

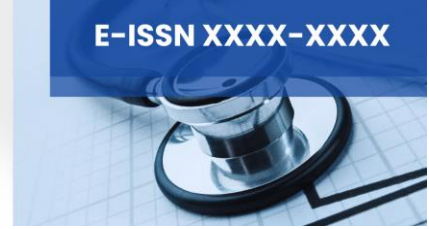
3rd International Conference 2025

Optimal for Nation: Health and Medicine

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Volume 1, Number 1, May 2025



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# POTENTIAL OF ANTHOCYANINS FROM LAKUM FRUIT (*CAYRATIA TRIFOLIA* L.) AS AN ALTERNATIVE NATURAL DYE FOR PERIPHERAL BLOOD SMEARS

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## Abstract

Background: Synthetic dyes such as Giemsa are widely used in hematological staining but pose challenges related to cost, toxicity, and accessibility. Anthocyanins, natural plant-derived pigments, offer a safer and more environmentally friendly alternative. Objective: This study aimed to evaluate the staining effectiveness of anthocyanin extract from *Cayratia trifolia* L (lakum fruit) on peripheral blood smear preparations at various concentrations. Methods: Lakum fruit extract was prepared at concentrations of 20%, 30%, 40%, and 50%. Each was applied to peripheral blood smears and compared to Giemsa-stained controls. Staining performance was assessed based on a visual scoring scale (0–5), staining success rate, and color stability. Microscopic examination was conducted under 100x magnification. Results: The 50% extract showed the best performance, with a visual score of 4, a 90% staining success rate, and up to 6 hours of color stability. Lower concentrations (30% and 20%) resulted in weaker staining and reduced stability. Compared to Giemsa, lakum extract produced lower contrast but remained sufficient for basic morphological identification. Conclusion: Anthocyanins from *Cayratia trifolia* L demonstrate strong potential as a low-cost, non-toxic natural dye for educational and basic hematology screening purposes. Further optimization using mordants and quantitative color analysis is recommended to enhance staining performance.

Keywords: Anthocyanin, *Cayratia Trifolia* L, Lakum Fruit, Natural Dye, Peripheral Blood Smear.

## 1. INTRODUCTION

Peripheral blood smear examination (SADT) is a widely used diagnostic method in clinical laboratories. It allows for detailed assessment of erythrocyte, leukocyte, and platelet morphology, supporting the diagnosis of various hematological disorders such as anemia, infections, and leukemia.

A critical step in SADT is the staining process, which enhances contrast between cellular components under the microscope. Giemsa stain is the current standard due to its ability to clearly differentiate nuclear and cytoplasmic structures. However, it is a synthetic dye associated with toxicity, environmental hazards, and long-term cost concerns. This has prompted the search for safer and more sustainable staining solutions.

Natural dyes such as anthocyanins, water-soluble pigments from the flavonoid group, have gained attention as eco-friendly alternatives. Their ability to bind to proteins and nucleic acids makes them suitable for visualizing cellular structures, particularly nuclei. Several plant sources of anthocyanins have been investigated. Extracts from *Syzygium cumini* and *Ixora coccinea* demonstrated weak staining performance, especially for leukocytes. In contrast, *Hylocereus polyrhizus* (red dragon fruit) showed improved efficacy at 23.1% concentration, but limitations in contrast and leukocyte subtype differentiation remained [1].

Among potential natural sources, Lakum fruit (*Cayratia trifolia* L.) emerges as a promising local alternative. It is rich in anthocyanins, flavonoids, and phenolic compounds. When extracted using acidified methanol and stabilized with 1% HCl, it yields a high anthocyanin content (283.88 mg/L) with enhanced pigment stability [2]. These features suggest greater efficiency, stronger color retention, and better applicability compared to previously studied sources.



Moreover, anthocyanins from *Cayratia trifolia* L. have demonstrated antioxidant activity and low toxicity (Puspita et al., 2018). Their high affinity for nuclear proteins offers a functional advantage for leukocyte staining—typically achieved using synthetic agents. In this context, Lakum fruit presents a cost-effective and environmentally friendly solution, particularly valuable for laboratories in resource-limited settings.

Despite these advantages, the application of Lakum fruit anthocyanins in hematological staining remains underexplored. This gap highlights the need to evaluate its staining capability, color intensity, binding properties, and solution stability in peripheral blood smear applications. An ideal hematological stain should offer distinct nuclear-cytoplasmic contrast, maintain cell morphology, and remain stable over time. Therefore, this study aims to assess the effectiveness of Lakum fruit anthocyanins as a natural alternative to Giemsa stain in peripheral blood smear preparation. The findings are expected to support the development of safer, more sustainable hematological staining practices.

## 2. METHODOLOGY

This research is an experimental laboratory study aimed at evaluating the potential of anthocyanins extracted from lakum fruit (*Cayratia trifolia* L.) as a natural dye for peripheral blood smear staining. A quantitative approach was used to assess the staining effectiveness and visualization quality of blood elements, compared with conventional synthetic dyes such as Giemsa and Wright. The study was conducted in April 2025 at the Pathology Laboratory, Diploma III Medical Laboratory Technology Program, Poltekkes Kemenkes Aceh. The biological materials included lakum fruit as the raw material and human peripheral blood smears as the test samples.

- a. **Plant material:** Ripe and fresh lakum fruits were selectively harvested from Banda Aceh to ensure high anthocyanin content.
- b. **Blood samples:** Capillary blood was obtained from three healthy volunteer students who met the inclusion criteria (healthy, not currently ill, and willing to participate).

### 2.1 Anthocyanin Extraction

Lakum fruits were washed, weighed (100 g), and placed into a clean Erlenmeyer flask. A total of 400 mL of methanol acidified with citric acid (pH ~4) was added to fully immerse the fruit. The container was sealed with aluminum foil and plastic wrap, then stored in a dark environment for 24 hours (maceration process).

### 2.2 Extract Filtration and Concentration

The extract was filtered using filter paper into another Erlenmeyer flask. The filtrate was covered with perforated aluminum foil and evaporated in a fume hood using a water bath for 7 hours to obtain concentrated anthocyanin extract.

### 2.3 Preparation of Peripheral Blood Smears (PBS)

Clean and dry glass slides were used. One drop of capillary blood was placed on a slide, then another slide was held at a 25–30° angle and used to spread the drop smoothly, forming a tongue-shaped smear. Slides were air-dried at room temperature. Each group prepared four slides, for staining with 20%, 30%, 40%, and 50% extract concentrations.

### 2.4 Staining with Lakum Anthocyanin Extract

Slides were fixed with methanol and dried. Each slide was stained with four drops (~200 µL) of anthocyanin extract at varying concentrations (20%–50%) to fully cover the smear. Staining was allowed to proceed for 45 minutes. Slides were then rinsed with running water and air-dried.

### 2.5 Staining with Giemsa and Negative Control

For positive control, slides were stained with Giemsa solution for 15–30 minutes, then gently rinsed with clean water and dried vertically on tissue. Negative controls were prepared by fixing the smear with methanol but no dye was applied.

## 2.6 Microscopic Observation

Dried slides were mounted with immersion oil and examined under a light microscope at 100x magnification. Observations focused on color contrast, clarity of erythrocyte and leukocyte morphology, and stain stability.

## 2.7 Data Analysis

Data were analyzed descriptively and quantitatively. Visual staining results were assessed using a 5-point visual scoring scale:

- 1 = Not visible
- 2 = Very blurry
- 3 = Blurry
- 4 = Clear
- 5 = Very clear

Comparative analysis was conducted between the control and treatment groups to evaluate the effectiveness of lakum anthocyanin as a natural dye.

## 3. RESULTS

The fruit of *Cayratia trifolia* L., commonly known as lakum, is rich in anthocyanin compounds, flavonoid pigments responsible for red, purple, and blue colors in plant tissues. In the fields of histology and cytology, anthocyanins have gained increasing attention as natural, non-toxic, and environmentally friendly alternatives to synthetic dyes. A systematic review by Jasphin et al. (2023) reported that approximately 90% of studies supported the effectiveness of anthocyanin-rich plant extracts as histological stains, particularly when combined with mordants such as alum [4].

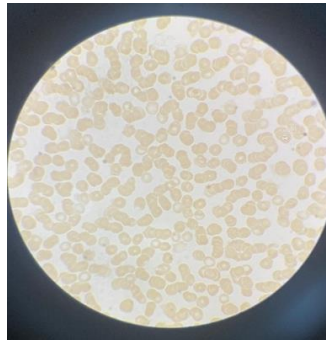
In this study, anthocyanin extract from lakum fruit was successfully applied as a natural staining agent for peripheral blood smear (PBS) preparations. Four concentrations of the extract (50%, 40%, 30%, and 20%) were evaluated. Staining intensity was assessed using a visual scoring scale from 0 to 5, where 0 indicated no visible stain and 5 represented very intense coloration. The 50% concentration yielded the highest performance, with an average visual score of 4, a 90% success rate (9 out of 10 slides), and color stability up to 6 hours post-application. Conversely, the 20% concentration resulted in a score of 1 (very faint), with only 40% staining success and 3 hours of color stability.

**Table 1.** Staining Performance of Lakum Extract at Various Concentrations

Extract Concentration	Visual Score	Staining Success	Rate Color Stability
50%	4 (strong)	90% (9/10 slides)	6 hours
40%	3 (moderate)	80% (8/10 slides)	5 hours
30%	2 (faint)	60% (6/10 slides)	4 hours
20%	1 (very faint)	40% (4/10 slides)	3 hours

Microscopic analysis demonstrated that the staining quality varied significantly depending on the extract concentration.

### 3.1 Control (No Staining)

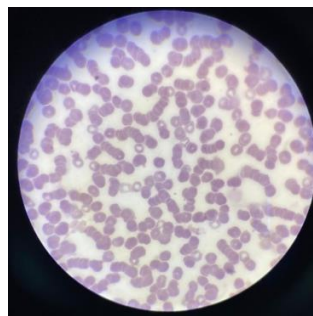


**Figure 1.** *Peripheral blood smear without staining (control), magnification 100x.*

**Caption:** “Blood cells appear unstained due to the absence of anthocyanin extract.”

As shown in Figure 1, the control sample (without staining) revealed that red blood cells appeared pale and lacked contrast, making internal structures such as the nucleus unidentifiable.

### 3.2 50% Lakum Extract Staining

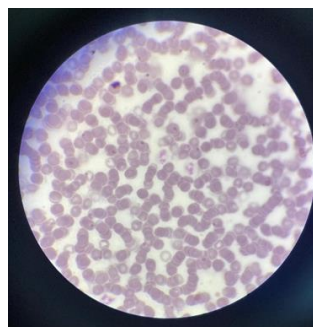


**Figure 2.** *Peripheral blood smear stained with 50% lakum fruit extract, magnification 100x.*

**Caption:** “Nuclear staining appears bluish-purple at 50% concentration.”

Figure 2 presents the most optimal result, with clear nuclear visualization stained bluish-purple. This suggests that a high anthocyanin concentration offers effective affinity for cellular components, enhancing microscopic identification.

### 3.3 40% Lakum Extract Staining

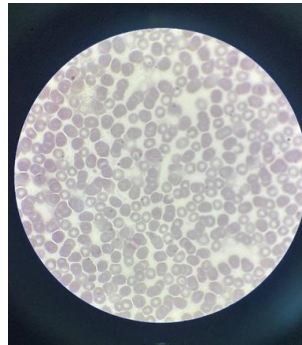


**Figure 3.** *Blood smear stained with 40% lakum extract, magnification 100x.*

**Caption:** “Blood cells show light purple staining at 40% concentration.”

Figure 3 demonstrates sufficient staining intensity with distinguishable nuclei, although slightly fainter compared to the 50% concentration.

### 3.4 30% Lakum Extract Staining

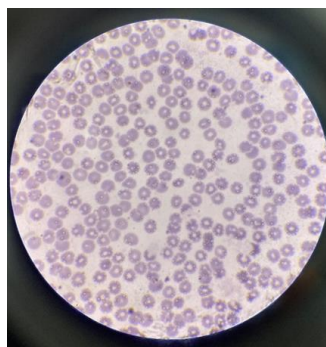


**Figure 4.** *Blood smear stained with 30% lakum extract, magnification 100x.*

**Caption:** “Staining becomes weaker at 30% concentration.”

As illustrated in Figure 4, nuclear clarity and stain intensity decline further, indicating reduced effectiveness.

### 3.5 20% Lakum Extract Staining



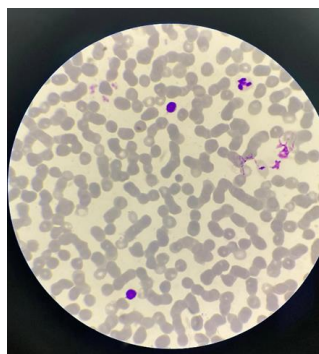
**Figure 5.** *Blood smear stained with 20% lakum extract, magnification 100x.*

**Caption:** “Most cells are weakly stained or remain colorless at 20% concentration.”

In Figure 5, staining appears faint and insufficient for diagnostic evaluation. Most cells lack adequate color, suggesting the concentration is too low to bind effectively.



### 3.6 Giemsa Staining (Standard Control)



**Figure 6.** Peripheral blood smear stained with Giemsa stain, magnification 100x.

**Caption:** “Nuclei and cytoplasm are clearly stained with standard Giemsa stain.”

Figure 6, stained with Giemsa, serves as the benchmark, offering excellent nuclear and cytoplasmic detail, thus maintaining its status as the gold standard in hematological staining.

**Table 2.** Comparative Effectiveness of Lakum Extract and Giemsa in Blood Cell Staining

Figure	Staining Concentration	Stain Intensity	Nuclear Visibility	Cellular Clarity	Summary
Fig. 1	Control (No Stain)	None	Not visible	Blurry	Unstained cells
Fig. 2	Lakum 50%	High	Clearly visible, bluish-purple	Clear	Optimal staining result
Fig. 3	Lakum 40%	Moderate-high	Moderately clear	Clear	Adequate performance
Fig. 4	Lakum 30%	Moderate	Slightly visible	Less sharp	Diminished effectiveness
Fig. 5	Lakum 20%	Low	Poor visibility	Blurred	Ineffective concentration
Fig. 6	Giemsa	Very high	Highly detailed	Very clear	Gold standard control

The findings indicate that lakum fruit extract exhibits staining capabilities that are concentration-dependent. At 50% concentration, anthocyanins produced the most reliable contrast, enabling identification of nuclear structures comparable to Giemsa staining. Lower concentrations (30% and below) resulted in weak staining, suggesting insufficient anthocyanin availability to bind cellular components effectively.

The staining performance at 50% concentration supports existing literature suggesting anthocyanins have a natural affinity for nucleic acids and proteins, enabling coloration of cellular structures. These results demonstrate that lakum fruit extract has promising potential as a biodegradable and non-toxic alternative stain, particularly in settings where chemical reagents are limited or undesirable.

**Table 3.** Comparison of Lakum and Giemsa Staining

Parameter	Giemsa	Lakum (50%)
Nuclear Contrast	High (sharp detail)	Moderate (less defined)
Color Complexity	High (multi-tonal)	Low (monochromatic violet)
Toxicity	Contains synthetic chemicals	Non-toxic, plant-based
Cost & Accessibility	Expensive, requires procurement	Affordable, locally sourced
Intended Use	Clinical diagnosis	Education, preliminary screening
Mordant Requirement	Integrated	Optional (recommended for enhancement)

These results are likely influenced by the flavylium cation structure of anthocyanins, which enables non-covalent interactions with nucleic acids and proteins. In addition, anthocyanins are pH-sensitive, and their chromatic expression is affected by the staining environment. In this study, acidic methanol was used during extraction, followed by a neutral pH buffer during staining, conditions that contributed to color stability. This is consistent with findings by Rusishvili et al. (2019), who emphasized the role of chromophore structure and pH in dye performance [5].

This study also aligns with work by Alshamar & Dapson (2021), who demonstrated that anthocyanins from a single botanical source can replace hematoxylin and eosin when used with alum mordants [6]. Furthermore, Chuang et al. (2018) confirmed the biocompatibility of anthocyanins in intraocular environments, reinforcing their safety for biological applications [7]. From a sustainability perspective, the use of lakum fruit extract supports green chemistry principles, reducing dependency on synthetic dyes, lowering environmental risk, and offering cost-effective solutions, especially in resource-limited settings or educational institutions [8].

#### 4. CONCLUSIONS

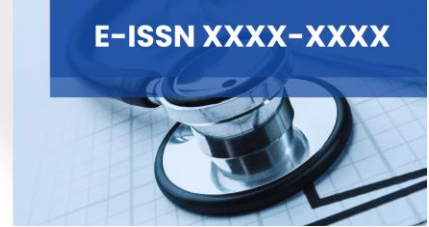
The results of this study demonstrate that anthocyanin extract from *Cayratia trifolia* L, particularly at 50% concentration, is effective for staining peripheral blood smears. While it does not match the contrast level provided by Giemsa, the extract allows adequate nuclear visualization and offers several advantages, including non-toxicity, local availability, and low cost. These characteristics make it a promising natural alternative for educational laboratories and hematology screening in resource-limited settings. Further studies are needed to explore the use of mordants, fixation techniques, and quantitative validation to improve staining quality and expand its applicability in hematological analysis.

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# THE EFFECT OF A COMBINATION OF OXYTOCIN MASSAGE AND HYPNOBREASTFEEDING ON THE ADEQUACY OF BREAST MILK ON POSTPARTUM WOMAN AT PUSKESMAS CISARUNI TASIKMALAYA

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## Abstract

Breastmilk is the best source of nutrition for babies, the World Health Organization (WHO) recommends exclusive breastfeeding for the first 6 months of life. Breastfeeding coverage in Tasikmalaya Regency in 2022 is 60.7%. One of the factors that causes mothers not to breastfeed exclusively is due to lack of smooth flow of breast milk, inappropriate breastfeeding techniques and pain after giving birth. This problem can be treated by providing a combination intervention of oxytocin massage and hypnobreastfeeding. The aim of this study was to determine the effect of a combination of oxytocin massage and hypnobreastfeeding on breast milk adequacy in postpartum mothers. This research method is quantitative research with a quasi-experimental research design. The type of research is quantitative with a quasi-experimental design. The population in this study is primiparous postpartum mothers. The sampling technique was total sampling with a total of 32 people. Data analysis with the paired T-test. The results of the study showed that before the combined intervention of oxytocin massage and hypnobreastfeeding was carried out, the majority not enough breast milk as much as 71.9%, whereas after the combination intervention of oxytocin massage and hypnobreastfeeding was carried out there were 78.1% of well-fed breastfed babies. This means that there is an increase in the adequacy of breast milk in babies according to the paired T statistical test with a significance value of 0.000 ( $p < 0.05$ ) with a difference of 2.2. The conclusion of this research is that there is a significant effect of the combined intervention of oxytocin massage and hypnobreastfeeding on the adequacy of breast milk in postpartum mothers. It is hoped that midwives can provide education on the benefits of oxytocin massage and hypnobreastfeeding to postpartum mothers.

Keywords: Exclusive Breastfeeding, Oxytocin Massage, Hypnobreastfeeding.

## 1. INTRODUCTION

Breast milk (ASI) is the only perfect food for babies because it contains the nutrients needed by babies for their growth and development to achieve optimal growth and development. Breastfeeding is one of the most effective ways to protect the health of both the child and the mother, while also providing the child with the best start in life.[1]

The World Health Organization (WHO) actively recommends breast milk as the best source of nutrition for infants, with exclusive breastfeeding for the first 6 months of life. So that mothers can maintain exclusive breastfeeding for 6 months, WHO and UNICEF recommend initiating early breastfeeding (IMD) within the first hour after birth, ensuring the baby receives only breast milk without any additional food or drink, including water, breastfeeding according to the baby's demand both day and night, and avoiding the use of bottles or pacifiers.[2] In addition, the WHO stated that if breastfeeding is increased to near global targets, around 820,000 children's lives will be saved and about 20,000 cases of breast cancer can be prevented.[2]

### 1.1. Milk Ejection (Oxytocin)

When the baby suckles at the breast, the hormone oxytocin causes breast milk to flow from the alveoli through the milk ducts to the milk reservoir located behind the areola and then into the baby's mouth. So the more often the baby sucks, the more milk is produced. The hormonal influence works from the third month of pregnancy when the woman's body produces hormones that stimulate the appearance of breast milk in the breast system.

If hypnobreastfeeding is done continuously, it will create bonding and subsequently trigger the body to produce endorphins (hormones that bring feelings of happiness and calmness), making the body feel relaxed. This hormone stimulates the release of oxytocin, which can facilitate breast milk production.

Scientific research shows that breast milk is a living tissue full of beneficial compounds that cannot be replicated by any chemical product. However, the reality based on statistics reported by the Global Breastfeeding Scorecard evaluates that out of 194 countries, the percentage of babies under six months who are exclusively breastfed is only 40%. Additionally, only 23 countries have exclusive breastfeeding rates above 60%. Itu belum sesuai dengan target kelima WHO pada tahun 2025, yaitu meningkatkan pemberian ASI eksklusif pada 6 bulan pertama menjadi setidaknya 50%.[2]

Based on data from the Central Statistics Agency, the percentage of infants under 6 months old who received exclusive breastfeeding in West Java in 2022 reached 77%. According to data from the District and City, the highest coverage of breastfeeding in West Java in 2022 was in Pangandaran Regency at 100%, while the lowest coverage was in Bogor City at 42.52%. Meanwhile, in Tasikmalaya Regency, the coverage of breastfeeding in 2022 was 60.7%. Based on the data of Exclusive Breastfeeding Achievement at Cisaruni Health Center in 2022, it was 65.07%, with the highest achievement in Mekarjaya Village at 80.33% and the lowest achievement in Rancapaku Village at 48.15%.[3,4,5]

One of the reasons mothers do not provide exclusive breastfeeding is because they believe their milk comes out in small amounts or does not flow smoothly, making the baby unsatisfied. This can cause a decrease in the production and smooth flow of breast milk in the first few days after giving birth, due to the reduced stimulation of prolactin and oxytocin hormones, which play a role in the smooth production and flow of breast milk. In addition, excessive worry in mothers about breastfeeding can become an issue with milk production. This is influenced by the decreased stimulation of oxytocin hormone due to psychological conditions.[6] These issues can be addressed, one of which is by providing a combination intervention of oxytocin massage and hypnobreastfeeding.[7]

*Journal of oxytocin massage and gypnobreastfeeding in relation to breast milk volume: [HTTPS://MIDWIFERY.IOCSPUBLISHER.ORG/INDEX.PHP/MIDWIFERY/ARTICLE/VIEW/1416](https://midwifery.iocspublisher.org/index.php/midwifery/article/view/1416) , the effect of oxytocin massage on breast milk volume in postpartum mothers, the effect of hypnosis breastfeeding (hypnobreastfeeding) on breastfeeding self efficacy in postpartum mothers at kediri city, the effect of hypno-breastfeeding and oxytocin massage on breast milk production in postpartum mothers, literature review: happy breastfeeding with hypno breastfeeding*

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One of the reasons mothers do not provide exclusive breastfeeding is because they believe their milk comes out in small amounts or does not flow smoothly, making the baby unsatisfied. This can cause a decrease in the production and smooth flow of breast milk in the first few days after giving birth, due to the reduced stimulation of prolactin and oxytocin hormones, which play a role in the smooth production and flow of breast milk. In addition, excessive worry in mothers about breastfeeding can become an issue with milk production. This is influenced by the decreased stimulation of oxytocin hormone due to psychological conditions. 6 These issues can be



addressed, one of which is by providing a combination intervention of oxytocin massage and hypnobreastfeeding. [7] The general objective of this study was to determine the effect of the combination of oxytocin massage and hypnobreastfeeding on the adequacy of breast milk in postpartum mothers in the working area of the Cisaruni Health Center, Tasikmalaya Regency.

## 2. RESEARCH

Research methods are defined as scientific ways to obtain data with specific purposes and uses. The research design used in this study is quantitative with an analytical method using a quasi-experimental approach with a pretest-posttest group design. Independent variables (Oxytocin Massage and Hypnobreastfeeding) and dependent variables (Breast Milk Sufficiency) have been determined using a dichotomous categorical measurement scale. Breast milk sufficiency is assessed based on 6 (six) indicators, both pre- and post-intervention of the combination of oxytocin massage and hypnobreastfeeding, meaning the dependent variable is taken from the same subjects (paired). Based on this explanation, the research design is an observational intervention with a paired categorical comparative statistical diagnosis.

Time research 2023 and data analysis used univariate and bivariate :

- The population in this study is primiparous postpartum mothers in the working area of Cisaruni Health Center.
- The sampling technique in this study uses a non-probability technique, namely total sampling, where the entire population of 32 people is made into a sample.
- The independent variable in this study is the administration of the combination method of oxytocin massage and hypnobreastfeeding. The dependent variable in this study is the adequacy of breast milk in postpartum mothers.
- Oxytocin Massage for breastfeeding mothers involves back massages to increase oxytocin production for 10 minutes until 3 day
- Hypnobreast-feeding Method to build positive intentions and motivation in breastfeeding as well as to maximize the quantity and quality of breast milk by providing comfort and relaxation for approximately 25 minutes or until the respondent can accept the suggestion.

## 3. RESULTS

The characteristics of respondents based on age are divided into three categories: under 20 years, between 20-35 years, and over 35 years, as shown in the following table:

**Table 4.1** Frequency Distribution of Respondents Based on Age of Postpartum Mothers in the Working Area of Cisaruni Health Center

Age Group	Number	Percentage (%)
Less than 20 years	7	21,9
20-35 years	25	78,1
More than 35 years	0	0
<b>Total</b>	<b>32</b>	<b>100</b>

Based on table 4.1, it shows that the majority of postpartum mothers are aged 20-35 years, with 24 respondents (78.1%).

The characteristics of the respondents based on education are divided into four categories: elementary school, junior high school, senior high school/vocational school, and higher education, as shown in the table below:

**Table 4.2** Frequency Distribution of Respondents Based on Education Among Postpartum Mothers in the Working Area of Cisaruni Health Center

Type of Education	Number	Percentage (%)
Elementary School	3	9,4
Middle School	13	40,6
High School/ Vocational School	12	37,5
Higher Education	4	12,5
<b>Total</b>	<b>32</b>	<b>100</b>

Based on table 4.2, it shows that respondents with elementary school education amounted to 3 respondents (9.4%), junior high school amounted to 13 respondents (40.6%), senior high school/vocational school amounted to 12 respondents (37.5%), while higher education amounted to 4 respondents (12.5%).

The characteristics of respondents based on occupation are divided into three categories: housewives, entrepreneurs (traders/farmers), and private sector employees (factory workers/farmers), as shown in the following table:

**Table 4.3** Frequency Distribution of Respondents Based on Occupation Among Postpartum Mothers in the Working Area of Cisaruni Health Center

Respondent's Occupation	Number	Percentage (%)
Housewives	23	71,9
Entrepreneur (trader/farmer)	5	15,6
Private sector (factory/farm workers)	4	12,5
Civil Servant	0	0
<b>Total</b>	<b>32</b>	<b>100</b>

Based on table 4.3, it shows that respondents working as housewives amounted to 23 respondents (71.9%), self-employed (traders/farmers) amounted to 5 respondents (15.6%), private sector (factory/farm workers) amounted to 4 respondents (12.5%), while there were no civil servants.

The characteristics of the respondents based on the method of delivery consist of normal childbirth and SC operation, as can be seen in the following table:

**Table 4.4** Distribution of Respondent Frequencies Based on the Method of Childbirth in Postpartum Mothers in the Working Area of the Cisaruni Health Center

How to Breed	Number	Percentage (%)
Normal	21	65,6
Sectio Caesarian surgery	11	34,4
<b>Total</b>	<b>32</b>	<b>100</b>

Based on table 4.4, it shows that the respondents who gave birth normally numbered 21 respondents (65.6%), while those who gave birth by Caesarean section (CS) numbered 11 respondents (34.4%). Table 4.5 Distribution of Frequency of Intervention Combination of Oxytocin

Massage and Hypnobreastfeeding in Postpartum Mothers in the Working Area of the Cisaruni Health Center.

The implementation of the combined intervention of oxytocin massage and hypnobreastfeeding consists of 2 criteria: performed and not performed. It can be seen from the following table:

**Table 4.5** *The Implementation of the Combined Intervention of Oxytocin Massage and Hypnobreastfeeding Consists Of 2 Criteria: Performed and Not Performed*

<b>Hypnobreastfeeding and Oxytocin Massage Intervention</b>	<b>Number</b>	<b>Percentage (%)</b>
Done	32	100
Not Done	0	0
<b>Total</b>	<b>32</b>	<b>100</b>

Based on table 4.5, it shows that the univariate analysis results on the oxytocin massage and hypnobreastfeeding interventions indicate that both interventions were carried out smoothly for all respondents.

**Table 4.6** *Distribution of Frequency of Breastfeeding Adequacy in Infants Before Intervention in Combination of Oxytocin Massage and Hypnobreastfeeding in Postpartum Mothers in the Working Area of the Cisaruni Health Center.*

<b>Breast Milk Adequacy</b>	<b>Number</b>	<b>Percentage (%)</b>
Enough	9	28,1
Not enough	23	71,9
<b>Total</b>	<b>32</b>	<b>100</b>

The adequacy of breast milk before and after the intervention of a combination of oxytocin massage and hypnobreastfeeding is divided into 2 criteria, namely, sufficient and insufficient. Based on table 4.6, the results of the univariate analysis from observations and interviews about the adequacy of breast milk in infants before the intervention of the combination of oxytocin massage and hypnobreastfeeding was conducted, there were 9 infants (28.1%) with adequate breast milk, while 23 infants (71.9%) had inadequate breast milk. Therefore, before the intervention of the combination of oxytocin massage and hypnobreastfeeding was conducted, the majority of the babies experienced insufficient breast milk.

**Table 4.7** *Distribution of Frequency of Breast Milk Adequacy in Infants After Combination Intervention of Oxytocin Massage and Hypnobreastfeeding in Postpartum Mothers in the Working Area of the Cisaruni Health Center*

<b>Breast Milk Adequacy</b>	<b>Number</b>	<b>Percentage (%)</b>
Enough	25	78,1
Not enough	7	21,9
<b>Total</b>	<b>32</b>	<b>100</b>

Based on table 4.7, the results of the univariate analysis from observations and interviews regarding the adequacy of breast milk in infants after the intervention of a combination of oxytocin massage and hypnobreastfeeding showed that 25 infants (78.1%) had adequate breast milk and 7 infants (21.9%) had inadequate breast milk. This means that there was an increase in the adequacy of breast milk in 16 babies. The influence of a combination intervention of oxytocin massage and hypnobreastfeeding on breast milk sufficiency.

**Table 4.8** Frequency Distribution of the Impact of the Combination of Oxytocin Massage and Hypnobreastfeeding Intervention on Breast Milk Sufficiency in Postpartum Mothers in the Working Area of Cisaruni Health Center.

	Average	Difference	CI 95%	Value p
Adequacy of breast milk before intervention	2,78 (0,98)	2,2 (0,8)	1,93-2,50	0,000
Breast Milk Adequacy After Intervention	5 (1,3)			
Paired T test; The difference between before and after the intervention				

The influence of a combination intervention of oxytocin massage and hypnobreastfeeding on breast milk adequacy. Table 4.8 presents the results of the paired t-test analysis, which obtained a significance value of 0.000 ( $p < 0.05$ ) with a difference of 2.2 (CI95%, 1.93-2.50). Because the p value is less than 0.05 and the CI does not cross zero, there is a statistically significant difference in breast milk adequacy before and after the intervention of a combination of oxytocin massage and hypnobreastfeeding. The difference in breast milk sufficiency is greater than two, and clinically, there is a significant difference before and after the intervention. Therefore,  $p < 0.05$  can be concluded that the null hypothesis ( $H_0$ ) is rejected and  $H_a$  is accepted, meaning there is an effect of the combination of oxytocin massage and hypnobreastfeeding on breast milk sufficiency in postpartum mothers in the working area of Puskesmas Cisaruni. Table 4.8. Distribution of frequency Effect of Combination Intervention of Oxytocin Massage and Hypnobreastfeeding on Breast Milk Adequacy in Postpartum Mothers in the Working Area of the Cisaruni Health Center.

## 4. DISCUSSION

### 1.1. Adequacy of Breast Milk Before Combining Oxytocin Massage and Hypnobreastfeeding in Postpartum Mothers

Based on table 4.6, as many as 23 mothers experienced breast insufficiency, which was 71.9% of respondents. Unbalanced maternal nutrition patterns, breastfeeding techniques, attachment of babies who are still not able to, rest and sleep patterns and lack of sleep cause breast milk that comes out not so smoothly, pain after giving birth SC or from perineal suture wounds so that it causes less frequency of breastfeeding and short breastfeeding duration.

According to Perinasia (2006) in the journal Angriani et al. (2018) stated that the more often the child sucks the mother's nipples, there will be an increase in breast milk production and vice versa if the child stops breastfeeding, there will be a decrease in breast milk. When the baby starts sucking breast milk, there will be two reflexes that will cause milk to come out at the right time, namely the milk formation/production reflex or the prolactin reflex stimulated by the hormone prolactin and the feeding reflex Breast milk flow/release (let down reflex). When a baby sucks on the nipple, a hormone called prolactin is produced, which regulates cells in the alveoli to produce milk. The milk is collected into the milk duct. Second, the let down reflex. Sucking the baby will also stimulate the production of another hormone, oxytocin, which makes the muscle cells around the alveoli contract, so that milk is pushed towards the nipple. So the more the baby sucks, the more milk is produced.<sup>29</sup>

In addition, Rivers et al (2010) mentioned that the smooth process of lactogenesis determines the onset of lactation. Failure of the baby to breastfeed is one of the factors that cause the onset of lactation for more than 3 days, the frequency of breastfeeding is related to the stimulation of suction in the breast with the production of oxytocin and prolactin to produce milk. Breastfeeding more than 6 times in the first 24 hours after a baby is born can guarantee adequate breastfeeding in the following days.<sup>29</sup>

This is based on Sasmita (2021), namely that the signs of a baby with enough breast milk are that the baby seems satisfied with the baby, looks calm, not fussy, and the baby sleeps enough. In addition, the indicator of a baby is sufficiently breastfed from the mother's perspective, namely the baby can breastfeed on one breast until satisfied and calm and the mother breastfeeds her baby without an On Demand schedule (according to the baby's needs/every 2 hours). 31

4.2. The Effect of the Combination of Oxytocin Massage and Hypnobreastfeeding on Breast Milk Adequacy in Postpartum Mothers. Based on table 4.7 of the results of the univariate analysis from observations and interviews on breast milk adequacy in infants after a combination intervention of oxytocin massage and hypnobreastfeeding was carried out, most of the respondents experienced breast milk adequacy, namely 25 babies (78.1%).

Based on table 4.8, the results of the analysis of the paired t-statistical test obtained a significance value of 0.000 ( $p < 0.05$ ) with a difference of 2.2 (CI95%, 1.93-2.50), because the value of  $p < 0.05$  and CI did not exceed zero, statistically there was a significant difference in breast milk adequacy before and after the intervention. The difference in breast milk adequacy is greater than two, clinically there are significant differences before and after the intervention. Thus, it can be concluded that the zero ( $H_0$ ) hypothesis is rejected and  $H_a$  is accepted, which means that there is an effect of the combination of oxytocin massage and hypnobreastfeeding on the adequacy of breastfeeding in postpartum mothers in the Puskesmas Cisaruni

The combination of oxytocin massage and hypnobreastfeeding is very beneficial in promoting breast milk production. The combination of oxytocin massage and hypnobreastfeeding provides comfort to the mother so that it will provide comfort to the breastfed baby. Physiologically, oxytocin massage increases the hormone oxytocin that is delivered to the brain so that both hormones are released and flow into the blood, then enter the mother's breast causing the muscles around the alveoli to contract and make breast milk flow in the milk duct. In addition, hypnobreastfeeding is useful as one of the mother's preparations from the psychological side to increase the mother's confidence that she is able to provide optimal breastfeeding.

## 5. CONCLUSION

- a. Adequacy of breast milk in postpartum mothers before the combination of oxytocin massage and hypnobreastfeeding intervention in the Cisaruni Health Center Working Area, Tasikmalaya Regency, most of them did not have enough breast milk as much as 71.9%.
- b. Breast milk adequacy in postpartum mothers after a combination of oxytocin massage and hypnobreastfeeding intervention in the Cisaruni Health Center Working Area, Tasikmalaya Regency, most of the milk is sufficient as much as 78.1%.
- c. There was a significant effect of the combination of oxytocin massage and hypnobreastfeeding interventions on the adequacy of breastfeeding in postpartum mothers in the Cisaruni Health Center Working Area, Tasikmalaya Regency.
- d. Based on the research results, the average breast milk output of postpartum mothers before receiving hypnobreastfeeding massage was 39.15ml, and after receiving hypnobreastfeeding and oxytocin massage, it was 100.60ml. The results of the statistical test using the dependent test yielded a p-value of 0.000 ( $\alpha < 0.05$ ).

