students because it will make these students confident and know what roles and what to do when collaborating between health professionals in improving the quality of life of patients (Asriyani, 2019).

Interprofessional Education Collaborative (IPEC, 2023), stated that there are 4 core competencies of IPE, namely values and ethics, roles and responsibilities, communication, and team and teamwork so that IPE runs well and guides curriculum development. IPEC explained that on values and ethics, health workers must be able to maintain the values of togetherness, ethical behavior and mutual respect for others, while for roles and responsibilities, each team member is able to use knowledge according to the scientific field to overcome health problems of patients and their population; As for communication, each team member can communicate in a responsive, respectful, and compassionate manner with team members; And for teams and teamwork, each team can apply the values and principles of teamwork science to adapt one's own role in various team situations.

This research shows that there is an increase in student knowledge about ethical material so that there is an increase in student learning outcomes after using interprofessional education learning. This is in line with research conducted by (Putriana

&; Saragih, 2020) that IPE learning can increase understanding which can be seen from changes in health workers' attitudes towards health team collaboration and each health worker understands the role of each health worker. In addition, based on The results of group discussions, this study that knowing how to learn, have high expectations in problem solving, apply Competence for case assignments, collaborating with others, and being creative are signs of a capable practitioner. This is in line with research conducted by (Fitri et al., 2021), that the application of the IPE method can increase the component of the need to cooperate and the perception of real cooperation.

The success of interprofessional application in the world of education cannot be separated from the role of educators or lecturers who teach and motivate students to be able to work together in solving patient cases. Case-based learning makes it easier for students to understand patient problems so that they can still implement ethical principles in addition to solving patient problems. The application of ethical principles in this study has increased significantly, but in the process of learning ethics with case resolution methods there are still ethical conflicts that are difficult to avoid such as not perfect services, there are some not justice, the are not enough facilitation, not a goodservices, and not enough information. This is in line with research conducted by (Fathya et al., 2021), showing that insufficient facilities and infrastructure, insufficient information and knowledge can increase the lack of service delivery so that it can affect understanding and ineffective communication (Rainer et al., 2018; Salehi et al., 2020). Other factors that can be an obstacle in the application of IPE are limited understanding, inferior profession, minimal communication,

constrained coordination, rigid bureaucracy, diversity of student groups, interprofessional tasks that are not integrated (Wulan, 2021). The inhibiting factor of the application of IPE in the world of education is one of the challenges as a lecturer to continue to motivate, increase the knowledge and understanding of students to continue to study and deal with individual and population problems so that they can build holistic care to improve the quality of patient care.

## CONCLUSIONS

There are important characteristics that determine the effectiveness of interprofessional education courses, including lecturers and student members seeing their role as important for teams, open communication, the existence of autonomy, and equality of resources. It is important to note that interprofessional education can have a positive impact in establishing holistic care to improve the quality of patient care

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## RISK FACTORS OF OBESITY IN YOUNG ADULTS

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ABSTRACT	Keywords
Obesity is a developing global public health issue. Obesity is a significant risk factor for a variety of diseases, increasing morbidity and mortality from cardiovascular disease and Diabetes Mellitus. Since 1975, global obesity has nearly tripled, and Jakarta has the second-highest obesity rate in Indonesia. COVID-19 also contributed to this situation, as many young adults work from home. COVID-19 has an impact, such as an increase in the frequency of unhealthy eating and frequency of sitting, a decrease in physical activity, or irregular exercise, which can lead to obesity. This study aims to investigate the lifestyle risk factors associated with obesity in young adults in Jakarta. A cross-sectional design was conducted with convenience sampling of 384 respondents aged 26-35. Data was collected using an online questionnaire. Descriptive and statistical analysis was performed using chi-square. The finding revealed a significant relationship between physical activity, sedentary lifestyle, and genetics with obesity in young adults (p-value 0.004; 0.035; 0.001). Conclusion: Young adults can adopt a healthy lifestyle by increasing regular physical activity for at least 30 minutes daily and changing their sedentary lifestyle.	<b>Lifestyle, Obesity, Physical activity, Sedentary lifestyle, Young Adult</b>

## INTRODUCTION

Obesity is a growing concern in Southeast Asia, with projections indicating that the prevalence of obesity in both children and adults is expected to double between 2020 and 2035. This increase is particularly notable among women (3% to 11%) and men (5% to 16%) (World Obesity

Federation, 2023). In Indonesia, the Jakarta Province has a notably high obesity rate, ranking second in the country with 29.8% prevalence among adults aged over 18 years. Obesity occurs when the body stores excessive fat due to an imbalance between incoming energy intake and released energy

(MOH Republic Indonesia, 2018). It is influenced by physical activity, income, and dietary habits (Darebo et al., 2019).

Prevalence data shows that 28.7% of adults have a Body Mass Index (BMI) of  $\geq 25$ , while 15.4% have a BMI of  $\geq 27$  (MOH Republic Indonesia, 2018). Among adults aged 18 years and older, 33.5% have a BMI of  $\geq 25$ , and 20.7% have a BMI of  $\geq 27$  (MOH Republic Indonesia, 2018). Obesity is becoming more common in children, adolescents, and older adults due to poor diet, specifically excessive consumption of foods high in sugar, salt, and fat and insufficient consumption of fruits and vegetables. About 66.7% of children aged 5 to 19 years and 64.3% of adults over 20 years consume sugar-sweetened beverages daily and fail to meet the recommended five servings of fruits and vegetables. Additionally, 27.7% of adults in Indonesia do not meet the WHO-recommended levels of physical activity (UNICEF, 2022).

The decline in physical activity is associated with a sedentary lifestyle, characterized by prolonged periods of sitting or lying down while watching television or playing online games for an extended time. This behavior is more prevalent in urban settings and among women (MOH Republic Indonesia, 2018). There is a noticeable decrease in public awareness regarding healthy diets and active lifestyles (UNICEF Indonesia, 2022). Obesity is a significant risk factor for Non-Communicable Diseases (NCDs) such as diabetes, cardiovascular disease, stroke, and various types of cancer, which account for 70% of deaths worldwide (WHO, 2023). Without effective prevention and early detection, obesity can lead to severe complications in adulthood. Given the rising obesity rates and the associated health risks, it is crucial to investigate lifestyle risk factors contributing to obesity, particularly in young adults in Jakarta Province. Previous studies demonstrated

that unhealthy lifestyle habits indicated a relationship with obesity (Kerkadi et al., 2019). This study aims to fill this gap by investigating lifestyle risk factors associated with obesity in young adults in Jakarta Province.

## METHOD

### Study Design and Population

This study employed a cross-sectional design. The target population included 30,557.88 young adults aged 26 to 35 in Jakarta Province (Central Bureau of Statistics Jakarta, 2022). The Lemeshow formula was used to determine the sample size, resulting in a calculated sample size of 384 respondents.

### Inclusion and Exclusion Criteria

Participants in this study were selected based on specific criteria. The inclusion criteria required that participants be male or female, aged 26 to 35, and reside in Jakarta. They also needed to agree to participate by completing the questionnaires and signing the informed consent form. Individuals with a history of obesity-related diseases, such as hypertension, type II diabetes mellitus, ischemic stroke, or coronary heart disease, were excluded from the study to ensure that the sample represented a population not affected by these pre-existing conditions.

### Data Collection

The researchers developed a web-based survey and distributed it to a professional network of research members in the research area. The questionnaires included demographic data (age, gender, education, height, and weight), questions about physical activity and sedentary lifestyle (four questions), a history of genetic obesity (one question), and a smoking history (two questions) ((Azizah, 2016; Savitri, n.d.)). Reliability tests have been conducted in



Tangerang Province with Cronbach Alpha values > 0.60.

Data Analysis

Data analysis is performed using the Chi-square test to determine how independent variables such as physical activity, sedentary lifestyle, family history, and smoking are related to the risk of obesity in young adults. The study was approved by the Research

Characteristics	N	%
Body mass index		
Not obese	209	54,4
Obese	175	45,6
Age		
26 – 30 years	254	66,1
31 – 35 years	130	33,9
Gender		
Male	119	31,0
Female	265	69,0
Educational level		
Junior High School	3	0,78
Senior High School	222	57,8
University	159	41,40

Ethics Committee of the Faculty of Nursing Universitas Pelita Harapan (No: 053/RCTC-EC/R/I/ 2021).

RESULTS

Table 1. Participant Characteristics (n = 384)

Table 1 found that the majority of respondents (54.4%) are not obese, are between the ages of 26 and 30 (66.1%), are female (69%), and have completed highschool (57.8%).

Table 2. Bivariate Analysis

Variable	Obesitas						p-Value (%)
	Not obese		Obese		Total		
	n	%	N%	N	N	%	
Physical activity							
Vigorous	3	8,3	14	3,6	46	12,0	

activity	2						104
Moderate activity	54	14,1	30	7,8	84	21,9	
Less activity	123	32,0	131	34,1	254	66,1	
Sedentary lifestyle							
Less activity	68	17,7	38	9,9	106	27,6	0,035
Moderate activity	92	24,0	81	21,1	173	45,1	
Vigorous activity	49	12,8	56	14,6	105	27,3	
Family history							
No	147	38,3	78	20,3	225	58,6	0,002,94
Yes	62	16,1	97	25,3	159	41,4	
Smoking							
No	174	45,3	137	35,7	311	81,0	1,37
Yes	35	9,1	38	9,9	73	19,0	

Table 2 shows the correlation between physical activity, sedentary lifestyle, family history, and smoking among young adults. Table 2 reveals a relationship between physical activity, sedentary lifestyle, and family history of obesity (p-values 0.004; 0.035; 0.001), and respondents who have a family history of obesity are at a 2.9 higher risk of experiencing obesity than those without a family history.

DISCUSSION

Obesity is an excess of body fat, as indicated by a BMI or BMI between 25 and 30 (MOH Republic Indonesia, 2018). Sedentary adults have more fat mass and a higher resting metabolic rate, resulting in 60% to 75% of total energy-related daily activities (da Silva et al., 2021). Physical inactivity may increase symptoms by inhibiting the immune response and reducing macrophage activation, associated

with reduced insulin sensitivity. Sports, for example, can increase a person's physiological reserves and lower the risk of obesity and cardiovascular disease (Hudson & Sprow, 2020). Physical activity is muscle movement caused by skeletal muscle contraction. Physical activity may be associated with increased long-term weight loss and weight gain following initial weight loss. Physical activity should be moderate to high enough intensity to affect body weight (Jakicic et al., 2018). Being active regularly can help adults reduce their risk of obesity. Inactivity in physical activity, on the other hand, can lead to obesity (Kazmi et al., 2022). During the COVID-19 pandemic, many activities were halted due to social distancing policies. This leads to increased consumption of unhealthy processed foods and decreased physical activity (Popkin et al., 2020). When energy intake exceeds energy expended in the long term, it can lead to metabolic disorders and obesity (Oussaada et al., 2019). According to one study in East Nusa Tenggara, there is an association between physical activity and the incidence of obesity, and most respondents (66.1%) engage in light activity (Sumael et al., n.d.). Another study is consistent with this research, which found an association between physical activity and the incidence of obesity (Boli et al., 2021; Hendi et al., 2019; Nova & Yanti, 2017).

A sedentary lifestyle is one in which a person does not move much or engages in very little physical activity (MOH Republic Indonesia, 2018). An inactive lifestyle is associated with metabolic dysfunctions such as increased plasma triglycerides, High-Density Lipoprotein (HDL) cholesterol, decreased insulin sensitivity, and inhibition of Lipoprotein Lipase (LPL) activity. This protein interacts at the cellular level (Park et al., 2020). When there is a lack of physical activity, the muscles in the body relax, inhibiting blood circulation and causing the

heart to work harder. Fat burning does not work well if the muscles are weak and fat accumulation leads to obesity (Manuha et al., 2013). According to one study, there is an association between a sedentary lifestyle and the incidence of obesity, and most respondents (45.1%) engage in sedentary lifestyle behavior of moderate intensity duration. This study is supported by research on homemakers, which shows an association between a sedentary lifestyle and the incidence of obesity. This means the more time spent on sedentary behavior, the more weight gained. (Fuadianti, 2018). Another study conducted on university faculty found an association between a sedentary lifestyle, sleep duration, and the incidence of obesity. This causes an 18% decrease in leptin and a 28% increase in ghrelin, which increases appetite and, if not accompanied by a healthy lifestyle, leads to obesity (Damayanti et al., 2019; Rusmini, 2016).