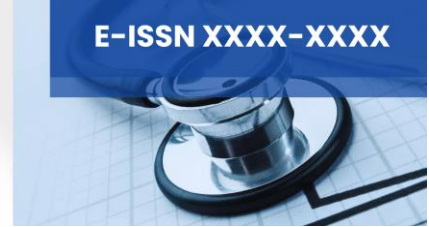
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## EFFECTIVENESS: ACCEPTANCE AND COMMITMENT THERAPY (ACT) IN ACCEPTING AND MANAGING AGGRESSIVE BEHAVIOR

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### Abstract

**Introduction:** Aggressive behavior is a change in perception towards stimuli, both internal and external, accompanied by responses that are diminished, excessive, or distorted, either verbally or non-verbally. Aggressive behavior is exhibited by someone with a mental disorder with the intention of attacking either physically or mentally. The provision of nursing interventions is necessary to help patients regain orientation and improve their quality of life. **Objective:** This study aims to identify interventions that can be used to help patients manage aggressive behavior and how to address it. **Method:** This study uses a rapid literature review approach utilizing 6 databases, namely PubMed, Sage Journals, Scopus, ScienceDirect, Springer, and EBSCO. with the keywords used "Psychiatric disorders" OR "Mental disorders" AND "Acceptance and commitment therapy" OR "Acceptance based behavioral therapy" AND "Managing aggression," resulting in 8 articles that met the inclusion and exclusion criteria. **Results:** Based on the literature review conducted, there are 8 articles with interventions that can be used to reduce aggressive behavior in patients with mental disorders. **Conclusion:** The results of the literature review have proven that the 8 articles with interventions can reduce aggressive behavior in patients with mental disorders. Therefore, it is recommended that nurses use these interventions to reduce aggressive behavior in patients.

**Keywords:** Acceptance and Commitment Therapy, Intervention, Aggressive Behavior.

### 1. INTRODUCTION

Mental disorders are a significant global health issue. Mental disorders are syndromes of an individual's behavioral patterns that are typically associated with symptoms of distress or impairment in one or more important human functions, namely psychological, behavioral, biological, and disturbance functions. (Palupi, D. N., Ririanty, M., & Nafikadini, I, 2019). According to Indonesian Law No. 18 of 2014, individuals with mental disorders are those who experience disturbances in thoughts, behaviors, and feelings manifested in the form of a set of symptoms and significant behavioral changes, which can cause suffering and obstacles in fulfilling their functions as human beings (Palupi, D. N., Ririanty, M., & Nafikadini, I, 2019). Behavioral patterns of mental disorders that clinically occur in individuals are associated with distress or disability or accompanied by a significant increase in the risk of death, illness, disability, or loss of freedom (Azhari, N. K., & Anggarawati, T., 2023). According to the World Health Organization (WHO), one in four people worldwide will experience a mental or neurological disorder at some point in their lives. The high prevalence and significant impact on the quality of life of sufferers make mental disorders an important issue that needs to be addressed seriously (Florensa et al., 2023).

The World Health Organization (WHO) in 2013 recorded the number of people with mental disorders worldwide reaching 450 million, and in 2016, WHO data showed that there were around 35 million people affected by depression, 60 million by bipolar disorder, 21 million by schizophrenia, and 47.5 million by dementia. The highest number of mental health disorder patients in Indonesia is found in the DKI Jakarta province (24.3%), Nanggroe Aceh Darussalam (18.5%), West Sumatra (17.7%), NTB (10.9%), South Sumatra (9.2%), and Central Java (6.8%) (WHO, 2023). People with mental disorders experience disturbances within themselves.

Cognitive disorders, attention disorders, memory disorders, associative disorders, thought disorders, consciousness disorders, volition disorders, psychomotor disorders, behavioral disorders, emotional and affective disorders (Azhari, N. K., & Anggarawati, T., 2023). In individuals with mental disorders, emotional and affective disturbances often lead to aggressive behavior. Aggressive behavior emerges when the given stressor to someone cannot control the stressor (Syamsudin, A., Yusuf, A., & Mundakir, 2020). Aggressive behavior is one of the issues in mental disorders. Aggressive behavior itself is a response to anger, disappointment, feelings of revenge, or a threat that causes rage, which can provoke violent behavior as a means of resistance, whether in the form of assault, vandalism, or even murder (Azhari, N. K., & Anggarawati, T., 2023). Aggressive behavior is one of the responses to the stressors faced by an individual. This response can cause harm to oneself, others, and the environment. Considering the impact of the losses caused, the handling of patients with aggressive behavior needs to be carried out quickly and accurately by professional staff, especially nurses (Syamsudin, A., Yusuf, A., & Mundakir, 2020). The role of nurses as providers of nursing care is crucial in handling patients with aggressive behavior. The nursing actions provided to clients with mental disorders will be more comprehensive when combined with psychosocial/specialist therapy, resulting in better outcomes. Psychotherapy that has been applied to clients with mental disorders includes CBT, AT, REBT, RECBT (Susilowati et al, 2014). Several studies conducted show that using nursing therapy is capable of addressing mental disorders with a risk of violent behavior, especially with the use of Acceptance and Commitment Therapy (ACT), which can lead to aggressive behavior in patients with such diagnoses (Pardede et al, 2015).

ACT helps individuals reduce their suffering by enhancing their awareness and ability to pursue what they desire in life (Sulistiwati, N. M. D., et al, 2014). ACT aims to create a life rich in meaning by accepting all the pain that comes with it. The reduction of symptoms is considered a byproduct or side effect and not the main focus compared to improving the client's quality of life. This therapy changes the client's relationship with complex thoughts and feelings that experienced all this time and taught to perceive those thoughts and feelings as something non-threatening (Elita et al, 2017).

## 2. METHODOLOGY

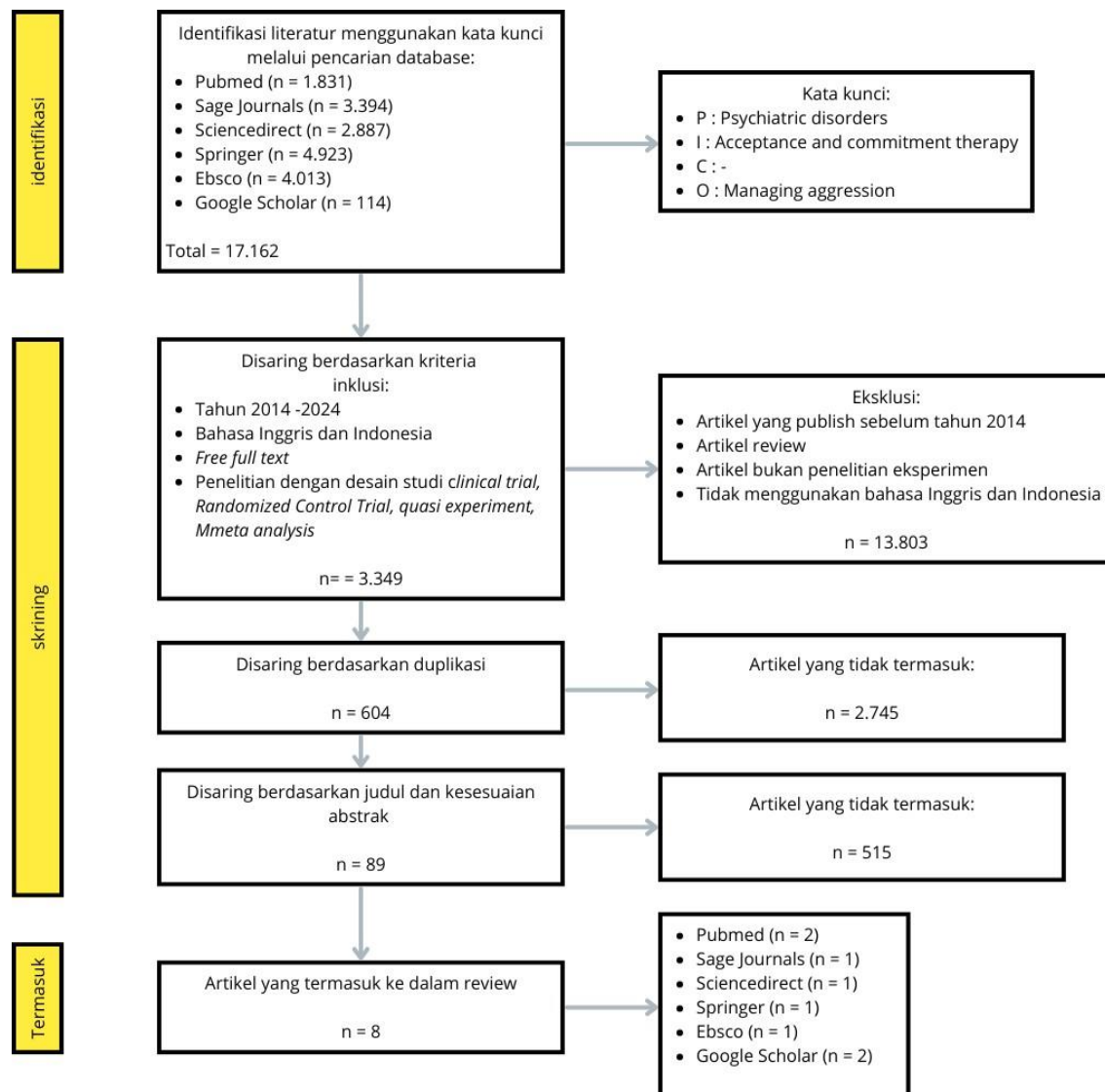
This Evidence Based Practice (EBP) uses a rapid literature review design for the quick and systematic collection and analysis of scientific evidence while maintaining the integrity and validity of the results. This rapid literature review is used to compile a synthesis of existing evidence with a focus on relevant articles within a specified timeframe. The review process includes a structured literature search, selection of articles based on specific criteria, and rapid analysis and synthesis of results to produce evidence-based recommendations. The result of this rapid review is an evaluation of the Acceptance and Commitment Therapy (ACT) intervention in managing aggressive behavior in patients with mental disorders.

## 3. DATA COLLECTION AND ANALYSIS

Article searches were conducted systematically according to the 2020 PRISMA Flow Diagram using six databases: Pubmed, Sage Journals, Sciencedirect, Springer, Ebsco, and Google Scholar. The appropriate literature search was conducted using the PICO technique, which stands for P (Population), I (Intervention), C (Comparison), O (Outcome). The population in this literature review is psychiatric disorders or patients with mental disorders with the intervention of acceptance and commitment therapy, and there is no comparison, and the outcome in this study is managing aggression. The articles obtained were then screened to select those that matched the topic of the rapid evidence review being conducted. Articles were screened according to the established inclusion and exclusion criteria. The established inclusion criteria are articles that discuss acceptance and commitment therapy for managing aggression in patients with mental disorders, articles published between 2014 and 2024, articles written in English and Indonesian, availability of full text with free access, and research involving clinical trials, randomized controlled trials (RCT), quasi-experimental studies, and meta-analysis. Meanwhile, the exclusion criteria for article search are articles published before 2014, review articles, non-experimental research articles, and articles not written in English and Indonesian.

**Table 1. PICO**

Population (P)	Psychiatric disorders
Intervention (I)	Acceptance and commitment therapy
Comparison (C)	-
Outcome (O)	Managing aggression

**Figure 1. Prisma**

#### 4. RESULTS AND DISCUSSION

Based on the 8 identified articles, which consist of national and international articles, a total of 323 respondents participated, with 2 articles from Google Scholar, 2 articles from Pubmed, 1 article from EBSCO, 1 article from Springer, 1 article from Sciencedirect, and 1 article from Sage journal. The results of the research analysis show that each article explains that non-pharmacological interventions for controlling emotions and aggressive behavior include the use of Acceptance Commitment Therapy (ACT), which can be applied through unique and creative approaches to change a person's behavior.



**Tabel 2. Ekstrak Data**

No.	Title & Author	Country	Goal	Method	Sample	Intervention	Result
1.	Acceptance and Commitment Therapy (ACT) for Problematic Anger : A Case Study  Penulis : Tifft, E. D., Roberts, M. Z., Underwood, S. B., & Forsyth, J. P. (2022).	Amerika Serikat	Knowing the effectiveness of ACT therapy in controlling anger	Case study	Sample: Mr. R (33 years old), came to the clinic university due to outbursts of anger because he often expresses his anger at work, resulting in verbal arguments with boyfriend and coworker, including throwing equipment or hitting a tree	current awareness, and fostering full acceptance of attention in order to lead a meaningful life. Mr. Ripanta's progress through quantitative and qualitative assessments. The quantitative aspect is measured using a questionnaire: 1. The Acceptance and Action Questionnaire-II (AAQ-II) 2. The Cognitive Fusion Questionnaire (CFQ) 3. The Difficulties in Emotion Regulation	Overall, quantitative measurements with the AAQ-II, CFQ, DERS, OASIS, ODSIS, and OAngSIS questionnaires, Mr. R shows a successful treatment response marked by a decrease in pre- and post-treatment questionnaire scores. Overall, the treatment benefits observed in quantitative and qualitative assessments showing that Mr. R benefited from ACT for his problematic anger and improved his quality of life.

						Scale (DERS) 4. The Overall Depression Severity and Impairment Scale (ODSIS) 3. The Overall Anger Severity and Impairment Scale (OAngSIS)	
2	trauma: Improvem ent in psychiatric symptoms, emotion regulation, and treatment compliance following a brief group intervention  Penulis : Spidel A., Lecomte T., Kealy D., Daigneault I. (2018).	Canada	in reducing psychologi cal symptoms, controlling emotions, trauma- related symptoms, and improving medication adherence	Quasy eksperimen tal	50 participants who meet the inclusion criteria Recruited and Randomized to participate in 8 ACT group sessions, or Treatment As Usual (TAU).	ACT combined with mindfulness meditation and usual care (ACT group = 30 people) while the second group only received usual care during the study (TAU group = 20 people). Each ACT group consisted of eight participants, receiving eight sessions lasting 70–75 minutes.	The findings from this study provide evidence that the ACT given in the format the group can be beneficial for those experiencing psychosis and childhood trauma. Participants in the ACT group were found to have improvements in questionnaire scores regarding the overall severity of symptoms, anxiety symptoms, and acceptance of emotional

							<p>regulation abilities. In terms of emotion regulation, this study found that those in the ACT group showed a significant increase in the use of acceptance as an emotion regulation strategy, compared to the TAU group. Additionally, it was found to improve the domain of seeking help from service engagement, thereby potentially contributing to overall patient adherence to mental health care.</p>
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3	Investigati on the effect ofAccepta nce and Commitme nt Therap (ACT) training on stigma and family functionin in family members of patients with psychiatric disorders: randomize d controlled clinical trial Penulis: Afsaneh Parvin., Azizallah Dehghan., Afsaneh Masoumi., Fatemeh Zeraatpish e., Leila Ghaed., Mostafa Bijani. (2024	Iran	This study examines the effects of Acceptanc e and Commitme nt Therapy (ACT) on stigma and family functioning. family members of patients with mental illness, demonstrat e effectivene ss in improving family functioning and coping strategies in dealing with mental illness	Randomiz e d controlled clinical trial	Forty family members of patients with psychiatric disorders	Therapeutic interventions, such as education, support, and psychotherapy can significantly reduce depression, anxiety, and stress in family caregivers, paving the way for improve the quality of care for patients in the family environment. One of the therapeutic approaches that has emerged as part of the third wave of cognitive behavioral therapy is ACT. ACT focuses on two main principles: accepting thoughts and committing to changing	The findings of this article's research indicate that ACT is effective in reducing stigma and improving family functioning in patients with mental disorders. Based on these findings, it is recommended that counselors in psychiatric service centers combine this therapeutic approach with other treatment methods to improve family functioning. , reduce stigma, and address other psychological issues faced by the patient's family
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						<p>behaviors that align with one's values. The main goal is to cultivate psychological flexibility while accepting suffering in life, which ultimately enables individuals to have a richer and more meaningful life. ACT uses various techniques to enhance psychological flexibility. ACT intervention in eight sessions weekly, each lasting 90 minutes, assessed at three time points: before the intervention, after intervention, and during the one-month</p>	
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						<p>follow-up period.</p> <p>Data collection instruments include demographic information questionnaires, stigma assessments, and family functioning measures.</p> <p>family, and family functioning measures</p>	
4	<p>A randomized controlled trial of acceptance and commitment therapy for aggressive behavior</p> <p>Penulis: Ami Zarlg, Erika Lawrence, dan James Marchman</p>	<p>Amerika Serikat</p>	<p>The purpose of the research is to test the effectiveness of the intervention.</p> <p>Acceptance</p>	<p>Randomized controlled clinical trial</p>	<p>Sample of 100 participants</p> <p>Sample criteria:</p> <ul style="list-style-type: none"> <li>- At least 2 aggressive actions physical to current partner or ex-partner in the last 6 months.</li> <li>- The group in the same treatment condition in terms of session duration and frequency (12</li> </ul>	<p>The intervention consists of 12 weekly sessions lasting 2 hours per session with 8 - 10 participants and 2 facilitators. Assessment is conducted before treatment, during treatment, after treatment, 3 and 6 months after treatment</p>	<p>The results of the growth curve model analysis show that participants in the ACT group experienced a significant decrease in psychological and physical aggression from before to after treatment and from before treatment to follow-up. Then, the results of the 6-month treatment partially involved</p>

					<p>weekly sessions lasting 2 hours with 8 - 10 members and 2 facilitators) for ensuring parallel therapy contact and the level of exposure to other participants.</p> <ul style="list-style-type: none"> <li>- Can communicate in English.</li> <li>- Willing to participate in receiving ACT or control conditions support and discussion.</li> <li>- Age below 18 years not included</li> </ul>	<p>to measuring psychological aggression using the Multidimensional Measure Emotional Abuse Scale (MMEA), physical aggression using the Conflict Tactics Scales (CTS-2), experience avoidance using Avoidance and Action Questionnaire (AAQ), and emotional dysregulation using the Difficulties in Emotion Regulation Scale (DERS)</p> <p>The ACT conducted by the researcher on the respondents was done once (one</p>	<p>mediation with experience avoidance and emotional dysregulation in the post-treatment phase</p>
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						day) consisting of four sessions using Standard Operating Procedures (SOP) for nursing actions on respondents with violent behavior at RSUD Tombulilato.	
5	Reduction of Risk Symptoms of Violent Behavior Through Acceptanc e and Commitme nt Therapy (ACT) at RSUD Tombulilat o Authors: Firmawati, Andi Nur Aina Sudirman, and Rona Febriyona (2022)	Indonesi an	The purpose of the research is to determine the influence Acceptanc e and Commitme nt Therapy (ACT) toward the reduction of symptoms with the risk of violent behavior in the Regional	The research design uses a quasi- experime ntal design with a one group pre and posttest	The respondents in the study numbered 18. respondents at RSUD Tombulilato. Sample criteria: - Patients with violent behavior being treated at RSUD Tombulilato - Does not have any physical illnesses	The treatment provided starts from 08:00 to 17:00. with a break time from 12:00 to 1:00 PM. The stages of each session are as follows: 1. In the first session, respondents are invited to identify events, thoughts, and feelings that arise, as well as the impact on their behavior and	From the research results, it was found that there is an influence of Acceptance and Commitment Therapy (ACT) on the reduction of symptoms with a risk of violent behavior at RSUD Tombulilato. The conclusion of this study found that the average behavior of respondents before ACT was implemented at RSUD Tombulilato was

			Public Hospital Tumbobilat o			<p>feelings.</p> <p>2. In the second session, respondents are invited to identify values based on their experiences.</p> <p>3. The third session, respondents were trained to accept events using the chosen values.</p> <p>4. Session four, the respondents were taught to have a commitment to maintaining their adaptive behavior. In this session, respondents were taught to have a commitment to maintain their adaptive behavior, namely the respondents. invited to commit to</p>	<p>1.611 with a standard deviation of 0.50, while the average behavior of respondents after ACT was implemented at RSUD Tombulilato was 1.1667 with a standard deviation of 0.38. The statistical results obtained a p-value of 0.007 (<math>p &lt; 0.05</math>).</p>
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						preventing the recurrence of bad behavior	
6	The effectiveness of acceptance and commitment therapy for social anxiety disorder: a randomized clinical trial. <i>Trends in psychiatry and psychotherapy</i> , 42(1), 30–38. <a href="https://doi.org/10.1590/2237-6089-2019-0003">https://doi.org/10.1590/2237-6089-2019-0003</a> Penulis : Khoramnia, S., Bavafa, A., Jaberghaderi, N., Parvizifard, A., Foroughi, A.,	Iran	The purpose of this study is to investigate the effectiveness of Acceptance and Commitment Therapy (ACT) in reducing difficulties in emotion regulation in individuals with social anxiety disorder	Randomized Clinical Trial	24 people with social anxiety disorder were randomly divided into two groups, namely the experimental group (12 subjects) and the control group (12 subjects).	The experimental group received 12 therapy sessions with acceptance and commitment therapy, Self-Compassion Scale (SCS), Difficulty in Emotion Regulation Scale (DERS), External Shame Scale (ESS), Social Phobia Inventory (SPIN), and Acceptance and Action Questionnaire-II (AAQ-II).	The results of this study indicate that ACT is effective in enhancing psychological flexibility, which is consistent with the findings of this study and previous research. The explanatory factor of these results indicates that acceptance and actions taken in ACT can be considered as the main psychological processes, and it seems that this treatment, considering the history of research, is effective for improving psychological flexibility and reducing the symptoms experienced by people with



	Ahmadi, M., & Amiri, S.						social anxiety disorder. It was also found that ACT emphasizes experiencing problematic emotions rather than trying to change thoughts or reduce emotional levels. It seems that ACT is also effective for emotional issues and changes in emotional levels. The results presented in other studies are consistent with this. In this study, the results show that the experimental group compared to the control group in their ability to effectively reduce difficulty in emotion regulation and its components
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7	The influence of acceptance and commitment therapy on symptoms and the ability of clients with a risk of violent behavior. Authors: Sulistiowati, N. M. D., Keliat, B. A., & Wardani, I. Y.	Indonesia	This research aims to determine the effect of ACT on the symptoms and abilities of clients at risk of violent behavior who are treated at Dr. H. Marzoeki Mahdi Hospital in Bogor.	Quasi Eksperimen Randomized controlled trial	60 people at Dr. H. Marzoeki Mahdi Bogor Mental Hospital	Pre-Post Test With Control Group with Acceptance and Commitment Therapy (ACT) intervention	The analysis results for respondents' abilities before and after the ACT intervention showed a significant change in the group receiving ACT therapy, with an improvement in the ability to cope with violent behavior by 55.60%. The average ability of clients before receiving ACT therapy in the intervention group was 56.77 (24.73%), and after the intervention, the average ability of clients increased to 103.47 (80.32%). In the control group before the intervention, the average was ability of 49.43 (15.99%), after the intervention, the average ACT
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							ability of the respondents was 78.27 (50.32%). Job characteristics, ACT cognitive abilities, and ACT affective abilities significantly contribute to reducing symptoms of violent behavior.
8	Efficacy of acceptance and commitment therapy on impulsivity and suicidality among clients with bipolar disorders: a randomized control trial Penulis : Mona Metwally El-Sayed, Eman Sameh	Arab	Evaluating the efficacy of acceptance and commitment therapy towards inflexibility psychological, impulsivity, and suicidal tendencies among bipolar clients	Quasi Eksperimen <i>Randomized controlled trial</i>	Sample: 30 clients with a DSM-5 bipolar diagnosis, and 30 control group clients Sample criteria: Eligibility criteria specifically established to ensure the suitability of participants for this research. These criteria include the requirement that clients must be at least 18 years old, able to	The ACT intervention will consist of eight sessions delivered over eight weeks, with outcome evaluations at the beginning, study completion, and a two-month follow-up. The flowchart for BD (Bipolar disorder) shows that participants (n=30) received acceptance and commitment	presencia (¿cómo se siente aquí?) Sesión 2: Calmando la impulsividad y los impulsos suicidas Sesión 3: El concepto de aceptación Sesión 4: Conociéndose a uno mismo Sesión 5: Comprendiendo los valores de la auto-clasificación Sesión 6: Mejorando las acciones comprometidas en el logro de metas, construyendo patrones

Abd Elhay, Samah Mohamed Taha, Mahmoud Abdelwahab Khedr, Feby Saad Attalla Mansour and Ayman Mohamed El-Ashr				communicate coherently and meaningfully, possess reading and writing skills, and not have any long-standing illnesses. for more than 10 years. Their medical records taken and reviewed to confirm the client's eligibility. Outpatient patients who meet the criteria for bipolar disorder type I or II as described in the Diagnostic and Statistical Manual for Mental Disorders, Fifth Edition (DSM-V) are selected as research subjects through a	therapy (ACT) commitment (ACT) face-to-face for 8 weeks. Each session lasts for 90 minutes. 1. 5 minutes of mindfulness practice 2. 15 minutes: Review the concepts and previous challenges faced by the BD client. during skills demonstration. 3. 30 minutes: Trained researchers will apply and demonstrate the concept new session through video 4. 30 minutes: Discussing the session's goals and skills with clients and ask them to demonstrate the strategies they learned throughout the	acciones comprometidas desired to enhance psychological flexibility. This therapy helps clients find hope, cultivate a fulfilling life, and learn mindfulness, so it is important and clear that the basic principles of ACT are applied to these clients.
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					random selection process	session 5. 10 minutes: homework assignment Phase I: Consists of two sessions, with the first session focusing on the general objectives of the ACT session and the participants' expectations. The second session focuses on psychoeducati on; topics about medications, symptoms, and medical history are thoroughly discussed to equip the clients. with important information important that needed to understand Bipolar Disorder.	
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						Stage II: The client attends 6 skill training sessions to learn ACT skills to help the person become more psychologically flexible so that they can act according to their values. Session 1: Learning	
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## 5. DISCUSSION

Anger is defined as a negative emotion triggered by perceived threat provocation and, if not properly managed, can lead to aggressive behavior, interpersonal problems, and physiological disturbances (Berkout et al., 2019). Inappropriate responses to anger and aggressive behavior can lead to more anger, stress, and functional disturbances (Eifert & Forsyth, 2011). Therefore, aggressive behavior often creates new problems, necessitating psychological intervention.

ACT therapy is effective in reducing physical and verbal aggression, stress, while also increasing acceptance, psychological flexibility, and ethically appropriate behavior (Berkout et al., 2019). This is in line with the research by Firmawati et al. (2022), which shows that ACT has an impact on reducing symptoms associated with the risk of violent behavior. ACT focuses on enhancing psychological flexibility, which enables individuals to better cope with negative thoughts and feelings without getting trapped in them (Ardhani & Nawangsih, 2020). ACT therapy teaches acceptance of events that cause unpleasant thoughts and feelings in order to live a more meaningful life by committing to better behaviors (Sulistiowati et al., 2014). In terms of emotion regulation, research by Spidel et al. (2018) found that respondents who received ACT therapy experienced an overall improvement in symptom severity, including the acceptance of emotion regulation abilities. ACT can also be applied to support families as caregivers in helping to manage the stress and emotional burden that often accompany patient care. Supported by Parvin et al (2024), The research conducted by Zarling et al. (2015) used an intervention consisting of 12 weekly sessions lasting 2 hours per session with 8-10 participants, and then measured psychological aggression using the Multidimensional Measure Emotional Abuse Scale (MMEA), and physical aggression using the Conflict Tactics Scales (CTS-2).

The research conducted by Khoramnia et al (2020) used a 12-session therapy intervention with acceptance and commitment therapy, utilizing the Self-Compassion Scale (SCS), Difficulty in Emotion Regulation Scale (DERS), External Shame Scale (ESS), Social Anxiety Scale (SPIN), and Acceptance and Action Questionnaire (AAQ-II). This study shows that ACT is effective in improving psychological flexibility, which is consistent with the results of this study and previous research. The research conducted by Sulistiowati et al (2014) used a Pre-Post Test With Control Group intervention with Acceptance and Commitment Therapy (ACT) intervention. The analysis results for the respondents' abilities before and after the ACT intervention showed a significant change in the group receiving ACT therapy, with an improvement in their ability to cope with violent behavior by 55.60%. The research conducted by El-Sayed et al (2021) used an 8-session

ACT intervention delivered over 8 weeks, with outcome evaluations at the beginning, study completion, and follow-up after two months. Overall, the application of Acceptance and Commitment Therapy (ACT) is effective in managing and controlling emotions, aggressive behavior, violent behavior, and encouraging patients to accept negative feelings or thoughts without overreacting. The success of ACT greatly depends on the client's adherence to the exercises and practices recommended by the therapist. However, a lack of motivation or commitment from the client to follow through with the therapy can hinder its effectiveness. Without consistent involvement, the effectiveness of therapy can diminish. Moreover, not all individuals are suitable for this therapy, especially those with severe mental health issues or significant cognitive impairments. Availability of therapists trained can also be a barrier considering this therapy requires experienced professionals to provide effective interventions. Nurses play an important role in supporting patients' mental health. By helping patients accept and manage negative emotions through this ACT therapy, nurses not only reduce the risk of violence but also improve the quality of life for patients, enhancing the therapeutic relationship between nurses and patients.

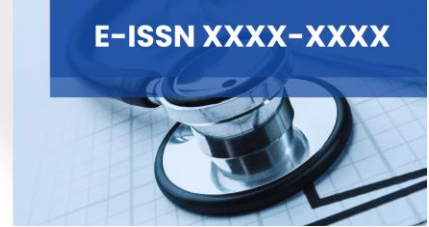
## 6. CONCLUSION

Based on the results of the literature review that has been conducted, 8 articles with ACT interventions can be used to reduce aggressive behavior in patients. The intervention involved distraction using a pre-post test to assess the effectiveness of the ACT intervention. The results of the literature review proved that the eight articles with the intervention could reduce aggressive behavior in patients with psychotic issues. Therefore, it is recommended that nurses use the intervention to reduce aggressive behavior in patients.

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## THE EFFECT OF MATCHING GAME THERAPY ON THE MEMORY OF CHILDREN WITH AUTISM

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### Abstract

**Introduction:** Autism is a neurological developmental disorder characterized by limitations in social interaction, communication, and repetitive and restricted behaviors. Children with autism often experience cognitive impairments, including memory, which affect learning and daily adaptation. One of the interventions used to improve memory is game-based therapy, such as matching games, which can train children's concentration and memory. **Purpose:** This study aims to analyze the effect of matching game therapy on memory of children with autism. **Methods:** This study used a pre-experiment design with a one group pretest-posttest design approach on 20 respondents with autism. Sampling was done by purposive sampling technique. Memory was measured using the Wechsler Intelligence Scale for Children-Fourth Edition (WISC-IV) observation sheet. Data were analyzed using paired t test. **Result:** The results showed that there was an effect of matching game therapy on the memory of children with autism with a p value = 0.001 ( $\alpha = 0.05$ ). **Conclusion:** This study concludes that matching game therapy has an effect on improving the memory of children with autism. The findings recommend the importance of using matching game therapy as an intervention to improve memory in children with autism.

**Keywords:** Autism, Memory, Matching Game Therapy.

### 1. INTRODUCTION

Autism is a neurological developmental disorder characterised by limitations in social interaction, communication, and repetitive and restricted behaviours [1]. Children with autism often experience difficulties in cognitive aspects, one of which is memory, which affects learning abilities and daily adaptation functions [2]. Memory plays an important role in supporting academic and social success, so appropriate intervention methods are needed.

Globally, the prevalence of autism has shown a significant increase. According to the Centers for Disease Control and Prevention (CDC), one in 36 children in the United States will be identified with Autism Spectrum Disorder (ASD) by 2023 [3]. In Indonesia, data on the prevalence of autism is still limited, but the Indonesian Ministry of Health estimates that there are around 2.4 million children with autism spectrum disorder, and only a small proportion receive appropriate and early intervention [4]. This highlights the urgency of developing accessible, engaging and effective interventions for children with autism.

One method used to help improve cognitive abilities, including memory in children with autism, is game-based therapy. This approach utilises play as a fun and structured learning tool. One form of educational game that is widely applied is matching game, which is a game of matching pictures, words, or symbols to train concentration, memory and other thinking skills [5]. This matching activity stimulates children's ability to remember patterns and improve the process of working memory and long-term memory [6].

Research conducted by Siska & Indaryani (2019), showed that the use of interactive media, including matching games, can improve focus, attention, and memory in children with special needs, including children with autism. In addition, this kind of game is also considered more interesting so that it can reduce pressure in the learning process, as well as increase children's motivation to be involved [7].

However, preliminary studies conducted at SLB Rajawali Makassar showed that the memory ability of children with autism at the school was not optimal. Based on interviews with teachers, it was found that the matching game intervention has never been used specifically, and the existing learning media is still limited to general puzzles. This finding indicates a gap in the application of more innovative and adaptive cognitive learning strategies for children with autism.

This research integrates the matching game approach as a form of intervention that has never been implemented in SLB Rajawali Makassar. The main focus of this study is to evaluate the impact of the intervention on improving memory skills in children with autism. In the context of limited access to contextualised and fun cognitive interventions in special schools, this study is expected to contribute to the development of game-based educational therapies that are effective, measurable, and appropriate to the needs of children with autism in Indonesia.

## 2. METHODOLOGY

This study used a pre-experiment design with a one group pretest-posttest design approach, conducted in February 2024 at SLB Rajawali Makassar. The population was all 30 children with autism. Samples were taken using purposive sampling technique, with inclusion criteria: children were cooperative and participated in the matching game therapy session until completion; exclusion criteria: children were not present during the study. There were 20 children who fulfilled the inclusion criteria.

The instrument used was the Wechsler Intelligence Scale for Children-Fourth Edition (WISC-IV) observation sheet, including digit forward and digit backward. Digit forward assesses the ability to remember and repeat numbers in sequence, while digit backward assesses the ability to remember and repeat numbers in reverse, each within 30 seconds. Assessment is done by ticking (✓) on the correct answer. Interpretation of the results, if the score is 17-19 (very superior)= very high memory, score 15-16 (superior)= memory above the average of children of the same age, score 13-14 (above average)= strong memory, score 8-12 (average)= good memory, score 6-7 (below average)= weak memory, score 4-5 (borderline)= limited memory, score 1-3 (low score)= impaired memory. Data were analysed using paired t-test with a significance level of 5% ( $p < 0.05$ ). This study has received ethical approval from the Health Research Ethics Committee of the Makassar Poltekkes Kemenkes (No: 0207/M/KEPK-PTKMS/III/2024).

## 3. RESULTS

### 3.1. Respondent Characteristics

**Table 1.** Frequency distribution of respondent characteristics

Age	Frequency	(f)	Percentage (%)
7-12 year	10		50.0
13-15 year	4		20.0
16-18 year	6		30.0
<b>Gender</b>			
Male	15		75.0
Female	5		25.0
<b>Education</b>			
Elementary	12		60.0
Junior high school	5		5.0
Senior high school	3		15.0
<b>Total</b>	<b>20</b>		<b>100</b>

Based on Table 1 of 20 children with autism who became respondents, the age distribution showed that most respondents were in the age range of 7-12 years as many as 10 people (50%), followed by 16-18 years of age as many as 6 people (30%), and the remaining 13-15 years as many as 4 people (20%). This finding shows that the majority of children with autism in the study were in elementary school age to early adolescence. According to the Centers for Disease Control and Prevention (CDC, 2020), a diagnosis of autism is generally made before the age of 8 years, so interventions at the age of 7-12 years are crucial in supporting their cognitive and social



development [8]. Based on gender, the majority of respondents were male, as many as 15 people (75%), while only 5 respondents (25%) were female. This result is in line with the global prevalence of autism, which is more prevalent in men than women [2,9]. Loomes (2017) in his study mentioned this prevalence is related to biological, genetic, and neuroanatomical factors, where men have a higher susceptibility to neurological developmental disorders such as autism [10]. In terms of education level, most children had primary school education as many as 12 respondents (60%), followed by junior high school as many as 5 people (25%), and senior high school as many as 3 people (15%). This reflects the age characteristics of the respondents, which are mostly at the age of primary education. Formal education for children with autism plays an important role in improving academic, social and communication skills [11]. However, challenges in the learning process remain, hence the need for adaptive learning methods and therapy-based interventions, such as game-based therapy, to support their cognitive development. [12]

### 3.2. Normality test

**Table 2.** Normality test analysis

	Statistic	N	Sig.	Statistic	N	Sig.
Pre-test	,118	20	200a	,955	20	,442
Post-test	,146	20	200a	,943	20	,270

Based on table 2 above, the results of the normality test with the number  $n \leq 50$ , the results of the normality test read in shapiro-wilk obtained a value in the pre-test intervention group significance value (sig.) 0.442 ( $p > 0.05$ ). In the post-test intervention group, the significance value (sig.) 0.270 ( $p > 0.05$ ). So it is concluded that the research data is normally distributed, therefore the researcher uses a paired t test to analyze the effect of matching game therapy on the memory of children with autism.

### 3.3. Analysis of the Effect of Matching Game Therapy on the Memory of Children With Autism

**Table 3.** The results of the analysis of the effect of matching game therapy on the memory of children with autism

Group	N	Mean	Median	SD	p
Pre Test	20	5,45	5,50	3,804	0,001
Post Test	20	6,60	6,00	3,926	

Based on table 3, there is a difference in the memory value of autistic children before and after being given matching game therapy. The mean memory score before the intervention was 5.45 with a median of 5.50 and a standard deviation (SD) of 3.804. After the intervention, the mean increased to 6.60 with a median of 6.00 and a standard deviation (SD) of 3.926. Analysis using paired t-test showed a value of  $p=0.001$  ( $\alpha = 0.05$ ). This p value  $<0.05$  indicates that there is a statistically significant difference between the memory of children with autism before and after being given matching game therapy. This finding indicates that the intervention was effective in improving memory in the group of autistic children. The results showed an increase in the mean from 5.4 to 6.60, indicating a significant increase, although numerically relatively small but proven to be statistically significant. This finding is in line with previous research showing that intervention through interactive games is effective in improving cognitive abilities, including working memory, in children with special needs [13]. Matching activities in matching games are believed to stimulate short-term memory processing and visual memory in children with autism, thus contributing to their memory improvement. [6]



However, the high standard deviation values in the pre-test (3.804) and post-test (3.926) indicate that there is a considerable difference in memory ability between individuals. This indicates that not all children experienced the same improvement in memory after the intervention. This variation is common in the population of children with autism, as their cognitive profiles are highly heterogeneous [13]. Several factors such as age, severity of autism, level of focus, and motivation of the child may influence the success of this therapy. [14,15]

#### 4. CONCLUSION

This study shows that matching game therapy has a significant effect on improving the memory of children with autism. Matching game therapy can be an alternative cognitive intervention that is effective in supporting the memory ability of children with autism. However, considerable individual variations indicate the need to adjust the therapy approach according to the characteristics of each child to optimize the intervention results.