Obesity is caused by an imbalance in daily energy intake and expenditure, which leads to weight gain and fat accumulation in adipose tissue as triglycerides (MOH Republic Indonesia, 2018). Adipose tissue will send signals to the hypothalamus and convert fat into energy via leptin, adiponectin, and resistin (Panuganti et al., 2023). Leptin is a type 1 cytokine that is primarily secreted to provide a signal to the brain (hypothalamus) that stimulates satiety and works to break down fat into energy for the body (Thaker, 2017). Obese people have high levels of the hormone leptin, showing that the brain (hypothalamus) does not receive signals to stimulate satiety (Hastuti, 2018). Obese people have several genes, including *Lep(ob)*, *LepR(db)*, *POMC*, *MC4R*, and *PC-1* (Andini et al., 2016). The most commonly involved gene in obesity is *MC4R*, which works by receiving stimulation from Alpha-Melanocyte Stimulating Hormone (-MSH) to reduce food intake by providing agonist (satiety)

signals and antagonist signals from the Agouti-Related Protein (AgRP) hormone (Prihandini & Maharani, 2019). When combined with the hormone AgRP, the MC4R gene has a significant effect on deep-feeding consumption (CDC, 2013). Obese parents will be a genetic factor that contributes significantly to the occurrence of obesity. A person who has one obese parent has a 50% chance of being obese, and a person who has both obese parents has an 80% chance of being obese (UCSF, 2024). A study reveals genetics have an association with the incidence of obesity, with those who have obesity genetics having a 1.5 times higher risk of experiencing obesity than those who do not have obesity genetics (Puspitasari, 2018). Other research on adults in Indonesia also shows an association between genetics and the incidence of obesity (Nadimin et al., 2015; Sari et al., 2021; Suriati & Mansyur, 2020). However, research on adults conducted in Norway, the United States, and Aceh shows that genetics only has a 30% influence on the incidence of obesity, while the environment has a 70% influence, where a decrease in activity levels and an increase in the behavior of consuming fast food can cause a person to be obese (Brandkvist et al., 2019; Loos & Yeo, 2022; Winandar et al., 2021).

Smoking is the act of exhaling smoke and inhaling nicotine-containing plant material (MOH Republic Indonesia, 2018). Tobacco itself contains nicotine, which is an alkaloid that is addictive and can have a stimulating and calming psychoactive effect (Henningfield et al., 2023). Cigarette nicotine suppresses hunger and reduces taste and smell perception, making smokers less interested in food. Nicotine's effect on appetite also affects several hormones, including dopamine, norepinephrine, and leptin. Neuropeptide Y is a peptide found in the hypothalamic arcuate nucleus that can increase food intake. The nicotine in

cigarettes, on the other hand, suppresses this peptide and causes a decrease in appetite (Restutiwati et al., 2019). Smoking is an unavoidable necessity for people who have a smoking habit. Active smokers are those who smoke regularly, whereas passive smokers are those who do not smoke but are frequently exposed to cigarette smoke (Su et al., 2018). The study's findings revealed no association between smoking and the incidence of obesity, with only 9% of those who smoked being obese. This study is supported by research on productive-age employees, which shows that there is no association between smoking and the incidence of obesity. This is because smoking has no direct effect on a person's nutritional status. Nicotine is a compound found in cigarettes that can increase energy expenditure while decreasing feelings of hunger (Puspitasari, 2018; Sinaga et al., 2017; Zulkarnain & Alvina, 2020).

## CONCLUSIONS

This study, with its focus on investigating the risk factors for obesity in young adults, provides crucial insights. By understanding these risk factors, adults can initiate preventive measures from a young age. The prevalence of obesity, often exacerbated by a lack of physical activity and sedentary lifestyle behavior, underscores the importance of early intervention. Encouraging healthy lifestyle changes, such as increasing regular physical activity to at least 30 minutes per day, altering sedentary lifestyle behavior, and abstaining from smoking, can significantly reduce the risk of obesity. However, it's important to note that the results of this study may not be representative and cannot be generalized to all of Indonesia's diverse regions. A study with a more representative sample is needed, considering the country's pluralism.

The factors that contribute to obesity in adults are multifaceted, including physical activity, a sedentary lifestyle, and genetics. It is crucial to underscore the role of genetics in this context. Respondents who have a genetic predisposition to obesity face a 1.5 times higher risk of experiencing obesity than those who do not have such genetics.

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## COMBINATION OF HIGHT FLOW NASAL CANULA AND SEMI FOWLER POSITION TO INCREASE OXYGENATION WITH ACUTE LUNGS CARDIOGENIC OEDEMA

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ABSTRACT	Keywords
Acute cardiogenic lung edema is an emergency condition in which fluid accumulates in the lung cavity due to ventricular failure including blood throughout the body. The most fatal consequence of this condition is the disruption of the gas exchange process in the alveoli. One of the characteristic symptoms of this disease is shortness of breath which must be treated immediately so as not to fall into hypoxic or hypoxemic conditions. Therefore writing this paper aims to test the effectiveness of the combination of high-flow nasal cannula and semi-Fowler's position to increase oxygenation in patients with cardiogenic acute pulmonary edema. The research method used is a case report. This research was conducted for 4 days of treatment from 11-15 May 2022 at the Kanjuruhan Regional General Hospital, Malang Regency. After 4 days of action, there was a positive change in the patient's oxygenation. It can be seen from the results of monitoring SpO <sub>2</sub> and RR on day 3 of treatment that there was an increase in SpO <sub>2</sub> of 93% and a decrease in RR of 18x/minute which was getting better until day 4 of treatment. Problems related to oxygenation in the lungs, acute cardiogenic edema occurs due to accumulation of fluid in the lung cavity Actions that must be taken to continue to meet the need for adequate oxygenation in patients so that a combination of high-flow nasal cannula therapy and semi -Fowler's position is carried out to improve patient oxygenation. The recommendations for giving this therapy are by considering the replacement of the type of mask and the flow of oxygen given.	<b>Accurate Lungs Edema, Oxygenation , High Flow Nasal Canul, Semifowler's Position</b>

### INTRODUCTION

Accurate cardiogenic pulmonary edema is an emergency condition that is life-threatening if action is not taken as soon as

possible (Hayat, 2021) . In sufferers of acute lung cardiogenic edema, fluid accumulation occurs in the lung cavity due to the left ventricle being unable to pump blood

coming from the lungs, resulting in increased pressure in the pulmonary circulation which causes fluid to push into the lung tissue (Khasanah & Yudono, 2019) . So there will be interference with the patient's oxygenation which is related to the oxygen supply in the blood and tissues. If this occurs continuously, it will result in hypoxia and disrupt the continuity of cell metabolism and can even result in tissue death (Saripudin, Emaliyawati, & Somantri, 2018) .

Based on data from WHO, cardiovascular disease is one of the main health problems in developed and developing countries. In the world, 17.5 million people (31%) of the 58 million deaths are caused by heart disease (Peek & Buczinski, 2018) . In Australian case reports, there are 96-700 adults suffering from heart failure with complications, namely acute lung cardiogenic edema (Purvey, 2017) . Meanwhile, data from the Indonesian Ministry of Health (2019) shows that in Indonesia there are 5% of heart failure cases which are the cause of acute lung edema . Cases of acute pulmonary edema at Margono Soekarjo Hospital, Purwokerto, based on data collected from the Intensive Care room , including the ICU/ICCU/HCU, found cases of patients with acute pulmonary edema cardiogenic from January 2021 to December 2021 totaling 84 cases with the use of mechanical ventilators for treatment. as many as 64 cases (Kurniawan <sup>1</sup> & Kariasa <sup>2</sup>, 2022) . Meanwhile, based on the results of interviews with the head of the room at the ICCU at Kepanjen Regional Hospital, he stated that in 2022 he reported that there would be 21 cases from March-September.

Impaired oxygenation in patients with acute lung cardiogenic edema is also caused by disruption of the oxygen diffusion process in the lungs resulting in a decrease or increase in pH, PCO<sub>2</sub> and HCO<sub>3</sub> (Ilyas,

2016) . The impact of disrupting this process will result in the patient experiencing hypoxemia (Hetty Nendrastuti, 2010) . This is characterized by a decrease in oxygen saturation reaching <90% and an increase in respiration rate (Laksmi, Suprpta, & Surinten, 2020) .

Providing oxygen is one of the therapies used to meet the oxygenation needs of patients (Mugihartadi & Handayani, 2020) . Based on Susihar & Pertiwi, (2021) the use of a nasal cannula to maintain an adequate oxygen supply in the body can increase oxygen levels in sufferers. In administering oxygen therapy, an effective position is also required so that the lungs can expand completely and adequate oxygen flow will enter the lungs (Safitri et al., 2011) . Based on Wirawan et al., (2022) reported that giving a semi-Fowler position with the head elevated 45 degrees can effectively reduce shortness of breath due to the effect of gravity, thus helping to reduce abdominal pressure and increase lung expansion. This research was conducted to determine the effectiveness of a combination of high flow nasal cannula therapy and semi-Fowler position to improve oxygenation in patients with acute lung cardiogenic edema .

### Case Report

A 73 year old man was taken to the intensive cardiac care unit with complaints of severe shortness of breath, restlessness and an unproductive cough since 3 days ago. Based on the results of interviews with the patient's family, they said that 3 years ago the patient was admitted to hospital with the same complaint, while at home he regularly took the recommended medicines but often felt short of breath when doing heavy activities.

The results of the examination of the patient's vital signs showed blood pressure 94/55 mmHg, pulse 122x/minute or tachycardia, temperature 37°C, respiration

rate 29x/minute and oxygen saturation 87% in free air. Meanwhile, the results of the examination based on B1-B6 showed: in B1 (Breathing), there was use of the accessory muscles for breathing, namely the intercostae, and when auscultated, crackles were heard in the right lung field. B2 (Breeding) shows the third heart sound, namely a gallop at IC 4, irregular heart rhythm and visible jugular venous pressure. B3 (Brain) The patient's GCS is E 4 V 4 M 6 and positive light reactions in the right and left eyes. B4 (Bladder), B5 (Bowel) and B6 (Bone) are within normal limits.

Laboratory examination results showed an increase in the troponin enzyme from the normal limit of 0.15 ng/mL. Then, in the results of the blood gas analysis, there was a decrease in blood pH levels reaching 7.28 and an increase in pCO<sub>2</sub> of 43.0 mmHg and pO<sub>2</sub> of 226.0 mmHg. This condition is called metabolic acidosis. Meanwhile, the thorax photo showed cardiomegaly with a cardio thorax ratio of 77% and perivascular haze. The results of the electrocardiogram showed atrial fibrillation and ventricular tachycardia with a heart rate of 120x/minute.

Pharmacological therapy given to the patient included IVFD NaCl 0.9% 12 tpm. Then drugs are given via bolus such as Digoxin 0.5 mg, Morphine 2 mg, Furosemide 40 mg and Lansoprazole 2x 30 mg. Type of antibiotic Cefoperazon 2x1 gram. The administration of a drip is Carnit 50 mcg. The patient was also given medication for nebulization, namely Cambiven 2x/day.

## METHOD

The research design used was Case Study with a Single Case in patients with acute lung cardiogenic edema. This case study was carried out on 11-15 May 2022 in the intensive cardiac care unit at the Kanjuruhan Regional General Hospital, Malang Regency.