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## EXERCISE TO PREVENT OF GESTATIONAL DIABETES MELLITUS IN PREGNANCY: A SYSTEMATIC REVIEW

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### Abstract

**Background.** Gestational Diabetes Mellitus (GDM) is a pregnancy complication that is common in 3.5 to 12% of pregnancies. Pregnant women have a very high risk of developing diabetes due to an increase in blood sugar metabolism during pregnancy. Various meta-analyses related to the effect of regular physical activity on reducing the incidence of GDM have been carried out, but there is evidence that needs significant influence to recommend a program of regular physical activity to prevent GDM incidents. So this study aims to examine the literature using the latest references on the effect of physical exercise in reducing the incidence of GDM. **Method.** systematic literature review with keywords; gestational diabetes mellitus, physical exercise, and pregnant women. Articles obtained from the electronic database "Google Scholar" with the criteria for inclusion of scientific articles in English and Indonesian in 2014-2024. **Results.** Several recent studies have shown regular physical activity exercises conducted 55-60 minutes for 3 times a week can reduce GDM and other things related to GDM namely a decrease in glycemic levels, blood pressure, and body weight. In addition, regular physical exercise can also improve fetal well-being as evidenced by an increase in the neonatal body index. **Conclusion.** Regular physical exercise shows enough evidence to reduce the risk of GDM. **Recommendation.** Regular physical activity is highly recommended to reduce the incidence of GDM. Although new evidence is needed that shows a significant effect on the decline in GDM. However regular physical exercise does not have a dangerous effect as long as it is done by pregnant women who are recommended.

**Keywords :** Diabetic Mellitus, Gestational, Preventive Exercises.

### 1. INTRODUCTION

Gestational Diabetes Mellitus (GDM) is defined as a state of glucose intolerance that is absent or undetected before pregnancy. The prevalence of GDM continues to increase worldwide; 1 in 7 women in the world experience GDM, and 1-14% of all pregnancies in Indonesia experience GDM. Based on data from the IDF (International Diabetes Federation) in 2012, more than 300 million people worldwide have DM, and around 60 million of them are women of reproductive age (15-49 years)..

Pregnant women have a very high risk of developing diabetes due to increased blood sugar metabolism during pregnancy; in addition, women with excess body weight or obesity also have a very high risk of developing GDM. Hyperglycemia in mothers increases the risk of complications such as preeclampsia, hypertension, neonatal macrosomia, and even death.

Many interventions can be done to overcome diabetes problems in pregnant women, one of which is physical exercise. Currently, exercise is recommended as part of antenatal care. Exercise or physical activity can increase insulin sensitivity and also maintain blood sugar levels in patients with type 2 diabetes. A study shows a correlation between physical activity before and during pregnancy and lower GDM values. Physical activity can be given to pregnant women without contraindications. The duration of exercise is adjusted to the type of physical activity to be done. [1]

According to Wang's research [2] exercise is very influential in reducing blood sugar levels in pregnant women, with the results of blood sugar in the intervention group being significantly lower (22% vs. 40.6%,  $P < 0.001$ ). These results are in line with Kokic's research [3] that the intervention group had lower postprandial glucose levels at the end of pregnancy ( $p < 0.001$ ) and

there was no significant difference in fasting glucose levels. From three meta-analyses conducted by Han et al. [4], dan [5] , it was said that physical activity did not have a significant effect on reducing GDM, but a study conducted by Aune [6] said that there was a significant effect, but new studies were needed to strengthen the evidence of the effect of physical activity in reducing GDM.

Based on the above phenomenon, the author intends to conduct a systematic literature review. The general objective: to determine the effect of physical exercise on reducing the incidence of gestational diabetes mellitus. While the specific objectives are to determine several other impacts related to gestational diabetes mellitus, the types of physical exercise recommended, and the time and intensity of physical exercise recommended.

## 2. METHODOLOGY

The method used is a systematic literature keywords gestational diabetes mellitus, physical exercise, and pregnant women. Articles are obtained from the electronic database "Google Scholar" with the inclusion criteria of scientific articles in English and Indonesian published in 2014-2024. The collected literature is analyzed and synthesized into a recommendation.

## 3. RESULTS

The results of the systematic literature review obtained 10 articles from a total of 19,800 articles obtained from the results of the literature search based on keywords and inclusion criteria that were set. The 10 articles collected were in English and Indonesian. The articles obtained were studies with randomized controlled trial (RCT) and quasi-experimental designs. The research locations of the collected articles were carried out in 9 countries, namely China, Norway, the United States (US), Croatia, Spain, Ireland, Indonesia, Norway, and Egypt. The measurements observed included (1) maternal well-being: incidence of gestational diabetes mellitus, body weight, insulin resistance, blood pressure, postprandial blood glucose, fasting blood sugar, blood measurements, skin folds, complication rates during pregnancy and birth, need for pharmacological therapy, percentage of fat during pregnancy, exercise compliance, and exercise motivation. (2) infant well-being: APGAR score, infant body mass, ponderal index, and neonatal body index. The interventions given were physical exercise in the form of cycling, intense endurance, strength training, balance training, moderate aerobic exercise, and diabetes gymnastics. [7];[8] ; [9]; [10] ; [3]; [11]; [2]. Some other interventions use supervision from medical personnel [12] [3] and some are done independently at home with face-to-face (F2F) [1]. Participants continue to do Activity Daily Living (ADL) [2], receive antenatal care [1], and receive medical care in the form of insulin and dietary recommendations for pregnant women with diabetes mellitus [9].

The results of literature studies found that regular physical exercise in pregnant women can reduce the incidence of GDM [7]; [8]; [2] although a study by Daly [12] said the results did not have a significant effect. Other influences related to the incidence of GDM were observed, namely: body weight, insulin resistance, systolic blood pressure, postprandial blood glucose, and fasting blood glucose had a significant effect on reducing the measurement components [7]; [8] ; [3]; [1]; [2]. However, other studies say that body weight, diastolic blood pressure, and fasting glucose have no significant effect [13]; [8]; [3]. In the measurement of blood pressure conducted by Garnæs et al. [8], although the effect on systolic blood pressure is not significant, at the end of pregnancy there is a significant effect on the decrease or stability of systolic blood pressure ( $p = 0.001$ ) and diastolic blood pressure ( $p = 0.002$ ). In blood measurements, skin folds, maternal needs for pharmacological therapy, and maternal body fat presentation during pregnancy did not show a significant effect [8] [3]. The results of measurements related to fetal well-being, almost all components, did not show a significant effect. Only in neonatal body index measurements was there a significant effect size, while the APGAR score, infant body mass, and ponderal index did not show significant [3].

## 4. DISCUSSION

In this meta-analysis, regular physical exercise during pregnancy was associated with a significant reduction in the relative risk of GDM. There is sufficient evidence to suggest that physical exercise has a significant effect on reducing GDM. These results are in line with previous meta-analyses conducted by Aune et al [6] and in contrast to three meta-analyses in previous

years, which stated that there was insufficient evidence that physical exercise had a significant effect on reducing GDM in pregnant women; [4]; [5] .

Physical activity has benefits for pregnant women without complications, minimal risk, and is recommended in pregnancy guidelines. The results of several studies of physical activity during pregnancy can prevent GDM during pregnancy, especially for pregnant women with comorbidities and complications such as obesity. GDM is a common pregnancy complication in 3.5 to 12% of pregnancies [14]. Through physical activity can help control weight and reduce the risk of pregnancy in obese women. In women diagnosed with GDM, physical activity is useful in managing glycemic control. Managing glycemic control is important to reduce the adverse effects of uncontrolled GDM. [7]; [10]; [3].; [11]; [1]; [2].

These benefits greatly affect the well-being of the mother during pregnancy and the baby. In addition, other general benefits of physical activity include increased physical fitness [15] , reduced back pain [16]; [17], and reduced anxiety and depressive symptoms [7]. In addition to improving maternal well-being during pregnancy, physical activity during pregnancy can improve the well-being of the baby by increasing the neonatal body index [3]. So physical activity is highly recommended during pregnancy in pregnant women who are recommended for various reasons.

From the results of the literature study, it was found that the types of physical activity recommended during pregnancy to improve fitness and therapeutic benefits are cycling, moderate-intensity endurance training, strength training, brisk walking, aerobic exercise, and anti-diabetic gymnastics [7]; [10]; [3]; [11]; [1]; [2]. The recommended duration of physical activity for one exercise is, according to the protocol, namely 55-60 minutes [7]; [3]; [11]; [1]; [2], except for anti-diabetic gymnastics, which is done for 15-20 minutes, but there is no protocol regarding the time of exercise using anti-diabetic. The frequency of exercise for all types of exercise is 3 times per week [10]. However, antenatal care and insulin therapy are still needed for women with diabetes mellitus while carrying out a regular physical activity exercise program. In women diagnosed GDM, physical activity is beneficial in managing glycemic control. Managing glycemic control is important to reduce the adverse effects of uncontrolled GDM . These benefits greatly affect the well being of the mother during pregnancy and the baby, other general benefits of physical activity include improved physical fitness, reduced back pain, decreased anxiety and depressive symptoms

## 5. CONCLUSION

GDM is a common pregnancy complication that occurs in 3.5 to 12% of pregnancies. The results of literature studies show sufficient evidence to strengthen previous meta-analyses on the effect of regular physical exercise in reducing the incidence of GDM and other related matters. So far, meta-analyses conducted by various researchers and this meta-analysis show that regular physical activity is highly recommended to reduce the incidence of GDM. Although new evidence is needed to show the influence of GDM triggers, namely decreased blood sugar, weight, and blood pressure. In addition to improving maternal well-being during pregnancy, regular physical exercise also improves fetal well-being, as evidenced by a significant increase in neonatal body index to reduce GDM. However, regular physical exercise does not have a harmful effect as long as it is carried out by pregnant women as recommended. Physical exercise is recommended as part of antenatal care exercise or physical activity can improve insulin sensitivity and also maintain blood sugar levels in type 2 diabetes patients.

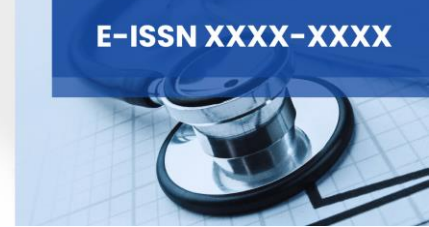
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## A LITERATURE REVIEW ON INTERVENTIONS FOR POST-TRAUMATIC STRESS DISORDER (PTSD) IN DOMESTIC VIOLENCE VICTIMS

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### Abstract

Post-Traumatic Stress Disorder (PTSD) is a psychological condition that arises as a result of traumatic events and is characterized by symptoms such as nightmares, flashbacks, avoidance behaviors, and hyperarousal. PTSD is commonly experienced by survivors of domestic violence, particularly those subjected to repeated physical, emotional, or sexual abuse. This study presents a literature review aimed at exploring current understandings of PTSD among domestic violence survivors, focusing on risk factors, symptoms, diagnosis, and treatment approaches. The method employed was a rapid review of ten journal articles published between 2020 and 2023, sourced from both Indonesian and international journals via sage journals, science direct, and google scholar. The findings of this review are expected to provide a comprehensive overview of recent advancements and to propose more effective intervention strategies for survivors of domestic violence. A total of eight articles were identified as meeting the inclusion criteria and aligning with the objectives of this study. Evidence-based treatment approaches for addressing post-traumatic stress disorder (PTSD) in this population include cognitive behavioral therapy (CBT), exposure therapy, group therapy, and mindfulness-based interventions.

Keywords: Emotional Violence, Female Survivors, Trauma, Post-Traumatic Stress.

### 1. INTRODUCTION

Post-Traumatic Stress Disorder (PTSD) is a psychological reaction that arises from a traumatic event that threatens life or causes unpleasant feelings or stress (1)(2)(3). This condition is characterized by feelings of sadness, depression, and a lack of enthusiasm for performing daily activities or activities that bring pleasure. It is sometimes accompanied by delusions, and when severe, can disrupt role functioning and social life (4)(5). DSM-IV outlines the diagnostic criteria for PTSD as symptoms of re-experiencing, such as nightmares or flashbacks, avoidance, and hyperarousal, including anger, sleep disturbances, and panic that last for more than a month. Grinage (2003) stated that patients with PTSD symptoms often display excessive reactions due to neurobiological changes in the nervous system. Only a small portion of the brain is responsible for speech and language comprehension (Broca's area), while other parts of the brain primarily respond to panic symptoms, flashbacks, startled reactions, and feelings of tightness in the neck and throat (amygdala, thalamus, hippocampus, anterior cingulate gyrus). PTSD is a complex mental health disorder that can affect individuals who have experienced or witnessed traumatic events, from natural disasters to interpersonal violence or armed conflict. Research on PTSD has become increasingly important as awareness of mental health grows.(6)

A study revealed that approximately 40 to 60% of female survivors of domestic violence experience post-traumatic stress disorder (PTSD)(7), characterized primarily by symptoms such as hypervigilance, traumatic flashbacks, and avoidance of situations that trigger memories of the abuse. Domestic Violence (DV) is one form of interpersonal violence that can cause deep trauma to its victims. Domestic violence victims often experience PTSD as a result of repeated exposure to physical, emotional, or sexual abuse. The long-term impact of domestic violence on the mental health of victims is significant, requiring special attention in their treatment and recovery. This literature review aims to explore the latest understanding of PTSD in domestic violence victims,

including risk factors, symptoms, diagnosis, and the most effective treatment approaches. By understanding the dynamics of PTSD in the context of domestic violence, it is hoped that better intervention strategies can be developed to help victims recover and rebuild their lives.(8)

## 2. METHODOLOGY

This literature review employed a rapid review methodology to efficiently synthesize the most recent and pertinent research on post-traumatic stress disorder (PTSD) resulting from sexual violence within domestic settings. The literature search was conducted via sage journals, science direct and google scholar, encompassing Indonesian journals, nationally accredited publications, and internationally recognized peer-reviewed journals. The inclusion criteria were as follows: articles published between 2020 and 2025; peer-reviewed studies focusing on PTSD in the context of sexual violence; and articles available in full text, written in either English or Indonesian. A total of eight relevant journal articles were selected based on their alignment with the study's objectives. Keyword combinations such as "PTSD," "sexual violence," "domestic violence survivors," and "mental health intervention" were utilized alongside publication year filters to ensure the inclusion of up-to-date findings(9).

To synthesize the selected articles, a thematic analysis approach was applied. Each article was reviewed in depth to identify recurring themes, patterns, and intervention strategies. Key data such as research objectives, sample characteristics, methodology, major findings, and conclusions were extracted and categorized. This process allowed for comparison across studies, highlighting both consistent findings and areas of divergence. The synthesized data were then grouped under thematic categories related to types of intervention, psychological outcomes, and cultural or contextual influences on PTSD treatment efficacy(10). This methodological approach ensured a structured and systematic integration of findings, providing a comprehensive and current overview of PTSD intervention strategies for survivors of sexual violence in domestic contexts.

## 3. RESULTS

A rapid review of nine relevant studies on PTSD in survivors of domestic violence (DV) reveals a variety of therapeutic interventions, symptom profiles, and psychosocial impacts associated with PTSD, particularly as it relates to sexual violence. The findings from each study provide valuable insights into the effectiveness of different therapeutic approaches for survivors of domestic violence. Below is a summary of the key findings from each of the studies included in the review:

No	Title	Aim	Metohod	Result
1	Self Talk dan Guided Imagery dalam Penanganan Stress Pasca Trauma Kekerasan dalam Rumah Tangga.  Aini AN, Dona S, Mahdiyah D. Heal Res J Indones. 2023;1(4):172–8.	To examine the effectiveness of self-talk and guided imagery techniques as psychological interventions in managing PTSD symptoms among survivors of domestic violence	Quasi-experimental	"Self-Talk and Guided Imagery in Managing Post-Traumatic Stress Following Domestic Violence" examined the use of positive self-talk and guided imagery as therapeutic interventions for DV survivors with PTSD. Results indicated that participants who received both self-talk and guided imagery

				experienced a significant reduction in PTSD symptoms compared to the control group, which only received self-talk. Positive self-talk fostered optimistic thought patterns, while guided imagery, especially nature-based imagery, was more effective in reducing anxiety than urban-themed imagery(11).
2	Pengurangan simpton post-traumatic stress disorder (PTSD) terhadap restrukturisasi kognitif media Surat Al-fatihah pada korban KDRT. Dwi S. J Ris Psikol. 2023;6(1):53–62.	To assess the effectiveness of cognitive restructuring using the media of Surah Al-Fatihah in reducing PTSD symptoms among survivors of domestic violence.	One-group pretest-posttest design, quasi-experimental	This study explored the use of cognitive restructuring through reflection on Surah Al-Fatihah in reducing PTSD symptoms among DV survivors. The results showed a significant reduction in PTSD symptoms, with participants shifting from severe to mild symptoms following the intervention. This approach not only helped reduce PTSD symptoms but also improved the adaptability of participants' behaviors and thoughts, providing a spiritually-based intervention for trauma recovery(12).
3	Pengaruh Terapi Observed	This study was to examine the	Single-case experiment	The OEI therapy provided a safe and deep space

	Experiential Integration Untuk Menurunkan Gejala Post Traumatic Stress Disorder Pada Wanita Korban Perkosaan. Abimanyu CVR. Semarang; 2015.	effectiveness of Observed Experiential Integration (OEI) therapy in reducing post-traumatic stress disorder (PTSD) symptoms among women survivors of sexual assault. The study sought to determine whether OEI could alleviate trauma-related stress and enhance emotional regulation in this population.	al design with a multiple baseline design across three participants .	for female survivors of DV to express and process their traumatic experiences. The study found significant reductions in PTSD symptoms, including intrusion, avoidance, and hyperarousal. The OEI therapeutic process, involving phases such as Switching, Glitch Work, and Sweeping, enabled participants to access cognitive processing and engage in a safe environment for emotional expression (13).
4	Metode Hipnoterapi dalam Menangani Post-Traumatic Stress Disorder (PTSD) Pada Perempuan Korban Kekerasan dalam Rumah Tangga di DP3AP2KB Provinsi Jawa Tengah. Rahmawati NF, Kholilurrohman K. J Kesehat. 2023;4.	This study was to evaluate the effectiveness of hypnotherapy in reducing PTSD symptoms among women survivors of domestic violence.	Qualitative approach with a descriptive method	Participants who underwent hypnotherapy reported positive outcomes, including increased happiness, calmness, and the ability to cope with life more effectively. The results suggest that hypnotherapy effectively alleviates PTSD symptoms by helping individuals resolve past trauma, leading to enhanced emotional well-being and overall life satisfaction (14).
5	Konseling CBT untuk	To assess the effectiveness of	Experiment al design	This study demonstrated that CBT, in a group

	Mengembangkan Self-love Penyintas Trauma Kekerasan Dalam Rumah Tangga (KDRT). Krisnanda VD, Ramli M, Hidayah N. Couns J Bimbingan dan Konseling. 2022;12(2):116–29.	Cognitive Behavioral Therapy (CBT) counseling in developing self-love among survivors of domestic violence trauma		counseling format, helped female DV survivors improve self-love. By addressing cognitive distortions and promoting relaxation techniques, CBT helped participants reduce PTSD symptoms and improve their quality of life. However, challenges such as limited therapy time and trauma reactivation during sessions were noted. Despite these challenges, CBT was recommended as an effective therapeutic intervention for survivors (15).
6	Efektivitas terapi zikir istighfar untuk mengurangi gejala gangguan stres pascatrauma pada istri korban kekerasan dalam rumah tangga. Kartikasari M, Nashori F. Psychopolytan J Psikol. 2022;5(2):83–98.	To assess the effectiveness of Istighfar-based dhikr therapy in reducing post-traumatic stress disorder (PTSD) symptoms among wives who are victims of domestic violence. The study sought to determine whether this spiritual intervention could alleviate trauma-related stress and enhance emotional regulation in this population.	Mixed-methods design (quantitative+qualitative) with a quasi-experimental approach	The use of Dzikir Istighfar (Islamic prayer) as a therapeutic intervention resulted in significant reductions in PTSD symptoms. Participants reported increased inner peace, self-awareness regarding past mistakes, and greater control over PTSD symptoms. This study supports the notion that spiritual practices, such as Dzikir Istighfar, can provide emotional support and foster positive self-transformation in the face of trauma (16).

7	<p>Recovery: Resilience and growth in the aftermath of domestic violence. Violence Against Women. Anderson KM, Renner LM, Danis FS. 2012;18(11):1279–99.</p>	<p>The primary aim of this study was to explore the recovery process and outcomes for women who had previously been in abusive intimate partner relationships</p>	<p>Mixed-methods study mixed-methods study</p>	<p>This study highlighted the recovery process of women who had left abusive relationships. Many women demonstrated strong resilience and low levels of PTSD symptoms even years after experiencing prolonged DV. The research emphasized the role of spiritual and social support in healing and growth post-abuse. Despite resilience, some women continued to face challenges in decision-making and trauma-related symptoms, indicating the complex nature of recovery from domestic violence (17).</p>
8	<p>Post-traumatic growth among domestic violence survivors: A systematic. Rahayu D, Hamidah H, Hendriani W. review. J Educ Heal Community Psychol. 2019;8(2):138–58.</p>	<p>To examine how previous empirical studies explain the struggles experienced by victims of domestic violence, the strategies employed to address their traumatic conditions, and the factors contributing to positive changes, specifically post-traumatic growth (PTG)</p>	<p>Systematic review</p>	<p>A study conducted by Zunea Farizka Azyza Harro Uasni explored post-traumatic growth (PTG) in DV survivors, revealing that many women experienced significant positive changes as a result of their struggle with trauma. Factors such as social support, emotional disclosure, and spirituality were identified as key contributors to PTG. Despite the trauma,</p>

				women exhibited improvements in life appreciation, relationships, personal strength, spirituality, and new possibilities for the future (9) .
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#### 4. DISCUSSION

The findings from these studies reveal a range of therapeutic approaches that effectively address PTSD in survivors of domestic violence. These include psychological interventions, spiritual approaches, and experiential therapies that highlight the potential for comprehensive trauma recovery. Below is a discussion of the key themes and implications of the findings:

##### a. Self-Talk and Guided Imagery

Research by Aini, Dona, and Mahdiyah (2023)(11), supports the use of these techniques as they promote cognitive restructuring and emotional regulation, critical components for trauma recovery. Additionally, guided imagery helps in activating the parasympathetic nervous system, reducing physiological symptoms of anxiety and promoting a sense of calm. Self-talk and guided imagery also contribute to enhancing survivors' self-efficacy and internal locus of control, important factors for restoring personal agency and empowerment after trauma(18). These interventions are adaptable to both individual and group therapy settings, making them versatile in clinical practice. In addition to symptom management, these cognitive-behavioral tools have been associated with fostering post-traumatic growth and resilience, helping survivors rebuild positive self-identity and coping mechanisms(18). Integrating these methods with complementary approaches such as mindfulness or exposure therapy can offer comprehensive care tailored to survivors' needs.

##### b. Cognitive Restructuring with Surah Al-Fatihah

The use of cognitive restructuring with spiritual reflection on Surah Al-Fatihah demonstrated its potential in not only reducing PTSD symptoms but also improving behavioral adaptability and promoting spiritual healing. This approach underscores the therapeutic value of integrating spiritual and cognitive interventions, which can be a culturally relevant and effective strategy for DV survivors seeking healing (19),(20).

A study by Dwi (2023) demonstrated that cognitive restructuring through Surah Al-Fatihah reflection significantly decreased PTSD symptoms among DV survivors. By engaging in *tadabbur*—a reflective contemplation of the verses—participants experienced a transformation in dysfunctional self-beliefs into more adaptive and spiritually anchored self-perceptions, resulting in the reduction of PTSD severity from “severe” to “mild” (12). Supporting this, Singgih and Triana (2023) introduced the Al-Fatihah Reflection Therapy (ART) model, which successfully enhanced resilience among individuals with disabilities. The model integrates Quranic reflection with cognitive behavioral elements, focusing on modifying maladaptive thoughts and emotions through structured spiritual engagement (21).

Similarly, Luthfiyah et al. (2023) found that guided spiritual reflection on Surah Al-Fatihah was effective in alleviating anxiety among university students. The practice of reading and internalizing the meanings of the Surah fostered a sense of calm, trust in divine will, and emotional regulation, thus serving as a preventive mental health strategy (22).

Collectively, these studies support the growing evidence base for spiritually-informed psychological care. The integration of Surah Al-Fatihah into cognitive restructuring provides not only a means to reduce PTSD symptoms but also fosters post-traumatic growth, purpose reconstruction, and spiritual resilience in survivors of domestic violence.



### c. Observed & Experiential Integration (OEI)

The OEI therapy offers a holistic and experiential therapeutic approach, helping survivors process trauma in a safe environment. The findings indicate that OEI significantly reduces PTSD symptoms by fostering emotional expression and cognitive processing. This approach is valuable in trauma recovery as it promotes deep emotional healing and cognitive reframing in a supportive environment (23),(24).

A study by Bradshaw et al. (2014) demonstrated that OEI therapy effectively reduced PTSD symptoms in a diverse group of trauma survivors. The randomized clinical trial revealed that 90% of participants experienced significant relief from PTSD symptoms, as indicated by the Clinician-Administered PTSD Scale (CAPS) and the Impact of Event Scale-Revised (IES-R) scores. The intervention consisted of three one-hour sessions using a single technique known as 'switching,' which involves alternating eye coverage to stimulate different visual pathways connected to the brain's hemispheres. The study found that OEI therapy outperformed the delayed-treatment control condition in reducing PTSD symptoms, with sustained benefits observed in a two-year follow-up (25).

Additionally, research by Anggadewi (2023) focused on the application of OEI therapy in reducing PTSD symptoms among female survivors of domestic violence. The study found that OEI therapy led to a significant decrease in PTSD symptoms, highlighting its effectiveness in addressing trauma within this specific population (26).

Furthermore, OEI therapy's emphasis on emotional processing aligns with findings from other therapeutic modalities. For instance, a study examining prolonged exposure therapy for PTSD found that emotional processing, particularly the reduction of negative trauma-related cognitions and cognitive rigidity, was a key predictor of symptom improvement. This underscores the importance of emotional expression and cognitive processing in trauma recovery. ScienceDirect

In conclusion, OEI therapy provides a valuable intervention for trauma recovery by integrating emotional expression and cognitive processing in a supportive environment. Its application among survivors of domestic violence demonstrates its potential in reducing PTSD symptoms and promoting healing.

### d. Hypnotherapy

Hypnotherapy proved effective in reducing PTSD symptoms, enabling survivors to resolve past trauma and enhance their emotional well-being. The study suggests that hypnotherapy can be an important tool in trauma recovery, especially for those who may struggle to engage with traditional therapeutic approaches. It highlights the need for diverse therapeutic options to meet the varied needs of DV survivors (27). Collectively, these studies reinforce the efficacy of hypnotherapy in alleviating PTSD symptoms among trauma survivors, including those who have experienced domestic violence. Hypnotherapy offers a valuable therapeutic option, particularly for individuals who may find traditional therapeutic approaches challenging. Its ability to facilitate emotional processing and cognitive reframing in a supportive environment makes it a promising tool in trauma recovery.

### e. Cognitive Behavioral Therapy (CBT)

CBT was shown to be highly effective in improving self-love and reducing PTSD symptoms in DV survivors. However, challenges such as limited time and reactivation of trauma during therapy were identified. Despite these challenges, CBT remains a promising therapeutic approach for helping survivors rebuild their sense of self-worth and manage trauma-related symptoms effectively (28),(29).

A study by Krisnanda et al. (2022) focused on using CBT-based counseling to enhance self-love among DV survivors with trauma. The research demonstrated significant improvements in self-compassion and reductions in PTSD symptoms after a series of CBT sessions, highlighting the therapy's capacity to rebuild survivors' self-worth and emotional resilience (15). However, challenges were noted in clinical practice. Time constraints limited the number of therapy sessions, sometimes hindering full trauma processing. Additionally, reactivation of traumatic memories during exposure or cognitive restructuring occasionally caused emotional distress, requiring careful therapist guidance to prevent dropout or symptom exacerbation(30). Despite these hurdles, CBT remains a frontline intervention due to its evidence base and adaptability.(31)

CBT significantly reduced PTSD symptom severity in women survivors of intimate partner violence, while improving emotional regulation and self-esteem. The study emphasized the importance of trauma-informed adaptations to address therapy-related distress and increase retention(32). CBT is one of the most effective interventions for PTSD in survivors of interpersonal violence, promoting cognitive restructuring that enhances self-perception and reduces symptoms such as avoidance and hypervigilance.

#### **f. Dzikir Istighfar (Islamic Prayer)**

Research highlights that integrating spiritual practices such as prayer, meditation, and recitations into trauma recovery frameworks not only addresses the psychological aspects of PTSD but also meets the spiritual and cultural needs of survivors. This holistic approach promotes a sense of meaning, hope, and connectedness, which are critical components in the healing process. Dzikir Istighfar, as a form of spiritual therapy, was found to significantly alleviate PTSD symptoms. The therapeutic benefits of spiritual practices such as prayer underscore the importance of integrating spiritual support in trauma recovery. This finding highlights the potential of spiritual-based therapies in addressing trauma, especially in culturally and religiously specific contexts (33). Kartikasari and Nashori (2022) conducted a study investigating the effectiveness of Dzikir Istighfar therapy in reducing PTSD symptoms among wives of domestic violence survivors. The study found significant reductions in symptoms such as hyperarousal, flashbacks, and emotional distress following a structured Dzikir Istighfar intervention, confirming the therapy's potential as a culturally congruent healing modality(34).

#### **g. Post-Traumatic Growth (PTG)**

The concept of post-traumatic growth (PTG) demonstrates that, despite experiencing severe trauma, DV survivors can experience significant positive changes in their lives. Factors such as social support, emotional disclosure, and spirituality were found to contribute to PTG, suggesting that recovery is not merely about symptom reduction but also involves personal growth and transformation (35),(9).

These studies demonstrate that recovery from domestic violence extends beyond symptom reduction and involves significant personal transformation. Key factors including social support, emotional disclosure, and spirituality have been shown to facilitate post-traumatic growth among survivors. Therefore, recovery approaches should integrate therapeutic interventions with psychosocial support systems that promote growth and transformation after trauma.

## **5. CONCLUSIONS**

The findings from this review suggest that a wide range of therapeutic interventions, including cognitive-behavioral techniques, spiritual therapies, and experiential therapies, can effectively address PTSD in survivors of domestic violence. The integration of spiritual and cognitive interventions appears to be particularly beneficial, offering survivors a multifaceted approach to recovery. Furthermore, these studies highlight the importance of social support, spirituality, and individual resilience in the healing process. Future research should continue to explore these interventions in greater depth, especially through larger and more diverse samples, to enhance our understanding of how best to support DV survivors in their recovery journeys. Get smarter responses, upload files and images, and more.

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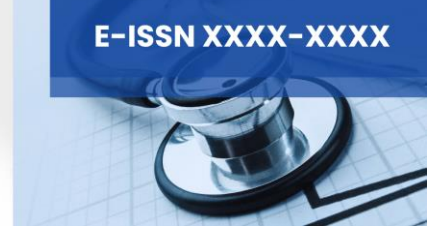
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## NEURODERMATITIS CIRCUMSCRIPTA: CASE REPORT

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### Abstract

**Introduction:** Neurodermatitis circumscripta is estimated to occur in approximately 10% of the population. The highest prevalence usually occurs in middle to late adulthood and often peaks at 30 to 50 years of age, most likely due to the significant increase in stress at this stage of life. The condition is more common in women than men with a ratio of 2:1. **Case Description:** A 43-year-old patient complaints of redness and itching in the wound in the upper ankle area of the right foot that has worsened in the last 1 week. The patient reported a previous episode of similar symptoms, which occurred in a different location, specifically around the border of the right toe and spread circularly accompanied by redness and blackness. Itching worse when the patient sweats. Dermatologic status was found on the dextra inferior extremity, erythema plaques appeared and some parts had hyperpigmentation accompanied by squamous, exoriation and plaque-size lichenification, irregular shape with firm boundaries scattered only unilaterally on the dextra extremity. This patient was treated with desoximethasone cream 0.25%, gentamycin cream 0.1% and cetirizine 10mg. **Conclusion:** Neurodermatitis circumscripta or lichen simplex chronicus is a chronic inflammatory skin disease. Topical therapies that can be given to patients are potent topical steroids, antibiotics and keratolytic agents. Lichen simplex chronicus usually improves with treatment, but some case can become persistent, especially when in the genital area.

**Keyword:** Neurodermatitis, Lichen Simplex, Lichenification.

### 1. INTRODUCTION

Neurodermatitis circumscripta, also known as lichen simplex chronicus is a form of localized pruritus that is long-lasting and accompanied by secondary dermatitis. It is one of the most common types of chronic itchy conditions, estimated to affect more than 10% of the population. Despite its high prevalence, research into the causes and pathogenesis of lichen simplex chronicus is limited, making it a difficult condition to treat. However, in recent years, neurodermatitis circumscripta has been suggested to be influenced by stress, resulting in an itch-scratch cycle. Emotional stress leading to irritation and the urge to scratch the skin is often cyclical, with the resulting plaques causing more stress and chronic itch, pigmentation changes in the affected skin, and the potential for spreading to larger areas. (1,2)

Neurodermatitis circumscripta, also known as lichen simplex chronicus, is a chronic, itchy, localized inflammatory skin condition, usually on the ankles or extremities, characterized by lichenification phenomena in the form of thick, scaly patches. Lichenification occurs as a response of the skin to repeated scratching and rubbing over a long period of time. Thickened, potentially discolored plaques and lesions may form as a result of repeated scratching of the affected area. (2)

Lichen simplex chronicus is estimated to occur in approximately 12% of the population. The highest prevalence usually occurs in middle to late adulthood and often peaks at ages 30 to 50 years, likely due to significant increases in stress at this stage in a person's life. The disorder is more common in women than in men by a ratio of 2:1. (2)

The purpose of this case report is to present the clinical picture, diagnosis, and therapy of neurodermatitis circumscripta found in the dermatology and venereology polyclinic of Woodward Hospital in a 43-year-old man.

## 2. CASE REPORT

The patient was 43 years old with complaints of redness and itching of the wound in the upper ankle area of the right foot which had worsened in the last 1 week. There was a previous history of the same complaint but in a different predilection area, namely around the upper edge of the right toe area and spread circularly accompanied by redness and blackness. Itching worsens when the patient sweats, there is a history of previous treatment, namely routinely taking cetirizine 1 x 1 and ointment given by the doctor. There was a change, but the area of the wound spread moved and expanded accompanied by thickening of the skin due to frequent scratching and redness. Physical examination found that the patient's general condition was mildly ill, compos mentis consciousness (E4M6V5) with good nutritional status.

A review of the dermatologic examination found on the dextra inferior extremity appeared erythematous plaques and some parts have been hyperpigmented accompanied by squamous, exoriation and lichenification plaque-sized, irregular shape with firm boundaries scattered only unilateral dextra extremity.



**Figure 1.** In the dextra inferior extremity, erythematous plaques are seen and some parts have hyperpigmentation accompanied by squamous, exoriated and lichenified plaque-sized, irregularly shaped with firm boundaries scattered only unilaterally in the dextra extremity

This patient was given topical therapy in the form of desoximethasone cream 0.25% applied to the lesion area 2 times a day, gentamycin cream 0.1% applied to the lesion area 2 times a day and oral therapy in the form of cetirizine 10mg once a day.

## 3. DISCUSSION

In this case, the diagnosis was made based on history and findings from history, physical examination and dermatological status. Anamnesis review found that a 43-year-old man came to the Dermatology and Venereology Polyclinic of Woodward Hospital with complaints of redness in the right foot area accompanied by thickening of the skin. The patient had a history of previous treatment with the same complaint but in a different area, namely near the toe area, but the longer the treatment was given, the patient's complaint area had moved around the ankle. Foot part on. Complaint patient started from around 1 month Which Then with itching in the foot area near the toes which was initially the size of a corn kernel, but the patient ignored the complaint because



he thought it was just a normal wound. The patient admitted that he had given betadine to the itchy wound area, but the complaint did not decrease or disappear.

The Development of redness on the foot area and itching that continued to be felt made the disease area more widespread. The patient had been given ointment and drinking medicine which was routinely done until his complaint improved in the previous 2 weeks. However, in the last 1 week the patient again felt the same complaint but in a different area on the right leg. The itching felt by the patient worsened and required him to scratch the wound area. According to his confession, the complaint became lighter when the patient scratched it and causes thickening of the wound area and the wound expands. The complaint was aggravated when the patient sweated.

According to Habib (2021), LSC is often classified as a neurodermatological disorder, due to the prominent pruritus component and the involvement of neuropsychological factors. The book Dermatology by Jean L. Bologna (2017) also mentions that LSC results from repeated mechanical stimulation of the skin that results in the release of inflammatory mediators, which then exacerbates itching and reinforces the scratching cycle.(3,4)

The diagnosis of LSC is generally clinical based on the history and appearance of typical lesions. However, in atypical cases, histopathological examination can be performed which will show epidermal thickening (acanthosis), hyperkeratosis and lymphocytic infiltrates in the upper dermis as signs of chronic inflammation.

Clinically, atopic dermatitis lesions appear as lichenified lesions, which are usually solitary but can be multiple, and range in size from lenticular to plaques. The initial stage consists of erythematous and edematous papules or clusters with scales and blisters and persistent lichenified plaques with hyperpigmentation or hypopigmentation. The center of the lesion is thick, dry, and scaly, while the edges are hyperpigmented. (5,6)

Lichen simplex chronicus can be considered as a secondary manifestation of chronic atopic dermatitis, resulting from repeated scratching of the itchy area. They are closely related in terms of pathophysiology, precipitating factors, and management strategies. Effective management of atopic dermatitis will also contribute to preventing or reducing the incidence of Lichen simplex chronicus.(7)

Based on the findings obtained, this indicates that neurodermatitis circumscripta or chronic simplex dermatitis (CS) is a chronic inflammatory skin disease with common characteristics, namely repeated itching and scratching cycles. This is in accordance with the theory that this is a disease. Atopic dermatitis is divided into distributed skin lesions and local skin lesions, depending on the severity of the skin lesions. Lesions are commonly found on the neck, ankles, lateral legs, scalp, forearm extensors, scrotum, pubic bone, and vulva. Atopic dermatitis is characterized by thickened, dry, scaly skin, and hyperpigmentation or hypopigmentation when scratching or rubbing the itchy skin area. (8,9)

No examination was performed on this patient. Support. If necessary, tests to support the differential diagnosis can also be performed. If the clinical picture is suspicious, histopathological examination can be performed. A complete dermatological examination is performed to exclude pure primary inflammatory skin diseases and to evaluate secondary scratch lesions, such as typical isolated lichenified plaques. A biopsy can help differentiate LSC from other diseases with similar clinical manifestations, such as: hypertrophic lichen planus, psoriasis-like rashes, contact dermatitis, squamous cell carcinoma, mycosis fungoides. (1,6)

Successful treatment depends on identifying and eliminating the triggering factors and ending the itch-scratch cycle. Topical and systemic treatments can help reduce the symptoms of eczema. Low-potency steroid creams may be used, but if lichenification occurs, ointments should be considered. Oral antihistamines are indicated in the evening to control nighttime scratching.(10)

Topical therapy that can be given to patients consists of topical steroids, antibiotics, and keratolytics. Patients with local neurodermatitis should be given strong topical steroids. Corticosteroids have anti-inflammatory, anti-allergic, anti-pruritic, and vasoconstrictor effects. Topical steroid therapy that can be given to these patients is 0.25% desoxymethasone cream which is the treatment of choice to reduce inflammation, pruritus, and keratosis. Desoxymethasone is a potent topical steroid that increases protein synthesis, reduces inflammation, and causes vasoconstriction. For maximum efficacy, use topical corticosteroids two to three times a day for up to two weeks.(11)

The patient received systemic therapy, namely cetirizine, an antihistamine. Cetirizine is a second-generation antihistamine that works by blocking H1 receptors in the dermis. Because histamine is a mediator that causes itching in the skin, antihistamines can relieve symptoms of itching in the skin.(12)

Focal neurodermatitis can be diagnosed based on the lesions, areas of predilection, and underlying etiology and is differentiated from lichen planus, psoriasis, and tinea pedis.

### 3.1. Lichen Planus



**Figure 2.** *Lichen Planus*

Lichen Planus occurs through immunological mechanisms. Cellular immunity is thought to be involved in the spread of the disease. CD4+ and CD8+ T cells are present in lichen planus lesions. Lichen planus begins as red patches that turn into purple papules after a few weeks. The first lesions most often appear on the extremities, especially the lower extremities. The extremities are usually symmetrical and tend to affect the flexor muscles of the wrists, arms, and legs. It also affects the thighs, hips, trunk, and neck. The disease can also affect the mucous membranes of the mouth and genitals of the thighs, lower back, trunk, and neck. It can also affect the oral and genital mucosa.(12)

### 3.2. Psoriasis



**Figure 3.** *Psoriasis*

This disease can affect the skin, nails, mucous membranes, and joints, but not the hair. Until now, there is no comprehensive understanding of the pathogenesis of psoriasis, but the role of autoimmunity and genetics can be the basis for therapeutic principles. Psoriasis can appear in the form of erythematous plaques covered with white scales, which when the scales are removed are accompanied by bloody spots, spread from the tip of the needle to the spots, cover most areas of the body, and are generally symmetrical.(12)

### 3.3. Tinea Pedis



**Figure 4.** *Tinea Pedis*

Tinea pedis is a dermatophytosis disease of the feet, especially between the toes and on the soles of the feet. Another form is called moccasin foot. It occurs all over your feet, from the soles of your feet to the tips and tops of your feet. The most common pathogens are *Trichophyton rubrum* and *Trichophyton interdigitalis*. The dominant dermatophytes vary by geographic location (related to climate characteristics and social factors) and can change over time.(12,13)

The skin appears thickened and scaly. Erythema is usually mild and occurs mainly at the edge of the lesion. Papules and sometimes vesicles may also be seen at the edge of the lesion. In the subacute form, blisters, bullous pustules, and sometimes bullae are seen.(12,13) The prognosis of peripheral neurodermatitis improves depending on the treatment the patient receives. It has also been described in the literature stating that the patient's prognosis is good if itching, mild lichenification, and pigmentation changes can be overcome. Relapses can occur if the patient experiences stress or increased emotional stress. The prognosis depends on the patient's condition. The prognosis is worse if the disease is accompanied by mental disorders or other diseases. Atopic dermatitis can be a persistent and recurrent lesion. Exacerbations can be triggered by a response to emotional stress.(11,13)

## 4. CONCLUSIONS

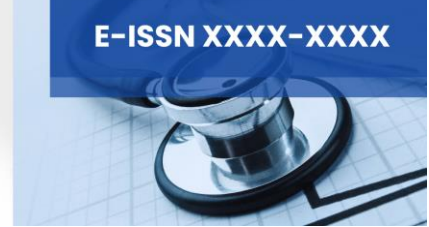
Neurodermatitis circumscripta or lichen simplex chronicus is a chronic inflammatory skin disease characterised by intense itching that triggers repeated scratching cycles. These cycles lead to skin thickening (lichenification), squamous, excoriation and changes in skin pigmentation. The diagnosis is made clinically based on history and dermatological findings. Management aims to break the itch-scratch cycle and manage inflammation through topical and systemic therapies.

Topical therapies that can be given to patients include potent topical steroids, topical antibiotics and keratolytic agents to reduce inflammation, prevent secondary infections and help exfoliate thickened skin. Oral antihistamines are also needed to control pruritus, especially at night. Lichen simplex chronicus generally improves with treatment, but in some cases it may become persistent, especially when the lesions are in the genital area or when precipitating factors such as emotional stress are not addressed. Therefore, a comprehensive treatment approach, including patient education, trigger avoidance, and long-term care is essential to achieve optimal treatment outcomes and prevent recurrence.

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# A RAPID REVIEW OF THE EFFECTIVENESS OF ACCEPTANCE AND COMMITMENT THERAPY (ACT) IN PATIENTS WITH NURSING ISSUES OF SENSORY PERCEPTION DISORDERS: HALLUCINATION

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## Abstract

**Introduction:** a person's sensory perception, without any stimuli in the form of responses from the five senses, is accompanied by signs of behavioral symptoms that do not align with reality. One of the therapies that can be applied to patients with hallucinations is Acceptance and Commitment Therapy (ACT). **Objective:** This study aims to determine the effectiveness of implementing ACT on patients with nursing problems related to sensory perception disturbances: hallucinations. **Method:** Using a rapid literature review. Article searches were conducted on several databases, namely Pubmed, ScienceDirect, Scopus, and EBSCO. For articles, several inclusion criteria were used, such as articles published in the last 10 years and written in English. The articles used are full-text articles and can be accessed for free. After conducting a screening through several stages, 5 articles were obtained that met the criteria and could be used as literature review material. **Results:** From all the articles received, it was shown that there is a significant improvement between the administration of Acceptance and Commitment Therapy (ACT), which can provide reduction/improvement in patients with hallucinations. **Conclusion:** Acceptance and Commitment Therapy (ACT) has a significant effect in reducing hallucination symptoms. Further research is expected to evaluate the long-term impact of Acceptance and Commitment Therapy (ACT) on patients with hallucinations, including the sustainability of psychological flexibility and coping skills.

**Keywords:** Hallucinations, Acceptance and Commitment Therapy, Hallucination Symptoms.

## 1. INTRODUCTION

Mental disorders are changes in mental functions that cause disturbances in mental functions, leading to suffering for individuals and/or obstacles in fulfilling social roles (Lubis et al., 2014). WHO estimates that there were 970 million people worldwide with mental disorders in 2017, with an estimated 1 in 7 people having one or more mental disorders (WHO, 2018) (Ahmalia et al., 2020). The Basic Health Research (Riset Kesehatan Dasar (Riskesdas), 2018) stated that the prevalence of schizophrenia in Indonesia reached 6.7 per 1,000 population, an increase from 2013 which was 1.7 per 1,000 population (Glennasius & Ernawati, 2023). Schizophrenia is a commonly encountered and multifactorial mental disorder, its development is influenced by positive, negative, and cognitive deficit symptoms. Positive and negative symptoms are the two categories of symptoms associated with schizophrenia. Delusions, illusions, and hallucinations are examples of good symptoms; on the other hand, persistent depression, lack of drive, and apathy are examples of negative symptoms. (Bayu & Fatimah, 2023). The causes of mental disorders in an individual can be multifactorial. Still, generally, they are divided into two categories: predisposing factors and precipitating factors, which include biological, psychological, and social aspects. Factors that predispose the occurrence of mental disorders include a history of previous mental disorders, a closed personality type, unpleasant experiences, and lifelong conflicts. Meanwhile, the precipitation factor is often due to excessive stressors with poor coping mechanisms and the condition of drug withdrawal (Rinawati & Alimansur, 2016). According to



Rusdi (1998) in (Lubis et al., 2014), it is stated that there are various types of mental disorders, including organic and symptomatic mental disorders, schizophrenia, schizotypal and delusional disorders, mood disorders, neurotic disorders, somatoform disorders, behavioral syndromes associated with physiological and physical factors, personality and behavioral disorders in adulthood, mental retardation, psychological developmental disorders, and behavioral and emotional disorders with onset in childhood and adolescence. One of the mental disorders with a significant percentage is sensory perception disturbances: hallucinations, which are included in schizophrenia. Hallucinations are defined as a disturbance in a person's sensory perception, in the absence of any stimulus (Nadzifatul Laila Barikfi n.d.). Hallucination is defined as a disturbance in a person's sensory perception in the absence of a stimulus. In another definition, hallucination is a symptom of mental disorders in the form of sensory responses, namely vision, hearing, smell, touch, and taste to non-existent sources (Keliat, 2014). Patients with mental illnesses may experience hallucinations as one of the symptoms of sensory perception abnormalities. Without a genuine stimulus, the patient experiences feelings through sight, hearing, taste, touch, or smell. Keliat (2011) dalam (Sri Laela, 2018). A disturbance in a person's sensory experience without a stimulus is called a hallucination (Oktaviani et al., 2022). The types of hallucinations are categorized according to the five senses, with variations in each client's condition. Hallucinations must be our shared focus of attention because if they are not properly addressed, they can pose a risk to the safety of the patient themselves, others, and the surrounding environment. This is because the auditory hallucinations experienced by patients often contain taunts, threats, and commands to harm themselves or others. One of the therapies used for patients with hallucinations is Acceptance and Commitment Therapy (ACT). Hayes created the behavioral therapy known as ACT in 1986 (Hayes, 1996). By embracing all of the suffering that comes with it, ACT seeks to create a meaningful existence. The decrease in symptoms is regarded as a side effect or result rather than the primary goal. (Elita et al., 2017). Primary in contrast to raising the client's standard of living. By teaching the client to view thoughts and complicated emotions as non-threatening, this therapy transforms the client's connection with these experiences over time. Embracing and paying attention to internal experiences—such as feelings, ideas, and bodily sensations—without passing judgment or attempting to exert control over them. Helping people learn to deal with painful situations and understand emotional experiences without avoiding or defending themselves is the aim (Oktama Wardani et al., 2017). There is no effort made in the implementation of ACT; instead, acceptance strategies and commitment to experiences and associated feelings are taught, rather than any attempt to minimize, alter, avoid, or control personal experiences (Hayes, Bach & Boyd, 2011) in (Irawan, 2016). ACT improves psychological adaptability, which is crucial for people with short lifespans, such as depressed patients. (Tarisa et al., 2024). ACT is a cognitive-behavioral therapy that focuses on changing the patient's relationship with the false voices of hallucinations. This therapy can reduce the impact of schizophrenia symptoms, especially auditory hallucinations, and help patients focus more on meaningful actions. Based on this background, to support the novelty of clinical evidence regarding the effectiveness of Acceptance and Commitment Therapy (ACT) in patients with sensory perception disorders: and hallucinations can be implemented, the researchers conducted a literature review related to this intervention. This study aims to review and synthesize clinical evidence regarding the effectiveness of Acceptance and Commitment Therapy (ACT) in reducing symptoms in patients with sensory perception disorders: hallucinations.

## 2. METHODS AND ANALYSIS JOURNAL

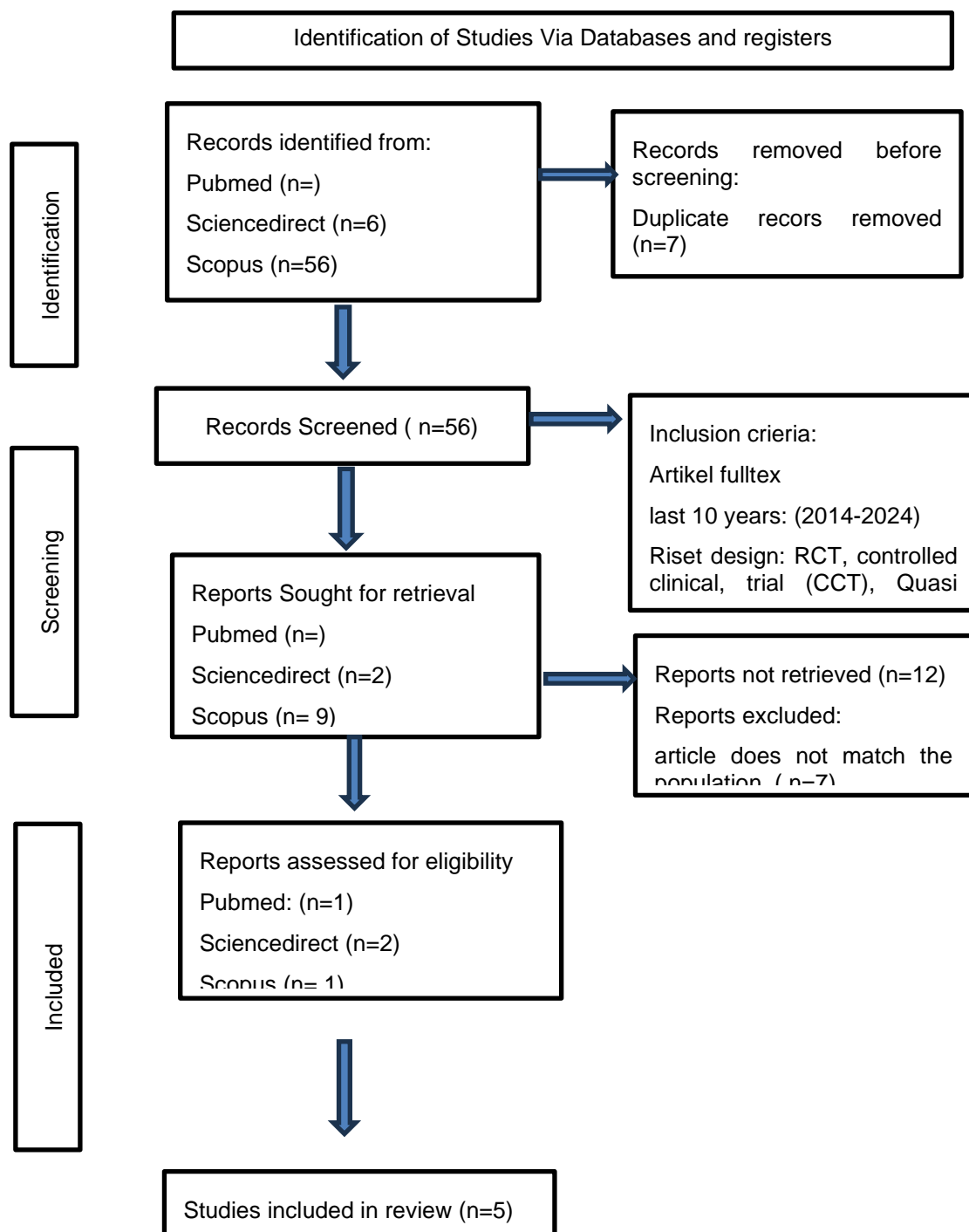
### 2.1. Methods

This article uses the rapid literature review method. Article searches were conducted on several databases, namely Pubmed, Science Direct, Scopus, and Ebsco. Articles, several criteria were used, such as articles published in the last 5 years and written in English. The articles used are full-text articles and can be accessed for free. After going through several filtering stages, 5 articles were obtained that meet the criteria and can be used as literature review materials.

## 2.2. Data Analysis

The collected data were analyzed using qualitative descriptive methods. The analysis process includes the following stages:

1. Searching for journals using the specified keywords and MeSH terms
2. Screening for duplicate articles from the four journals
3. Data Reduction: Selection of journals based on inclusion criteria.
4. Elimination of data that does not align with the research population's objectives
5. Collection of selected articles organized in a table to facilitate the interpretation of findings.



**Figure 1.** Prisma Flow Diagram



### 3. RESULT

The results of the articles obtained from the literature review on 4 databases, namely PubMed, EBSCO Medline, Scopus, and ScienceDirect, found 5 articles that are relevant to the theme and purpose of the EBP writing. The articles obtained from the literature review on 4 databases, namely PubMed, EBSCO Medline, Scopus, and ScienceDirect, found 5 articles that align with the theme and objectives of the EBP writing. The research findings from the 5 articles originated from the countries of Egypt, Australia, England, the United States, the Netherlands, Belgium, and Indonesia. Specifically, 2 articles discuss the effects of ACT on patients with hallucinations, and 3 articles discuss the influence of ACT on patients with psychosis (hallucinations and delusions). Based on the results from all the articles obtained, show that there is a significant improvement in patients with hallucinations through the administration of Acceptance and Commitment Therapy (ACT).

**Table 1.** Journal Extraction

No	Writer Country	Title/ Year	Research Objectives	Population	Data Collection	Research Design	Result
1.	Ayman Mohamed El Ashry, Egypt	Effect Of Applying "Acceptance And Commitment Therapy" On Auditory Hallucinations Among Patients With Sdchizophrenia 2021	To determine the effects of applying acceptance and commitment therapy commitment to auditory hallucinations among patients with schizophrenia.	A random sample of 70 male inpatients with schizophrenia were selected and evenly divided into study and control groups (35 patients in each group).Both groups were matched as closely as possible in terms of socio-demographic and clinical data.	Data was obtained through 2 assessment instruments, including the Psychotic Symptom Rating Scale (PSYRATS-AHs) and Voice Acceptance and Action Scale (VAAS)	This research uses aquasi-experimental research design.	The results of this study found that significant differences were observed between the study and control groups immediately after and after 3 months of ACT on the initial PSYRATS & VAAS scores.After 3 months, significant improvements in auditory hallucinations were found in the study group, as well as a decrease in readmission rates and an increase in medication adherence for the study group. compared to the control group.
2.	Frances Shawyer, John Farhall, Neil Thomas, Steven C Hayes, Robert Gallop, David	Acceptance and commitment therapy for psychosis: randomised controlled trial 2017	Evaluating the effectiveness of therapy Acceptance and Commitment (ACT) for individuals with chronic medication-resistant psychotic symptoms.	This study involve patients living in the community aged 18-65 years diagnosed with schizophrenia or schizoaffective disorder. Participants must	Various instruments were used, namely the Positive and Negative Syndrome Scale (PANSS), the Psychotic Symptom Rating Scale (PSYRATS), and the Social Functioning Scale (SFS) to evaluate symptom and	This research uses a design single-blind randomized controlled trial (RCT) prospective,	This study found that ACT showed an increased effect on reducing hallucinations compared to the control group, but there were no significant effects on overall mental state or delusions.

functional outcomes.			
Copolov, David J Castle Australia	showing hallucinations or delusion that causes stress or significant impairment, with symptoms appearing continuously for at least six months while using therapeutic doses of antipsychotic medication	psikososial	comparing two groups: the ACT intervention group and the control group

3.	Andrew Gumleya, RossWhite, Andy Briggs,Ian Fordd, Sarah Barry, orinna Stewart, Sara Beedie, Jacqueline McTaggart, Caoimhe Clarke, Rachel MacLeod ,Emma Lidstone, Bruno Salgado Riveros, Robin Young, Hamish McLeod Inggris	A parallel group randomised open blinded evaluation of Acceptance and Commitment Therapy for depression after psychosis: Pilot trial outcomes (ADAPT) 2017	To evaluate the initial effectiveness of Acceptance and Commitment Therapy (ACT) in overcoming distress after experiencing psychosis	There are 29 participants who meet the criteria of being over 16 years old, fulfilling the DSM-IV-TR criteria for schizophrenia and major depression, and on antipsychotic medication.Total participants were divided into two groups, namely the intervention group (ACT + Standard Care) consisting of 15 people and the control group (Standard Care) consisting of 14 people	Data collection was conducted using the Calgary Depression Scale for Schizophrenia (CDSS) and Beck Depression Inventory (BDI) to measure the level of depression and Interview based on the Structured Clinical Interview for DSM-IV (SCID-I)	This study uses Randomised Open Blinded Evaluation (PROBE).	The results of this study found that in the CDSS category, there was no significant difference between the two groups (p=0.45).Meanwhile, on the BDI (Beck Depression Inventory) scores of the patients, there was a significant decrease in the intervention group compared to the control group (p=0.18).
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4.	Brandon A Gaudiano, Stacy Ellenberg, Jennifer E Johnson, Kim T Mueser, Ivan W Miller, Amerika Serikat	Effectiveness of Acceptance and Commitment Therapy for Inpatients with Psychosis: Implementation Feasibility and Acceptability from a Pilot Randomized Controlled Trial 2023	The purpose of this study is to explore the feasibility and acceptance of the ACT intervention for psychotic patients, compared to the condition of time and attention-matched supportive therapy (TAM), as well as to evaluate the fidelity of intervention delivery by staff as part of the inpatient setting, the acceptance of study procedures, and patient satisfaction with ACT-IN and TAM	.Population in this study consists of 46 participants who have a DSM-5 diagnosis of schizophrenia spectrum disorders or mood disorders. Participants were recruited from the adult inpatient unit at a large mental health hospital in the northeastern US.	The scale used to collect data in this study includes: 1. Brief Psychiatric Rating Scale (BPRS) - the main scale for measuring psychiatric symptoms. 2. Clinical Outcomes in Routine Evaluation (CORE) - a scale to measure psychological distress. 3. World Health Organization Disability Assessment Schedule-II (WHODAS-II) - scale to measure functional impairment. 4. Quality of Life Scale (QLS) - a scale to measure specific	Pilot Randomized Controlled Trial	The research results show that ACT-IN can be well implemented by hospital staff and accepted by patients. Patients who received ACT-IN reported higher satisfaction levels compared to the group receiving time and attention-matched therapy (TAM). Furthermore, although both groups showed significant improvement in psychiatric symptoms such as hallucinations, functioning, and mindfulness during the 4-month follow-up period, only the ACT-IN group showed improvement in distress. The TAM group had a 3.76 times higher risk of rehospitalization compared to the ACT-IN group during the follow-up period.
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psychosocial  
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 5. Acceptance  
 and Action  
 Questionnaire-  
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 measure  
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 6. Cognitive  
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 Scale-Revised  
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 7. Valuing  
 Questionnaire  
 (VQ) -.  
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 8. Client  
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5.	Yanuar Fahrizal Novy Helena hatarina Daulima Mustikasar Indonesia	Applicatuin of Acceptance Commitment Therapy in Schizoaffectiv e Patients With Hallucinations And Self-Care Deficits 2021	This research aims to describe cases of medication- induced hallucinations and self-care deficits in schizoaffective patients using ACT	The sample consists of one patient with inclusion criteria who experiences schizoaffective disorder with sensory perception disturbances, hallucinations, and deficits in self-care and receiving ACT	The patient received treatment in the form of acceptance and commitment therapy over four sessions.	observatio n al design on one patient	Before ACT therapy: Poor self-perception, inability to focus thoughts, state, floating ideas, feeling constrained/bound, sad, difficulty sleeping, indifferent to the environment, inability to maintain a conversation. After ACT therapy: unable to focus thoughts, state, ideas drifting, indifferent to the environment It seems there is no text provided for translation. Please share the text you'd like me to translate, and I'll be happy to help There is a reduction in hallucination symptoms and self-care deficits after receiving acceptance commitment therapy. Acceptance commitment therapy can reduce the symptoms of sensory perception disturbances, hallucinations, and self-care deficits in schizoaffective patients.
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#### 4. DISCUSSION

Acceptance and Commitment Therapy (ACT) is a mindfulness-based therapeutic approach that focuses on accepting personal experiences without judgment and committing to actions aligned with values that are meaningful to the individual. ACT's objective of encouraging psychological adaptability in each person was accomplished. According to Bennett and Oliver (2019), psychological flexibility is the state in which people are completely aware of the circumstances, alter their behavior, or put up defenses to attain life's values. (Nasution, 2023). Acceptance and Commitment Therapy (ACT) is a mindfulness-based therapeutic approach that focuses on accepting personal experiences without judgment and committing to act by values that are meaningful to the individual. In the context of nursing, ACT has shown effectiveness in handling patients with sensory perception disorders such as hallucinations. These disorders are often rooted in the patient's inability to distinguish between external reality and internal experiences, which can exacerbate psychological distress (Hayes et al., 2012) (Sriandi, n.d.). The application of ACT to patients with hallucinations aims to enhance psychological flexibility, which is the ability to accept internal experiences (such as hallucinations) without becoming emotionally involved or trying to suppress those experiences. Through mindfulness practice, patients are encouraged to recognize that hallucinations are part of their experience without overreacting. This process helps reduce the intensity of negative emotions that often arise due to hallucinations, such as fear or anxiety. Face-to-face (offline) interactions between the client and the therapist might take place in groups or individually in ACT. (Angela & Tondok, 2021). Studies show that ACT can also enhance patients' ability to recognize meaningful life values, thereby encouraging them to engage in activities that support psychological well-being. For example, patients are encouraged to focus on their life goals even while experiencing hallucinations, rather than just trying to eliminate those symptoms. This has a positive impact on the patient's quality of life. The success of ACT in patients with sensory perception disorders also lies in the collaborative and non-confrontational nature of the therapy. This approach avoids stigma towards the experience of hallucinations, thereby helping to create a positive therapeutic relationship between the nurse and the patient. Thus, ACT is not only effective in reducing the negative impact of hallucinations but also strengthens the patient's adaptive coping skills in dealing with the disorder. Overall, the application of ACT in nursing for patients with hallucinations provides a holistic approach, helping patients to accept their experiences, reduce psychological distress, and lead a more meaningful life despite facing sensory perception disturbances (Hayes et al., 2012) in (Sriandi, n.d.) Research results indicate that acceptance and commitment therapy (ACT) can successfully reduce the severity of all aspects of auditory hallucinations in schizophrenia patients, particularly those related to distress associated with the voices. Additionally, ACT is also very promising in changing patients' responses to auditory experiences from engagement with good voices and resistance to bad voices to an attitude of acceptance and independent autonomous actions, which enables schizophrenia patients to better cope with auditory hallucinations. Furthermore, according to other researchers, the improvement reflects the treatment's focus on positive symptoms; however, the lack of changes in process measures indicates that the ACT intervention used did not manipulate the targeted processes beyond friendship. Therapeutic improvements specific to symptoms, better process investigations, as well as attention to cognitive function and dosage, are needed in future research. (Shawyer et al., 2017), The results of this study found that in the CDSS category, there was no significant difference between the two groups ( $p=0.45$ ). The research results show that ACT-IN can be well implemented by hospital staff and accepted by patients. Patients who received ACT-IN reported higher satisfaction levels compared to the group receiving time and attention-matched therapy (TAM). Furthermore, although both groups showed significant improvement in psychiatric symptoms such as hallucinations, functioning, and mindfulness during the 4-month follow-up period, only the ACT-IN group showed improvement in distress. The TAM group had a 3.76 times higher risk of rehospitalization compared to the ACT-IN group during the follow-up period. (Gaudio et al., 2023). ACT is the most efficient way to manage psychotic symptoms to promote positive transformation, improve patient quality of life, boost drug adherence, and lower future medical expenses. (Yoduke et al., 2023). According to the results of other studies, ACT is the most efficient way to manage psychotic symptoms to promote positive transformation, improve patient quality of life, boost drug adherence, and lower future medical expenses. (Sofwan et al., 2024). ACT is the most efficient way to manage psychotic

symptoms to promote positive transformation, improve patient quality of life, boost drug adherence, and lower future medical expenses.(Maulia et al., 2022).

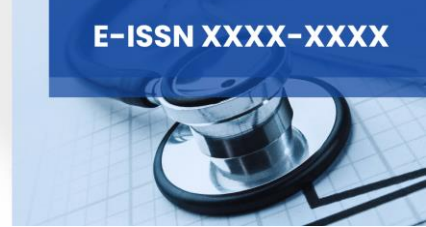
## 5. CONCLUSION

Acceptance and Commitment Therapy (ACT) has a significant effect in reducing hallucination symptoms. Further research is expected to evaluate the long-term impact of Acceptance and Commitment Therapy (ACT) on patients with hallucinations, including the sustainability of psychological flexibility and coping skills.

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## RELATIONSHIP BETWEEN SELF-AWARENESS AND PARENTAL BEHAVIOR IN IMPLEMENTING TOILET TRAINING IN TODDLER-AGE CHILDREN

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### Abstract

The toddler period is a period of intensive environmental exploration because children are trying to find out everything that is happening, a problem that often arises during this period is difficulty controlling urination. Efforts that can be made to overcome this problem include toilet training. One of the factors that influences toilet training is self-awareness. The purpose of this study was to determine the relationship between self-awareness and parental behavior in toilet training toddlers. The method used in this study is quantitative correlation with a cross-sectional approach. The sample used was mothers who had toddlers totaling 164 people, using self-awareness instruments and toilet training behavior that had been tested for validity using the Pearson Product Moment correlation test on 30 respondents with the results of 29 questions containing 24 valid statements and on the behavioral instrument from 11 all questions were declared valid. The reliability test used Alpha Cronbach with the results of self-awareness at 0.909 and maternal behavior at 0.880 ( $r_{\alpha} > r_{\text{table}}$ ). Univariate analysis produces distribution and percentage, bivariate analysis uses the Spearman rank test with independent variables of self-awareness and dependent variables of behavior in toilet training in toddlers. The results showed that most respondents had low self-awareness (51.8%) and low behavior (54.9%). There is a relationship between self-awareness and toilet training behavior ( $p\text{-value} = 0.014$ ). The self-awareness that mothers have can help control emotions and self-perception when toilet training children. It is hoped that health workers can intensively provide education to mothers who have toddlers do toilet training.

Keywords : Self Awareness, Toilet Training, Behavior.

### 1. INTRODUCTION

The toddler period is from 12 to 36 months of age, which is a time of intensive exploration of the environment as the child tries to figure out how everything works. This can be a very challenging time for both parent and child as each learns to know each other better; this is a crucial period for achieving Child development and growth [1]. Various problems that arise during the toddler period are about the function of child growth and development [2]. According to the Ministry of Health 2019, the quality of toddler growth and development in Indonesia needs serious attention in terms of getting good nutrition, adequate stimulation, and accessibility to quality health services, including early detection and intervention of growth and development deviations [3]. Development during the toddler period is a change from the phase of trust and distrust to the phase of autonomy, which is indicated by an increasingly broad attitude of independence [4]. During this period, children can control their body parts, their language skills increase, and they are in the anal phase where children begin to be able to control defecation and urination. The tasks of social and emotional development in toddlers include children showing independence by starting to learn toilet training, which is influenced by the child's physical, mental, and social development [5].



Various problems that arise during the toddler period are about the function of growth and development of children [2]. One of the problems that often arises in toddlers is difficulty in controlling defecation (BAB) and urination (BAK); this can occur until preschool age. According to the National Household Health Survey (SKRT), it is estimated that the number of toddlers who have difficulty controlling defecation and urination in toddler to preschool age reaches 75 million children [6]. Bad habits in controlling defecation and urination will cause bad things in children in the future, can cause children to be undisciplined and spoiled, and most importantly, later on, children will experience psychological problems, feel different, and cannot independently control defecation and urination..

Efforts that can be made to overcome this are toilet training for children, which is an effort to train them to be able to control defecation and urination. Toilet training can generally be carried out on every child who has started to enter the independence phase; this phase is usually in children aged 18-36 months [7]. *Toilet training carried out at an early age will foster independence in children to channel their physiological needs* [8]. The purpose of toilet training is so that children are able to control defecation and urination. Toilet training is also useful in early sex education because by doing toileting, children will learn about their own body functions.

Children who are not taught toilet training will be at risk of experiencing urinary tract infections (UTIs), urinary incontinence, and enuresis (bedwetting) [7]. This can be caused by a lack of knowledge and behavior of mothers about how to train for defecation and urination, the use of disposable diapers (diapers) [9], this is in line with research conducted [10] which states that failure in toilet training is influenced by negative maternal attitudes, not motivated to do toilet training because they assume using diapers is more effective and instant so that mothers do not feel bothered. In addition, research conducted by Lutviah [11] states that there is a relationship between parental behavior and the ability to toilet train in toddlers.

Research conducted by Murhadi, T. [12] shows that there are three dominant factors causing toilet training failure, namely how to teach toilet training, emotional readiness, and parenting patterns. Other factors that can affect children not being able to control their bowel movements and urination or failure in toilet training are influenced by intrinsic and extrinsic factors. Intrinsic factors are drives that come from within a person in the form of knowledge, parenting patterns, and parental attitudes, while extrinsic factors are in the form of facilities and infrastructure and the environment [2]. In addition, toilet training failure is also caused by parents who are not aware of the importance of toilet training, do not have the heart to train their children, or the parents' laziness to train [13].

The impact of parents who do not do toilet training on children will make children become less independent and still carry the habit of bedwetting; children are less sensitive to their surroundings so that children defecate and urinate in random places, which can affect the success of toilet training [14]. Children who do not undergo toilet training can experience various negative impacts, both physical and psychological. Physical impacts include digestive disorders such as constipation, urinary tract infections, and bladder control problems, while psychological impacts can include shame, low self-esteem, and difficulty interacting socially. In addition, delays in toilet training can also cause children to become less independent and have trouble adapting to the environment outside the home [15]. The benefits of toilet training on children are the formation of real independence in children because children are used to doing things like defecating and urinating themselves, a sense of shame will arise in children, and usually children do not want to be considered small children anymore. Children will understand personal hygiene, such as knowing that they are dirty, so they are used to washing their hands and anus after defecating and urinating and maintaining the cleanliness of the toilet. Children can know the parts of the body and their functions.

The concept of toilet training is not widely understood in society; this is because information related to toilet training is not generally introduced in society so that toilet training is considered not very important in the child's development stage [16]. This can also affect the self-awareness of parents or mothers in teaching children about toilet training. In Indonesia, cases of children who still wet the bed up to the age of 6 years reach 12%. This is due to the lack of awareness of parents or adults in teaching toilet training to children at an early age [17]. Toilet training for toddlers is quite difficult, as a child enters a stage of development in fighting doubts. Children who are 2-3 years old want emotional freedom that depends on their parents, children want to be independent in various things physically, but the task cannot be completed without guidance, so



that a phenomenon of caution arises from parents in carrying out their roles because during these times there is often a reaction of rejection from children [18].

Self-awareness is a person's self-awareness that is able to understand, accept, and manage all potentials for future life development [19]. Self-awareness in a person has the aim of knowing one's condition, strengths, and weaknesses so as not to make a mistake in deciding an action. The first step to self-awareness is getting to know yourself, because it is important to understand yourself, which can later form behavior to change [20]. Independence must be trained and developed in children as early as possible so as not to hinder the child's subsequent developmental tasks, the critical period for the development of independence occurs at the age of two to three years (toddler age), at this age the child's developmental task is to develop independence, one of the needs for autonomy is toilet training, if the need to develop independence is not met at the age of around two to three years will result in inhibition of the development of maximum autonomy. To change a person's behavior, good self-awareness is needed to increase parental awareness of the importance of toilet training [21]. To change a person's behavior, good self-awareness is needed to increase parental awareness of the importance of toilet training. The purpose of this study was to determine the relationship between self-awareness and parental behavior in toilet training toddlers.

## 2. METHODOLOGY

Self-awareness is a person's self-awareness that is able to understand, accept, and manage all potentials for future life development [16]. Self-awareness in a person has the aim of knowing one's condition, strengths, and weaknesses so as not to make a mistake in deciding an action. The first step to self-awareness is getting to know yourself, because it is important to understand yourself, which can later form behavior to change [17]. The method in quantitative correlational research is a cross-sectional approach. The population in this study was mothers who had toddler-aged children in one of the villages in Sumedang Regency, totaling 164 people, and the sampling technique was total sampling, this research was conducted in February 2023. The instruments used were self-awareness and toilet training behavior questionnaires. The self-awareness questionnaire was compiled based on aspects described by Daniel Goleman, while the behavior questionnaire used a questionnaire from Sri Fitdiyah Ningsih, which was modified and had been tested for validity and reliability. Validity test using Pearson Product Moment correlation test on 30 respondents with the results of the self-awareness questionnaire from 29 questions: there are 5 invalid statements because the  $r_{\text{count}}$  value  $< r_{\text{table}}$ , namely question number 1 ( $r_{\text{count}} = 0.011 < 0.361$ ), number 7 ( $r_{\text{count}} = 0.109 < 0.361$ ), number 9 ( $r_{\text{count}} = 0.17 < 0.361$ ), number 16 ( $r_{\text{count}} = 0.095 < 0.361$ ), and number 29 ( $r_{\text{count}} = 0.191 < 0.361$ ). In the behavioral questionnaire, there are 11 questions, and all questions are declared valid. Reliability test using Alpha Cronbach with the results of the self-awareness questionnaire 0.909 and the mother's behavior questionnaire 0.880 ( $r_{\text{alpha}} > r_{\text{table}}$ ). The data collection technique in this study was interviews and this study has obtained ethical permission from Padjadjaran University number 16/UN6.KEP/EC/2023. Univariate analysis produces distribution and percentage, and bivariate analysis uses the Spearman rank test with the self-awareness variable, and the dependent variable is parental behavior in toilet training toddlers.