## DISCUSSION

Acute lung cardiogenic edema is a condition where there is an accumulation of fluid in the pulmonary intestinal space due to failure of the ventricles to contract to pump blood throughout the body to meet adequate oxygen needs (Khasanah, 2019). An increase in lung fraction is a form of compensation for the body to be able to meet oxygen perfusion in the tissues as well as a trigger for patients experiencing shortness of breath (Suharto, Agusrianto, Manggasa, & Liputo, 2020). This shortness of breath also causes the patient to tire easily due to insufficient heart fluid, which inhibits normal fluid circulation and oxygen circulation. This condition is supported by a decrease in oxygen saturation and an increase in the patient's respiration rate which can result in hypoxemia.

The condition of hypoxemia in patients with acute lung cardiogenic edema is also characterized by an imbalance in the partial pressure of O<sub>2</sub> and Co<sub>2</sub>. This is caused by problems in the simple passive diffusion process of O<sub>2</sub> and CO<sub>2</sub> down the partial pressure gradient. In patients with acute cardiogenic pulmonary edema, this occurs due to increased pressure in the left ventricle so that blood from the lungs has difficulty entering the heart and pooling in the pulmonary blood vessels. If the pressure in the blood vessels of the lungs gets higher, some of the fluid from the blood vessels will be pushed in and out of the alveoli (Komiya, Akaba, Kozaki, Kadota, & Rubin, 2017).

According to (Putra, 2016) gas exchange in the lungs affects pCO<sub>2</sub> and pO<sub>2</sub> levels in the alveoli and blood vessel capillaries. Disturbances in gas exchange are caused by lack of ventilation so that O<sub>2</sub> levels cannot remove Co<sub>2</sub> in the alveoli. So the pCO<sub>2</sub> level in the alveoli is higher than pO<sub>2</sub>, this causes pCO<sub>2</sub> to diffuse into the capillaries causing hypoxemia and pCO<sub>2</sub>

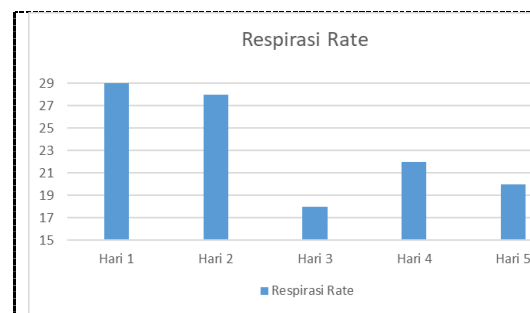
levels to increase, as is the case with Mr. T's blood gas analysis (Ko et al., 2020) .

High Flow Nasal Cannula (HFNC). HFNC is a non-invasive ventilation therapy device that has been established in recent years as an alternative to non-invasive ventilation therapy. HFNC is also used well in patients who experience hypoxemia or respiratory failure (Salaka, ., S, & Sudarta, 2022) . In sufferers of acute lung cardiogenic edema, using High Flow Nasal Cannula can provide oxygen and moisturize up to 100%. This is in line with Mauri et al., (2017) that the use of High Flow Nasal Cannula can increase gas exchange by up to 57% compared to the use of conventional oxygen therapy. In research (Huang et al., 2019), administering the High Flow Nasal Cannula produces positive pressure which can reduce PaCO<sub>2</sub> levels so that the oxygen saturation target reaches 88-92%, which can significantly reduce the death rate due to hypoxemia.

Meanwhile, give a semi-fowler or half-sitting position by elevating the head 30°–45°. So it can reduce oxygen consumption and increase maximum lung expansion, as well as overcome damage to gas exchange associated with changes in alveolar capillary membranes (Kanine, Bakari, Sarimin, A.Merentek, & Lumi, 2022) . In a study by Wirawan et al., (2022), the results showed an increase in oxygen saturation in patients in the semi-fowler position compared to the fowler position. This is related to the semi-fowler position which can maximize lung volume, speed and flow capacity, increase spontaneous tidal volume, and reduce blood pressure. on the diaphragm provided by the stomach contents, increasing the compliance of the respiratory system so that oxygenation increases. In line with Aprilia et al., (2022), the average oxygen saturation before being given the semi-Fowler position was 95.40% and there was an increase in oxygen

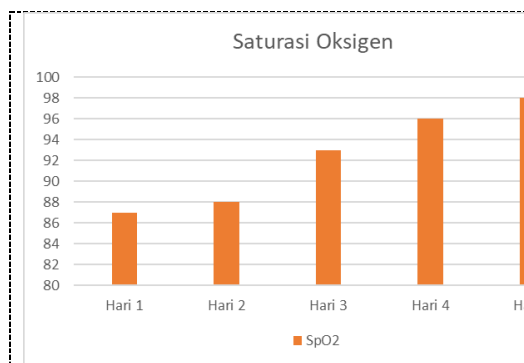
saturation after being given the semi-Fowler position, which was 98.20%.

The combination of these two therapies has a positive effect on Mr T's oxygenation. Oxygen saturation is an applicable predictor for describing gas exchange problems in the lungs. One of the results of providing this therapy shows that this therapy was given for 5 days, namely an increase in oxygen saturation starting from the 3rd day of treatment reaching 93 % and on the 5th day reaching 98%. When oxygen saturation increases, it indicates that the body's oxygen needs are sufficient so that the respiration rate which initially increases due to hyperventilation gradually decreases.



**Figure 1. Respiration Rate Observation Results**

This is in line with the decrease in RR for Mr. T as shown in Table 6 1 on the 3rd day of treatment reached 18x/minute until the 5th day of treatment, namely 20x/minute. The results of the evaluation used during the 5 days of treatment based on the SIKI DPP PPNI Working Group, (2018) namely related to airway clearance, gas exchange and breathing patterns showed positive results. The criteria for success in providing this intervention are dyspnea which decreases starting on the 3rd day of treatment. Then the improved breathing pattern was proven by the RR results, namely 18x/minute on the 3rd day of treatment and 20x/minute on the 5th day of treatment.



**Figure 2. SpO2 observation results**

## Conclusion

Based on the results of 5 days of treatment in patients with Acute lung cardiogenic edema, it shows that there is a positive effect from the combination of giving a High Flow Nasal Cannula and the semi-fowler position. The expected outcome is a decreased level of dyspnea. This can be seen from the results of monitoring Mr.'s respiration rate and oxygen saturation. T showed improvement on day 3 with an increase in oxygen saturation of 93% and a decrease in RR of 18x/minute until on day 5 of treatment the condition was getting better with oxygen saturation of 98% and RR of 20x/minute.

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## **DETERMINANT FACTORS THAT INFLUENCE FAMILY BEHAVIOR IN CARING FOR LBW USING THE HEALTH PROMOTION MODEL APPROACH**

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ABSTRACT	Keywords
<p>LBW care in the NICU room causes separation between babies and parents for quite a long time, so that parents of LBW often lack support and opportunities to be involved in care while in the NICU. Based on this description, it is necessary to develop a structured health education model for LBW families. This education is based on determinant factors that can influence the behavior of LBW families, so that it can improve the quality of life of LBW and the quality of nursing services. <b>Objective:</b> To identify factors that influence family behavior in caring for LBW in the NICU using the HPM approach. <b>Method:</b> This type of research is <i>explanatory</i>, the research design is <i>cross sectional</i>. The research sample was 105 families with LBW who were treated in the baby room of RSUD Dr. Soetomo Surabaya, data were analyzed using the Structural Equation Modeling - Partial Least Square (SEM-PLS) test. <b>Results and Analysis:</b> Perceived benefits have an effect on commitment (t statistics value = 3,790 &gt; 1.96), perceived obstacles have a significant effect on commitment (t statistics = 2,330 &gt; 1.96), Perceived Self Efficacy has an effect on commitment (t statistics value = 3,370 &gt; 1.96), commitment influences family behavior of LBW (t statistics value = 6,204 &gt; 1.96). <b>Discussion and conclusions</b> Personal factors including age, marital status, education and income of LBW parents do not influence perceived benefits, perceived barriers, perceived <i>self-efficacy</i> and interpersonal influence. Perceived benefits, perceived barriers, and perceived <i>self-efficacy</i> influence family commitment in caring for LBW. Interpersonal influence does not affect commitment. Commitment influences the behavior of LBW families</p>	<p><b>Health Promotion Model, LBW family behavior</b></p>

### **INTRODUCTION**

The long-term hospitalization of LBW babies in the NICU is considered a

"psychological crisis" in the family, causing feelings of helplessness and stress, especially for the mother. The description of

the anxiety level of mothers with LBW in the NICU room shows a severe level of anxiety of 68.3 % (Estri Wulansari, 2024). One of the most important is the initial separation between mother and baby, which can affect the attachment between the mother-child pair. As a result, feelings of anxiety and depression often occur in mothers of premature babies and appear more intense during the child's hospitalization in the neonatal intensive care unit (Mosca, et al 2018). LBW treatment in hospital for a long time will cause bonding disorders. between parents and babies , fiber increases anxiety in parents (Aloysius, 2018).

According to research, psychoeducation has an influence on the anxiety level of parents of babies being treated at the Perina-NICU of Tangerang District Hospital, with its implementation being quite easy and effective. (Dewi Sumiyati, 2024) Health education focuses on influencing and changing individual behavior. However, health is influenced by endogenous factors, exogenous factors, and systems. health services. Recognition of the interaction of these elements has consequences for actions deemed appropriate to promote positive health. To overcome health problems, a better approach is needed to address endogenous and exogenous determinants of health and the health service system. The concept that emerged was the concept of health promotion. (M. A. Coelen, 2004). Health education and health promotion are systematic propositions that are empirically tested (experimental) constructs that explain or predict changes in health behavior. (Sharma, 2022).

*The Health Promotion Model* is a health promotion model developed by Nola J. Pender in 1987 and revised in 2006. This health promotion model combines two theories, namely Expectancy Value Theory and Social Cognitive and Affective Theory

which is consistent with all theories that view the importance of health promotion and disease prevention as logical and economical (Khoshnood, et al. 2018). Health promotion is defined as behavior that is motivated by the desire to improve well-being and actualize human health potential according to expectancy-value theory. Health protection or disease prevention is described as a motivated behavioral desire to actively avoid disease, detect it early or maintain function within the limits of disease (Pender 2011).

Good discharge planning, especially in the neonatal intensive care unit (NICU), can reduce the risk of the baby being readmitted, limit the length of hospital stay, and increase the family's confidence in caring for their baby at home. Factors that influence discharge planning in the NICU can be related to organization, communication, the level of knowledge and perceptions of nurses regarding discharge planning, as well as stress experienced by the families of babies being treated in the NICU (Reshidi, et al. 2016). The main factors influencing the development of nurse partnerships with parents of high-risk infants are nurse empowerment, emotional intelligence, patient-centered communication, and interpersonal competence. (Eun Kyoung Kim RN, 2023) Health care providers are responsible for ensuring that families achieve these competencies throughout their stay in the NICU until they return home (Seyedfarajollah, et al. 2018). Discharge planning has benefits, including systematic follow-up which is used to ensure continuity of patient care , and helps patient independence in readiness for home nursing. (Nursalam 2016)

Providing information and involving parents in baby care while the baby is being treated in hospital through the discharge planning process, as well as

providing emotional support are efforts to make parents empowered. Well-coordinated discharge planning can prepare the mother and family to have the knowledge and skills to care for their baby (Rustina, et al. 2014). By knowing the factors that influence family behavior, it can be used to develop educational methods that are useful for further treatment

## METHOD

This research is an explanatory type with a cross sectional design, because both variables are observed simultaneously (causal variables). At this stage the researcher will evaluate the implementation of Discharge Planning by observing and collecting data on research samples in the nursery of Dr. RSUD. Soetomo Surabaya. The sample used was purposive sampling with the inclusion criteria being families in healthy condition who had LBW who were being treated in the NICU room, the exclusion criteria were LBW families who were unable to come to the hospital while LBW. The sample size calculation that will be used is 105 respondents

## RESULTS AND DISCUSSION

LBW care can be classified in the serious category, where parents can assess various types of information differently (Herich, 2017). Managing the flow and content of information provided to parents may also be problematic because each parent has different abilities in receiving the information provided. What works well for some parents may not work for others. In particular, parental characteristics, such as gender, age, and previous parental experience, should be considered (Lantz 2017).