### 3. RESULTS

#### 3.1 Demographic Data

**Table 1.** Frequency Distribution Data of Respondent Characteristics (n=164)

Characteristic	Frequency (f)	Percentage (5)
<b>Age (Years)</b>		
17 – 25	46	28
26 – 35	83	50.6
36 – 45	26	15.9
46 – 55	9	5.5
<b>Education</b>		
No School	1	0.6
SD/MI	58	35.4
SLTP	55	33.5
SLTA	40	24.4
College	10	6.1
<b>Child Age (Month)</b>		
12 – 24	68	41.5
25 – 36	96	58.5
<b>Child's Gender</b>		
Man	80	48.8
Woman	84	51.2

Table 1 shows that most (50.6%) of the respondents are aged between 26-35 years, the most of the respondents' education is elementary / MI (35.4%), most (58.5%) are 25-36 months old, and the majority (51.2%) are girls.

#### 3.2 Overview of Self Awareness and Toilet Training Behavior

**Table 2.** Overview of Self Awareness and Toilet Training Behavior (n=164)

Characteristic	Frequency (f)	Percentage (5)
<b>Self Awareness</b>		
Less	85	51,8
Good	79	48,2
<b>Behaviour</b>		
Less	90	54,9
Good	74	45,1

Table 2 shows that most of the respondents (51.8%) have less self-awareness, and most (54.9%) have less toilet training behavior..

### 3.3 The Relationship of Self Awareness to Toilet Training Behavior (n=164)

**Table 3.** *The Relationship between Self Awareness and Toilet Training Behavior (n=164)*

Self Awareness	Toilet Training Behavior				Total		OR (95% CI)	P value
	Less		Good					
	f	%	f	%	f	%		
Less	46	65,7	24	34,3	70	100	2,825 (1,138- 7,011)	0,041
Good	38	40,4	56	59,6	94	100		
Total	84	51,2	80	48,8	164	100		

Table 3 shows that most (65.7%) of the respondents' self-awareness and toilet training behavior are lacking and there is a relationship between self-awareness and toilet training behavior (p-value 0.041).

## 4. DISCUSSION

The results of the study showed that most respondents had low self-awareness. Self-awareness is the main stage in recognizing oneself and aiming to change; in addition, self-awareness is also a capacity that allows humans to observe themselves and distinguish themselves from others [22]. *Self-awareness is an ability possessed by individuals in terms of analyzing each of their thoughts so that the individual can know the impact of something before the individual does it* [23]. Someone who has good self-awareness will be able to understand the feelings that arise in themselves and understand every form of their behavior and the impact of these feelings and behavior on others, so when mothers have a good level of self-awareness, they can understand and carry out toilet training on toddlers.

Several factors that influence self-awareness, according to Bulechek in Rizal, Z [24] are thoughts, feelings, motivation, knowledge, and environment. The results of the study showed that most self-awareness is low so that mothers feel no need to teach children to go to the bathroom since childhood because it can be learned naturally. Lack of self-awareness of mothers can cause mothers not to believe that toilet training in toddlers will make children accustomed to defecating and urinating in the right place. Self-awareness is also influenced by awareness of emotions and self-perceptions of individuals because individuals who have high self-awareness will be better able to manage emotions and self-perceptions [25]. Mothers who have high self-awareness can manage emotions and perceptions well so that they will be happy to do toilet training in toddlers. Another factor that can influence self-awareness is being aware of one's own abilities and shortcomings so that mothers will be aware of their abilities and shortcomings can help mothers to improve their skills and actions in toilet training in toddlers.

The events caused by the failure of toilet training are that there are still many young children who wet the bed, defecate, and urinate in random places, until the child enters school age, which will hurt the child's development in the future. The impacts caused by the delay in children in carrying out toilet training are that children become stubborn and difficult to control, children become spoiled, not independent, and still carry the habit of wetting the bed until they are adults. If toilet training is not applied to children from an early age, it will be more difficult to direct children when they get older. An independent attitude is one of the early childhood developments that children need to have, so that children are used to doing everything themselves. Without depending on others, but still with a little parental guidance according to their developmental stages and capacities. Children's independent attitudes need to be applied from an early age; if children's independent attitudes are applied after the child grows up, that independence will not be complete. Children prefer to do everything on their initiative rather than being served or ordered by others, but parents often hinder their children's desires and do not encourage children to be independent, so that children become more spoiled and always depend on others. Children need someone who believes in their abilities by providing the best way to learn for children, including toilet training. So, when children are independent, children can easily absorb knowledge around them through independence.[26].

The results of the study showed that most toilet training behavior was lacking. Several factors that influence behavior include age, occupation, education, knowledge, and attitude. Lawrence Green (1991) in Saputra, P. A [27]. Mother's behavior in toilet training toddlers can be influenced by several factors, one of which is the level of education and knowledge. The results of the study showed that most respondents had elementary and junior high school education. Education affects a person's knowledge and behavior so that someone with low education tends to have low knowledge. This is in line with research conducted by Wijayanti, A. R [28] which states that there is a significant relationship between maternal knowledge and behavior, where it can be explained that the higher the knowledge possessed, the better the behavior possessed by the individual; conversely, the lower the knowledge possessed, the worse the behavior possessed by the individual. Behavior is the result of all kinds of experiences and human interactions with their environment, which are manifested in knowledge, attitudes, and actions. Notoatmojo in Lutviyah [11]. Giving instructions in the form of words to children has a fairly large value in providing early stimulation. Efforts to train children in toilet training include providing instructions in the form of words before and after urinating or defecating from an early age [29]. Toilet training can be done by providing the correct example so that it is easily accepted and imitated by children [29].

The results of the study showed that there was a relationship between self-awareness and toilet training behavior. Respondents who have low self-awareness can cause mothers' toilet training behavior to be less good; this is because low self-awareness affects the failure to train children for toilet training. Self-awareness possessed by mothers can help to control emotions because mothers who have high self-awareness will be able to manage emotions and self-perceptions when toilet training their children. This can help mothers to be more patient and empathetic to children who are learning and reduce stress and anxiety that may arise in mothers during the process of teaching toilet training. Toilet training should be taught when children are still small; toilet training with oral techniques and providing examples has a significant value in providing stimulation to defecate. With this technique, the child's psychological preparation will be more mature, and finally the child will be able to defecate well. Respondents who have low self-awareness can cause mothers' behavior in toilet training to be less than good, this is because low self-awareness affects not training of children for toilet training. Self-awareness is a person's self-awareness that understands, accepts, and manages all potential for future life development [30].

## 5. CONCLUSION

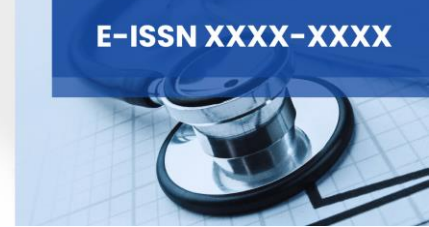
The results of this study indicate that the level of self-awareness in respondents is mostly at a low level, while more than half of respondents have a low level of behavior in toilet training. There is a relationship between self-awareness and the behavior of mothers in toilet training. It is hoped that health workers can intensively provide education to mothers who have toddler-aged children to train toilet training. in children has a significant positive relationship.

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## THE RELATIONSHIP BETWEEN GADGET USE AND SOCIO-EMOTIONAL DEVELOPMENT IN PRESCHOOL CHILDREN

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### Abstract

**Introduction:** Parents of children who use gadgets in Bumi Asri Housing stated that elementary school children are already able to use gadgets. They use the gadgets to operate game applications and entertainment facilities such as watching YouTube, TikTok and others. These children often use their gadgets without parental supervision which results in forgetting the time playing gadgets. Because, they can spend 6-8 hours a day playing gadgets. **Sample Technique:** The technique used to take samples is the simple random sampling technique, the number of samples is 106 respondents at preschool age. **Results:** The results of the study showed that 106 respondents contained 45 (42.5%) respondents use gadgets well. Based on the dependent variable of emotional development from 106 respondents, there are 48 (45.3%) respondents who have normal emotional development. Based on social development, there are 57 (53.8%) respondents who have good social development. In the Spearman rank statistical test, the p-value result is 0.00 (<0.05). **Conclusion:** There is a relationship between gadget use and emotional and social development in preschool children. Further research will examine the influence of maternal independence in maximizing the development of the social sector of preschool children.

Keywords: Gadget Use, Emotional Development, Social Development, Preschool Children.

### 1. INTRODUCTION

School-age children have several characteristics and developmental tasks including gross motor skills, fine motor skills, language, and social skills. Preschool-age children have the characteristics of wanting to play, do group exercises, explore, ask questions, imitate and create something. During this period there is also an emotional transition between parents and school children. There are 5-25 school-age children among them who experience delays in gross motor development, fine motor skills, language and personal social skills which have increased in recent years (WHOI, 2019).

The Emarketer Digital Marketing Research Institute stated that in 2019 the number of active gadget users in Indonesia was more than 100 million people. With that number, Indonesia will become the country with the fourth largest active gadget users in the world after China, India, and America. Of the world's 7.91 billion population, 4.95 billion people or 62.5% have accessed the internet. The number of mobile phone holders reached 5.31 billion people or 67.1% of the population (Fatmah et al, 2022). Indonesia is the country with the most active social media users in Asia. Indonesia has 79.7% active users on social media, beating the Philippines 78%, Malaysia 72%, China 67%. In Indonesia, the use of gadget media in school-age children was 38% in 2011, and increased to 72% in 2013, in 2015 there was an increase of 80% (Smith et al, 2017).

Children use gadgets a lot as a means of playing, 23% of parents who have school-age children admit that their children like to use gadgets. In fact, according to a survey in South Sulawesi, 92% have used cellphones, computers and the internet. The use of gadgets is not only used by adults or the elderly and teenagers. However, school-age children have also been given gadgets as a means of playing. Finally, as many as 33.3% of the majority of preschool children have deviant psychosocial development such as rarely socializing with peers and not wanting to



socialize with their surroundings (Samsul et al, 2021).

Based on the results of a preliminary study conducted by researchers on parents of children who use gadgets in Bumi Asri Housing, it states that preschool children are able to use gadgets. They use these gadgets to operate game applications and entertainment facilities such as watching YouTube, TikTok and others. These children often use their gadgets without parental supervision, which results in forgetting the time to play gadgets (Wang et al, 2020). Because, they can spend 6-8 hours a day playing gadgets. A preliminary study in the housing complex found 10 children, 5 of whom showed that the children had little interaction with people or the environment around them. Furthermore, 3 children showed uncontrolled emotions and were often angry and 2 children showed a lack of enthusiasm for learning because they were playing gadgets. Based on the above phenomenon, the author is interested in conducting research on the relationship between gadget use and emotional and social development at preschool age.

## 2. METHODOLOGY

**Research Design:** Using quantitative research type with cross sectional method, and statistical analysis of spearman rank test. **Sample Technique:** The technique used to take samples is total sampling technique according to inclusion criteria, the number of samples is 106 respondents (Nafaida, 2020). The cross sectional approach is used to find the relationship between independent variables and dependent variables, this research method can be done by means of survey questionnaires or interviews. The place of this research is located in Bumi Asri Housing Kutabumi Tangerang. The emotional development questionnaire uses a modification of the Parenting Styles and Dimensions Questionnaire-Short Form (PSDQ) used in Ririn Prastia Agustin's 2019 study. It has been tested and declared valid  $r$  table 22 and  $r$  count 0.432. The social development questionnaire used in this study was taken from Meta Anindya Aryanti Gunawan's 2017 study, has been tested for validity  $r$  table 30 and  $r$  count 0.361 all statement items are declared valid.

## 3. RESULTS

*Table 1. Frequency Distribution of Respondent Characteristics*

No	Characteristics	Frequency	Percentage (%)
1.	Use of Gadgets		
	Good Use of Gadgets	45	42.5
	Moderate Gadget Usage	30	28.3
	Bad Use of Gadgets	31	29.2
	<b>Total</b>	<b>106</b>	<b>100.0</b>
2.	<b>Emotional Development</b>		
	Normal Emotional Development	48	45.3
	Emotional Development <i>Borderline</i>	34	32.1
	Emotional Development Abnormal	24	22.6
	<b>Total</b>	<b>106</b>	<b>100.0</b>
3.	<b>Social Development</b>		
	Good Social Development	57	53.8
	Lack of Social Development	49	46.2
	<b>Total</b>	<b>106</b>	<b>100.0</b>

Independent variable of gadget usage, the results obtained from 106 respondents were 45 (42.5%) respondents use gadgets well. Based on the dependent variable of emotional development of 106 respondents, there are 48 (45.3%) respondents who have normal emotional development. Based on social development, there are 57 (53.8%) respondents who have good social development.

**Table 2.** *Correlation Coefficient Level*

Coefficient Interval	Relationship Level
0.00 – 0.19	Very Low Correlation
0.20 – 0.39	Low Correlation
0.40 – 0.59	Moderate Correlation
0.60 – 0.79	Strong Correlation
0.80 – 1.00	Very Strong Correlation

**Table 3.** *Analysis of the Relationship between Gadget Use and Emotional and Social Development (n=106)*

Variables	Correlation Coefficient	p-value
Use Gadget	1.00	0.00
Development Emotional	0.94	0.00
Development Social	0.70	0.00

Shows that the use of gadgets with emotional and social development has a p-value = 0.00 (<0.05) which means there is a meaningful relationship between the use of gadgets with emotional and social development. The use of gadgets has a positive relationship with a coefficient value of 1.00 included in the very strong category. Emotional development has a positive relationship with a coefficient value of 0.94 included in the very strong category. Social Development has a positive relationship with a coefficient of 0.70 included in the strong category.

## 4. DISCUSSION

### 4.1. Analysis Based on Gadget Usage

The results of the frequency distribution of data show that good gadget use is more dominant. Because in the environment around children often use gadgets at home and at times determined by parents, parents also control their use, often check children's gadgets, and offer games that encourage children's growth and development. According to education experts (Maulida, 2018). "It is better for children to be introduced to the functions and how to use electronic devices at the age of six. Because a child's brain develops up to 95% of an adult's brain at that age. Because children under the age of six are more likely to play if you introduce gadgets because they are interested in the various visuals (pictures) and sounds that the gadget has (Smith et al, 2017). This study is in line that the use of early childhood technology must be limited in scope and must be accompanied by strict parental supervision. Parents play an important role in helping children grow and develop by accompanying, supervising, and directing in the use of technology (Mukarrohman, 2019). **Preventive Interventions for Internet Addiction in Young Children** This review investigates existing interventions to prevent or reduce internet addiction risks in children under 12 years. It categorizes preventive interventions into children's education, parenting strategies, strategic physical activity, and counseling, with a focus on the efficacy of these approaches in promoting healthy online behaviors (Theopilus, 2024).

### 4.2. Analysis Based on Emotional Development

The results of the study show that emotional development is more dominant than normal emotional development. In this case, because children can still control their own emotions. The results of this study are in line with research on more than half of respondents who have good emotional development because children already understand how to control emotions well and are able to control emotions (Williams, 2020). Preschool children are still learning how to manage

their emotions. Emotional development is related to emotional expression. Such as fear, a feeling experienced by students related to dangerous objects. Shame from fear so that individuals withdraw from the interactions carried out. Worry is related to an unpleasant mental state towards things that are imagined. Anger often occurs and is often done by children. This is because the stimulation of anger in children often occurs. In addition, during childhood, anger can be used as a form of diversion of attention to the surrounding environment. Jealousy is a normal feeling of fear of losing affection. At this time, children will be interested in something and will cause jealousy of losing something. Joy is a form of emotion about something that is liked (Merianti, 2018).

**Effects of Excessive Screen Time on Child Development** This study examines the effects of screen time on various developmental domains and covers management and limitation techniques for children's screen usage. It highlights both beneficial and detrimental effects of screen time, emphasizing the need for parental supervision to mitigate negative impacts (Muppala, 2023). The results of the analysis conducted, it can be concluded that children who have good emotional development will have the opportunity to behave like children who have less emotional development. This is due to the lack of attention from parents.

### 4.3. Analysis Based on Social Development

The results of the research analysis show that good social development is more dominant. Because, some children in the environment use gadgets with the time determined by their parents, the rest of the children play outside with their friends. If used carelessly, technology can have an impact on students' values and morals. However, if used in conjunction with positive social interactions at school between students and their friends, family, and teachers, social interactions can become more balanced and normal. The use of early childhood technology must be limited in scope and under parental supervision. Parents play an important role in helping children grow and develop by accompanying, supervising, and directing the use of technology.

**Longitudinal Associations Between Screen Time and Children's Development** This longitudinal study examines the relationship between screen exposure in early childhood and later language development, educational skills, and peer social functioning. It finds that higher levels of screen exposure are associated with lower levels of vocabulary, communication, writing, numeracy, and letter fluency, as well as higher levels of peer problems (Gath et al, 2024).

### 4.4. The Relationship between Gadget Use and Emotional and Social Development

The results of the analysis conducted by researchers, parents have free time to anticipate by always controlling and supervising their children in using gadgets. So, the impact that will be caused by the gadget can be prevented. Parents are also smarter in choosing applications on their children's gadgets and always accompany their children when using gadgets. This is in line with research that says parents play an active role in observing and controlling children in the very rapid development of technology, without parental supervision will cause several negative impacts such as decreasing interpersonal skills and children rely more on gadgets than their own abilities (Nafaida, 2020). In addition, according to research, it is stated that children with good social emotional development are believed to be able to socialize and adapt well. On the other hand, children with poor social emotional development are certainly unable to socialize with people around them and are even unable to control various emotional problems and also their social problems (Imron, 2018).

This research is in line with the results of the Analysis of Usage *Gadget* on the Social Emotional Development of Children at PAUD Darul Aman, Temanggung Regency This study also discusses the use of gadgets on social emotional development in children. The difference is that this study took the PAUD level and the author took the pre-school level (Oktaviana, 2022). Likewise, in line with the research *The Effect of Gadget Usage on the Social Development of Children Aged 3-5 Years: Literature Review*, this research says that children prefer to play alone with gadgets rather than playing with peers and their environment (D, Setiani, 2020). *Exploring the Perception of Parents on Children's Screen Time* This review consolidates evidence on parents' perceptions of their children's screen time. It identifies varied reasons behind screen time, attitudes toward screen time, and strategies and approaches to managing screen time, highlighting the crucial role parents play in influencing their children's screen time behaviors (Chong et al, 2023).

Based on the results of the analysis conducted, there is a relationship between gadget use and emotional and social development, namely children who have borderline scale emotional development are greater than normal emotional development. This is because children tend to be more selfish, this is because children tend to be egocentric, jealous, easily offended, often disagree, disagree with friends, and do not want to cooperate. Children in their social development are found to use gadgets at times determined by their parents and play with their friends in their surroundings. This is obtained all influenced by family support and parental efforts in developing children's social attitudes with social activities. The family support in question is affection from parents and other family members even though parents are actually busy, but always pay attention to children so that children feel comfortable with their families and can socialize with family members. The more often children use gadgets, the more it will affect their social and emotional sectors, because children are unable to adapt and are unable to control their emotions.

## 5. CONCLUSION

Based on the results of research that has been conducted at preschool age in Bumi Asri Housing. It can be concluded from the frequency distribution that out of 106 respondents who use gadgets, there are 45 respondents in the good category. There are 48 respondents who have normal emotional development. And, 57 respondents have good social development. So, the results of the bivariate analysis using the Spearman rank test show a value of  $p = 0.00$  ( $p < 0.05$ ), this value states that there is a relationship between gadget use and emotional and social development in preschool children.

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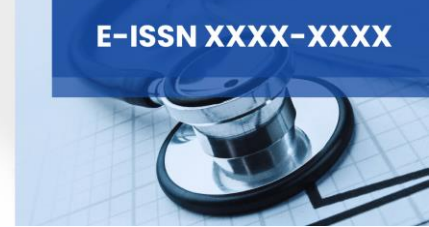
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# THE RELATIONSHIP BETWEEN THE HISTORY OF ANEMIA IN PREGNANCY AND THE INCIDENCE OF STUNTING IN THE WORKING AREA OF THE BONTONYELEN HEALTH CENTER BULUKUMBA DISTRICT

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## Abstract

Stunting is a serious health problem that can hinder optimal growth and development of children. One of the risk factors studied in this study is the history of anemia in pregnancy. The purpose of this study was to determine the relationship between history of anemia in pregnancy and the incidence of stunting in the working area of Puskesmas Bontonyeleng, Bulukumba Regency. This study used an observational analytic design with a cross-sectional approach. The population in this study were all stunted children in the area as many as 175 children, with a sample of 132 mothers who had data on hemoglobin levels during pregnancy. Data were obtained through medical records and Maternal and Child Health (MCH) books. Data were analyzed using the Chi-Square test using a significance level of 0.1. The results showed that as many as 14.4% of mothers had a history of anemia during pregnancy, but there was no significant relationship between the history of pregnancy anemia and the incidence of stunting ( $p > 0.1$ ). This indicates that stunting is not only influenced by maternal anemia during pregnancy, but also by other factors such as Chronic Energy Deficiency (CHD), history of Low Birth Weight (LBW), lack of maternal knowledge about nutrition, and genetic factors. This study suggests the importance of a more comprehensive approach to stunting prevention.

Keywords: Puskesmas Bontonyeleng, Pregnancy Anemia, Risk Factors, Stunting, Under-five.

## 1. INTRODUCTION

Pregnancy anemia and stunting are two different health problems that can be interrelated and affect fetal and child growth. Pregnancy anemia is a condition where pregnant women have hemoglobin (Hb) levels below normal, which is less than 11 g/dL (Geneva, 2011). This condition can occur due to a lack of iron and other essential nutrients in the diet or due to excessive blood loss during labor. Meanwhile, stunting is a condition where a child has a shorter height than the average for their age and sex. Research shows that pregnancy anemia can affect fetal growth and increase the risk of stunting in children who are born. The systematic review included 272 studies and the metaanalysis included 95 studies. Low maternal Hb (130 g/L) was associated with increased odds of SGA, stillbirth, preeclampsia, and gestational diabetes. (Young, 2019)

From the results of the measurement and publication of stunting in Bulukumba Regency in 2023 there were 1,768 children who experienced growth failure (stunting) or 8.14%. While the incidence of stunting in children in the working area of the bontonyeleng puskesmas in 2023 was 211. Based on the data above, it shows that anemia in pregnancy can indirectly cause stunting. In previous research, the chance of stunting was 3.2 times greater in children with a history of anemic mothers during pregnancy (Vitaloka, 2019).

This study can provide important information about risk factors that contribute to stunting, such as malnutrition during pregnancy. By understanding the factors that contribute to stunting, including anemia in pregnancy, it is hoped that it can help doctors and other health workers as well as parents to take appropriate action to prevent and overcome stunting in infants.

## 2. METHODOLOGY

This study used observational methods as the main approach in data collection. The observational method was chosen because it allows researchers to directly observe situations or phenomena that occur in pregnant women in the working area of the Bonto Nyeleng health center without any intervention on the subject under study. Through systematic observation, data is collected based on what actually happens in the field. This approach aims to obtain an objective picture of the incidence of anemia during pregnancy. To ensure the accuracy of the data, researchers used observation instruments in the form of structured observation sheets (field notes) and applied consistent and systematic recording procedures. All observation data were then analyzed to reveal findings relevant to the research focus.

The population determined in this study were all children who experienced stunting in Bulukumba Regency in 2024 as many as 175 children. The sample in this study were 175 stunted children. This research will be conducted at the Ponre health center and Bontonyeleng health center in Bulukumba district.

## 3. RESULTS

This study was conducted in the Working Area of Puskesmas Bontonyeleng Bulukumba Regency regarding the relationship between the history of anemia in pregnancy with the incidence of stunting in the working area of Puskesmas Bontonyelen Bulukumba Regency with a sample size of 175 respondents.

**Table 1.** *Distribution of the number of respondents who experienced stunting by region*

<b>Patients Stunting</b>	<b>N</b>	<b>%</b>
Bontonyeleng	16	9.1%
Taccorong	40	22.9%
Palambarae	21	12.0%
Bukit Tinggi	17	9.7%
Bukit Harapan	9	5.1%
Polewali	50	28.6%
Dampang	22	12.6%
Jumlah	175	100.0%

Source: Primary Data 2024.

Based on table 1 with 175 respondents who experienced stunting in the working area of the Bontonyeleng Health Center which includes 7 villages, namely Bontonyeleng Village with 16 children (9.1%), Taccorong Village 40 children (22.9%), Palambarae Village 21 children (12.0%), Bukit Tinggi Village 17 children (9.7%), Bukit Harapan Village 9 children (5.1%), Polewali Village as many as 50 children (28.6%), and Dampang village as many as 22 children (12.6%) who suffered from stunting.

**Tabel 2.** *Distribution of the number of respondents on the history of anemia during pregnancy*

<b>HB History Pregnant Mother</b>	<b>N</b>	<b>%</b>
Anemia	19	14.4%
Not Anemic	113	85.6%
Total	132	100.0

Source: Primary Data 2024.



Based on table 5.2 with 132 respondents in the work area of the bontonyeleng health center. A total of 19 mothers experienced anemia with a percentage (14.4%), and as many as 113 (85.6%) mothers who did not experience a history of anemia during pregnancy.

#### 4. Discussion

From the results of the research conducted in table 5.2, it shows that the most stunting sufferers are in Polewali village with 50 (28.6%) children who are stunted and Bukit Harapan village is the village with the lowest number of stunting sufferers with 9 children (5.1%), while Bontonyeleng village with 16 children (9.1%), Taccorong village with 40 children (22.9%), Palambarae village with 21 children (12.0%), Bukit Tinggi village with 17 children (9.7%), and Dampang village with 22 children (12.6%) suffering from stunting in the working area of the Bontonyeleng puskesmas.

In addition to the condition of mothers who have a history of anemia during pregnancy, mothers who experience chronic energy deficiency (SEZ) also have the potential for children to experience stunting, this is in line with research entitled The Relationship Between Anemia History and Chronic Energy Deficiency (Kek) of Mothers During Pregnancy With the Incidence of Stunting in Toddlers in the Buaran Health Center Working Area in 2023 with the results of the chi square statistical test obtained a p value = 0.000 on the history of anemia variable, p value = 0.016 on the Chronic Energy Deficiency (SEZ) variable where  $p < (0.05)$ . There is a relationship between the history of anemia and Chronic Energy Deficiency (CHD) of mothers during pregnancy with the incidence of stunting in toddlers in the Buaran Health Center Working Area, Pekalongan Regency (Purwitaningtyas & Paramitha, 2024).

The incidence of stunting can also be due to children having a history of LBW (Low Birth Weight), this is supported by research entitled The Relationship Between Low Birth Weight (LBW) and the Incidence of Stunting in the Dradah Health Center Working Area which states that from the results of bivariate analysis between LBW and cases of stunting in toddlers obtained a p-value of 0.022 ( $p < 0.05$ ). The conclusion in this study is that there is a significant relationship between LBW and cases of stunting in toddlers in the Dradah Health Center work area, Kedungpring District, Lamongan Regency (Sholihah, 2023).

The results showed that there were 132 respondents in the working area of the bontonyeleng health center from 7 villages. A total of 19 mothers had a history of anemia with a percentage (14.4%), and as many as 113 with a presentation (85.6%) of mothers who did not experience a history of anemia during pregnancy. The results of this study are based on data obtained through the cohort book of pregnant women in the pustu of each village under the auspices of the bontonyeleng health center. Of the 175 children who were stunted, only 132 mothers had a history of Hemoglobin checks, this was due to some mothers not doing checks at the pustu or puskesmas, even mothers who were transplants from other areas.

In this study, the history of anemia has no relationship with the incidence of stunting in children because researchers found that mothers who did not have a history of anemia could produce stunted offspring, this was due to other factors such as mothers who had a history of SEZ (Chronic Energy Deficiency) during pregnancy, lack of knowledge about handling stunting during pregnancy, and a history of LBW in children, as well as genetic factors of parents who are fairly short, resulting in children suffering from stunting. This is supported by research conducted by Mantasia and Sumarni, 2021 The results showed that there was no relationship between the history of anemia in pregnancy and the incidence of stunting in toddlers ( $p < 0.45$ ). Based on TB / U measurements, most children have the appropriate (normal) height (with a standard deviation of  $-2$  to  $> 2$  SD), as many as 23 people (71.9%) and 9 people (28.1%) are stunted (with a standard deviation of  $< -2$  to  $< -3$  SD), so there is no relationship between the history of anemia during pregnancy in pregnant women and the incidence of stunting in toddlers at the Galesong Health Center, Takalar Regency (Mantasia & Sumarmi, 2022).

#### 5. CONCLUSIONS

The results of this study indicate that the incidence of stunting in the working area of the Bontonyeleng puskesmas has decreased compared to the previous year, although it has decreased the incidence of stunting is still quite a lot due to a history of anemia in mothers during pregnancy, mothers who experience SEZ and children who have a history of LBW, as well as

migrant mothers who come with stunted children. This study also proves that there is no relationship between the incidence of stunting and the history of mothers who experienced anemia during pregnancy in the Bontonyeleng puskesmas working area.

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## RELATIONSHIP BETWEEN PARENTAL SELF-EFFICACY AND INDEPENDENCE IN SELF-CARE OF CHILDREN WITH AUTISM SPECTRUM DISORDER

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### Abstract

**Introduction:** *Autism spectrum disorder* (ASD) is a condition of persistent deficits in initiating and maintaining social communication, social interaction, behavioral patterns, interests, and sensory activities that are limited and repetitive and atypical or excessive for the individual's age and or socio-cultural environment. One of the limited activities is the ability to care for oneself, or self-care. The family plays an important role in building the ability and independence of ASD children in caring for themselves. However, this is often a challenge for parents and causes a decrease in self-efficacy. Parenting self-efficacy is the perception held by parents regarding their ability to face the role as parents to care for their children well. This study aims to determine the relationship between parental self-efficacy and the level of self-care independence in ASD children. **Methods:** The approach used is quantitative, with the Pearson correlation analysis method. **Results:** Based on the results of the Pearson analysis, there is a close relationship between self-efficacy and the level of self-care independence in ASD children with a sig. *P-Value* of 0.0005. The magnitude of the correlation coefficient in the data is 0.538, the direction of this correlation is positive, which means that the higher the level of parental self-efficacy, the higher the level of self-care independence in ASD children.

**Keywords:** Autism Spectrum Disorder, Independence, Self-efficacy, Self-care.

### 1. INTRODUCTION

Autism, also known as "autism spectrum disorder" (ASD), is defined as a condition of persistent deficits in initiating and maintaining social communication, social interaction, restricted and repetitive patterns of behavior, interests, and sensory activities that are atypical or excessive for the individual's age and/or socio-cultural environment. (Bouzy, et al., 2023). Based on the results of research conducted by Qiu et al in 2020, it was stated that there has been an increase in the prevalence of autism over the last few decades. The results of research conducted by Shrestha et al in 2023 revealed that the prevalence of autism in the Asian continent was recorded at 0.6%, or 6 out of 1000 children had autism.

In general, children with ASD experience complex difficulties in several contexts, such as positioning themselves, relating to others, understanding social situations, speaking, reading, writing, and building their independence, through basic skills such as self-care, because their autonomy tends to be limited (Rimington, 2019). One of the daily activities that requires independence in children with autism is self-care. Self-care, or Self-care according to Dorothea Orem, is the human need for self-care and conditions whose management is carried out



continuously to maintain health and life, as well as cure from diseases and overcome the complications they cause (Hartati et al., 2019).

Self-care skills play an important role in maximizing the independence of children with ASD. Acquisition of self-care skills can improve children's abilities and families' quality of life (Kasabakal, E., Ozpulat, F., Bakir, E., 2021). The family is the largest developmental support microsystem for children with ASD (Chen, Cheng, & Lv, 2022). The family, especially parents, will be the main source of support in caring for children with ASD, because they have high parenting involvement (Leung, Tsang, Huang, & Chan, 2022).

Self-care skills are crucial for enhancing the independence of children with Autism Spectrum Disorder (ASD), significantly impacting their quality of life and that of their families. These skills, which include daily tasks such as dressing, eating, and personal hygiene, are foundational for children to participate in life activities independently. The development of self-care skills not only aids in the child's personal growth but also alleviates stress for parents and caregivers, who often face challenges in managing the needs of children with ASD. The family, particularly parents, play a pivotal role in supporting the development of these skills, acting as the primary support system for children with ASD. This answer will explore the importance of self-care skills, the role of family support, and the challenges faced by families in this context.

The intensity of parental guidance for children with ASD can be influenced by the level of self-efficacy, or more specifically, Parenting self-efficacy (PSE). Parenting self-efficacy is the perception held by parents regarding their ability to face their role as parents to care for their children well (Kurzrok, McBride, & Grossman, 2021). This is the core of the emergence of problems in children's behavior because it can describe the sensitivity and satisfaction of parents regarding their parenting style and behavior (Chen, Yu, Li, Chen, & Ren, 2021). The influence of this self-efficacy can be felt because of a stable emotional state (Chen, Cheng, & Lv, 2022).

Parents with a good level of self-efficacy have a great influence on the child therapy process, because parents with good self-efficacy can believe in their ability to raise children, so they are more likely to be able to survive in the face of challenges, not perceive problems that occur in children as something negative, and consistently apply Parenting skills to children even though they are in a difficult phase (Smart, 2016). This is certainly very helpful in the therapy process, because with the characteristics it has, it can encourage parents to actively participate in every stage of child care and play a good role in choosing the type of therapy that is good for their children (Chen, Cheng, & Lv, 2022).

In the condition of families with ASD children, parents have a high level of self-efficacy. However, in the actual situation, in the case of families with ASD children, there is a risk of low levels of self-efficacy (Smart, 2016). Caring for ASD children is certainly not easy, as can be seen from the difference in the number of challenges faced by parents with ASD children and parents with normal children. Parents with ASD children need to play several roles in raising children, such as caregivers, partners in intervention, and also ensuring that children grow according to their age (Kurzrok, McBride, & Grossman, 2021). The high number of roles that run over a long period of time can trigger stress and reduce self-efficacy (Leung, Tsang, Huang, & Chan, 2022). In addition, the child's attitude during the therapy process, such as rejection, can make parents feel like they have failed to guide their children, affect the low level of self-efficacy of parents of ASD children (Smart, 2016).

Low self-efficacy in parents can certainly interfere with the progress of child therapy. Parents with low levels of self-efficacy usually show negative emotions such as excessive controlling behavior, focusing too much on the child's difficulties, and tend to have difficulty implementing effective parenting behavior (Larasati, Qodariah, & Joeiani, 2021). These negative emotions can have an impact on children because, according to the theory of the family ecosystem, it is a system that directly and in the long term most influences the child's attitude and development (Chen, Yu, Li, Chen, & Ren, 2021). Parents tend to give up easily on their child's condition, where they do not support the progress of therapy, which can ultimately cause more unstable behavioral and emotional problems in autistic children (Chen, Yu, Li, Chen, & Ren, 2021).

The research gap in the study of the relationship between parental self-efficacy and independence in self-care of children with Autism Spectrum Disorder (ASD) is multifaceted. While there is substantial research on parental self-efficacy and its impact on various aspects of parenting children with ASD, the specific link between parental self-efficacy and the child's independence in self-care remains underexplored. This gap is significant because understanding

this relationship could inform interventions that enhance both parental self-efficacy and the child's self-care skills, ultimately improving the quality of life for both the child and the parents.

Based on the above phenomenon, it can be concluded that self-care and self-efficacy are two important components in supporting the survival of children with autism spectrum disorder. The purpose of this study was to analyze the relationship between the level of parental self-efficacy in caring for them with self-care independence in children with autism.

## 2. METHODOLOGY

### 2.1. Study Design and Participants

This research is a quantitative study using a correlational method. Correlational research (relationship) is a research method that aims to find out whether there is a relationship between two or more variables, and how strong the correlation is between the variables studied (Baharuddin, 2018). This research is scheduled to take place from February to October 2024, starting with determining the relevant population. Furthermore, this process is continued with the preparation of research instruments, data collection, data analysis, to the preparation of the final manuscript. For data collection for the validity and reliability test of the instrument, the research was conducted at Rumah Hasanah, located in Cibeunying Kolot, Bandung. In addition, data for correlation analysis were collected from 53 parents at Our Dream Indonesia, located in the South Cigadung area, Bandung.

### 2.2. Instrument Development

The data collection instrument used in the Self-efficacy Parenting Task Index questionnaire (Coleman, P.1998), which has gone through a validity and reliability test process to collect data on the level of parental self-efficacy. The Child Independence Instrument questionnaire is used to measure the independence of children's self-care.

The results of the validity test on the Self Efficacy instrument using the Self Efficacy for Parenting Tasks Index (SEPTI) with validity values in the  $r$  range ranging from 0.347 -0.771 and Cronbach's alpha reliability values ranging from 0.718-0.834. Meanwhile, to test children's independence using the Waisman Activities of Daily Living Scale (W-ADL) instrument which was modified and adjusted to child development with Cronbach's alpha reliability test results ranging from 0.88 to 0.94 and  $r$  validity values ranging from 0.78-0.82.

### 2.3. Data Collection and Analysis

The sampling technique used in this study was total sampling, which was conducted on 53 parents who had children with autism spectrum disorders. The data analysis used is Pearson correlation, which aims to analyze the relationship between parental self-efficacy and the independence of self-care in ASD children.

## 3. RESULTS

**Tabel 1.** Demographic characteristics of parents with children with autism spectrum disorder

Work	Frequency	Percentage (%)	Amount
Pharmacist	1	1.9	1.9
State-owned Enterprises	1	1.9	1.9
Dentist	1	1.9	1.9
Lecturer	3	5.7	5.7
Teacher	4	7.5	7.5
Housewife	6	11.3	11.3
Private sector employee	8	15.1	15.1
Manager	1	1.9	1.9
Foreman	1	1.9	1.9
Businessman	3	5.7	5.7
civil servant	1	1.9	1.9
Therapist	2	3.8	3.8
Self-employed	15	28.3	28.3

Businessman	6	11.3	11.3
<b>Total</b>	<b>53</b>	<b>100</b>	<b>100</b>

**Table 2.** Demographics of the education of parents with children with autism spectrum disorder

Education	Frequency	Percentage (%)	Amount
D3	3	5.7	5.7
D4	1	1.9	1.9
S1	29	54.7	54.7
S2	8	15.1	15.1
SENIOR HIGH SCHOOL	12	22.6	22.6
Total	53	100	100

**Table 3.** Correlative test analysis of parental self-efficacy with the level of children's self-care independence

Self-Efficacy	Self-Efficacy	Independence
Pearson Correlation	1	.538**
Sig. (2-tailed)		.000
N	53	53
Independence	Self-Efficacy	Independence
Pearson Correlation	.538**	1
Sig. (2-tailed)	.000	
N	53	53

Based on the results of data analysis on 53 respondents who have children with ASD in table 1, the results showed that the majority of parents work as self-employed, namely 15 people (28.3%), private employees, namely 8 people (15.1%), entrepreneurs, as many as 6 people (11.3%), and six respondents are housewives (11.3%). Based on Table 2, it was found that almost most of the respondents had a bachelor's degree, namely 29 people (54.7%). In Table 3, the majority of respondents, namely 20 respondents (27.7%) , have two children.

#### 4. DISCUSSION

From the results of the correlation test listed in Table 3, it can be seen that there is a close relationship between self-efficacy and the level of self-care independence in children with autism spectrum disorder, with a sig. Value of 0.000. The magnitude of the correlation coefficient in the data is 0,538, the direction of this correlation is positive, which means that the higher the level of parental self-efficacy, the higher the level of self-care independence in children with ASD.

Parents of children with ASD need to provide additional assistance, especially in terms of self-care, and adopt more sensory modulation strategies to manage their children's daily routines than the group of children without disorders. For toothbrushing activities, children in the ASD group brushed their teeth for a shorter time, showed more frequent difficulties, and parents of children with ASD reported more difficulties with sensory-related oral care variables at home than parents of other children. (Chen, 2020).

Along with the many difficulties faced, parents need better attitude management. Synchronizing parental attitudes with the achievements that children want to achieve is quite important to encourage child development. Synchronization is the foundation of child development in socialization, emotional regulation, behavioral control, self-regulation, and brain maturation. All of these functions not only shape individual adaptation but can also instill independence in children (Chen, 2020).

Parenting self-efficacy is a determinant of parenting behaviors and practices. Parents with high self-efficacy typically avoid coercion and instead rely on inductive reasoning to direct children, communicate expectations, and enforce rules (Trecca, et al., 2022). In this model, parents with high self-efficacy typically adopt a confident attitude in enacting positive parenting behaviors (e.g., inductive reasoning, warmth, autonomy support), which promote adaptive



outcomes (Trecca, et al., 2022), are supportive and responsive, demonstrate acceptance, and are involved in their children's lives (Salo, et al., 2022).

This good self-efficacy attitude can help parents in forming an independent attitude in children with ASD in terms of self-care. In forming an independent attitude in children, parents need to act as guides, motivators, and facilitators for children, this role aims to ensure that their independence is maintained from an early age to adulthood (Pusparini et al., 2022). This certainly requires positive attitudes that are usually possessed by parents with high levels of self-efficacy, such as having a supportive and responsive attitude.

In contrast, parents with low perceived self-efficacy rely less on positive reinforcement and focus more on manipulation.(Trecca, et al., 2022). Parents with low parenting self-efficacy are more susceptible to overly controlling, withdrawn, and passive parenting. When parents begin to show this extreme exhaustion, they may become emotionally detached from their children and show disinterest in parenting themselves (Mikolajczak et al., 2020). This can also reduce motivation to parent, which can affect the child's well-being and the implementation of treatment by the parents. The attitudes shown by parents with low self-efficacy can lead to the failure to form an attitude of independence in children with ASD. Responses from the environment, especially the family, are very necessary for children for every behavior they have done (Barlian, et al., 2023). The formation of a child's independent character depends on the attitudes and behavior of parents in paying attention to the child's growth and development (Barlian, et al., 2023).

## 5. CONCLUSIONS

Based on the results of this study, it can be concluded that there is a relationship between the level of parental self-efficacy and independence in children with autism spectrum disorder in self-care activities. The higher the level of parental self-efficacy, the higher the level of independence of ASD children in self-care. This is related to the attitude reflected by parents towards their children, as well as the support given by parents when helping children in forming their independence.

Higher parental self-efficacy is dependent on greater independence in children, suggesting that parental confidence in parenting abilities positively influences children's ability to perform self-care tasks independently. The importance of parental attitudes and the support provided can foster children's autonomy. Parental self-efficacy is critical to managing the challenges of raising a child with ASD, as it influences how parents interact with and support their children. Programs that provide social support and resources for parents can increase self-efficacy, thereby improving the quality of life of families with children with ASD. Further research directions are related to investigating the role of community involvement and its impact on parental self-efficacy could offer additional strategies for supporting families.

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## ANALYSIS OF PARENTS' KNOWLEDGE REGARDING EARLY MARRIAGE IN KUTAI KARTANEGARA DISTRICT

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### Abstract

According to the United National Children's Fund (UNICEF), the incidence of early marriage has shifted to urban areas, this is marked by an increase in cases of early marriage in urban areas from 2% in 2015 to 37% in 2022. This means that cases of early marriage can occur anywhere and at any time, so parents and the environment must help children marry at the right age. Cases of early marriage are not new in Indonesia. Early marriage is a social problem that occurs among teenagers. The most victims of early marriage are teenage girls. In general, cases of early marriage occur more often in rural areas than urban areas, and often occur in poor families, with low education and school dropouts. The aim of this research is to determine the relationship between parental knowledge and early marriage. This type of quantitative research with a cross-sectional analytical descriptive research design. The population in this research were all young women in Bukit Raya Village, totaling 80 respondents. The sample was 30 respondents. Non-probability sampling method with purposive sampling technique. Data collection techniques use interviews. The data analysis technique uses univariate analysis with frequency distribution. The results of chi-square analysis using SPSS 25 software at an error level of 5%, obtained a p-value of 0.003 (p-value < 0.005). From these results, it can be said that there is a relationship between the level of parental knowledge and approval for early marriage.

**Keywords:** Early Marriage, Knowledge, Parents, Teenagers

### 1. INTRODUCTION

According to the United National Children Fund (UNICEF), the incidence of early marriage has shifted to urban areas, this is marked by an increase in cases of early marriage in urban areas from 2% in 2015 to 37% in 2022 (1). This means that cases of early marriage can occur anywhere and at any time, so parents and the environment must help children marry at the right age. Cases of early marriage are not new in Indonesia. Early marriage is a social problem that occurs among teenagers (1).

Based on data from the East Kalimantan Provincial Government in 2020, data was obtained that in 2019 there were 845 cases of early marriage, while up to the first semester of 2020 it had fallen to 418 cases consisting of 89 men and 329 women, which is stated to have decreased in 2020 when compared to the previous year (2). Based on data from the Tenggara Seberang Class II Religious Court in 2020, data was found on the increase in early marriage among teenagers, in 2019 there were 28, and in 2020 there were 72 and 60% of the causes were pregnancies outside of marriage (2).

Parents' knowledge about the age of marriage plays an important role in breaking the chain of cases of early marriage. For this reason, parents must understand what is a good age for marriage. According to the 2014 Marriage Law, the National Population and Family Planning Agency, which is still used today, sets the appropriate age for marriage for men at 25 years and women at 21 years. Lack of parental understanding about the appropriate age for marriage has led to many cases of early marriage. This occurs not only in Indonesia, but several studies report that this case also occurs in other countries. A preliminary study was carried out in Bukit Raya

Village on January 20 2022, in 2021 the results showed that there were 80 young women who married at an early age from 19 Neighborhood Units (2).

Meanwhile, based on data in January 2022, there were 9 young women who married at an early age. From the background above, the author is interested in research into the impact of early marriage on young women who have dropped out of school. The author found that there are many problems that occur in the Bukit Raya Village area, so the author feels that this should be used as research in the hope that it can be used as a reference for efforts to prevent early marriage in teenage girl.

## 2. METHODOLOGY

The type of research used is quantitative research with a cross-sectional descriptive research design. According to Budiarto (2021), descriptive research with a cross-sectional approach was carried out purely to provide descriptions without conducting in-depth analysis. Cross-sectional is a study in which the independent variables/causal factors/risk factors and dependent variables/result factors/effect factors are collected at the same time. Cross-sectional research is the collection of information from 2 variables carried out simultaneously or simultaneously at one time for each subject and only observed once (Adiputra et al., 2021).

This research was carried out in Bukit Raya Village in January – August 2023. The population used in the research was all 80 young women attending junior high school in Bukit Raya Village. The results of this study show the characteristics of the research sample. The number of teenagers who marry early is 30 people. The technique used to determine the sample in this research is purposive sampling where the researcher has personally selected the sample that will be respondents who meet the researcher's inclusion criteria. The sample that will be studied by researchers is 30 young women. The processing of primary data obtained includes data entry, data processing and statistical data analysis carried out by computerization, namely by using the SPSS program to conduct data analysis with descriptive analysis and inferential analysis, namely Normality Test, Homogeneity Test, Chi Square Test.

## 3. RESULTS

The results of this study show the characteristics of the research sample. The number of teenagers who marry early is 30 people.

**Table 1. Respondent Characteristics**

Characteristics	n	%
<b>Age</b>		
16 years	3	10.0
17 years	6	20.0
18 years	2	6,7
19 years old	19	63.3
<b>Religion</b>		
Islam	26	86.7
Christian	4	13.3
<b>Ethnic group</b>		
Java	4	13.3
Buginese	17	56.7
Kutai	9	30.0
<b>Education</b>		
Didn't finish middle school	30	100.0
<b>Work</b>		
Housewife	21	70.0
Self-employed	9	30.0
<b>Current Marital Status</b>		

Marry		27	90.0
Widow		3	10.0
<b>Causative factor Knowledge</b>			
	(Yes)	8	26.7
	(No)	22	73.3
<b>Reasons for Marriage</b>			
	Marriage by Accident	9	30.0
	Economy	21	70.0
<b>Impact of Early Marriage</b>			
<b>Health</b>			
	Age <19 years have <3 children	18	60.0
	Age 16 years 3/more children	7	23.3
	Age 17 years 3/more children	5	16.6
<b>Social</b>			
	Ostracized by Society	26	86.6
	Divorce	3	10.0
	Domestic Violence	1	3.3
<b>Economy</b>			
	Part time work	16	53.3
	Doesn't Work	14	46.7

Source: Primary Data, 2023.

As many as (10%) of respondents at the age of 16 years already had 3/more than 7 children, while almost half (20%) of respondents at the age of 17 years already had 3/more than 5 children. The social impact of early marriage (10%) of respondents experienced divorce as many as 3 people, while a small percentage (3.3%) of respondents experienced domestic violence in the household as many as 1 person. The economic impact of early marriage shows that 14 respondents (46.7%) of respondents do not work. The economic impact of early marriage shows that all 14 mothers (100.0%) of respondents do not work.

**Table 2.** Value of Parents' Knowledge regarding Early Marriage

Variable	N	Min	Max	Mean	Early Marriage
Value of Parent's Knowledge	30	17.39	95.65	61.44	18.82

Source: Primary Data, 2023.

Table 2 shows the value of parents' level of knowledge regarding early marriage. From the knowledge level data of 30 respondents, the minimum value was 17.39, the maximum value was 95.65, the average was 61.44, and the standard deviation was 18.82.

**Table 3.** Level of Parental Knowledge regarding Early Marriage

Knowledge level	Number	Percentage (%)
Not enough	15	50%
Enough	9	30%
Good	6	20%
<b>Amount</b>	30	100%

Source: Primary Data, 2023

Table 3 shows the level of knowledge of parents regarding early marriage. From the data on the knowledge level of 30 respondents, 15 respondents (50%) had a poor level of knowledge, 9 respondents (30%) had a sufficient level of knowledge, and 6 respondents (20%) had a good level of knowledge.

**Table 4.** Statistical Results of Chi-Square Analysis of Parents' Level of Knowledge Regarding Early Marriage

		Early Marriage				P-Value
		Yes		No		
		n	%	n	%	
Knowledge Level	Not Enough	0	0%	15	100%	0.003
	Enough	3	33.3%	6	66.6%	
	Good	4	66.6%	2	33.3%	
Total		7	23.3%	23	76.6%	

Source: Primary Data, 2023.

Table 4 shows the statistical results of chi-square analysis of parents' level of knowledge regarding early marriage. For the level of insufficient knowledge, 15 respondents (100%) did not agree with early marriage. For a sufficient level of knowledge, 6 respondents (66.6%) did not agree with early marriage and 3 respondents (33.3%) agreed with early marriage. For a good level of knowledge, 4 respondents (66.6%) agreed to early marriage and 2 respondents (33.3%) did not agree to early marriage.

Based on the results of chi-square analysis using SPSS 25 software at an error level of 5%, the p-value was 0.003 (p-value <0.005). From these results, it can be said that H<sub>0</sub> is rejected and H<sub>a</sub> is accepted, which means, there is a relationship between the level of parental knowledge and approval of early marriage.

Based on the data above, it can be seen that the majority (63.3%) of the respondents had 19 high school graduates and almost half (36.7%) had 11 junior high school graduates. It can also be seen from the profile of the development level of bukit raya village where the general education pass results were: kindergarten (2,306 people); elementary school (1,153 people); junior high school (720 people); sma/smu (1,200 people); d1/d3 (41 people); bachelor (127 people); postgraduate (3 people). It can be seen that the education level of the population is still low, which is one of the factors causing early marriage in the village. The results of chi-square analysis using spss 25 software at an error level of 5%, obtained a p- value of 0.003 (p-value <0.005). From these results, there is a relationship between the level of parental knowledge and approval for early marriage. This is in line with nazli halawani pohan's research in 2016 where based on the results of the chi square test it was seen that there was a relationship between education and early marriage in young women with a value of  $p=0.0005$  which means smaller than  $\alpha=0.05$ , as well as a value of odd ratio (or) of 5.78 with primary education has a 5.78 times risk of early marriage compared to young women with secondary education (3).

Of course, this low education can affect the knowledge of young women. Low education will make it difficult for a person to understand the latest information they obtain, especially information related to their reproductive health. Their lack of knowledge regarding reproductive health, especially the impact of early marriage, will influence their decision to marry early. The inability of young women to continue formal education to a higher level is due to economic problems. Therefore, it is hoped that young women who cannot continue their formal education to a higher level (3).

A low level of education or not continuing education to a further level in this case can encourage someone to enter into early marriage. Apart from that, the level of family education can also influence the occurrence of young marriages. Young marriage is also influenced by the level of education of society as a whole. Some communities with low levels of education tend to marry off their children at a young age. Based on research conducted in gejugjati and lekok districts, pasuruan regency, 35% of couples who married underage were influenced by educational factors. It can be concluded that education is one of the factors that causes early marriage, namely adolescent education and parental education (4).

In this case, teenagers who marry early marry because they have dropped out of school, so because they have no work and are busy, this causes them to choose to marry. Apart from that, several teenagers also said that their parents did not provide enough insight into school. This happens a lot, especially if the parents have low education and poor economic conditions. The alternative of marriage is an option for unemployed children who do not work and do not go to school. So the low level of education or knowledge of parents, children and society influences their mindset in understanding and comprehending the meaning of the purpose of marriage (4).



The researcher's assumptions based on the results of interviews with several sources, it can be concluded that the factors of early marriage that occur in bukit raya village include parental factors. Proposed. Moreover, the young man who proposed to her was from among the rich. Parents hope that by marrying their children they can improve their social status in society. The role of parents in preventing early marriage is very necessary because early marriages carried out by children cannot be separated from the level of education of their parents. Most children who marry at an early age are due to the low level of education of their parents, whereas the high level of parental education will influence the child's education level.

This will be able to prevent early age marriages. Parents will not easily match their children because parents will definitely have considerations before agreeing to the marriage. Don't just because they want to increase their social status in society, parents will easily give their children to be married off. All (100%) of these teenagers do not know the impact of early marriage on their health and future. They said they were only following directions from their parents and there were also some who were dating and became pregnant out of wedlock. Knowledge about good reproduction will give more consideration to marriage, including the age of marriage, because they are more aware of the impact of early marriage on reproductive health (5). This can be seen from the large number of respondents who do not know what early marriage is and what the actual impact of marrying at an early age is. The reason for the lack of knowledge among young women is because the majority of young women have secondary education (sma) and their age is still under 20 years (adolescent age), causing their mindset to be immature and mature in receiving the information provided and also making decisions. Apart from that, the role of health workers is still lacking in health promotion activities, especially regarding the issue of early marriage. Health promotion activities in schools and the community are still lacking, resulting in less knowledge among teenagers in particular and society in general, especially about the impact of early marriage (3).

#### 4. CONCLUSIONS

There is a relationship between the level of parental knowledge and approval of early marriage. Factors that influence early marriage are marriage due to a case and economy.

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## DESCRIPTIONS OF COGNITIVE FUNCTION IN ELDERLY PEOPLE IN RESIDENTIAL CARE AT 2023 - 2025

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### Abstract

This longitudinal study examines the cognitive function of elderly residents in a nursing home, Satuan Pelayanan Griya Lansia Garut, over the period of 2023–2025. Utilizing the Mini-Mental State Examination (MMSE), the research assesses cognitive impairment levels among 76 elderly individuals, categorizing them into no impairment, mild, moderate, and severe cognitive impairment. Findings reveal that the majority of residents exhibit mild (38.2%) or moderate (30.3%) cognitive impairment, with only 26.3% showing no impairment. Throughout the study period, a decrease in mild impairment alongside a corresponding increase in moderate impairment was observed, highlighting the impact of aging and limited mental stimulation. Demographic data indicate that most residents are aged 60–74, predominantly male, with low educational attainment and widowed marital status. The results underscore the need for structured non-pharmacological interventions, such as brain exercises and social activities, to mitigate cognitive decline and improve the quality of life for elderly residents. This study provides critical insights for policymakers and caregivers to enhance elderly care services in residential facilities.

Keywords: Cognitive Function, Elderly, Nursing Home, MMSE, Longitudinal Study.

### 1. INTRODUCTION

Elderly individuals, as a population group entering later stages of life, undergo significant physical and psychological changes. According to the World Health Organization (WHO) in 2013, the elderly can be classified into three categories: the elderly (60–74 years), the older elderly (75–90 years), and the very elderly (over 90 years). At this stage, individuals often experience a decline in bodily functions that can affect their ability to perform daily activities independently. This decline in both physical and psychological functions necessitates more intensive care and attention, both from families and professional caregivers.

Cognitive function in elderly people residing in residential care facilities encompasses various mental processes, including memory, attention, language, and problem-solving abilities. As individuals age, these cognitive abilities may decline due to normal aging processes or neurodegenerative conditions like dementia. In residential care settings, healthcare professionals regularly assess and monitor cognitive function to identify changes, provide appropriate interventions, and maintain quality of life. Common cognitive assessments include standardized tests that evaluate orientation, recall, and executive function. Observations of daily activities and social interactions also contribute to understanding an individual's cognitive status. Cognitive decline can manifest as forgetfulness, difficulty with complex tasks, or changes in behavior and mood.

Little is known about changes in cognitive function in the elderly. Senility or dementia in elderly individuals is often perceived as a natural part of aging, which may hinder proactive cognitive care efforts. This assumption certainly has an impact on the management of the prevention of cognitive decline in the elderly. Various studies show that cognitive stimulation, a healthy lifestyle, and conducive environmental support can help slow the decline in cognitive function and improve the overall quality of life of the elderly. Residential care facilities often implement cognitive stimulation programs and personalized care plans to support and potentially improve cognitive function in elderly residents. Nursing homes, such as the Satuan Pelayanan

Griya Lansia Garut, offer various services, including elderly empowerment, social rehabilitation, and basic needs assistance, with the goal of improving the quality of life for the elderly residents.

## 2. METHODOLOGY

This study uses a qualitative descriptive design using document analysis and in-depth interviews to gain a deep understanding of the conditions and dynamics in the within the Satuan Pelayanan Griya Lanjut Usia Garut. The research was conducted using health state documentations report over the period of 2023 to 2025 on 76 of elderly individuals residing in the institution. Data collection utilized the standardized Mini-Mental State Examination (MMSE) instrument to assess cognitive function.

Primary data were obtained from internal documents and records provided by the Satuan Pelayanan Griya Lanjut Usia Garut, which supported the triangulation process to ensure the validity and reliability of the findings. The combination of observational, interview-based, and documentary data enabled a comprehensive understanding necessary for formulating recommendations to improve service quality and enhance resident well-being.

Research activities included direct observation, allowing the researcher to assess the physical environment, daily routines, and interactions among staff and residents. Additionally, semi-structured interviews were conducted with key informants to gather in-depth perspectives on the strengths, weaknesses, and ongoing challenges within the service system. These interviews provided contextual insights into both operational procedures and the lived experiences of the elderly residents.

## 3. RESULTS

### 3.1 Demographic

Based on data collected from internal documents and records during the 2023–2025 study period, the current number of elderly who were involved in this study were 76. An analysis of the elderly population at PPSGL Garut was conducted to identify their distribution based on age, gender, and various demographic characteristics, providing a clearer picture of the residents' backgrounds and care needs. The following is an overview of the characteristics of the elderly in this study.

**Table 1.** *Distribution of Elderly by Age and Gender at PPSGL*

Category	Male (n)	%	Female (n)	%	Total
Young Elderly (60–74 years)	28	73.7	24	63.2	52
Older Elderly (75-90 years)	8	21.05	14	36.8	22
Very Old (>90 years)	2	5.7	0	0	2
<b>Total</b>	<b>38</b>	<b>100</b>	<b>38</b>	<b>100</b>	<b>76</b>

Based on the assessment results from 2024 – 2025, the majority of the nursing home residents fall into the elderly age category of 60–74 years, 110talling 52 individuals, with the majority being male (28 individuals). Meanwhile, 22 residents are classified as older elderly (75–90 years), and 2 residents belong to the very old age group (>90 years).

**Table 2.** *Distributin of Elderly by Demographic Characteristics at PPSGL Garut at PPSGL 2023 – 2025*

Category	Frecuency (f)	Percentage (%)
<b>Last Education</b>		
No Certificate	18	23.68
Elementary School	33	43.42
Junior High School	12	15.79
Senior High School	7	9.21
Higher Education	6	7.89
<b>Religion</b>		
Islam	76	100
<b>Ethnicity</b>		
Sundanese	61	80.26
Javanese	8	10.53
Batak	1	1.32
Others	6	7.89
<b>Marital Status</b>		
Single	15	19.74
Married	11	14.74
Divorced (Alive)	19	25
Widowed	29	38.16
Unassessed	2	2.63

Based on the assessment results from 2023 – 2025, data were obtained regarding demographic characteristics, including highest level of education, religion, occupation, marital status, family status, and insurance ownership. The highest percentages were found among those who completed elementary school (43.42%), identified as Sundanese (80.26%), had widowed marital status (38.16%), and all respondents identified as Muslim (100%).

### 3.2 Cognitive Function of the Elderly

Cognitive function in the elderly is one of the important indicators in assessing their quality of life and independence. Cognitive impairment is often the beginning of significant functional decline. To obtain a comprehensive picture of the cognitive function of the elderly living in nursing homes, measurements were carried out using the MMSE (Mini-Mental State Examination) instrument with score No cognitive impairment (score 25-30), Mild cognitive impairment (21-24), Moderate cognitive impairment (score 10-20) and Severe cognitive impairment (score <10).

**Table 3.** *Distribution of MMSE Scores in the Elderly 2023 - 2025 (n = 76)*

MMSE Score Categories	2023		2024		2025	
	(n)	(%)	(n)	(%)	(n)	(%)
No cognitive impairment	32	42.1	20	26.3	20	26.3
Mild cognitive impairment	24	31.6	29	38.2	25	32.89
Moderate cognitive impairment	8	12.2	23	30.3	27	35.53
Severe cognitive impairment	5	22.9	4	5.3	4	5.3
<b>Total</b>	<b>76</b>	<b>100</b>	<b>76</b>	<b>100</b>	<b>76</b>	<b>100</b>

Based on the results of cognitive function measurements using the MMSE instrument on 76 elderly people both from 2023 – 2025 in nursing homes, the assessment revealed variations in cognitive status among the residents. Most elderly people were in the mild (38.2%) and moderate (30.3%) cognitive impairment categories, while only 26.6% had normal cognitive function, and 5.3% were in severe impairment conditions. The data indicate a decrease in mild cognitive impairment and an increase in moderate cognitive impairment over the course of two year.

#### 4. DISCUSSION

These findings reflect a general tendency that the aging process can have a significant impact on cognitive function decline, especially in individuals who experience limited mental stimulation and social activities. Elderly people who live in nursing homes tend to have limited routines, and if not accompanied by activities that stimulate the brain, cognitive function decline occurs more quickly. Mild cognitive impairment is usually characterized by complaints of mild forgetfulness and slow thinking, but can still carry out daily activities independently. However, in the moderate and severe impairment categories, elderly people begin to experience difficulties in carrying out basic daily activities, such as remembering the names of people closest to them, recognizing time or place, and needing help with dressing and eating.

Factors that can influence these results include education level, general physical condition, presence of comorbidities, and involvement in social activities. Therefore, structured and sustainable non-pharmacological interventions are needed, such as brain gymnastics, memory training, reminiscence therapy, and group activities to slow down the decline in cognitive function and improve the quality of life of the elderly.

Comparison with Other Studies a longitudinal study in China, the results of binary logistic regression analysis revealed that the cognitive function of Chinese parents showed diverse changes: damage (55.09%), unchanged (17.21%) and repair (27.70%). In addition, there are significant demographic differences in gender, age, education, marriage and other aspects when there are changes in cognitive function in parents (Zhang et al., 2019). Demographic analysis from 2023–2025 indicates that the facility primarily serves elderly individuals aged 60–74, with low educational attainment and a high prevalence of widowhood, factors that may further predispose them to cognitive decline. In line with Eshkoo et al. (2015) which revealed that the degree of memory impairment varied among different populations, by possible effects of factors including the average age of respondents, the type of question, gender differences, education level, and depression.

Decline in cognitive function greatly affects the quality of life of the elderly (Manungkalit et al., 2021; Ningrum & Artistin, 2023; Saputri et al., 2020) In line with the research of Aini (2016) where the results of statistical tests found that there was a significant correlation between cognitive function and quality of life in the elderly (60-74 years) in Barusari Village, South Semarang with a p value of 0.000. These findings emphasize the need for targeted interventions to address cognitive decline in institutionalized elderly populations. Nutrition or micronutrient intake is one of the aspects related to the prevention of cognitive function decline in the elderly

(Rahmawati et al., 2012) There is a significant relationship between the intake of vitamin B6, vitamin C and vitamin E and cognitive function.

In addition to nutrition, physical exercise is often recommended for people diagnosed with mild cognitive impairment, mainly because of its widely reported cognitive benefits in older adults. The study's findings suggest exercise can improve neural efficiency during semantic memory retrieval in older adults cognitively intact, and may lead to improved cognitive function (Smith et al., 2013). Non-pharmacological cognitive interventions may be key in preventing or stimulating cognition, including participation in cognitive activities, especially in groups, designed to enhance and maintain social and cognitive activity. Cognitive stimulation includes activities such as orientation, keepsakes, reminders, associations and recreational activities (Gomez-Soria et al., 2020).

Preventing cognitive decline, especially in the elderly in nursing homes, certainly requires readiness not only from the environment but also from nursing home staff or caregivers. This situation limits the ability of other staff members to provide adequate support, resulting in suboptimal care and services for the elderly population. A study comparing the prevalence of cognitive impairment and its symptoms in nursing home (NH) and residential (RH) residents in Poland showed that a high prevalence of CI was found in both facilities, but the severity was different, with statistically significantly higher rates in NH compared to RH (41.2 and 20.5%, respectively) (Kijowska, 2018 #738). However, even with the limited number of service providers for the elderly in the orphanage, according to interview information, the orphanage has made a daily program, one of which is brain gymnastics to prevent cognitive function decline in the elderly.

Research on cognitive function in the elderly has significant implications for public health, caregiving practices, and policy development. Findings from such studies help identify early signs of cognitive decline, enabling timely interventions that can slow the progression of disorders like dementia or Alzheimer's disease. Furthermore, understanding the factors that contribute to cognitive resilience such as physical activity, social engagement, and lifelong learning can inform the development of community-based programs that promote mental well-being among older adults. This research also underscores the importance of routine cognitive screening in geriatric healthcare settings, encouraging a more proactive and preventive approach to aging. Ultimately, insights from cognitive function studies contribute to improving the quality of life for elderly individuals by supporting strategies that maintain independence, enhance memory and attention, and reduce the emotional and financial burden on families and healthcare systems.

## 5. CONCLUSIONS

This 2023-2025 longitudinal study at Satuan Pelayanan Griya Lansia Garut provides insights into cognitive function trends among elderly residents. The findings reveal that the majority of residents exhibited mild (38.2%) to moderate (30.3%) cognitive impairment, with only 26.3% showing no impairment. Notably, the data collected during the 2024–2025 period demonstrate a concerning trend: a decline in mild cognitive impairment and an increase in moderate impairment, emphasizing the progressive nature of cognitive decline in this vulnerable population.

To mitigate these issues, the study strongly recommends the immediate implementation of structured cognitive interventions, such as memory training and social engagement programs, tailored to the needs identified during the 2023–2025 research period. Additionally, policy reforms to improve staffing ratios and caregiver training are essential to enhance the quality of care. These findings serve as a timely call to action for stakeholders to prioritize cognitive health in elderly care facilities, ensuring better outcomes for residents in the years ahead.



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## FACTORS RELATED TO ANXIETY LEVELS IN PREOPERATIVE SECTIO CAESAREA PATIENTS

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### Abstract

In Indonesia, 29.0% experience anxiety and fear when going through labor, the fear felt can be in the form of fear that the baby to be born will be deformed, pain during surgery, fear of surgery failure and bleeding during surgery. The purpose of the study was to determine what factors were related to the level of anxiety in pre-operative caesarean section patients at RSIA Restu Bunda, Bandar Lampung City in 2024. The researcher used an analytical survey design with a cross-sectional approach. The study population was all mothers who had pre-operative caesarean sections. Data collection was carried out on February 19-March 19, 2024 at RSIA Restu Bunda, Bandar Lampung City. The population of pre-operative caesarean section patients, the sampling technique used accidental sampling with a total of 40 respondents. The data analysis method was by univariate and bivariate analysis with the chi-square test. The results of the study showed that there was a relationship between age and anxiety levels (0.005), there was a relationship between parity status and anxiety levels (0.011), there was a relationship between family support and anxiety levels (0.008) and there was a relationship between coping mechanisms and anxiety levels (0.005). It is expected that nurses in dealing with anxiety in pre-operative caesarean section patients can provide health education to patients and families about age at risk, parity status, family support and coping mechanisms.

**Keywords:** Factors, Anxiety, Pre-operative Caesarean Section.

### 1. INTRODUCTION

Caesarean section also known as sectio caesarea (CS) is a surgical procedure that involves making an incision in the mother's abdomen (laparotomy) and uterus (hysterectomy) to deliver the baby. Cesarean section is usually performed when vaginal delivery is not possible because it is dangerous with various medical problems. Delivery by Sectio Caesarea is needed as an effort to save the mother and fetus, although currently the trend of giving birth by cesarean section is increasing from year to year, however, every mother who will face a surgical delivery always feels anxious when facing a cesarean section (Naibaho, 2021). Worldwide, it is estimated that there are 5-15% of cesarean sections. Cesarean section deliveries have continued to increase over the past few years, this phenomenon is increasing especially in developed countries and is starting to spread to developing countries especially in Asia, the increase in caesarean section deliveries in all countries since 2007 to 2008 is 110,000 per birth throughout Asia (Who, Unicef, Unfpa, 2019). In Indonesia, the prevalence of cesarean section in childbirth is 17.6%, the highest in DKI Jakarta (31.3%) and the lowest in Papua (6.7%) (Risksdas, 2018) and data for the Lampung province recorded by the Lampung provincial health office in 2018, the number of cesarean section deliveries in Lampung reached 13.2% of mothers aged 10 to 54 years (Lampung Province Profile, 2022). Data from the Indonesian health demographic survey shows that the maternal mortality rate in Indonesia is still quite high. In Indonesia, the infant mortality rate decreased from 32 per 1,000 live births in 2016 to 27 per 1,000 in 2020 (Ministry of Health of the Republic of Indonesia, 2020). The success rate of maternal and infant delivery has decreased so that the proportion of the incidence of cesarean section deliveries in Indonesia continues to increase both in government and private hospitals (Alwi et al, 2022).

Anxiety can occur at any age, more often in adulthood and more in women. Most anxiety occurs at the age of 21-45 years. Age can affect anxiety in mothers who are going to give birth that ages under 20 years and 30 years will have an impact on feelings of anxiety the younger the age or the older the risk of the labor process (Naibaho, 2021). Age over 30 years is considered a phase to stop pregnancy, because age over 30 years is an age prone to pregnancy and is included in the high-risk pregnancy category. This is because the level of risk of morbidity and mortality in the mother and fetus will increase compared to pregnancy at the age of 20-30 years (Hanifah, 2019). The most common response in preoperative patients is anxiety. This anxiety arises because patients have perceptions of surgical procedures such as death, disability, pain during or after surgery and failure of private surgery (Alwi et al, 2022). In March-April 2020, the number of deliveries by Caesarean section at RSIA Restu Bunda reached 83 people (Widiyawati, 2021). In 2022, an average of 50 patients underwent Caesarean section surgery at RSIA Restu Bunda per month (Rizky, 2023). Surgery is a potential or actual threat to a person's integrity and can subsequently cause physiological and psychological stress reactions (Naibaho, 2021). Anxiety is a clinical symptom experienced by individuals receiving medical care, the healing process will be hampered if anxiety in preoperative patients is not treated immediately. Before surgical intervention is carried out, patients receive initial preparation, during this stage patients and medical personnel carry out various preparatory actions to ensure that there are no obstacles during surgery or recovery, patients who will undergo surgery are likely to experience anxiety, anxiety is characterized by worry, fear and feelings of helplessness (Fatrida & Tanjung, 2023). Anxiety disorders and depressive disorders are the most common types of mental disorders. An estimated 4.4% of the world's population has a depressive disorder and 3.6% have anxiety conditions. Asia Pacific region in 2012, India had 56,675,969 cases, or 4.5% of the population, of depression and anxiety disorders, while the Maldives had 12,739 cases, or 3.7% of the population. Meanwhile, 3.7% of the population or 9,162,886 cases were reported in Indonesia (WHO 2017 in Riskesdas, 2018). In Indonesia, 29.0% experienced anxiety and fear when going to give birth, the fear felt can be in the form of fear that the baby to be born will be deformed, pain during surgery, fear of surgery failure and bleeding during surgery (Widyastuti, 2021).

Everyone who is going to undergo surgery has different levels of anxiety, some experience mild, moderate, severe anxiety or even panic. In pre-operative patients who experience high levels of anxiety or fear, it is a maladaptive reaction that can interfere with physiological processes such as frequent urination or diarrhea, narrowed field of vision, headaches and difficulty concentrating. In addition, several things that also affect the level of anxiety in the process leading up to surgery, including age, level of knowledge, family support, experience, coping mechanisms, and parity status (in mothers giving birth), several of these factors can hinder the surgical process, until the patient's vital signs are in a safe range for action, if the patient experiences increasing physiological problems (Suhadi, Pratiwi, 2020). In a study entitled The relationship between maternal age and anxiety levels in patients undergoing first-time cesarean section surgery, it was concluded that the results of the study showed that there was a relationship between maternal age and anxiety levels in patients undergoing first-time cesarean section surgery, showing a figure of 0.049 ( $p < 0.05$ ) (Alwi, et al (2022). Another study entitled parity status with anxiety levels in mothers pre-cesarean section surgery and concluded that there was a significant relationship between parity status and anxiety in mothers pre-cesarean section surgery. Most mothers who feel anxious are due to having no previous experience, namely childbirth by cesarean section (Susanti, Utama (2022). And based on a study entitled Factors that influence anxiety levels in pre-operative patients, it was concluded that there was an influence of personality type ( $p = 0.027$ ), coping mechanisms ( $p = 0.005$ ) and family support ( $p = 0.016$ ) on the level of anxiety in pre-operative patients (Hartono, Dayat (2020).

This study aims to determine the factors that related to the level of anxiety in pre-operative caesarean section patients at RSIA Restu Bunda, Bandar Lampung City in 2024. The hypothesis in this study is that there is a relationship between age, parity status, family support and coping mechanisms with the level of anxiety in pre-operative caesarean section patients at RSIA Restu Bunda, Bandar Lampung City in 2024.