In this study personal factors were included as one of the variables to identify factors that support family perceptions in LBW care in relation to parents' views of the

information provided to them, and to analyze the relationship between the influence of age, education, marital status and family income, because to treat LBW with complex problems requires good cooperation within the family and hospital. In caring for LBW, health workers and families will often interact to provide information and skills in caring for babies. The results of research on 105 respondents using the above method are described as follows, shown in table 1. the results of the variables identified by the researcher.

Personal factors questionnaire, perceived benefits, perceived obstacles, perceived self-efficacy, interpersonal influence, and commitment which have been coded according to their respective data scales will be grouped according to their categories. The type of data produced is the frequency and presentation of the recapitulation of research sample answers. Personal factors in this research include age, marital status, education and income. The frequency distribution of answers from 105 research respondents is as follows:

Table 1. Family Personal Factors of LBW treated in the baby room of RSUD Dr. Soetomo

Characteristics Respondent	n	%
1 Age		
a. < 17 years old	4	3.8
b. 17-25 years old	39	37.1
c. 26-35 years old	58	55.2
d. >35 years	4	3.8
Total	105	100
2 Married status		
a. Not married yet	2	1.9
b. Marry	103	98.1
Total	105	100
3 Education		
a. elementary school	10	9.5
b. Middle school	14	13.3
c. SENIOR HIGH SCHOOL	58	55.2
d. Diploma/Bachelor	23	22.0
Total	105	100
4 Income		
a. < 1.5 million rupiah	10	9.5
	56	53.4



b. 1.5 – 3 million rupiah	39	37.1
c. ≥ 3 million rupiah		
Total	105	100

The variables assessed consist of *perceived benefit* , *perceived barrier* , *perceived self-efficacy* , interpersonal influence. commitment , and behavioral variables. The frequency distribution of answers from 105 respondents for each variable is shown in table 2.

Table 2 Results of the assessment of the variables perception of benefits, perception of obstacles, perception of self-confidence, interpersonal influence, commitment and behavior

<b>Perceived Benefits (Perception of benefits)</b>	<b>N</b>	<b>%</b>
<b>Family readiness</b>	0	0
Not enough	3	2.9
Enough	102	97.1
Good		
Total	105	100
<b>Perceived Barriers (Perception of obstacles)</b>	<b>N</b>	<b>%</b>
1. Time		
Never	18	17.1
Sometimes	14	13.3
Often	73	69.5
Total	105	100
2. Mother's health condition	8	7.6
Not enough	11	10.5
Enough	86	81.9
Good		
Total	105	100
<b>Perceived Self Efficacy (Perception of Self-Confidence)</b>	<b>N</b>	<b>%</b>
<b>Ability to care for LBW</b>		
Not enough	0	0
Enough	11	10.5
Good	94	89.5
Total	105	100
<b>Interpersonal Influence</b>	<b>N</b>	<b>%</b>
Family support		

Not enough	21	20
Enough	31	29.5
Good	53	50.5
<b>Commitment</b>	<b>N</b>	<b>%</b>
1. Intention		
Not enough	0	0
Enough	3	2.9
Good	102	97.1
Total	105	100
2. Awareness		
Not enough	0	0
Enough	0	0
Good	105	100
Total	105	100
<b>Family behavior in caring for LBW</b>	<b>N</b>	<b>%</b>
<b>1. Infection Prevention</b>		
Not enough	16	15.2
Enough	42	40.0
Good	47	44.8
<b>2. Exclusive breastfeeding</b>		
Not enough	38	36.2
Enough	0	0
Good	47	63.8
<b>3. Kangaroo method treatment</b>		
Not enough	7	6.7
Enough	58	55.2
Good	40	38.1
<b>4. Change the baby's diaper</b>		
Not enough	10	9.5
Enough	48	45.7
Good	47	44.8

Based on Table 2, it is known that the majority of respondents have a beneficial perception regarding family readiness for LBW care behavior in the good category, namely 102 people or 97.1%. Most respondents had a perception of barriers regarding the time required for family behavior to care for LBW in the frequent category, namely 73 people or 69.5%. Involving in the NICU more frequently provides an opportunity to increase mothers' understanding of potential factors that may be associated with preterm birth, and encourage personally chosen actions to improve their health and reduce the risk of future preterm birth. (kimber Padua, 2023)Most respondents had self-confidence

perceptions on the ability to care for LBW in the good category, namely 94 people or 89.5%, and in the sufficient category, 11 people or 10.5%. Interpersonal influence in the form of support for LBW families who are cared for in the baby room at RSUD Dr. Soetomo Surabaya showed that 53 people (50.5%) had good family support. Most of the respondents had a commitment in the form of intention towards family behavior to care for LBW in the good category, namely 102 people or 97.1%. Most respondents had a level of compliance in preventing infection in the good category, 47 people or 44.8%, in the fair category, 42 people or 40% and the less than 16 people or 15.2% category. Mother's behavior in providing exclusive breastfeeding was included in the good category as many as 67 people or 63.8%, and in the poor category as many as 38 people or 36.2%. The behavior of mothers in carrying out kangaroo method care was included in the good category as many as 40 people or 38.1%, and in the adequate category as many as 58 people or 55.2%, and in the poor category as many as 7 people or 6.7%. The mother's behavior in changing the baby's diaper when the baby was being looked after was 47 people or 44.8% in the 98 good category, 48 people or 45.7% in the sufficient category and 10 people or 9.5% in the poor category

To see indicators that can form a latent variable and the relationship between each variable simultaneously, the PLS test was used using SmartPLS 3.0 software. The following is an evaluation of the measurement model on indicators of personal factors, *behavior specific cognition and affect* and commitment and behavior processed using SmartPLS 3.0 software

Table 3. Convergent validity results of the development of the LBW Discharge Planning Model Based on the Health Promotion Model on Family Behavior

Caring for LBW who are cared for in the baby room at RSUD Dr. Soetomo Surabaya

Latent Variables	Indicator	Loading Factor	Information
Personal Factors (X1)	Age (X1.1)	0.057	Invalid
	Marital status (X1.2)	0.074	Invalid
	Education (X1.3)	0.875	Valid
	Income (X1.4)	-0.795	Invalid
Perception of Benefits (X2)	Readiness Mother caring for LBW (x2.1)	1,000	Valid
Perception Obstacles (X3)	Time (X3.1)	0.913	Valid
	Condition (X3.2)	0.929	Valid
Perception Self Efficacy (X4)	Ability Family caring for LBW (X4.1)	1,000	Valid
Interpersonal Influence (X5)	Support Family (X5.1)	1,000	Valid
Commitment (X6)	Intent (X6.1)	0.960	Valid
	Awareness (X6.2)	0.955	Valid
Behavior Family in caring for LBW (Y2)	Prevention Infection (Y2.1)	0.933	Valid
	Exclusive breastfeeding (Y2.2)	0.698	Valid
	Kangaroo Method Treatment (Y2.3)	0.640	Valid
	Replace Baby Diapers (Y2.4)	0.922	Valid

Based on table 3, value *Outer loading* can be seen that the results of the indicators for age (0.057), marital status (0.074), and income (-0.795) have an *outer loading value*. This shows that these indicators are not valid for constructing latent variables, namely personal factors, so the three indicators of age, marital status and income must be removed from the model and need

to be recalculated using the SmartPLS program to see other *outer loading values* after the invalid indicators are removed.

The next test is to look at the reliability of the construct by looking at *Crobranch's Alpha or Composite Reliability*. Construct reliability in the PLS test using SmartPLS has the rule that the construct used has a *Composite Reliability value* >0.7 and a *Crobranch's Alpha value* >0.6. However, if *Crobranch's Alpha* does not meet it, the reliable category is obtained from the *Composite Reliability value*.

Table 4. Family Reliability Test Results from LBW treated in the baby room of Dr. Soetomo Surabaya

Latent Variables	Crobranch's Alpha	Composite Reliability	Information
Personal Factors (X1)	-0.164	0.017	Not Reliable
Perceived Benefits (X2)	1,000	1,000	Reliable
Perception Obstacles (X3)	0.822	0.918	Reliable
Perception Self Efficacy (X4)	1,000	1,000	Reliable
Influence (X5)	1,000	1,000	Reliable
Commitment (X6)	0.909	0.957	Reliable
Behavior Family in caring for LBW (Y2)	0.835	0.881	Reliable

Based on table 5, it is known that *the composite reliability* and *Crobranch Alpha values* of the personal factor latent variable show a value of <0.7, so the personal factor latent variable is said to be unreliable. Meanwhile, *the composite reliability* and *Crobranch Alpha values* of the latent variables perception of benefits, perception of obstacles, perception of *self-efficacy*,

interpersonal influence, commitment and family behavior are said to be reliable.

This research uses PLS (*Partial Least Square*) *data analysis techniques*. Based on the results of data processing, there is an evaluation of the structural model to determine the consistency of the model, and explain how much influence exogenous variables have on endogenous variables which are presented in the form of a *path diagram*. Test Results using the Smart PLS Program Families of LBW treated in the baby room of RSUD Dr. Soetomo Surabaya

The next stage is carried out Evaluation of the inner model to test the research hypothesis. The research hypothesis can be accepted if the T statistic value > T table. The T table value at an error rate of 102 5% is 1.96. The path coefficient values and calculated T values in the inner model are presented in the following table:

Table 5. Hypothesis Test Results for families of LBW treated in the baby room at RSUD Dr. Soetomo Surabaya

Connection Variable	Coefficient	t-statistic	P value	Information
Factor personal → Perception Benefit	-0.338	1,074	0.284	Not significant
Factor Personal → Perception Obstacle	-0.170	0.844	0.399	Not significant
Factor Personal → Perception of Self Efficacy	-0.259	0.981	0.327	Not significant
Factor Personal → Influence Interpersonal	-0.360	1,061	0.289	Not significant
Perception Benefit → Commitment	0.400	3,790	0.000*	Significant
Perception obstacle → Commitment	0.202	2,330	0.020*	Significant
Perception → Commitment	0.351	3,370	0.001*	Significant

Cell Efficacy					
Influence Interpersonal	Commitment →	- 0.015	0.1 86	0.8 53	Not significant
Commitment	Behavior →	0.408	6,2 04	0,0 00*	Significant

Based on the hypothesis test in the table above, the results show that personal factors have no influence on perceived benefits, perceived obstacles, perceived *self-efficacy*, and interpersonal influence of family in caring for LBW. A significant influence is found in the relationship between perceived benefits and commitment, perceived obstacles to commitment, perceived *self-efficacy* to commitment, commitment influences the behavior of LBW families. According to a study, there is an influence of relationship model education on the self-efficacy of mothers who have LBW. The most dominant factors influencing the efficacy of mothers who have LBW are physical and emotional conditions. (Rosalia Dian A Putri, 2022) Health service providers have a priority task of promoting optimal early relationships between vulnerable babies, their caregivers, and professional staff in the NICU. Providing relationship-based evaluations, preventative interventions, and relationship-based family support services to vulnerable newborns and their families is complex and requires field specialization and appropriate mentoring. (Allison G. Dempsey, 2022).