## 2. METHODOLOGY

This study is a quantitative research type, analytical research design with a cross-sectional approach. This study was conducted in the VK room and maternity care at RSIA Restu Bunda, Bandar Lampung City in 2024. This study was conducted on February 19 - March 19, 2024. The population in this study were pre-operative caesarean section patients with an average number of patients per month of 50 at RSIA Restu Bunda, Bandar Lampung City. This study used a random sampling technique with accidental sampling. The sample in this study was 40 pre-operative caesarean section patients in the VK room and maternity care at RSIA Restu Bunda, Bandar Lampung City. Inclusion criteria: 1) patients who will give birth by caesarean section 2) Patient aged 17 to 50 years 3) Patient with a delivery status or parity status < 4 time. Exclusion criteria: Patients who will have a normal delivery or vaginal birth. The independent variables are age, parity status, family support and coping mechanisms while the dependent variable is the level of anxiety in pre-operative caesarean section patients. The data collection instrument in this study used an age and parity status observation sheet and a family support, coping mechanism and anxiety questionnaire sheet. Data analysis was carried out using the chi-square test, and this research has received ethical clearance from the Tanjungkarang Health Polytechnic, with the ethical clearance number: No.134/KEPK-TJK/II/2024.

## 3. RESULTS

### 3.1 Characteristics of Research Respondents

**Table 1.** Distribution of Frequency Characteristics of Respondents at RSIA Blessing Bunda Bandar Lampung City in 2024

Variable	Frequency	Percentage
Age		
Not at Risk	24	60
At Risk	16	40
Total	40	100
Parity Status		
Primigravida	16	40
Multigravida	24	60
Total	40	100
Family Support		
Positive Support	31	77.5
Negative Support	9	22.5
Total	40	100
Coping Mechanism		
Adaptive	32	80
Maladaptive	8	20
<b>Total</b>	<b>40</b>	<b>100</b>

Based on the results of the study in table 1, it can be seen that the age of the respondents is mostly at risk, namely 24 people (60%), the most parity status is multigravida, namely 24 people (60%), the most family support is positive support, namely 31 people (77.5%) and the most coping mechanism is adaptive, namely 32 people (80%).

**Table 2.** Frequency Distribution Analysis of Anxiety Levels in Pre-Caesarean Section Patients at RSIA Restu Bunda, Bandar Lampung City in 2024

Anxiety Level	Frequency (n)	Percentage (%)
Mild Anxiety	6	15
Moderate Anxiety	20	50
Severe Anxiety	14	35
<b>Total</b>	<b>40</b>	<b>100</b>

Based on the results of the study in table 4.2, it was obtained from 40 respondents that the results of the study were dominated by pre-operative caesarean section patients who experienced anxiety. As many as 6 respondents (15%) experienced mild anxiety, There were 20 respondents (50%) experiencing moderate anxiety and as many as 14 respondents (35%) experiencing severe anxiety.

There are several factors that can influence anxiety in pre-operative caesarean section patients, according to Stuart (2013) are Age, Parity Status, Family Support, Coping Mechanisms, Knowledge and Experience. According to researchers, almost most of the results of the study found that pre-operative caesarean section patients experienced moderate anxiety, the emergence of fear when surgery was to be performed due to several factors, namely age at risk, still very young <20 years and age > 36 years, previous labor status or labor experience is one of the factors causing anxiety due to feeling afraid of surgery, especially in patients who are undergoing caesarean section for the first time, patients who get support from their husbands and families will feel calmer compared to patients who do not get support from their families can cause anxiety due to the burden felt by the patient and patients who feel anxious due to stress will instinctively try to overcome it with various coping techniques.

### 3.2 Relationship between Age and anxiety levels in pre-operative caesarean section patients

**Table 3.** Relationship between Age and anxiety levels in pre-operative caesarean section patients

Age	Anxiety						Total n	p-value	OR (95% CI)
	Mild		Moderate		Severe				
	n	%	n	%	n	%			
Not at Risk	2	8.3	17	12	5	20.8	24	0.005	4.005 (0.307–52.260)
At Risk	4	25	3	18.8	9	56.2	16		
<b>Total</b>	<b>6</b>	<b>15</b>	<b>20</b>	<b>50</b>	<b>14</b>	<b>35</b>	<b>40</b>		

Based on the results of the study, it was obtained from 24 respondents with non-risk age (20-35 years) as many as 2 (8.3%) respondents with mild anxiety, as many as 17 respondents (70.8%) experienced moderate anxiety and 5 (20.8%) respondents experienced severe anxiety. The results obtained from 16 respondents with risk age (<20 and > 36 years), as many as 4 (25%) respondents experienced mild anxiety, as many as 3 respondents (18.8%) experienced moderate anxiety and 9 (56.2%) respondents with severe anxiety. The results of the non-parametric test using the chi-square test obtained a p-value = (0.005) <  $\alpha$  (0.05) so it was concluded that there was a relationship between age and anxiety levels in pre-operative caesarean section patients at RSIA Restu Bunda, Bandar Lampung City in 2024. The results of the analysis obtained an OR value of 4.005. This is in accordance with Stuart's theory, that one of the internal factors that causes anxiety is age. The results of this study are in line with the research conducted by Naibaho (2021) on "Factors that influence maternal anxiety before cesarean section (SC) surgery at Sidikalang Hospital, Dairi Regency from 55 respondents. The p-value of age was 0.003 (p < 0.05) and it was concluded that there was a relationship between maternal age and anxiety levels in patients who would undergo cesarean section surgery.

The results of the study showed that the characteristics of the pre-operative patient age were non-risk age 20-35 years as many as 24 (62.5%) respondents and risk age <20 years and > 36 years as many as 16 (37.5%) respondents. Researchers argue that age is included in the internal factors that influence anxiety and pregnancy. Someone who is younger will be more susceptible



to anxiety disorders than someone who is older, as well as pregnancy at an age that is too young and too old is included in the criteria for high-risk pregnancy where both play a role in increasing morbidity and mortality in the mother and fetus.

### 3.3 Relationship between Parity Status and anxiety levels in pre-operative patients with Sectio Caesarea

**Table 4.** Relationship between Parity Status and anxiety levels in pre-operative patients with Sectio Caesarea

Parity Status	Anxiety						Total n	p-value	OR (95% CI)
	Mild		Moderate		Severe				
	n	%	n	%	n	%			
Primigravida	1	6.2	5	31.2	10	62.5	16	0.011	0.125 (0.011–1.360)
Multigravida	5	20.8	15	62.5	4	16.7	24		
<b>Total</b>	<b>6</b>	<b>15</b>	<b>20</b>	<b>50</b>	<b>14</b>	<b>35</b>	<b>40</b>		

Based on the results of the study, the values obtained from 16 respondents with primigravida parity status (first time delivery), as many as 1 (6.2%) respondents experienced mild anxiety, as many as 5 respondents (31.2%) experienced moderate anxiety and 10 (62.5%) respondents with severe anxiety. The results obtained from 24 respondents with multigravida parity status (delivery > 1 time), as many as 5 (20.8%) respondents experienced mild anxiety, as many as 15 (62.5%) respondents experienced moderate anxiety and 4 (16.7%) respondents experienced severe anxiety. The p-value = (0.011) <  $\alpha$  (0.05) then it is concluded that there is a relationship between parity status and anxiety levels in pre-operative caesarean section patients at RSIA Restu Bunda, Bandar Lampung City in 2024. The results of the analysis obtained an OR value of 0.125 and a 95% CI interval of 0.011-1.360, which means that patients with primigravida parity status have a 0.125 times greater chance of experiencing mild, moderate and severe anxiety compared to patients with multigravida parity status.

The condition of a woman called parity is related to how many children she has given birth to. When mothers experience primiparous pregnancy for the first time, they become increasingly nervous as they approach the third trimester of their pregnancy because they are getting closer to delivery. Anxiety related to pregnancy and fear of childbirth are common for mothers. Mothers who have given birth before are called multigravida, it could be that the fear comes from their previous experiences (Taufik, 2022). Based on the results of the study, the characteristics of the parity status of pre-operative caesarean section patients were Primigravida (first time delivery) as many as 16 (62.5%) respondents and Multigravida (delivery >1 time). The researcher argues that patients who will undergo their first delivery by caesarean section will be more likely to experience anxiety compared to patients who have had more than one delivery experience.

### 3.4 Relationship between Family Support and anxiety levels in pre-operative caesarean section patients

**Table 5.** Relationship between Family Support and anxiety levels in pre-operative caesarean section patients

Family Support	Anxiety						Total	p-value	OR (95% CI)
	Mild		Moderate		Severe				
	n	%	n	%	n	%	n	0.008	6.245 (0.42–92.816)
Positive	5	16.1	19	61.3	7	22.6	31		
Negative	1	11.1	1	11.1	7	77.8	9		
Total	6	15	20	50	14	35	40		



Based on the results of the study, it was found that 31 respondents received family support, 5 (16.1%) respondents experienced mild anxiety, 19 (61.3%) respondents experienced moderate anxiety and 7 (22.6%) respondents experienced severe anxiety. The results obtained from 9 respondents did not receive family support, 1 (11.1%) respondents experienced mild anxiety, 1 (11.1%) respondents experienced moderate anxiety and 7 (77.8%) respondents experienced severe anxiety. The p-value (0.008)  $< \alpha$  (0.05) then it is concluded that there is a relationship between family support and anxiety levels in pre-operative caesarean section patients at RSIA Restu Bunda, Bandar Lampung City in 2024. The results of the analysis obtained an OR value of 6,245 and a 95% CI interval of 0.420-92,816 which means that patients with less family support will have a chance of experiencing mild, moderate, severe anxiety of 6,245 times compared to patients who have good family support.

This study is in line with Simanullang's theory, (2020) that the causes of anxiety in pregnant women include lack of family support, financial adequacy, ability to control pregnancy and information about the terrible birth experience, with family support can be about, motivated and relieve stress. There are four types of family support, emotional support, instrumental support, information support and appreciation support.

Based on the results of the study, the characteristics of family support for pre-operative caesarean section patients were Positive (there is support) as many as 23 (62.5%) respondents and Negative (no support) as many as 17 (37.5%) respondents. Researchers argue that the presence and involvement of the family greatly supports the mental preparation of pre-operative patients

### 3.5 Relationship between Coping Mechanisms and anxiety levels in pre-operative caesarean section patients

**Table 6.** Relationship between Coping Mechanisms and anxiety levels in pre-operative caesarean section patients

Coping Mechanism	Anxiety						Total	p-value	OR (95% CI)
	Mild		Moderate		Severe				
	n	%	n	%	n	%	n		
Adaptive	3	9.4	20	62.5	9	28.1	32	0.005	0.257 (0.146–0.452)
Maladaptive	3	37.5	0	0	5	62.5	8		
<b>Total</b>	<b>6</b>	<b>15</b>	<b>20</b>	<b>50</b>	<b>14</b>	<b>35</b>	<b>40</b>		

Based on the results of the study, the values of 32 respondents who experienced adaptive coping mechanisms were 3 (9.4%) respondents experiencing mild anxiety, 20 (62.5%) respondents experiencing moderate anxiety and 9 (28.1%) respondents experiencing severe anxiety. The results were obtained from 8 respondents with maladaptive coping mechanisms, 3 (37.5%) respondents experiencing mild anxiety and 5 (62.5%) respondents experiencing severe anxiety. The P-value = (0.005)  $< \alpha$  (0.05) so it is concluded that there is a relationship between coping mechanisms and anxiety levels in pre-operative caesarean section patients at RSIA Restu Bunda, Bandar Lampung City in 2024. The results of the analysis obtained an OR value of 0.257 and a 95% CI interval of 0.146-0.452, which means that patients with maladaptive coping mechanisms will have a chance of experiencing mild, moderate and severe anxiety by 0.257 times compared to adaptive coping mechanisms. This study is in line with Sutejo's theory (2022) Coping techniques will be successful if the person using them feels that the technique can help them get through the situation. To form an individual's physical and psychological balance, anxiety disorders must be treated immediately. Two types of coping strategies are used in anxiety disorders, namely problem-solving strategies and self-defense mechanisms.

Based on the results of the study, 32 respondents had adaptive coping mechanisms and 8 respondents had maladaptive coping mechanisms. The researcher argues that coping mechanisms greatly influence the anxiety that occurs in mothers who will undergo a cesarean section.

#### 4. CONCLUSIONS

Based on the results of this study, it can be concluded that: the a relationship with anxiety levels is age, parity status, family support, coping mechanisms. It is recommended that pregnant women prepare for childbirth with the assistance of Health cadres. The results of this research can be continued for community service activities, so that they are more useful.

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# THE EFFECTIVENESS OF AVATAR THERAPY FOR REFRACTORY AUDITORY HALLUCINATIONS TO IMPROVE QUALITY OF LIFE IN PATIENTS WITH SCHIZOPHRENIA: A LITERATURE REVIEW

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## Abstract

Auditory hallucination is one of the positive symptoms of patient with schizophrenia that is often occurred. Apart from pharmacological therapy, these symptoms can be reduced with non-pharmacological treatment such as AVATAR therapy (Audio Visual Assisted Therapy for Refractory Auditory Hallucinations). This study aimed to evaluate the effectiveness of AVATAR therapy for refractory auditory hallucinations to improve quality of life in patients with schizophrenia. Articles were searched through Pubmed, Ebsco, Scopus, and Science Direct databases with keywords: patients with schizophrenia, AVATAR Therapy, quality of life. There were seven selected articles. AVATAR therapy is effective in reducing the frequency, intensity, and distress impact of auditory hallucinations. The study results showed that AVATAR therapy provided significant clinical benefits, including improving patients' quality of life and ability to manage hallucinatory symptoms. Additionally, this therapy is well accepted by patients and shows a high rate of completion of treatment. Overall, AVATAR therapy offers an innovative approach to treating persistent auditory hallucinations, especially in patients who do not respond optimally to conventional treatment. Implementation of this therapy in clinical practice requires further research to optimize its benefits and increase its accessibility.

Keywords: AVATAR therapy, Auditory Hallucination, Patients, Quality of Life, Schizophrenia.

## 1. INTRODUCTION

Hallucinations are perceptions that occur when a person is awake and feels something without any stimulation from the outside world that corresponds to the relevant senses. Hallucinations are perceptions that occur when a person is awake and feels something without any stimulation from the outside world that corresponds to the relevant senses. Although hallucinations can sometimes be experienced by people who do not have mental disorders, hallucinations are often a symptom of mental disorders, such as schizophrenia. Apart from that, hallucinations can also be caused by the use of certain drugs that affect the mind. Even though they seem similar, these hallucinatory experiences can differ in various aspects, either in the way they appear and their impact on the sufferer (Zmigrod et al, 2016).

One of the most common types of hallucinations is auditory hallucinations. The experience of hearing sounds in the absence of appropriate external stimuli constitutes. It is one of the most disturbing symptoms of psychosis and is difficult to treat with medication. Model Cognition explains that the way a person perceives the sounds they hear, like who they are, the voice, how strong it is, what its intentions are, and whether they feel they can control it, really affects how much pressure they feel and how they respond (Calafell et al, 2015). Birchwood et al (2014) stated that it is not just frequency or content sounds that influence a person's emotions or behavior, but also the nature of an individual's relationships with a personified voice. Based on social ranking theory, they found that individuals who feel powerless or inferior in social relationships tend to experience something similar when interacting with sound.

About 70% of people with schizophrenia experience auditory hallucinations. These sound hallucinations often cause high stress and can affect everyday life, with voice content that often contains threats, commands, or harsh comments. Despite optimal drug treatment, these sounds often persist for years (Turner et al, 2020).

In situations like these, innovative therapies such as AVATAR therapy are starting to attract attention as a potential solution. AVATAR therapy is a computer-based intervention that aims to reduce the frequency and severity of sounds. Even though it's not a complex immersive environment, this therapy uses a Virtual Reality (VR) platform to create and present human or non-human identities to patients. It aims to facilitate real-time voice "dialogues" between participants, and representations computerization of their voices, and therapists (Calafell et al, 2015). AVATAR therapy provides new insights into how interactions between patients, therapists, and sound representation can create significant changes in a patient's life. In the future, a deeper understanding of implementation and mechanisms of therapy will be an important step to improve treatment outcomes in patients with persistent auditory hallucinations. This literature review aims to determine the effectiveness of Audio Visual Assisted Therapy Aid for Refractory Auditory Hallucinations (AVATAR Therapy) to improve quality of life in patients with schizophrenia in Patients with Auditory Hallucinations.

## 2. METHODOLOGY

This literature review used a literature review study design. The process of the literature search begins by determining keywords through PICO framework analysis, which has been adapted to the MeSH Term. Literature was searched through various databases, including Pubmed, Ebsco, Scopus, and Science Direct. Inclusion criteria: Randomized Controlled Trial, Clinical Trial, Quasi-Experimental, Case Study Year: 2014-2024, English, Free Full Text.

**Table 1.** PICO (Population, Intervention, Comparison, Output)

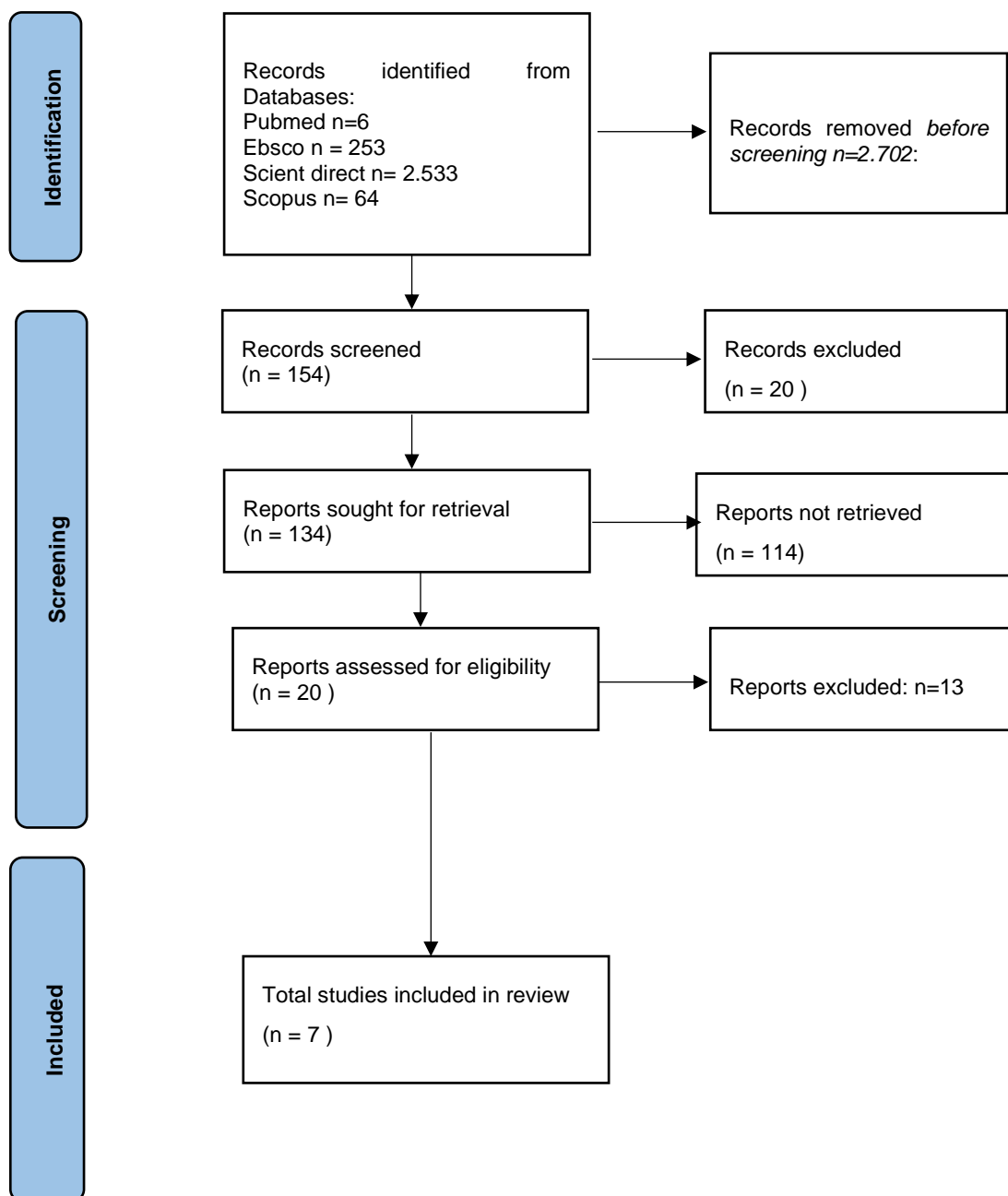
<b>Population</b>	<b>Patients with schizophrenia</b>
<b>Intervention</b>	AVATAR Therapy
<b>Comparison</b>	No
<b>Output</b>	Quality of life

**Table 2.** Key Concept and Mesh Term

	<b>Concept 1</b>	<b>Concept 2</b>	<b>Concept 3</b>
Key Concept	Patients with schizophrenia	AVATAR Therapy	Quality of life
Mesh Term	Patients with schizophrenia Hallucination Hearing hallucination	AVATAR Therapy; Audio Visual Assisted Therapy Aid for Refractory Auditory Hallucinations; Therapy	QoL; Quality of Life;

**Table 2.** The Number of Articles in Each Database

	<b>PubMed</b>	<b>Ebsco</b>	<b>Scopus</b>	<b>Science direct</b>
Concept 1	848	245	756	4.418
Concept 2	20.994	17.453	9.870	6.301
Concept 3	255.372	18.738	224.675	10.729
Concept 4	6	253	64	2.533
Fit with Criteria	2	43	39	70
Selected	2	2	1	2



**Figure 1.** *Prisma Flowchart*

### 3. RESULTS

There were 7 selected articles that fulfilled criteria. The articles showed that AVATAR therapy was not only feasible and acceptable by participants, but also non adverse events. This therapy uses a three-dimensional model (AVATAR) that represents the hallucinatory sounds experienced by the patient. In therapy sessions, patients interact with the avatar, allowing them to confront and control excruciating hallucinatory experiences. AVATAR therapy provides a listener experience voice is brought into therapy in a new way, allowing face-to-face interaction with a digital representation (avatar) whose speech perfectly matches the tone and intonation sounds that disturb the patient or sounds that the sufferer hears with hearing hallucinations. In rapid development, from initial trials to randomized controlled trials, firstly, AVATAR therapy has shown



great clinical benefits for voice listeners (Craig et al., 2018). By utilizing digital technology to create interaction realistic and controlled therapy, this therapy not only helps reduce symptoms but also empowers patients to well manage their hallucinatory experiences. The findings were obtained if participants participated in all series of AVATAR therapy including meeting sessions and participating in a series of activities, there may be a decrease level of hallucinations in patients.

#### 4. DISCUSSION

AVATAR therapy is a therapy that uses three dimensions in a space simulation displayed on a computer. Avatar therapy usually lasts 50 minutes per session given once a week for six weeks. Before starting therapy, the patient together the therapist creates a computerized simulation or avatar of the desired voice they omitted including what the voice said, how it sounded and how it looks. This therapy is effective in reducing the patient's level of hallucinations at once increase the patient's awareness of reality. This is in line with research by Craig, T. K., et

al (2018) shows that there is an effective influence on the use of avatars for reducing the level of verbal hallucinations. The first session was held in week 1, the second session carried out at week 12 and the third session at week 24. There are main results is the reduction in auditory verbal hallucinations at 12 weeks, measured by the total score at Psychotic Auditory Hallucination Symptom Rating Scale (PSYRATS-AH).

Research conducted by Liang, N., et al (2021) used VR (Virtual Reality) showed a decrease in auditory verbal hallucinations in patients with the disorder psychotic. Avatar therapy is showing initial success in helping patients gain control the verbal hallucinations they experience. Patients will take part in virtual realities (VR) activities for 50 minutes, where the patient will communicate with the avatar, he sees based on the voice he makes listen, the therapist will monitor the avatar from a separate room and ensure the patient has a dialogue with avatars according to the hallucinations they hear.

Research conducted by (Craig et al. Trials, 2015) shows preliminary data on this therapy can be an effective tool to reduce the frequency, volume and impact of negative impacts hallucinations heard by the patient. This session consists of seven sessions. Session one is for introductions and sessions two to six for implementation of the avatar intervention. This intervention lasts 45 minutes in each session.

The study "One-Year Randomized Trial Comparing Virtual Reality-Assisted Therapy to Cognitive-Behavioral Therapy for Patients with Treatment-Resistant Schizophrenia" which conducted by Laura Dellazizzo, et al. (2021) which compares VRT and CBT interventions. The results show that both interventions succeeded in providing significant improvements in severity of AVH and depressive symptoms in the short term. However, VRT shows greater superiority over CBT in reducing overall AVH, with a value of Cohen's  $d = 1.080$  for VRT compared to  $d = 0.555$  for CBT. Additionally, VRT also showed a more positive effect on patients' affective symptoms and quality of life. This improvement lasted up to one year, although there was little in the VRT group decreased engagement with sound from month 3 to month 12. This research too revealed that VRT provides a more individualized approach than CBT, in where direct interaction with a personalized avatar allows participants to feel more involved and empowered in facing their hallucinatory voices.

The study entitled "Status and Clinical Experiences from the Challenge Trial – A Randomized Controlled Trial Investigating Virtual Reality-Based Therapy for Auditory Hallucinations" carried out by Ditte Lammers Vernal, et al. (2023) aims to evaluated the effectiveness of Virtual Reality-Based Therapy (VRT) compared to supportive counseling in overcoming auditory verbal hallucinations in patients with disorders spectrum schizophrenia. The intervention group received Virtual Reality-Based Therapy (VRT) consisting of 7 sessions during the first 12 weeks and 2 additional sessions in 12 weeks next. In VRT, the therapist uses VR software to create an avatar resembles the patient's hallucinatory voices, thereby enabling a therapeutic dialogue between the patient and the patient that voice. This approach aims to help patients face, control and reduce the impact of sound experienced. On the other hand, the control group received support counseling, namely standard care usually given to psychotic patients in outpatient clinics road. Preliminary results show that approximately 80% of patients in the intervention group were successful completed 7 therapy sessions, indicating a good level of engagement.

## 5. CONCLUSIONS

Based on the results of the literature review that has been carried out, there are 7 articles with the AVATAR intervention that can be used to reduce the level of hallucinations in patients. The intervention involves a patient, a therapist and AVATAR. The patient will interact with avatars, allowing them to encounter and control experience hallucinations and be monitored by a therapist. The results of the literature review proved that the 7 articles with this intervention can reduce the level of hallucinations in patients with psychosis problems. Therefore, it is recommended that nurses use this intervention to reduce the level of hallucinations in patients.

Suggestions for nursing practice include considering the use of AVATAR therapy as an intervention to reduce the level of hallucinations. But nurses are necessary receive special training before implementing the treatment to be able to understand this method in depth. Further research needs to be done to explore the effectiveness of this therapy in various cultural contexts and service systems different health.

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## THE IMPACT OF HAVING A STUNTING CHILD ON PSYCHOLOGICAL CHANGES OF MOTHERS IN SOOKO VILLAGE, MOJOKERTO

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### Abstract

Stunting in toddlers is a chronic nutritional problem that not only affects the child, but also the psychological condition of the mother as the primary caregiver. The emotional burden borne by the mother due to stunted children can trigger stress, anxiety, and reduce self-efficacy in parenting. The purpose of this study was to analyze the impact of children's stunting status on the psychological condition of mothers, including stress, anxiety, and self-efficacy. This study used a quantitative approach with a descriptive correlational design. The sample consisted of 100 mothers who had stunted children aged 0–5 years in the working area of the Sooko Health Center, Mojokerto Regency, selected through a simple random sampling technique. The instruments used included the DASS-21 questionnaire and the Parental Self-Efficacy Scale. Data analysis was carried out using descriptive statistics and Pearson correlation with the help of SPSS 26. The results showed that the majority of mothers experienced moderate levels of stress and anxiety, and had low parenting self-efficacy. There was a significant relationship between children's stunting status and the mother's psychological condition ( $p < 0.05$ ). Having stunted children has an impact on increasing maternal psychological stress. Handling of stunting should be accompanied by psychosocial interventions to support maternal mental health.

Keywords: Stunting, Mother, Stress, Anxiety, Self-efficacy, Psychological.

### 1. INTRODUCTION

Stunting is a chronic nutritional problem that is still a major challenge in health development in Indonesia. Based on data from the 2022 Indonesian Nutritional Status Survey (SSGI), the national prevalence of stunting is 21.6%, with East Java reaching 23.5%, and Mojokerto Regency being one of the priority areas for intervention (Ministry of Health of the Republic of Indonesia, 2022). Stunting not only has implications for children's physical growth, but also has an impact on cognitive, motoric, and social development aspects, which have the potential to reduce the quality of human resources in the future (UNICEF, 2021).

In the dynamics of child care, mothers play a central role. When a child experiences stunting, mothers are often the ones most emotionally affected. They not only have to face challenges in terms of fulfilling nutritional and child care needs, but also experience quite high psychological burdens, such as feelings of failure, stress, anxiety, and even depression (Lubis et al., 2023). If this condition is not treated, it can have a negative impact on the quality of care provided and worsen the child's growth and development.

Thus, there is a need for empirical studies that specifically explore the impact of having a stunted child on the psychological condition of the mother, so that the interventions designed are not only physical-biomedical in nature, but also touch on the psychosocial dimension of the family as the child's main support system.

Problems arise when mothers are not only faced with economic limitations and nutritional access, but also experience social pressures, such as stigma from the environment, lack of understanding about stunting, and minimal emotional support from partners and the primary health system. This situation is exacerbated by limited parenting literacy and ongoing guilt, thus worsening the mother's stress and anxiety levels (Hapsari & Lestari, 2022). An unstable

psychological condition in mothers can lead to decreased self-efficacy in parenting, which ultimately impacts the quality of child care and strengthens the stunting cycle.

To respond to this challenge, research is needed to explore the relationship between child stunting and psychological changes experienced by mothers. A quantitative approach is used to objectively describe and measure the level of stress, anxiety, and self-efficacy of maternal caregiving. The results of this study are expected to provide a scientific basis for developing family-based psychosocial interventions, which can complement efforts to improve child nutrition. This study is also expected to contribute to the development of more comprehensive and sustainable public health policies.

## **2. METHODOLOGY**

### **2.1. Research Design**

This study uses a quantitative approach with a descriptive correlational design, which aims to determine the relationship between stunting status in children and changes in maternal psychological conditions, including stress, anxiety, and self-efficacy in parenting. This study not only describes the psychological condition of the mother, but also tests the relationship between variables statistically.

### **2.2. Location and Time of Research**

The study was conducted in the working area of the Sooko Health Center, Mojokerto Regency, which is one of the areas with a fairly high stunting rate. The research implementation time starts from November 2024 to January 2025, including the preparation stage, data collection, data analysis, and report preparation.

### **2.3. Population and Sample**

The population in this study were all mothers who had children age 1-59 months with stunting status recorded at the Sooko Health Center, with a population of 135 mothers. The sampling technique used was simple random sampling, using a random number table to select samples randomly. The sample size was determined using the Slovin formula: 101 respondents

### **2.4. Data Collection Technique**

The data collection technique in this study was carried out directly to respondents using a structured questionnaire. This procedure is designed so that the data obtained is accurate, relevant to the research objectives, and easy to analyze quantitatively. The questionnaire consists of four main parts:

- a. Respondent Demographic Data: Contains basic information about the respondent's mother, including: Mother's age, Last level of education, Mother's occupation, Number of children and Age of children who experience stunting.
- b. Stress and Anxiety Scale Using the validated Indonesian version of the DASS-21 (Depression Anxiety Stress Scales-21 item). Focuses on only two subscales: stress and anxiety. Respondents are asked to fill in based on their experiences over the past 7 days.
- c. Parenting Self-Efficacy Scale Using the Parental Sense of Competence Scale (PSOC) efficacy section, to measure how much the mother believes in her ability to care for her child. This scale was originally developed by Gibaud-Wallston and Wandersman (1978) and has been revised by Johnston & Mash (1989). The items in the efficacy scale use a 6-point Likert scale. The higher the score obtained, the higher the level of maternal self-efficacy. The total score of all items is added up to get the final score, then categorized into three levels.
- d. Child Stunting Status Data: This data is not obtained through a questionnaire, but from measurements. Stunting status is determined based on WHO criteria: height for age is less than -2 SD from the WHO child growth standard.

### **2.5. Data Analysis Technique**

The research data analysis was conducted using univariate analysis and bivariate analysis. Univariate analysis is a statistical analysis technique used to describe and summarize the characteristics of each variable one by one (single). The purpose of this analysis is to obtain an overview of the respondent profile and data distribution in each variable studied. Bivariate analysis

is a statistical analysis technique used to test the relationship or association between two variables. In this study, bivariate analysis was used to test whether there was a significant relationship between the child's stunting status and the mother's psychological variables. Before being used as a research instrument, the measuring instrument used was tested for validity and reliability to ensure the feasibility of the research instrument used. Univariate analysis was conducted to describe the characteristics of respondents and psychological scores. Furthermore, to test the relationship between the child's stunting status and the mother's psychological variables (stress, anxiety, and self-efficacy), bivariate analysis was carried out with the Pearson correlation test with a significance level of  $\alpha$  (0.05).

### 3. RESULTS

#### 3.1. Description of the Characteristics of Mothers with Stunted Children in the Sooko Village Area

*Tabel 1. Description of the Characteristics of Mothers with Stunted Children in the Sooko Village Area*

No	Characteristic	Category	Frequency (f)	Percentage (%)
1	<b>Mother's Age</b>	< 25 Years	24	23,8%
		26–35 Years	65	64,4%
		> 35 Years	12	11,8%
2	<b>Last Education</b>	Elementary School	9	8,9%
		Junior High School	25	24,8%
		High School	54	53,5%
		Diploma/Bachelor	13	12,9%
3	<b>Mother's Occupation</b>	Housewife	72	71,3%
		Laborer/Daily Worker	16	15,8%
		Employee/Civil Servant	9	8,9%
		Entrepreneur	4	4,0%
4	<b>Number of Children</b>	1	35	34,7%
		2–3	52	51,5%
		>3	14	13,8%
5	<b>Age of Stunting Children</b>	1 – 12 months	12	11,9%
		13 – 24 months	36	35,6%
		25 – 36 months	29	28,7%
		36 – 59 months	24	23,8%

Source: Primary Data 2024

The majority of respondents were in the age range of 26–35 years, namely 65 people (64.4%), which reflects the productive and general age in childcare. Meanwhile, 24 people (23.8%) were <25 years old, and 12 people (11.8%) were >35 years old. These data indicate that most mothers of stunted children are in the early to middle adulthood age group.

The last level of education of respondents was dominated by high school as many as 54 people (53.5%), followed by junior high school (25 people, 24.8%), and Diploma/Bachelor (13 people, 12.9%). Respondents with the last education of elementary school were only 9 people (8.9%). This shows that most mothers have a secondary education level, and only a small number have higher education.

Most mothers have the status of housewives as many as 72 people (71.3%), indicating that the majority of respondents do not work in the formal sector. Other respondents worked as Laborers/Daily Workers (16 people, 15.8%), Employees/Civil Servants (9 people, 8.9%), and only 4 people (4.0%) were Entrepreneurs.



The majority of respondents had 2–3 children, which was 52 people (51.5%). Respondents with 1 child numbered 35 people (34.7%), while those with more than 3 children numbered 14 people (13.8%). These data indicate that most families have a moderate number of children, which is generally considered ideal in the context of child care and fulfillment of children's needs.

The children with the most stunting were in the 13–24 months age group, which was 36 children (35.6%), followed by 25–36 months (29 children, 28.7%), then 36–59 months (24 children, 23.8%), and the fewest were in the 1–12 months age group (12 children, 11.9%). This indicates that stunting most often occurs in children under two years of age (toddlers), which is a critical period for children's growth and development and is greatly influenced by nutrition and parenting patterns.

### 3.2. Description of Maternal Psychology

**Tabel 2.** Overview of Maternal Stress Levels

Category	Number of Mothers	Percentage
Normal	18	17,8%
Mild	23	22,8%
Moderate	34	33,7%
Severe	20	19,8%
Very Severe	6	5,9%

Source: Primary Data 2024

The data results show that most mothers in this study experienced varying levels of stress. The majority of respondents, namely 34 people (33.7%), were in the moderate stress category

**Tabel 3.** Overview of Maternal Anxiety Level

Category	Number of Mothers	Percentage
Normal	21	20,8%
Mild	27	26,7%
Moderate	31	30,7%
Severe	16	15,8%
Very Severe	6	5,9%

Source: Primary Data 2024

The results of the analysis of the distribution of anxiety levels show that most mothers in this study experienced anxiety with varying intensity. The category most occupied by respondents was moderate anxiety, with 31 people or 30.7% of the total respondents.

**Tabel 4.** Self-Efficacy Overview of Parenting

Self-Efficacy Category	Number of Mothers	Percentage
High	19	18,8%
Medium	42	41,6%
Low	40	39,6%

Source: Primary Data 2024

The data results show that most of the mothers in this study had a level of parenting self-efficacy in the moderate category, namely 42 people or 41.6%.



### 3.3. Correlation Test Results between Child Stunting Status and Mother's Psychological Changes

**Tabel 5.** *Correlation Test Results between Child Stunting Status and Mother's Psychological Changes*

No	Correlated Variables	r Value (Pearson)	Sig. (p-value)	Description
1	Stunting Status and Mother's Stress Level	0,472	0,000	Significant positive correlation
2	Stunting Status and Mother's Anxiety Level	0,396	0,000	Significant positive correlation
3	Stunting Status and Mother's Parenting Self-Efficacy	-0,355	0,001	Significant negative correlation

Source: Primary Data 2024

The results of the Pearson correlation test showed a significant relationship between the child's stunting status and various aspects of psychological changes in the mother, namely stress levels, anxiety levels, and self-efficacy in parenting. The results of the analysis showed a significant positive relationship between having a stunted child and the level of stress in the mother ( $r = 0.547$ ;  $p = 0.000$ ). This shows that the higher the degree of stunting in a child, the higher the level of stress experienced by the mother. These results support the findings of previous studies which show that poor child health conditions, such as stunting, can be a source of chronic stress for mothers because they increase the burden of care, concerns about the child's future, and social pressure.