## CONCLUSION

Determinant factors that influence family behavior in caring for LBW consist of perceived benefits, perceived barriers, and perceived *self-efficacy* which influence family commitment in caring for LBW. Commitment influences the behavior of

families who care for LBW. In providing education, nurses can increase the perception of benefits and *self-efficacy* of families and reduce the perception of barriers felt by families to ensure family commitment in caring for LBW. can increase, so that families can improve their ability to care for LBW while in hospital and after being sent home. This is in line with several journals regarding breastfeeding which show an indirect relationship with family support and personal communication. Personal communication will increase if you receive support from the family, breastfeeding increases with joint decision making and good personal communication between nurses and mothers. (Laksono, 2023). Likewise, the journal concluded that there was an educational influence on the application of the kangaroo method of care on the level of knowledge of mothers of LBW babies at Drs. Regional Hospital. H. Abu Hanifah. (Nopitasari Nopitasari, 2023)

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## IMPROVING THE TIME OF DISCHARGE BASED ON LEAN SIX SIGMA: AN ANALYSIS AND RECOMMENDATION

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ABSTRACT	Keywords
The patient discharge process at Jemursari Islamic Hospital, Surabaya for the four types of patient insurance, namely BPJS, General, Institution, and Private Insurance, does not currently meet the standard operating procedures of a 2-hour discharge time. This study was observational using a quantitative analysis approach with the Six Sigma methodology. The study measured the time variation and sigma level of each process and sub-process. Qualitative analysis was conducted through a Focus Group Discussion to identify activities. The sample size was 100 respondents, including 70 patients with BPJS insurance, 10 patients with general insurance, 8 patients with institutional insurance, and 12 patients with private insurance. The findings showed that the average total time for the patient discharge process was 166.61 minutes for patients with BPJS insurance, 252.60 minutes for patients with general insurance, 258.16 minutes for patients with institutional insurance, and 229.69 minutes for patients with private insurance. The sigma level of the sub-processes for discharging inpatient patients guaranteed by BPJS was near the standard level in two sub-processes. The sigma level of the sub-processes for discharging inpatient patients with general and institutional insurance in inpatient care was near the standard level. The sigma level of the sub-processes for discharging inpatient patients with private insurance was near the standard level in one sub-process.	<b>Discharge Time of Inpatient Patients, Lean Six Sigma, Value-added, Non-value-added.</b>

### INTRODUCTION

Discharge planning for patients is incorporated into health systems around the world with the aim of improving service coordination between hospitals and communities, ensuring patients are discharged smoothly, and reducing the

number of patients returning to hospital or experiencing relapses (Chen et al., 2021; Gonçalves-Bradley et al., 2022). One strategy to overcome inefficiencies that occur in the process of discharging patients from the inpatient room at the hospital is to implement Lean management that can

motivate health facilities to eliminate waste of time and costs or minimize them to provide value (Firman, 2021).

The Lean concept is designed to identify problems as soon as they arise or are anticipated, make continuous progress, and establish a constant and stable atmosphere (Mawlid, 2017). Lean management in healthcare has various models and strategies to implement. Some known models and strategies for implementing Lean management include Kaizen principles, 5S principles (Sort, Sweep, Simplify, Standardize, Sustain/Self Discipline), RPIW (Rapid Process Improvement Workshop), VSM (Value Stream Mapping), Kanban Cards, and Six Sigma DMAIC (Varela et al., 2019).

Several Lean management models, including the Lean Six Sigma (LSS) approach with the concept of DMAIC (Define, Measure, Analyze, Improve, Control) are often used to assess the quality of service to determine whether a hospital is qualified or not (Bhargava & Gaur, 2021; Celano et al., 2012; Monday, 2022). The Six Sigma method has continuous improvement efforts that attempt to eliminate process variance (customer values) (Okwu et al., 2021; Syah et al., 2019; Tampubolon & Purba, 2021). Based on the sigma value achieved, the effectiveness of Six Sigma implementation in an organization is evaluated (Varela et al., 2019).

A number of studies on optimizing the quality of hospital services are dominated by the application of LSS and Lean healthcare (Alfatiyah & Bastuti, 2022; Trakulsunti et al., 2021; Yuganingsih et al., 2021). The dominant factor that became a source of patient dissatisfaction was the waiting time attribute of the examination with a weighted servqual gap value of -0.0575. A study using the Lean hospital

method proved the results of the percentage of Process Cycle Efficiency (PCE) with activity time efficiency in drug services at outpatient pharmacies increased by 10.8% from the existing system (Alfatiyah & Bastuti, 2022).

A study with the LSS method to reduce the duration of discharge time of inpatients is with simplified and standardized processes, better communication, and system-wide management are some of the proposed improvements, which reduce patient discharge time by 54% from 216 minutes (Arafah et al., 2018). Another study revealed that after accounting for concurrent trends in the control group, the percentage of patient discharge released at 10:00 am increased by 21.3 points, and the percentage of patient discharge during the day increased by 7.5 points (Molla et al., 2018). There is no significant change in the 30-day read rate or length of stay.

This study aims to compile recommendations for improving the discharge time of inpatients based on observations in one of the hospitals with the Lean Six Sigma method.

## METHOD

Observational studies with a lean six sigma approach were used to develop recommendations for improving discharge strategy planning. The study was conducted at a hospital in Surabaya by observing seven inpatient rooms. The duration of the study is four months from January 2023 – April 2023.

### Unit Analysis

Data collection is focused on identifying the process of discharge services from inpatient to BPJS patients, General and Insurance which is realized in the form of

value assessment. The sampling technique used is stratified random sampling with strata of BPJS patient groups, General, Agencies and Insurance. The selection of patients was carried out on that day also based on the information of patients returning from the inpatient room.

## Resources

Information was gathered in several ways, including: direct observation of the discharge process and timing, in-depth interviews and group discussions with health services in the inpatient room. The second sources included in this study are standard operating procedures for discharge times, pharmaceutical services, assurance services, observation reports for the discharge process, discussion reports with staff, journals, and other manuals for the discharge process.

## Inclusion and exclusion criteria

The inclusion criteria in this study include the process of discharging patients on the orders of DPJP on the same day and the process of discharging patients carried out in shift 1 at 08.00-15.00 WIB. Meanwhile, the exclusion criteria used include patients going home at their own request; the patient dies; the patient is referred; The administrative and financial process does not include waiting for confirmation from the guarantor to the patient, the institution and insurance.

## Data Analysis

Data analysis was carried out with quantitative and qualitative approaches to the process of discharging inpatients with four guarantors, and each at the process stage in the inpatient, pharmacy, administrative and financial rooms. Furthermore, an analysis of causal factors was carried out to focus on solving problems

in this study. Quantitative analysis is carried out through the Six Sigma approach by measuring variations in time and sigma levels in each process and sub-process, while qualitative analysis is carried out by identifying non-value-added activities and identifying waste. Furthermore, the garbage found has been searched for the cause with a fishbone diagram.

## RESULTS

### Inpatient Return Flow (Define)

The process of discharging patients from inpatient at RSI Surabaya Jemursari starts from the moment the patient is declared discharged by DPJP, the process in the inpatient room, the pharmaceutical inpatient process as well as administrative and financial processes. In this study, the observed processes include these three processes from each guarantor, BPJS, general, Agency and Insurance.

For BPJS patients, after completing the process in the inpatient room and pharmacy, patients are directed to the Central BPJS to apply for a waiting fee, get back their ID card and BPJS participant card. If there are benefits from actions during hospitalization, the patient before getting back the ID card and BPJS participant card, is directed to the finance department for payment settlement. Then the patient returns to the Central BPJS to get back the KTP and BPJS participant card. In general, patients after completing the process in the inpatient room and pharmacy, patients can be directly directed to the cashier who is part of the administration and finance. For Agency patients, after processing from the inpatient room and pharmacy, and waiting for verification from the guaranteed department, the patient is directed to the finance department for administrative proceedings and if something is not insured, payment is made.

For Insurance patients, after being processed from the inpatient room and pharmacy, and waiting for insurance verification from customer care, patients are directed to the finance department for the insurance guarantee process and if there is an insured then payment is paid. The process of discharging insurance patients depends on

the type of insurance so that administrative and financial processes can be repeated to coordinate with hospitalization, pharmacies, and customer care. For administrative and financial processes, including customer service, insurance, and hospital finance (cashier) (Table 1).

Table 1. Different Patient Discharges Process Flow based on Guarantors.

Sub Process	Guarantor	Differences				Note
		ID	Member Card	Insurance Agency Documents	& Cost	
Administration & Financial Process	BPJS	+	+	-	+/-	If there is any benefit from the action during hospitalization, the patient before getting back the ID card and BPJS participant card, is directed to the finance department for payment repayment
	General	+	-	-	-	
	Agency	+	+	+	+/-	
	Insurance	+	+	+	+/-	

**Sigma Time and Level in the Process of Dispensing Patients from the Inpatient Room (Measure)**

all sub-processes in the process of discharging inpatients with BPJS guarantors are close to the standard sigma level (standard sigma level = 3). In the sub-process, the discharge of the inpatient approached the standard level of 2.91 and there was no NVA. In the sub-process of returning drug services at pharmacies exceeds the standard level 3.12 and there is one NVA activity so that it still requires improvement efforts because the possibility of value-added activities is still not standardized. The process in the financial administration department is close to the sigma level of 2.90 with 4

NVA activities so that standardization of procedures is needed as an effort to improve (table 2).

Table 2 Average Sub-Process Time and Sigma Level in the Dischargeable Process of BPJS Inpatients

Patient Guarantor	Sub Process	n	Average time (minutes)	SD	Minimum Time (minutes)	Maximum Time (minutes)	Defect (%)	Number of activities			Level Sigma
								V A	NV A	NNV A	
BPJS	Patient Discharges Process	70	35.13	38.80	6	197	31%	2	0	2	2.91
	Pharmacy Services	70	110.16	112.43	0	525	31%	5	1	1	3.12
	Process in Administration & Finance	70	17.31	11.86	0	47	24%	3	4	0	2.90

In general guarantors, the sigma level has approached the standard level: in the sub-process the patient discharge reached 2.97 and there was no NVA activity. While the process of returning drug services at pharmacies is almost the same, which is

2.92 and there is 1 NVA activity. The process in the financial administration department reached a value of 2.78 and there was no NVA activity. This means that 3 sub-processes need to be standardized (table 3).

Table 3. Average Sub-Process Time and Sigma Level in the Dischargeable Process of General Insurer Inpatients

Patient Guarantor	Sub Process	n	Average time (minutes)	SD	Minimum Time (minutes)	Maximum Time (minutes)	Defect (%)	Number of activities			Level Sigma
								V A	NV A	NNV A	
General	Patient Discharges Process	10	49.40	35.49	10	120	50%	2	0	2	2.97
	Pharmacy Services	10	191.80	101.37	52	366	70%	5	1	1	2.92
	Process in Administration & Finance	10	9.40	6.64	0	21	10%	1	0	0	2.78

In guarantors, the Agency approaches sigma level standards. In the sub-process, the hospitalization approached the standard level of 2.97 and there was no NVA activity. In the sub-process of returning drug service at pharmacies is close to the standard level

of 2.98 and there is 1 NVA activity. The process in the financial administration department is close to the standard level of 2.82 and there is no NVA activity. This means that 3 sub-processes need to be standardized (table 4).

Table 4 Average Sub-Process Time and Sigma Level in the Dischargeable Process of Agency Inpatients



Patient Guarantor	Sub Process	n	Average time (minutes)	SD	Minimum Time (minutes)	Maximum Time (minutes)	Defect (%)	Number of activities			Level Sigma
								V A	NV A	NNV A	
Agency	Patient Discharges Process	8	32.50	21.87	4	57	50%	2	0	2	2.97
	Pharmacy Services	8	149.88	90.48	42	283	62,5%	5	1	1	2.98
	Process in Administration & Finance	8	71.75	78.17	0	215	37.5%	5	0	0	2.82

In the sub-process, the hospitalized was close to the standard level of 2.74 and there was no NVA activity. The sub-process of returning drug services in pharmacies exceeds the standard level of 3.09 and there is 1 NVA activity. Sub-processes in the financial administration department exceeded the standard level of 3.33 and there was no NVA activity. In the administrative and financial part, it still

exceeds the sigma level because the external process for verification of insurance requires a very variable time from insurance to insurance and this factor cannot be fully controlled by the hospital. In this section, there are also no NVA activities but value-added activities exceed the established time standard (table 5).

Table 5 Sub-Process Average Time and Sigma Level in the Insurer Inpatient discharge Process at the Installation

Patient Guarantor	Sub Process	n	Average time (minutes)	SD	Minimum Time (minutes)	Maximum Time (minutes)	Defect (%)	Number of activities			Level Sigma
								V A	NV A	NNV A	
Insurance	Patient Discharges Process	12	56.83	24.79	21	86	75%	2	0	2	2.74
	Pharmacy Services	12	12.00	81.13	22	240	50%	5	1	1	3,09
	Process in Administration & Finance	12	42.83	41.28	0	125	16%	5	0	0	3,33

### Factors Causing Waste in Inpatient, Pharmacy, Administration and Finance Rooms with CARL

Prioritization of the causes of problems with the CARL method is carried out by filling out an assessment form by the Head of Nursing, Head of Medical Services, Head of

Inpatient Pharmacy, Head of Guarantee Installation and Public Relations The results are then analyzed and submitted to management through FGD at that time to determine the root cause of the problem that is a priority to be resolved. The results found 5 (five) priority causes of problems, namely

the causes of problems with the largest multiplication results, namely: Doctor visits are not on schedule; Lack of human resources of pharmacists and pharmaceutical technical personnel; Lack of compliance of specialist doctors in filling out the E-Medical Record; There is no flow

of discharge of inpatients; There is no SPM for the discharge process of patients in the treatment room, pharmacy, administration and finance (table 6).

Table 6. Prioritization of Causes of Problems with the CARL Method

No.	Causes of the problem	C	A	R	L	Value	Ranking
1	Doctor does not visit according to schedule	9.2	8.6	9.0	9.4	6.693	1
2.	Lack of human resources for pharmacists and pharmaceutical technical personnel	8.6	8.8	8.8	9.8	6.526	2
3.	Lack of compliance of specialist doctors in filling out E-Medical Records	9.0	8.6	8.8	8.8	5.993	3
4.	There is no flow of discharge of inpatients	8.8	8.6	8.8	8.8	5.860	4
5.	There is no SPM for the discharge of patients in the treatment room, pharmacy, administration and finance	7.6	8.2	8.6	9.0	4.823	5
6.	Specialists have other duties (education, outpatient services, surgery)	8.2	8.2	7.8	8.6	4.510	6
7.	Number of doctors treating inpatients	8.0	7.6	7.8	9.4	4.457	7
8.	SPO discharge of inpatients has not been socialized	8.0	8.4	8.0	8.0	4.300	8
9.	Medical education is carried out after the administration process is complete	8.4	8.0	7.6	8.2	4.187	9
10.	Lack of information on the discharge process from hospitalization	8.0	7.8	7.4	8.2	3.786	10
11.	E-Medical Record 43 has not been fully filled in since the beginning	8.0	7.6	7.6	8.0	3.696	11
12.	There is no information media related to the flow of repatriation patient	7.6	7.4	7.8	7.8	3.421	12
13.	Limited number of devices in the inpatient room	7.4	7.2	6.6	7.8	2.742	13
14.	The internet network is sometimes unstable	7.0	6.6	7.0	7.6	2.457	14
15.	Transit Room for patients who have completed the discharge process does not exist	6.2	6.6	7.0	7.8	2.234	15

## DISCUSSION

Factors leading to the discharge time of patients with four guarantors are the number of patients discharged on the same day, the type of medicine discharged, the return of the drug (Cook et al., 2022). There are other activities that are not related to the discharge process such as the patient's family asking for information, concurrent doctor visits,

simultaneous use of devices between officers, the presence of patients who experience a sudden decline in condition (Asriyati et al., 2021; Zanetoni et al., 2023).

In the administrative (Rodgers & Antony, 2019) and financial sub-process at BPJS Pusat can be done in less than 10 minutes, but also depending on the number

of patients who go home on that day, there is pocket money or not and BPJS Pusat also serves poly services for control approval and internal counseling. In the administrative and financial sub-process of general patients, it is also influenced by the readiness of costs from patients and families even though they have been informed by the financial officer every day and there is a security deposit at the beginning of the patient's admission to the hospital for hospitalization. In the administrative and financial sub-process of Agency and Insurance patients, related to the age of patients in the study sample, most of whom are 60 years old and are often handled by more than 1 doctor and the provision of multi-pharmaceutical therapy, so it needs repeated confirmation related to drugs, diagnosis, supporting examinations and actions by agencies and insurance. These are external factors that can affect the discharge process of the patient.

Based on the study, the recommendation for additional pharmaceutical personnel was made after the hospital conducted a workload analysis at the Pharmaceutical Installation by comparing the increase in the number of prescriptions with the total working hours and found that of the total need for pharmaceutical technical personnel for inpatient services amounted to 16 people, while the available personnel currently still amounted to 10 people, thus it was necessary to add 6 people.

Other considerations came from input and suggestions from employees and inpatients as well as the results of observational studies where patient discharge times were largely due to the process at pharmacies taking more than 90 minutes as the standard time. The process starting from checking drugs, returning drugs, mixing drugs according to the type of

prescription, education on how to take drugs, drug reconciliation, monitoring allergic reactions due to drugs given, and delivering drugs back to the room requires fast coordination between doctors, where the schedule of doctor visits must be tried on time. This is because if the visit schedule does not have certainty every day, the variation of therapy changes is very high when drug therapy has been carried out in hospital. Coordination is also required between nurses, pharmacists, pharmacist assistants and employees. The addition of manpower is also in line with the unit dose dispensing system that must be carried out in inpatient services according to accreditation standards. Currently, in hospitals, the distribution of drugs per unit dose is expenditure only for drinking drug preparations, while injections, infusions, consumables, medical devices still use one daily dose, which is preparation for one day's needs (Rakasiwi & Latifah Amin, 2021).

Other recommendations related to doctor compliance in filling out the E-Medical Record (Indarti & Agustia, 2022). This is indispensable for monitoring, evaluating, and improving communication between PPAs. Medical records that need to be completed include initial inpatient medical assessment, integrated patient progress record, consultation sheet if needed, clinical path in cases predetermined by the hospital, discharge planning, integrated patient and family education and discharge summary.

The recommendations given for SPM and the flow of the inpatient discharge process from the results of the discussion are improving the flow related to the inpatient discharge process, socializing the flow of the inpatient discharge process, compiling and setting standards for the inpatient discharge process time. The process of discharging inpatients begins

with discharge instructions from DPJP and ends when the patient leaves the inpatient room. After the DPJP visits and gives instructions to go home, the nurse prepares a prescription for the patient to take home, medicines and medical devices to be returned and the patient's bill file. The return of prescription patients and the return of drugs/medical devices are delivered by the nurse to the pharmacy installation, while the patient's bill file is delivered to the finance or administration department of BPJS so this is very important in determining the flow related to patients who will go home.

## CONCLUSIONS

The flow of discharge of inpatients based on guarantors has similarities in the sub-process in the inpatient room and the sub-process of pharmaceutical services. The difference in flow lies in the administrative and financial sub-processes in patients with BPJS, General, Agency and Insurance Underwriter. The factors causing waste activity in the process of removing patients from the four guarantors are the same, namely extra-processing in the pharmaceutical service sub-process. In patients with BPJS guarantors, waste of untapped talent, extra processing and motion is gained in administration and finance.

Recommendations that can be offered from the results of this study include monitoring and evaluation, adding pharmacists and pharmaceutical technical personnel, preparing, determining and socializing the flow of the patient discharge process, setting standards for discharge time, re-evaluating cooperation agreements related to administrative completion and cost confirmation flow, setting deadlines for confirming costs to hospitals, and periodic coordination with agencies and insurance related to the patient release process and

Submission of information from the guarantor to the patient.

## Declaration

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## **THE EFFECTIVENESS OF HEALTH EDUCATION ON KNOWLEDGE ABOUT BREAST SELF EXAMINATION IN WOMEN IN BENGKULU CITY, INDONESIA**

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ABSTRACT	Keywords
Breast cancer is one of the causes of death in women. To reduce the death rate in breast cancer sufferers, early detection is necessary, which can be done through Breast Self Examination. Where BSE is the easiest way to do it, but there are still many women who don't know how to do BSE properly. The purpose of this study is to find out how health education affects women's knowledge of BSE as a means of early breast cancer screening in Bengkulu City. This research method uses pre-experimental with one group pre-post test design. The population in this study were women aged 26-35 years with a total sample of 86 people using purposive sampling technique. The results of the T Test statistical test p value = 0.000, this shows that there is an influence of Health Education on women's level of knowledge about BSE. Health education can increase knowledge, so nurses need to carry out health education about BSE in early detection of breast cancer.	<b>Health Education, Knowledge, Breast Self Examination</b>

### **INTRODUCTION**

Breast cancer is one of the most prevalent cancers in women across the globe, ranking second among cancers of disease and fifth in terms of cancer mortality among women (Bray et al., 2018). According to (Sung et al., 2021) the number of newly reported cases in 2020 amounted to approximately 2.3 million. Breast cancer holds the highest prevalence among all types of cancer in the Indonesian population (Azhar et al., 2020)

Globally, breast cancer is the leading cause of mortality for women. (Sarker et al., 2022). Indonesia is the nation with the greatest incidence of breast cancer cases in 2020, based on WHO data a serious issue.

Based on Globocan data for 2020, out of 396,914 new cases of cancer in Indonesia, 68,858 cases (16.6%) were of breast cancer. In that time, there had been almost 22,000 incidents of deaths. 70% are detected at an advanced stage. If we can detect it at an early stage, perhaps death can be prevented.

However, around 43% of deaths due to cancer can be defeated if patients regularly carry out early detection and avoid the risk factors that cause cancer. (Indonesian Ministry of Health 2022)

BSE is a tool for early detection of changes that occur in the breasts (Alshafie et al., 2024). Carrying out early detection can give a person the opportunity to increase life expectancy (Ștefănuț & Vintilă, 2023)

In order to check for nodules, secretions, and changes in size, shape, texture, or color, women who participate in breast self-examination must be aware of how their healthy breasts feel and look. (National Breast Cancer Foundation, 2021)

The prognosis of BC is dependent on early detection and appropriate treatment; my patients' 5-year survival rate is 100% when they are in stage 0. The 5-year survival rates for patients with stage II and stage III breast cancer were 93% and 72%, respectively. However, the prognosis drastically deteriorates as the tumor progresses; just 22% of stage IV BC patients make it to the five-year point. (Alshafie et al., 2024)

According to research findings ((Gaw et al., 2020), most participants (57.4%) had a moderate degree of knowledge about British Columbia. The mass media is the main source of information about BSE (39.8%), although only 18% of respondents actually practice BSE, only 52.2% of respondents have thorough understanding of BSE, and 64.01% of respondents have a good opinion about BSE. Between general BSE knowledge and practice, there was a significant difference ( $P < 0.005$ ). increased feeling of vulnerability, knowledge of breast health, and motivations for practicing breast self-examination are all statistically significantly different ( $P=0.0001$ ) (Nisha & Murali, 2020).

Based on several research findings that indicate women's understanding of the execution of self-repair is still relatively low, increasing public awareness of the need for Breast Self Examination requires increasing knowledge through health education.

Based on data obtained from several previous research results, there is still low knowledge about breast cancer and the implementation of breast self-examination, this is supported by ((Yusuf et al., 2022) (Alshafie et al., 2024)

Health education is the process of modifying self-aware, positive habits in individuals, communities, or society at large in order to consistently and methodically maintain and improve health. (Pibriyanti & Ummah, 2020)

To increase women's knowledge about early detection of breast cancer, it is necessary to carry out health education so that women's knowledge increases and they carry out routine breast examinations.