Stress in mothers who have stunted children is a significant phenomenon and has been documented in various studies. A study by Sari et al. (2022) showed that psychological stress in mothers during pregnancy is associated with an increased risk of developmental delays in infants aged 6 and 12 months. This stress can affect the child's linear growth and increase the risk of stunting. In addition, research by Susanty et al. (2022) in a systematic review found that maternal depression is associated with an increased risk of stunting in children. Depression and stress experienced by mothers can interfere with optimal parenting and nutrition for children, which ultimately affects the child's growth.

A significant positive correlation was also found between stunting and maternal anxiety ( $r = 0.541$ ;  $p = 0.000$ ), indicating that mothers with stunted children tend to experience higher levels of anxiety. This result is in line with Lazarus and Folkman's (1984) theory of stress and coping, which states that the perception of threats to a child's well-being can cause anxiety, especially when caregiving resources are considered inadequate.

Maternal anxiety also plays a role in the incidence of stunting in children. Research by Susanty et al. (2022) showed that maternal anxiety is associated with an increased risk of underweight in children, although the direct relationship with stunting was not significant in multivariate analysis. However, maternal anxiety can affect eating patterns and child care, which can indirectly contribute to the risk of stunting. Anxiety can cause mothers to be less responsive to their children's needs and interfere with positive interactions, which are important for children's growth and development.

On the other hand, there is a significant negative correlation between having a stunted child and parenting self-efficacy ( $r = -0.486$ ;  $p = 0.000$ ). This means that mothers who have stunted children tend to have lower confidence in their ability to carry out their role as effective caregivers. This can be explained by Bandura's (1997) concept of self-efficacy, where experiences of failure or unexpected conditions (such as stunting) can reduce an individual's confidence in their ability to achieve certain goals.

Parenting self-efficacy, namely a mother's belief in her ability to care for and educate her child, is an important factor in child growth. Research by Latifah et al. (2023) in Bogor found that mothers with low parenting self-efficacy tend to have children with stunting status. Low self-efficacy can lead to a lack of stimulation and attention to children's nutritional needs.

In addition, a study by Arini et al. (2022) in Surabaya showed that there is a relationship between maternal self-efficacy and the cognitive development of toddlers who experience stunting. Mothers with high self-efficacy tend to provide better stimulation, which contributes to children's cognitive development.

## **4. CONCLUSIONS**

### **4.1. Conclusion:**

- a. The majority of mothers experience moderate levels of stress and anxiety, and have low to moderate parenting self-efficacy. This indicates that the psychological condition of mothers is under quite high pressure when caring for children with chronic nutritional status.
- b. There is a significant positive relationship between the child's stunting status and the mother's stress and anxiety levels, meaning that the higher the severity of stunting in children, the higher the stress and anxiety felt by the mother.
- c. significant negative relationship was found between the child's stunting status and the mother's parenting self-efficacy, indicating that mothers with stunted children tend to have lower confidence in their ability to carry out their parenting role.
- d. These results empirically strengthen the assumption that stunting not only affects the child's physical condition, but also has serious consequences for the mother's mental and emotional condition as the primary caregiver. Therefore, handling stunting needs to consider the mother's psychosocial dimensions in an integrative manner.

### **4.2. Suggestions**

#### **4.2.1. For Health Services and Local Governments**

Stunting prevention interventions should not only focus on the nutritional and medical aspects of children, but also include psychosocial support programs for mothers, such as counseling, peer support groups, or self-efficacy-based parenting training. Health centers can integrate maternal mental health screening into routine integrated health post programs or toddler services.

#### **4.2.2. For Further Researchers**

Further research can develop a longitudinal design to see changes in maternal psychology continuously, as well as explore mediating factors such as social support or economic burden. It is recommended to examine the role of fathers or other family members in supporting maternal psychology and caring for stunted children. Research can also expand the study area to other areas with high stunting prevalence for comparison of different cultural and social contexts.

#### **4.2.3. For the Community**

It is important to increase public literacy about stunting and the important role of mothers in care, so that there is no stigma or additional social pressure on mothers who have children with this condition.

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## FACTORS ASSOCIATED WITH SUICIDAL BEHAVIOR IN PRISONERS: A SCOPING REVIEW

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### Abstract

Suicidal behavior and self-harm in the prison environment are serious public health problems because they often result in death or serious injury requiring intensive medical intervention. The high incidence of this behavior among prisoners is influenced by various complex and interrelated factors. This research aims to determine the factors associated with suicidal behavior in prisoners. Method: The method used was a scoping review. Search articles using PubMed, ScienceDirect, Scopus, EBSCO, and Google Scholar with the keywords "Association factors" AND "Suicidal Behavior" OR "Self-harm" OR "Suicidal ideation" OR "Self-mutilation" OR "Suicide attempts" AND "Prisoners" OR "Convicts" OR "Incarcerated individuals" OR "Inmates". The inclusion criteria used are articles with a publication year range of 2014-2024, articles in Indonesian and English, articles with quantitative research, and articles that can be accessed in full text. After selection, 10 articles were obtained that met the inclusion criteria. Factors associated with suicidal behavior in prisoners are gender, education level, marital status, mental disorders, family history of mental disorders, stigma and social support, family history of suicide, length of detention and history of previous detention, and history of drug use. Based on several findings, it is recommended that further research focus on interventions to reduce the prevalence and risk factors for suicidal ideation and attempts in prisoners.

Keywords: Factors Associated, Prisoners, Suicidal Behavior.

### 1. INTRODUCTION

Mental health issues among prisoners have become a global concern in recent decades. Research indicates that the prevalence and incidence of suicidal behavior and self-harm among prisoners are significantly higher than in the general population<sup>[1-3]</sup>. A study conducted across 24 European countries revealed that suicide rates among prisoners ranged from three to eight times higher in men and ten times higher in women compared to the general population. Many countries reported prisoner suicide rates of 100 per 100,000. Additionally, the annual prevalence of self-harm in prison is estimated to be around 5-6% in adult male prisoners and 20-24% in adult female prisoners, which is substantially higher compared to the approximately 1% prevalence in the general population<sup>[4]</sup>.

Research indicates that prisoners are at a significantly higher risk of suicidal behavior compared to the general population. One study highlighted that prisoners with a history of injection drug use had very high rates of suicide attempts and self-harm, with 47% reporting having attempted suicide and 37% reporting having self-harmed<sup>[5]</sup>. Additionally, a study in Uganda found that 25% of prisoners experienced suicidal ideation and 86% had a diagnosed mental disorder at some point in their lives, with 44% suffering from major depression, a key factor related to suicidal behavior<sup>[6]</sup>.

Suicidal behavior and self-harm in the prison environment represent a serious public health issue, often resulting in death or severe injury requiring intensive medical intervention. A meta-analysis underscored that the incidence of suicide in prisons is notably elevated, with rates varying across different regions and prison settings. Factors contributing to this heightened risk include overcrowding, limited access to mental health services, and the inherent stress of incarceration<sup>[7]</sup>. This study aims to review existing literature on the factors associated with suicidal

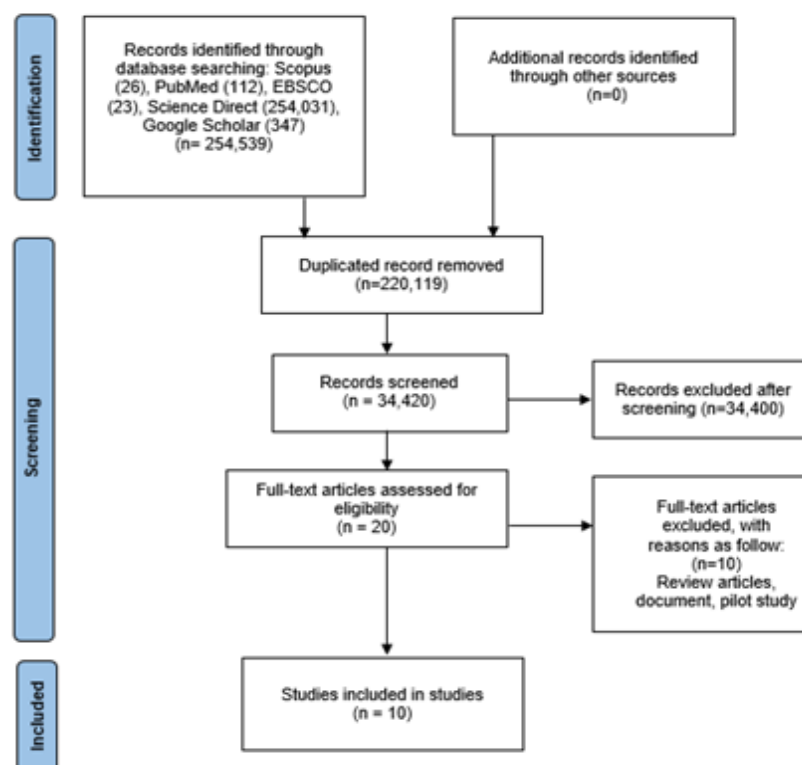
behavior among prisoners. By understanding these factors, it is hoped that more effective prevention and intervention strategies can be developed.

## 2. METHODOLOGY

The methodology employed in this research was a scoping review. In this study, the researchers utilized the prisma flowchart to detail the number of pieces of literature identified through the search results, the screening process, the number of studies that met the inclusion and exclusion criteria, and the number of studies selected for a comprehensive review (figure 1). The research involved searching for articles in five databases published between 2014 and 2024. These databases included pubmed, sciencedirect, scopus, ebsco, and google scholar. The search utilized keywords such as "association factors" and "suicidal behavior" or "self-harm" or "suicidal ideation" or "self-mutilation" or "suicide attempts" and "prisoners" or "convicts" or "incarcerated individuals" or "inmates". Table 1 illustrates the database search strategy and the number of studies obtained. The inclusion criteria in this research are articles with a publication year range of 2014-2024, articles in Indonesian and English, articles with quantitative research, and articles that can be accessed in full text. The exclusion criteria in this research were documents, review articles, and articles with a pilot study type of research.

## 3. RESULTS

A total of 254,539 articles were identified through the databases and search engines. After removing duplicates, 220,119 articles remained. Following the selection process based on titles and abstracts, 34,400 articles were excluded. Ultimately, ten articles were deemed relevant to the research objectives and were selected for further review. There were 10 studies included in this literature review. there are 9 articles with cross sectional study<sup>[8-16]</sup> and one article used a cohort study<sup>[5]</sup>. In addition, when viewed by location, the research was carried out in various countries including Ethiopia (n=5), and one article from Belgium, Spain, Cambodia, Australia, and France. The publication years of the ten articles ranged from 2017 to 2024. There were 5,872 respondents in this scoping review, with ages ranging from 15 to more than 58 years, with prison terms of less than 1 year to more than 10 years.



**Figure 1.** PRISMA Flow Diagram

**Table 1.** Summary of studies

Authors, Year, Country	Sample size	Design	Suicide behavior	Factors associated with suicide behavior
Fentahun et al., (2024) <sup>[8]</sup> Ethiopia	788	Cross-sectional	Suicide attempts and suicidal ideation	Gender, marital status, occupation, history of mental health problems, family history of mental health problems, depression, stigma, lack of social support, and history of detention.
Egziabher et al., (2018) <sup>[9]</sup> Ethiopia	423	Cross-sectional	Suicidal ideation	Gender, stigma, and family history of suicide.
Ayhan et al., (2017) <sup>[11]</sup> France	707	Cross-sectional	Not specific	Depression, dysthymia, panic disorder, general anxiety disorder, and abuse history.
Tadesse et al., (2021) <sup>[12]</sup> Ethiopia	640	Cross-sectional	Suicide attempts and suicidal ideation	Gender, family history of mental disorder, marital status, and lack of social support.
Anbesaw et al., (2022) <sup>[13]</sup> Ethiopia	288	Cross-sectional	Not specific	Gender, depression, anxiety, and history of drug abuse.
Stewart et al., (2018) <sup>[5]</sup> Australia	364	Cohort study	Suicide attempts	History of mental disorder and history of drug abuse.
Pat et al., (2021) <sup>[15]</sup> Cambodia	572	Cross-sectional	Suicidal expressions/threats	History of drug abuse, age, and education level.
Ricarte et al., (2022) <sup>[16]</sup> Spain	201	Cross-sectional	Suicide attempts	Disease history and length of detention.
Habtmu et al., (2020) <sup>[10]</sup> Ethiopia	650	Cross-sectional	Not specific	Gender, marital status, history of mental disorder, and lack of social support.
Favril et al., (2017) <sup>[14]</sup> Belgium	1,203	Cross-sectional	Suicidal ideation	History of detention.

#### 4. DISCUSSION

This study aims to identify the factors associated with suicidal behavior in prisoners. Among the 10 articles reviewed, suicidal ideation and suicide attempts were the most frequently observed levels of suicidal behavior. Suicidal ideation, characterized by thoughts, desires, or intentions to end one's own life, represents the initial stage of the suicidal process. Conversely, a suicide



attempt is an act of self-harm carried out with the intent to cause one's death<sup>[17]</sup>. The following section discusses the factors related to prisoner behavior.

#### 4.1. Gender

Women experience suicidal thoughts at a higher rate than men<sup>[8, 10, 12, 13]</sup>. This may be due to the unique stressors female prisoners face, including a higher likelihood of experiencing sexual abuse both before and during incarceration, which can contribute to mental health issues and suicidal ideation. Conversely, research by Egziabher et al.<sup>[9]</sup> found that men are three times more likely to develop suicidal ideation than women. Research indicates that male prisoners are more likely to engage in suicidal behavior compared to female prisoners. This is partly due to the higher prevalence of severe mental health disorders among male inmates, such as depression, anxiety, and personality disorders<sup>[18, 19]</sup>. Men are more likely to die by suicide compared to women, a trend that has been observed consistently across different countries and cultures. Research by Nock et al.<sup>[20]</sup> supports this, finding that men are approximately 3.5 times more likely to die by suicide than women. Factors contributing to this disparity include the use of more lethal methods, such as firearms, and societal expectations that discourage men from seeking help for mental health issues.

#### 4.2. Age

Younger individuals (ages 15-19) are more likely to experience mental health issues and suicidal ideation compared to older prisoners (ages 20-24). Inmates under 20 are at high risk of suicide due to factors such as difficulty adapting to prison life, isolation from family and friends, and pre-existing mental health conditions, which can exacerbate their situation. Prisoners aged 20-39 may experience significant stress from long sentences, feelings of hopelessness about the future, and mental health disorders<sup>[15]</sup>. This aligns with research by Fazel and Seewald<sup>[21]</sup>, which found that young prisoners, especially those aged 18-24, often struggle with adjustment to prison life, peer dynamics, and impulsivity.

#### 4.3. Education level

Education is a crucial factor in determining mental health and well-being. Individuals with higher education levels typically have better mental health outcomes due to greater access to resources, enhanced problem-solving skills, and improved socio-economic status. Conversely, those with lower educational attainment often face limited opportunities, poorer socio-economic conditions, and higher stress levels, all of which can contribute to mental health issues and suicidal behavior<sup>[22]</sup>. Prisoners with lower education levels are more susceptible to psychological and environmental stressors that can lead to suicidal behavior. These individuals may have fewer coping skills and lower resilience, making it harder to manage the stressors of prison life. Additionally, they may face stigmatization and marginalization within the prison community, resulting in feelings of isolation and hopelessness<sup>[23]</sup>. Research by Pat et al.<sup>[15]</sup> on young male prisoners aged 15-24 years in Cambodia found that prisoners with lower education levels tend to have more mental health problems and suicidal ideation compared to those with higher education levels. Prisoners with a history of low education often have limited stress-coping skills, face stigma and feelings of helplessness, and have restricted access to rehabilitation programs.

#### 4.4. Marital status

Divorced and widowed inmates are at higher risk of suicide due to the profound emotional toll of losing a spouse, whether through divorce or death. For divorced prisoners, feelings of failure and guilt about their marriage ending can contribute to depression. Widowed prisoners often experience intense grief and may struggle with motivation to continue living without their partner<sup>[24]</sup>. Research by Habtamu & Desalegn<sup>[10]</sup> indicates that divorced prisoners face a 3.67 times higher risk of suicide, consistent with findings by Tadesse et al.<sup>[12]</sup> showing an elevated likelihood of suicidal ideation among divorced inmates compared to married ones. Factors such as loss of control, jealousy, and relationship breakdown may exacerbate these risks, alongside higher impulsivity and feelings of blame.

Contrary to some findings, marital status has been suggested as a protective factor against suicide attempts among prisoners[16]. The emotional and social support provided by a spouse can offer purpose and mitigate the stress associated with incarceration. Conversely, single prisoners, including those who have never married, exhibit a 2.6 times higher risk of attempting suicide due to a lack of social support and emotional connection<sup>[8]</sup>. Research by Noonan and Ginder<sup>[25]</sup> underscores that single prisoners are particularly vulnerable, lacking the emotional support and social ties that could provide reasons to live, such as familial responsibilities.

#### 4.5. Mental health problems

According to Stewart et al.<sup>[5]</sup>, a significant factor contributing to suicide attempts and self-harm among prisoners is a history of mental health issues or prior contact with mental health services. Their study found that 87% of prisoners surveyed reported such a history. Similarly, Habtamu and Desalegn<sup>[10]</sup> noted that inmates with a history of mental disorders are 2.54 times more likely to experience suicidal thoughts compared to those without such a history. Tadesse et al.<sup>[12]</sup> further supported this, highlighting that prisoners with a family history of mental illness are at higher risk of suicidal ideation and attempts compared to those without such a family history. Ayhan et al.<sup>[11]</sup> identified that severe major depression among prisoners in Guyana France significantly increases the risk of suicide, consistent with findings from Anbesaw et al.<sup>[13]</sup> indicating that prisoners experiencing depression are nearly five times more likely to exhibit suicidal behavior than those without depression. This heightened risk is attributed to neurotransmitter changes that can lead to feelings of worthlessness and hopelessness, exacerbated by the stress and hopelessness of incarceration<sup>[8]</sup>.

Anxiety also plays a critical role in suicidal behavior among prisoners, as highlighted by Anbesaw et al.<sup>[13]</sup>, who found that inmates with anxiety symptoms are 3.14 times more likely to engage in suicidal behavior compared to those without such symptoms. Additionally, Fentahun et al.<sup>[8]</sup> reported that prisoners with a family history of mental illness are 3.1 times more likely to have suicidal thoughts, underscoring the impact of familial mental health factors. Moreover, research indicates that prisoners with psychopathic personality disorders face a heightened risk of self-harm compared to other inmates<sup>[16]</sup>.

#### 4.6. Stigma and lack of social support

The lack of social support within prisons is strongly linked to an increased risk of suicidal thoughts and attempts. Inmates who perceive themselves as socially isolated are more prone to feelings of worthlessness, depression, and hopelessness, all of which are significant predictors of suicidal behavior. Furthermore, the absence of social support diminishes coping mechanisms, making it harder for prisoners to manage the stresses inherent in incarceration<sup>[26]</sup>. Research by Fentahun et al.<sup>[8]</sup> indicates that prisoners with low social support are 2.8 times more likely to experience suicidal thoughts compared to those with strong social support. Similarly, Tadesse et al.<sup>[12]</sup> found that prisoners with inadequate social support have a 2.68 times higher likelihood of suicidal ideation. This heightened risk may stem from reduced friendships both inside and outside prison, diminished closeness with family members, and decreased external communication through letters, phone calls, and visits, all of which are significant stressors contributing to suicidal tendencies among prisoners.

Social stigma in prison refers to negative attitudes and beliefs held by inmates and staff toward individuals displaying suicidal behavior or mental health issues. This stigma can result in discrimination, mockery, and isolation, profoundly affecting an individual's mental health<sup>[27]</sup>. Poor social stigma is associated with a 2.67 times higher likelihood of developing suicidal thoughts among prisoners compared to their peers<sup>[9]</sup>.

#### 4.7. Family history of suicide

Prisoners with a family history of suicide are twice as likely to experience suicidal thoughts compared to those without such a history<sup>[8, 9]</sup>. A family history of suicide suggests a combination of genetic and environmental factors that heighten an individual's vulnerability to suicidal behavior. Genetic factors may influence traits such as impulsivity, aggression, and susceptibility to mental illness, all of which are associated with an increased risk of suicide. Environmental influences could include exposure to suicidal behavior within the family and adverse family dynamics<sup>[28]</sup>.

#### 4.8. Disease history

According to research by Ricarte et al.<sup>[16]</sup>, having a history of illness is a significant factor contributing to suicide among detainees. Chronic illness can lead individuals to feel hopeless and unable to overcome challenges, prompting them to consider suicide. This finding is supported by Kaba et al.<sup>[29]</sup>, who found that prisoners with chronic physical illnesses face a heightened risk of suicidal behavior, exacerbated by the additional stress of managing their health conditions in a restrictive environment.

#### 4.9. History of previous detention

According to Fentahun et al.<sup>[8]</sup>, prisoners with prior incarceration experience are 2.1 times more likely to have suicidal thoughts and attempt suicide compared to those who have never been incarcerated before. This corresponds with findings from Tadesse et al.<sup>[12]</sup>, indicating that inmates with a history of detention are 2.38 times more likely to engage in suicide attempts. These heightened risks may be attributed to the strain of adapting to prison life and the inadequate mental health support available within correctional facilities, which can exacerbate inmates' ability to cope with stress.

#### 4.10. History of drug use

Substance use disorders, such as alcoholism and drug dependence, are prevalent among incarcerated individuals and are closely tied to suicidal behavior. Prisoners with a history of substance abuse often experience withdrawal symptoms and psychological distress upon entering prison, which heightens their susceptibility to suicide. Research by Bebbington et al.<sup>[30]</sup> indicates that substance use disorders double the risk of suicidal behavior in prison populations, highlighting the need for targeted substance abuse treatment programs within correctional facilities to mitigate this risk.

Additionally, Stewart et al.<sup>[5]</sup> found that a history of drug overdose is associated with suicide attempts and self-harm among inmates, particularly with drugs like methamphetamine and heroin. This aligns with earlier findings by Shiraly et al.<sup>[31]</sup>, which identified users of methamphetamine and heroin as having the highest likelihood of experiencing suicidal thoughts. Anbesaw et al.<sup>[13]</sup> further underscored this correlation, reporting that drug-using prisoners are 2.83 times more likely to engage in suicidal behavior compared to non-users.

Furthermore, research by Pat et al.<sup>[15]</sup> on young male prisoners aged 15-24 in Cambodia revealed that those with a history of drug use are more prone to mental health issues and suicidal ideation. These studies collectively emphasize the critical role of addressing substance abuse within prison settings to improve mental health outcomes and reduce suicide risk among inmates.

### 5. CONCLUSIONS

A total of 10 articles discussed factors related to suicidal behavior in prisoners, namely gender, age, education level, marital status, mental disorders, family history of mental disorders, stigma and lack of social support, family history of suicide, and history of detention. previous history, and a history of drug use which has a significant relationship with suicidal behavior in prisoners. Suicide prevention efforts must be based on strategies to assess and prevent suicidal behavior in prisoners. Early detection of suicidal ideation and attempts is critical to reducing the overall impact and burden of suicidal ideation and attempts among prisoners. Recommendations for further research focus more on treating suicidal behavior in prisoners by providing interventions and programs to prevent suicidal behavior in prisoners.

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## MUSIC THERAPY IN PEOPLE WITH SCHIZOPHRENIA: SCOPING REVIEW

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### Abstract

**Introduction :** According to the World Health Organization (WHO) estimates that around the world there are 379 million people with mental disorders, with 20 million people affected by schizophrenia and psychosis. Hallucinations are divided into 5 types, namely auditory, visual, taste, touch and inhalation hallucinations. Hallucination disorders can be treated with pharmacological and non-pharmacological therapy. Non-pharmacological therapy is safer to use because it does not cause side effects like drugs. Music therapy is one therapy that is often used for auditory hallucinations **Aim:** The aim of this research is to determine music therapy for people with Schizophrenia **Method:** The approach used in this literature study is a scoping review. The search for articles in this literature study used 3 database sources, namely PubMed, Ebscohost, and Google Scholar. The keywords used in this literature study use Boolean operators, namely "Schizophrenia OR Schizophrenia" AND "music therapy OR music intervention" for searching articles in English, as well as "Skizofrenia" AND "terapi musik" to search for articles in Indonesian. **Result :** Search results using these keywords yielded 250 articles and only 6 articles were reviewed and analyzed in this literature study. **Conclusion:** From the six articles, music therapy combined with the administration of psychotropic drugs can provide benefits for reducing the level of auditory hallucinations in schizophrenia sufferers, either with music that has a soft rhythm or using music that is popular.

**Keywords:** Schizophrenia, Music Therapy, Music Intervention.

### 1. INTRODUCTION

According to the World Mental Health Report (2022) estimates that around the world there are 379 million people with mental disorders, with 24 million people affected by schizophrenia and psychosis (Organization, 2022). Data from the 2018 Basic Needs Research Results (Riskesdas) shows that the proportion of households with schizophrenic psychosis in Indonesia is 282,654 people and 43,890 people are in East Java (Riskesdas, 2018).

The World Mental Health Report (2022) stated that mental health is when a person is in good health and can feel happiness and is able to face life's challenges, has a positive attitude towards himself and others, and can accept others as they should be. Apart from that, it is said that mental health is where the condition of an individual develops physically, mentally, spiritually and socially so that he is aware of his own abilities, able to cope with pressure, work productively and contribute to his community, but if the condition of the individual's development is not appropriate it is called a disorder (Organization, 2022).

Hallucinations are one of the symptoms of sensory perception disorders experienced by people with mental disorders (Shao et al., 2021). Hallucinations are false perceptual distortions that occur due to maladaptive neurobiological responses, sufferers actually experience sensory distortions as real things and respond to them. (Silverstein & Lai, 2021). Hallucinations are divided into 5 types, namely auditory, visual, taste, touch and inhalation hallucinations. (Moritz et al., 2024). Auditory hallucinations are hallucinations that are often experienced by people with mental



disorders, for example hearing the sound of something screeching, swishing, noise, and in the form of words or sentences. Individuals occur to them, so that sufferers are often seen arguing or talking to themselves in the voices they hear (Romeo & Spironelli, 2022). Hallucination disorders can be treated with pharmacological and non-pharmacological therapy. Non-pharmacological therapy is safer to use because it does not cause side effects like drugs.

## 2. METHODOLOGY

The approach used in this literature study is a scoping review. Scoping review is a method used to identify literature in depth and comprehensively which is obtained from various sources with various research methods and has a relationship or relevance to the research topic. (Arksey & O'Malley, 2005 dalam Widiyanti et al., 2020). The purpose of a scoping review is to answer questions from research topics that have been determined using various sources of similar research articles, then group them and draw conclusions. (Widiyanti et al., 2020).

The search for articles in this literature study used 3 database sources, namely PubMed, Ebscohost, and Google Scholar using predetermined keywords. Keywords must be defined comprehensively to select appropriate articles and eliminate irrelevant articles. The keywords used in this literature study use Boolean operators, namely "Schizophrenia OR Schizophrenia" AND "music therapy OR music intervention" AND "hallucinations OR voices OR auditory hallucination" for searching articles in English, as well as "Skizofrenia" AND "terapi musik" AND "halusinasi" to search for articles in Indonesian.

Selection criteria are carried out by determining inclusion criteria to help find appropriate literature. Inclusion criteria can determine the underlying factors the review will look for. The inclusion criteria applied to this literature study are articles discussing music therapy interventions for schizophrenia sufferers, the year the article was published in the last 10 years (2014-2024), articles using Indonesian or English, type of RCT or quasi-experimental study, as well as articles full text.

After searching for articles through several databases, 250 articles were found which were then sorted. Sorting is carried out with the aim of obtaining articles that are appropriate to the topic of the literature study being carried out. Articles that have been found through the database are then sorted using inclusion criteria. After sorting, 6 articles were analyzed. Below is the article sorting process carried out to obtain articles that are appropriate to the literature study topic.

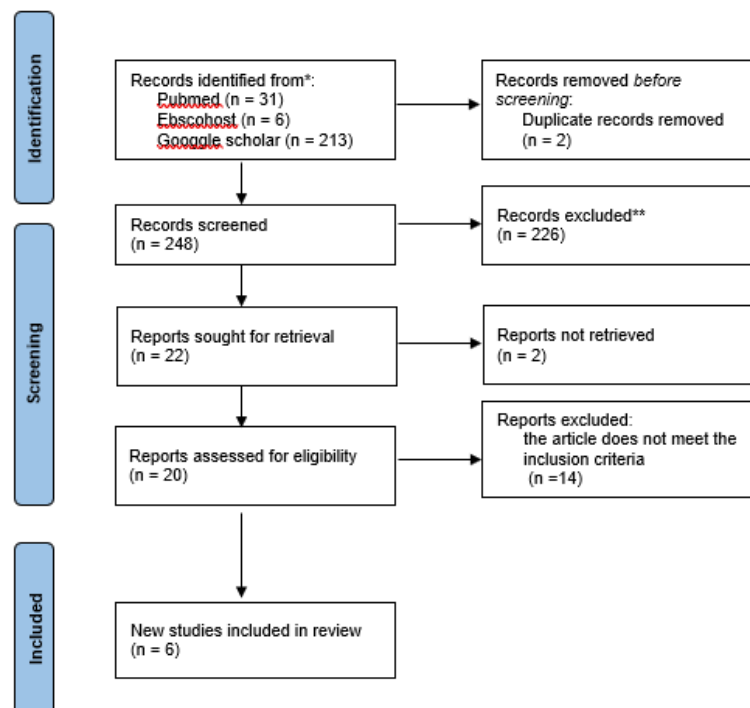


Figure 1.. Diagram PRISMA Flowchart

### 3. RESULT

There are several descriptions related to music therapy for schizophrenia sufferers. This literature study consists of 6 articles which collectively explain the benefits of music therapy for patients with schizophrenia. Search results using these keywords yielded 250 articles and only 6 articles were reviewed and analyzed in this literature study. The articles obtained are displayed in Indonesian and English. There are 4 articles with RCT research type and 2 other articles are quasi experimental. Of the 6 articles, research was conducted in 4 countries, 2 studies were conducted in Turkey, 2 studies were conducted in Indonesia, 1 study was conducted in Taiwan, and 1 study was conducted in Denmark. To see the specific results of the article analysis, see table 1.

**Table 1.** Articles Related to Music Therapy for People with Schizophrenia

No	Author and year of publication	Title	Purpose	Population and Sample	Method	Intervention	Result
1	Zincir, Zincir, Yenel, Kivilcim, Cetin, Tulay, Semiz (2014)	Classical Turkish Music as Group Music Therapy for Inpatients with Schizophrenia: Feasibility and Efficacy	The aim of this study was to examine the feasibility and efficacy of Turkish classical music therapy as group music therapy for patients diagnosed with schizophrenia	The population in this study was 107 female patients treated at the Women's Mental Health Service of the Erenkoy Research and Training Hospital, and the sample was 85 patients who were divided into 2 groups: 1. Intervention group (n=45) 2. Control group (n=40)	RCT	Samples included in the study group will receive music therapy for 12 sessions in 4 weeks, with each session lasting approximately 50-55 minutes.  Evaluations are carried out on both groups every week	From this research it was found that there was a significant reduction in the severity of symptoms and an increase in the ability to adapt to the social environment in the therapy group compared to the control group.
2	Rafina Damayanti, Jumaini, Sri Utami (2014)	The Effectiveness of Classical Music Therapy on Reducing the Level of Auditory Hallucinations in Patients with Auditory Hallucinations at	To determine the effectiveness of classical music therapy on reducing the level of hallucinations in children patients with auditory hallucinations at RSJ Tampan, Riau Province	A sample of 34 people was divided into 2 groups, namely the experimental group with 17 people and the control group with 17 people.	Quasi-experimental	In the experimental group, music therapy was conducted daily for 5 days, with a duration of 10-15 minutes each day.	From the research, it was found that in the control group, there was no change in the level of hallucinations from pretest to posttest, in contrast to the experimental group,

No	Author and year of publication	Title	Purpose	Population and Sample	Method	Intervention	Result
		RSJ Tampan, Riau Province					which showed a change in the level of hallucinations from a score of 3 to 2.
3	Yanti, Sitepu, Sitepu, Pitriani, Purba (2020)	The Effectiveness of Music Therapy on Reducing the Level of Auditory Hallucinations in Psychiatric Patients at the Psychiatric Hospital Prof. Dr. M. Ildrem	This study aims to determine the effectiveness of classical music therapy in reducing the level of hallucinations in patients with auditory hallucinations.	The sample in the study consisted of 22 people.	Quasi eksperimental	22 sample individuals received music therapy for 7 days every morning and evening. The treatment ended on the 7th day, and auditory hallucinations were re-observed.	From this study, it was found that there is an effect before and after the music therapy intervention on the reduction of auditory hallucination levels ( $p=0.000$ ), with an average score before therapy of 4.32 becoming 1.68 after therapy.
4	Yi-Nuo Shiha,b, Chi-Sheng Chenc, Hsin-Yu Chianga and Chien-Hsiou Liua (2015)	Influence of background music on work attention in clients with chronic schizophrenia	Based on occupational therapy theory, environmental sounds, colors, and decorations can affect individual performance, this study studying the influence of music on work attention in people with schizophrenia.	SampleIn this study, there were 49 participants.	RCT	This intervention shows significant variance ( $\text{sig} = 0.071$ ). For Group 3 (popular music), the intervention has a significant variance ( $\text{sig} = 0.048$ ).	This research shows that background music can improve the attention performance of people with chronic schizophrenia. Further research is needed with a larger sample size to support the

No	Author and year of publication	Title	Purpose	Population and Sample	Method	Intervention	Result
							study's findings.
5	Inge Nygaard Pedersen et al (2021)	Music Therapy vs. Music Listening for Negative Symptoms in Schizophrenia: Randomized, Controlled, Assessor- and Patient-Blinded Trial	To determine the efficacy of music therapy for negative symptoms in patients with schizophrenia.	The sample for this research consists of 57 participants.	RCT	This intervention showed a significant decrease from baseline to 25 weeks on the PANSS negative subscale. In the secondary outcomes, there were no differences between the groups observed in The Brief Negative Symptom Scale, WHOQOL-Bref (Quality of Life), The Helping Alliance Questionnaire, and The Global Assessment of Functioning in the intention to treat or complete the population using the Mixed Effects Model.	From this study, the main result is the reduction of negative symptoms measured by the total score of the negative subscale. Positive and Negative Syndrome Scale (PANSS), assessed by blinded raters, using mixed-effects model analysis.
6	Sükran Ertekin Pinar RN, PhD & Havva Tel, RN, PhD (2019)	The Effect of Music on Auditory Hallucination and Quality of Life in Schizophrenia	To determine the effect of music on auditory hallucinations and quality of life of patients with	The sample consists of 28 patients divided into 2 groups.	Randomized controlled trial	Both groups were evaluated after six months using: 1. Scale for the assessment	In this study, it was found that in the intervention group, there was a decrease in positive

No	Author and year of publication	Title	Purpose	Population and Sample	Method	Intervention	Result
		enic Patients: A Randomized Controlled Trial	schizophrenia			nt of positive symptoms (SAPS) 2. The characteristics of auditory hallucinations questionnaire 3. The World Health Organization Quality of Life Scale  <b>Control group</b> Standard care, without music  <b>Intervention Group</b> Standard care, plus listening to music with a roost tone through an MP3 Player using headphones for 15 minutes.	symptoms and an improvement in quality of life by the sixth month.

#### 4. DISCUSSION

This literature review examines the advantages of music therapy for schizophrenia patients experiencing auditory hallucinations. Music is an artistic medium that conveys emotions and ideas through its auditory elements. Music offers numerous advantages, including alleviating stress, anxiety, and mental strain. Hallucinations are positive symptoms of schizophrenia that induce perceptual distortions, which may be aural, visual, or tactile in nature. Auditory hallucinations are perceptual anomalies in individuals that lead them to perceive noises that are only audible to them. These sounds might be highly unsettling for patients in the conquering phase.

Music therapy is a form of psychosocial rehabilitation that utilizes music to achieve positive results when combined with pharmacological therapy. Music therapy has the potential to enhance concentration, restore self-confidence, improve social relationships, and increase self-esteem. The music utilized in the six articles reviewed encompasses classical music, rast music, popular music, and traditional Turkish music. Classical music, which originated in the western region, is characterized by a gentle tone that can induce a sense of tranquility. Rost music is a rhythm that

is used to recite the Quran in a soft and rapid manner. The client may be distracted from the hallucinations they are experiencing by the music they are listening to.

The research entitled "Classical Turkish Music as Group Music Therapy for Inpatients with Schizophrenia: Feasibility and Efficacy" involved music therapy utilizing traditional Turkish music for 50-55 minutes every session over a duration of 4 weeks. The findings indicated a notable decrease in symptom severity and an enhancement in social adaptability within the therapy group relative to the control group. This study utilized tambourines as the primary instrument, while participants engaged with many additional instruments, including tambours, zithers, tiny drums, and kemanchas, in group settings. (Zincir, Zincir, Yenel, Kivilcim, Cetin, Tulay, Semiz, 2014)

Furthermore, a separate trial in Indonesia revealed a reduction in hallucination levels following the administration of music therapy for 10-15 minutes each morning, afternoon, and evening. The clients will collectively listen to classical music transmitted via speakers. The application of Röst music involves listening to MP3 recordings for 15 minutes whenever the patient experiences auditory hallucinations, and this practice continues when the client is at home. Yanti, Sitepu, Sitepu, Pitriani, Purba (2020). The intervention group exhibited a reduction in positive symptoms and an enhancement in quality of life by the sixth month.

## 5. CONCLUSION

The six publications indicate that music therapy, in conjunction with psychotropic medication, can effectively diminish auditory hallucinations in people with schizophrenia, utilizing either soothing rhythms or preferred musical selections. Moreover, both listening to and performing music collaboratively can enhance social ties among patients experiencing auditory hallucinations.

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