## METHOD

One group's pre-post test design is used in this quasi-experimental research approach. The research sample participants, totaling 86 people, were women aged 26 to 35 years who worked at the Sawah Lebar Community Health Center, Bengkulu City. The sampling technique uses purposive sampling technique. Inclusion criteria: willing to be a respondent, woman aged 26-35 years, taking Health Education to completion. Data collection used a questionnaire about BSE knowledge. The data collection tool used is a questionnaire with 10 questions which will be given to respondents before and after the implementation of Health Education. The post test was carried out 15 days after the health education was carried out. The results of data analysis used the T Test statistical

test to determine the influence of Health Education on increasing knowledge about breast self-examination..

RESULTS

Table 1. Frequency Distribution Based on Respondent Characteristics

Characteristics of Respondents	Frequency	
	f	%
Education		
Middle School	11	12,8
High School	44	51,2
Bachelor's degree	31	36,0
Family History Of Breast Cancer		
No history of breast cancer	60	69,8
history of breast cancer	33	30,2
Marital Status		
Single	30	34,9
Widowed	3	3,5
Married	53	61,6

Based on table 1, there are 44 (51.2) with high school education, 60 (69.8%) with no history of breast cancer and 53 (61.6%) with marital status.

Table 3 Effect of Health Education on knowledge

Variable	Mean	SD	Difference	P Value
Before Knowledge	5,7	1,19	5,709	0,000
Knowledge After	8,3	1,04	8,302	

Table 3 shows that knowledge levels were on average 5.7 before and 8.3 after health education. The T Test statistical test results, with a P Value of 0.000 < 0.05, indicate that health education has an impact on knowledge.

DISCUSSION

The average knowledge before health education was 5.7, and the average knowledge after health education was 8.3,

based to research on the effect of health education on knowledge on BSE as an early detection of breast cancer. This shows how health education impacts knowledge.

The findings from this study illustrate that 66.8% of women do not know how to self-examine their breasts. This is in line with research(Kissal & Kartal, 2019).

The study's findings indicate that there has been a shift in knowledge prior to and throughout health education. The scoring system for knowledge and response distribution is affected by the method and media of health education that are used, namely the demonstration method. According to the results of the study by (Anhar et al., 2020), after receiving health education about SADARI via phantom and demonstration methods, there was an increase in knowledge of around 15,67.

(Sarker et al., 2022) results, that indicate that educational interventions among Bangladeshi undergraduate female students resulted in significant changes in breast cancer knowledge and BSE behaviors, corroborate the findings of this study. The mean scores from the pre- and post-tests showed significant differences: breast cancer symptoms (2.99±1.05 vs. 6.35±1.15;P <0,001)

The findings of (Sadoh et al., 2021) provide additional support for the research findings, as they indicate that 1337 and 1201 students, respectively, completed the questionnaire before to and following instruction. Before training, the average BC knowledge score was low at (20.61 ± 13.4), however after training, it statistically increased to 55.93 ± 10.86 (p<0.0001). With the exception of pre-peer training, most knowledge domains saw statistically significant gains (p 0.037-<0.001) following peer training. Merely 67 (4.8%) students out of 906 peers (67.8%) were aware of BSE. Following peer training, 1134 students (94.7%) knew noticeably more about BSE.

The relationship between education and BSE knowledge was shown to be bigger than the correlation between having a family history of cancer and BSE knowledge, putting it in line with the other results in India. (Malik et al., 2020)

The findings in this study showed that 65% said they had heard about breast self-examination, but only 38% had carried out BSE. This is in line with ((Dinegde et al., 2020)) Among the respondents studied, 88 (22.9%) had done BSE, but only 47 (13.1%) had done BSE correctly. Twenty-five (29.8%).

## CONCLUSIONS

Based on the results of this research, there is an influence of Health Education on knowledge where the average before is 5.7 and the average after is 8.3. Breast examination itself is an effort to detect breast cancer early. If breast examinations are carried out regularly, it can reduce the morbidity rate of breast cancer sufferers. However, there are still many women who do not know the technique of doing breast self-examination. Health education has a big influence on women's knowledge.

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## THE NEED FOR REPRODUCTIVE HEALTH EDUCATION ABOUT MENARCHE IN PRIMARY SCHOOL STUDENTS IN MOJOKERTO CITY

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ABSTRACT	Keywords
The onset of menstruation will be a traumatic event for some children who do not prepare themselves in advance. School-aged children need information about the menstrual process and health during menstruation. Children will have difficulty facing their first menstruation if they have never known about it before. This shows that school age children need reproductive health education in facing menarche. However, in reality, many school-aged children still have relatively low knowledge of reproductive health. The aim of this research is to identify the need for reproductive education regarding menarche among elementary school students in Mojokerto City. This research method uses a descriptive analytical research design with a case sectional approach. Samples were taken based on purposive sampling. Data collection was carried out through interviews using a reproductive education needs questionnaire. From the research results, it is known that 100% of children need for reproductive health education, especially information on menarche, was due to the absence of a curriculum in elementary schools that discussed this issue.	<b>Reproductive Education Needs, Menarche</b>

### INTRODUCTION

The onset of menstruation will be a traumatic event for some school-aged children who do not prepare themselves in advance. Children need information about the menstrual process and health during menstruation. Young women will have difficulty facing their first menstruation if they have never known about it before (Sholicha, 2020). So far, knowledge about

menstruation is only obtained when children are teenagers and have experienced menarche, resulting in school age children being unprepared for facing menarche which has an impact on anxiety. (AL ARUP, 2018).

Demographic data shows that teenagers constitute a large population of the world's population. According to WHO, around one fifth of the world's population are teenagers aged 12-16 years experiencing

a change in the age of menarche. In the United States, approximately 95% of adolescent girls have signs of puberty with menarche at the age of 12 years and an average age of 12.5 years accompanied by physical growth at menarche. (World Health Organization, 2018). The results of Riskesdas (2018) show that based on reports from respondents who have experienced menstruation, the average age of menarche in Indonesia is 13 years (20%) with an earlier occurrence at less than 9 years of age. Nationally, the average age of menarche is 13-14 years, which occurs in 37.5% of Indonesian children and there are also those who are only 8 years old and have started their menstrual cycle, but this number is very small. (Kemenkes RI, 2018).

In Yuseva's research (2020), it was found that 76% of female students were ready to face menarche and 24% were not ready. (et al., 2020). Based on research, Nurmawati (2019) stated that as many as 46.7 teenage girls in Jember Regency were not yet ready to face menarche. As many as 70% of female students said they were afraid that they would experience menarche in the near future, 60% of female students did not know what to do, and 40% of female students had no special preparations if they were going to experience menstruation. (Nurmawati & Erawantini, 2019).

Looking at these data, the problem currently faced is the lack of information for school-age children about early reproductive education so that children will be better prepared to face menarche. (Anggraeni & Sari, 2018). According to psychology experts as stated by Windya, reproductive health education should ideally be given since children are 2.5 years old and then deepened at higher levels, namely elementary, middle and high school. The reason why schools play a role in reproductive health education is because

some parties think that schools and teachers are capable of providing reproductive health material to teenagers (Yusuf et al., 2014). As per Ministry of Education policy, reproductive health material can be provided through Biology, Sports and Religion lessons. Apart from that, it is also one of the institutions that has the opportunity to reach teenagers in large numbers. Meanwhile, consultations can be carried out through Guidance and Counseling (BK) teachers. The material presented by teachers should not only discuss reproductive health physically and biologically but also psychologically and socially so that material regarding adolescent reproductive health can be accepted by students as a whole. (Lina, 2018).

Based on a preliminary survey, the provision of reproductive health material is still not optimal, especially education before menarche. The majority of the material taught is about puberty without explaining in detail the signs of puberty and what needs to be paid attention to during puberty until menarche. The teaching media is still minimal and the lecture method is more common. These schools also do not have extracurricular activities that specifically discuss reproductive health.

From the description above, it can be concluded that the school has not carried out an analysis of reproductive health education needs because the school only carries out curriculum-based learning without paying attention to the needs, potential and obstacles of its students so it is still there is a gap between what is expected and reality. In fact, if a needs analysis is carried out it will be useful for the school as a basis for strategic development of reproductive health education models. Therefore, researchers are interested in analyzing the need for reproductive health education regarding menarche among

female elementary school students in Mojokerto City.

METHOD

This type of research is descriptive research using independent variables. The independent variable in this research is the need for reproductive health education. The sampling method used by researchers is purposive sampling, namely a sampling technique carried out with certain aims and objectives determined by the researcher in accordance with the sample criteria. The criteria for this research have inclusion criteria, namely female students at least 10 years old, female students who have not yet menstruated and exclusion criteria namely female students who are not willing to be respondents or who were not included when collecting data. The total number of samples was 90 female students. This research was carried out at the Mojokerto City State Elementary School.

RESULTS

Table 1. The characteristics of respondents (n = 90).

Characteristics of respondents	Respondents (n = 90)	
	f	%
Age		
10 years	12	13
11 years	68	76
12 years	10	11
Riwayat informasi		
Once	72	80
Never	28	20
Sumber Informasi		
Parents/Teachers	35	39
Sisters	17	19
Friends	13	14
Health workers	5	5
Books	4	4
Social Media	16	19
Reproductive Health Education Needs		
Need Not	90	100
Required	0	0

Information Delivery Method		
Lecture	72	73
Demonstration	18	27
Videos	0	0

From the characteristics of the respondents, the majority were 11 years old and had received information about menstruation but only limited to signs and how to interact with the opposite sex. The majority of sources of information obtained from parents/teachers are generally delivered using the lecture method. The research results showed that all female students need reproductive health education, especially menarche issues.

DISCUSSION

The results of the research state that elementary school students need 100% reproductive health education specifically for female students who are approaching menstruation. This is because children need information about the menstrual process and health during menstruation. The information needed is about knowledge about menstruation and menarche, physical and psychological changes before puberty, health problems due to lack of hygiene in the vulva, and how to care for the vulva during puberty. Young women will have difficulty facing their first menstruation if they have never known about it before (Sholicha, 2020). So far, knowledge about menstruation is only obtained when children have reached adolescence and have experienced menarche. thus resulting in school age children being unprepared for facing menarche which has an impact on anxiety (AL ARUP, 2018). Reproductive education not only prepares children for physical changes but also guides children towards adult life and responsibility for their reproduction. From the results of interviews with several respondents and school principals, it was revealed that reproductive

health education at school age is really needed in order to minimize deviant relationships and prevent diseases of the reproductive organs.

Most respondents said they had received reproductive health education, 80% and most sources of information were through parents and teachers at school, 39%. Parents have an important and strategic role in providing moral education and understanding of healthy reproductive health. Reproductive health education should ideally be given first by parents at home, remembering that the people who know the child's condition best are the parents themselves. Parents, especially mothers, are the main and first educators in reproductive health education for their children (Endjun, 2007). However, not all parents are willing to be open with their children in discussing reproductive issues. This is due to economic conditions and heterogeneous levels of education in Indonesia so that some parents are unable to provide information about reproductive health. (Mu'tadin, 2008).

School is an extension of the family in laying the foundation of behavior for the child's future life. Educators (Teachers) have a role in instilling moral education and understanding about healthy reproductive health so that students have good morals, healthy behavior and knowledge of healthy reproductive health. (Rahmawati, 2004). To achieve this goal, the following stages are required: 1. Providing knowledge about reproductive health; 2. Creating attitudes and behavior to maintain reproductive health; 3. Forming living habits, maintaining reproductive health.

The method of delivering reproductive health education material that has been received and is expected to be the direct lecture method (41%) through people who are competent to share reproductive health information, including parents,

teachers and health workers. Local health workers also have an important role in providing regular reproductive health education to female students at school, because health workers have knowledge that is based on definite concepts and evidence base, so that female students can ask questions about reproductive health and diseases of the reproductive organs.

Apart from the lecture method, the method that respondents expect to receive reproductive health education is through the video method. Health promotion methods that are appropriate in implementation and implementation are strategic steps in improving health status. The media used in providing education is one of the means and efforts that can be used to display reproductive health messages or information that you want to convey to female students so as to increase knowledge which is ultimately expected to improve behavior to be positive or support healthy reproduction. According to Edgar Dale, media is an integration in the education delivery system, so audio-visual media was formed as a medium for delivering education.

The use of video media in educational activities is not just as a tool, but as a carrier of information or messages to be conveyed. The use of videos in reproductive health education can clarify the picture regarding the importance of reproductive health before menarche, because respondents not only listen to the material but can see directly and clearly examples of reproductive diseases and also how to care for the vulva. The benefits of using audio-visual (video) media are in accordance with the learning concept according to the pyramid of experience written by Edgar Dale, that more than 50% of people learn from what they have seen and heard. (Devi Sandra, 2013). Meanwhile, teaching using the demonstration method is to show the process of an event occurring in accordance



with the teaching material so that students can easily understand it (Kurniawan, 2015). The demonstration method is a teaching method by demonstrating items, events, rules and the sequence of carrying out an activity, either directly or through the use of teaching media that is relevant to the subject matter or material being presented. This method is used so that students understand the material being explained better because it uses visual aids and uses visualization media which can help students understand better. (Rohendi Dedi, et al. 2010)

## CONCLUSIONS

Reproductive health education for female students approaching menarche is very important to prepare the child physically and psychologically. Education must be provided as early as possible by the family, especially the mother, and reinforced by educational staff, namely teachers and local health workers. In accordance with developments in the era where school-age children are more interested in gadgets, it would be good for reproductive health education to be packaged in audio-visual (video).

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## THE INFLUENCE OF HEALTH EDUCATION THROUGH AUDIOVISUALS ON THE IMPLEMENTATION OF EXERCISES TO PREVENT STROKE IN THE ELDERLY

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ABSTRACT	Keywords
Stroke attacks productive and advanced age groups, causing brain death in a matter of minutes. Non-pharmacological treatment efforts need to be prioritized, with physical activity being recommended but balanced with adequate rest. The design of this research is pre-experimental research using the One-Group Pre-Post test. The independent variable is Health Education via AudioVisual. The related variable is the implementation of exercise to prevent stroke in the elderly in Randegan Village, Driyorejo District, Gresik Regency. Data analysis using the Wilcoxon Test was carried out using SPSS 24.0. The research results showed that after respondents were given health education, 41 respondents (95.36%) were in the good category and there was an influence before and after being given health education through audiovisual media on the implementation of stroke prevention exercises, which was proven. with significant Wilcoxon SPSS statistical test results. is $\alpha = 0.05$ and the results are very valuable. □ Value 0.000. The use of audiovisual media in providing health education is very influential, because the media used is easily accepted by the elderly in carrying out exercises to prevent stroke.	Audivisual, Exercise, Stroke

## INTRODUCTION

Stroke is a condition when the blood supply to the brain is disrupted due to a blockage (ischemic stroke) or rupture of a blood vessel (hemorrhagic stroke). This condition causes certain areas of the brain to not receive a supply of oxygen and nutrients, resulting in the death of brain cells. Stroke is a medical emergency, because without a supply of oxygen and nutrients, cells in the affected part of the brain can die in just a matter of minutes. Stroke attacks the productive age and old age which has the potential to cause new problems in national health development. Preventive measures in the form of prehospital treatment need to be emphasized. This is important to ensure an improvement in the quality of life of stroke sufferers in addition to more effective management to reduce the incidence of stroke. Primary prevention of stroke includes efforts to improve life and control various risk factors. This effort is aimed at healthy people and high risk groups who have never had a stroke, one of which is to prevent it

stroke, namely increasing physical activity is recommended because it is associated with a reduced risk of stroke. but still balance it with adequate rest. This activity can be increased by exercising. Sports activities reduce the risk of stroke by improving blood vessel health. Healthy blood vessels can reduce risk factors such as hypertension and obesity. Exercise can prevent high blood pressure and diabetes, which are risk factors for stroke. To socialize exercise to prevent stroke, it can be done by providing health education, which is a planned effort to change individual behavior from unhealthy behavior to healthy behavior, so audiovisual media is needed to support the learning process. Audiovisual media is media that combines sound and images to convey content. for example audiovisual media in the form of video, film, television etc. (Fernando Pakpahan et al Andrew, 2020).

## METHOD

The design used in this research is a pre-experimental research design using a One-Group Pre-Posttest design, namely a group of subjects are

observed before the intervention is carried out, then observed again after the intervention.

The independent variable in this research is Health Education via AudioVisual. The dependent variable in this research is the implementation of exercise to prevent stroke in the elderly in Randegan village, Driyorejo subdistrict, Gresik regency.

## RESULTS

**Table 4 Frequency distribution of exercise to prevent stroke through audiovisual media before providing health education to the elderly at the elderly posyandu in Randegan - Driyorejo village, Gresik Regency**

No	Pretest	Presentase	
		Frekuensi	(%)
1	LESS	40	93,03
2	GOOD	3	6,97
AMAUNT		43	100

Source: Primary Data, 2023

Based on table 4, it shows that most of the exercises to prevent stroke were provided before health education was provided through audiovisual media in the less category with 40 respondents (93.03%).

**Table 5 Frequency distribution of exercise to prevent stroke through audiovisual media after providing health education to the elderly at the elderly posyandu in Randegan - Driyorejo village, Gresik Regency.**

No	Posttest	Presentase	
		Frekuensi	(%)
1	NOT SUITABLE	2	4,65
2	SUITABLE	41	95,36
Jumlah		43	100

Source: Primary Data, 2023



**Table 6 Effect of Health Education through Audiovisual Media on the Implementation of Exercises to Prevent Stroke in the Elderly at the Elderly Posyandu in Randegan - Driyorejo Village, Gresik Regency.**

No	CATEGORY	Pre test		Post test		IMPROVEM
		F	%	F	%	
1.	NOT SUITABLE	40	93,03%	2	4,65%	
2.	SUITABLE	3	6,97%	41	95,35%	88,38%
	AMAUNT	43	100%	43	100%	
Uji Wilcoxon		SCORE pvalue = 0,000				

Source: Primary Data, 2023

Based on the results of statistical testing using the Wilcoxon test using SPSS, the significance  $\alpha=0.05$  was obtained and the result was  $p\text{ Value} = 0.000$  which means  $p < 0.05$ , namely  $H_0$  is rejected and  $H_1$  is accepted. The results of the analysis showed that there was an increase in the implementation of exercises to prevent stroke before and after being given intervention through audiovisual media. There were 3 respondents in the good category in the pre-test with a percentage of 6.97% and in the good category in the post-test there were 41 respondents with a percentage of 95.35%. There were 40 respondents in the poor category in the pre-test with a percentage of 93.03% and in the poor category in the post-test there were 2 respondents with a percentage of 4.65%, so there was an increase in both categories in the pre-test and post-test by 88.38%.

## DISCUSSION

The results of the research obtained before being given health education regarding the implementation of exercises to prevent stroke through audiovisual media using an instrument in the form of an observation sheet consisting of 8 stages of exercises to prevent stroke showed that on average only a few respondents could do exercises to

prevent stroke according to the SOP, the majority of respondents.

You can do exercises to prevent stroke but it doesn't comply with the SOP. This is in line with research conducted by Ilyas and Yulianti

2015) in the Journal (Maisal et al., 2020) explains that muscle tension can occur if elderly people are forced to focus on an object for a long duration and do it repeatedly, resulting in a decrease in the power of concentration in the eye muscles which causes problems. on visual function.

Based on the results of the research, researchers assume that the elderly cannot do exercise to prevent stroke because the activity is forced to focus, resulting in tension in all the muscles of the body which results in muscle tension and increases blood pressure. As a result, the elderly feel dizzy, their vision becomes blurry so they cannot do exercise to

prevent stroke. according to SOP.

One of the advantages of using audio visual media is that it is more interesting because there is sound and moving images. According to Aryadillah (2017), the use of audio-visual media for counseling about exercise to prevent stroke will make it easier for the elderly to understand the importance of exercise to prevent stroke. Based on this problem, it is necessary to conduct a study regarding influence analisis health education using audio-visual media to implement exercises to prevent stroke in the elderly in Randegansari Driyorejo Village. By using audio visuals, the elderly will be more interested and willing to listen to what the researchers have to say. If you use leaflets, there is a risk that the information will not be accepted by the elderly due to the level of education and physical decline of the elderly. New innovations can be delivered according to the situation of the elderly. Audiovisual media developed by paying attention to Health Education processes such as choosing the right material, time duration, use of language, appropriate use of audio and

visuals in videos will make it easier for patients to understand the information conveyed.

Health education using audiovisual media can increase patient understanding about medication and its side effects (Fernandes et al., 2020). The video contains information about how to carry out exercises to prevent stroke in the elderly, which is tailored to the needs of the recipient of the information. The results of using this Health Education video show that the effectiveness of the video shows significant value in implementing exercises to prevent stroke in the elderly. According to Dermawan & Setiawati, 2008, Audiovisual makes a huge contribution to changing people's behavior. Audiovisual media has two elements, each of which has strengths that will work together to become a great force. This media provides a stimulus for hearing and vision, so that the results obtained are maximized. These results can be achieved because the five senses that transmit the most knowledge to the brain are the eyes. healthy (Notoatmodjo, 2012). The use of media in providing health education also influences respondents' knowledge. Delivery of material using unique and interesting media will help respondents to focus more on paying attention to the content of the education. Audiovisual media is a tool for conveying or providing information by utilizing the senses of sight and the sense of hearing in the process of receiving information (Aeni and Yuhandini, 2018) According to Wijayanti et al, (2019) The advantages of using audiovisual media are that it can be played and studied again, the experience gained by respondents is more complete, it uses sound and images for the delivery process so it will be interesting Respondents' attention to varied and moving images.

The results of the analysis showed that there was an increase in the implementation of exercises to prevent stroke before and after being given intervention through audiovisual media. There were 3 respondents in the good

category in the pre-test with a percentage of 6.97% and in the good category in the post-test there were 41 respondents with a percentage of 95.35%. There were 40 respondents in the poor category in the pre-test with a percentage of 93.03% and in the poor category in the post-test there were 2 respondents with a percentage of 4.65%, so there was an increase in the categories in both the pre-test and post-test by 88.38%. Based on the results of statistical tests, it is known that health education can improve student actions in doing exercises to prevent stroke. This is supported by the theory (Asriwati, 2019) that providing information through health education is an effort to improve action, action comes from knowing through sensing a certain object, then understanding and applying the ability to use the material that has been studied. The increase in skills is due to the use of media and interesting ways of conveying information. The advantage of this media is that it is more interesting and more effective to use because it involves image elements and sound elements. This can make students interested in health education delivered by researchers. In accordance with theory (Ermianti et al, 2022) health education through audiovisual media is a means of increasing students' and students' understanding and

knowledge regarding eye health by doing exercises to prevent stroke. Health education is very important to provide students with a basic understanding of eye health so that it is expected can minimize the incidence of stroke. Health education aims to change individual, group or community behavior from unhealthy behavior to healthy behavior (Nurmala, 2018). From research conducted by researchers, it was found that if respondents did not have good actions regarding implementing exercises to prevent stroke, then the researchers assumed that it would be difficult to carry out an act or action that

would be carried out. The existence of health education can change respondents' actions related to health. This shows that providing health education through audiovisual media has an effect because the media used is accompanied by sound and images, making it easier for respondents to do exercises to prevent stroke.

## CONCLUSIONS

There is an influence before and after being given health education through audiovisual media on the implementation of eye exercises as evidenced

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