



Unjaya International Conference of Health Sciences

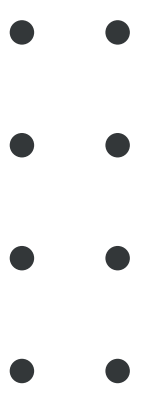
# PROCEEDING BOOK

**FOSTERING NATIONAL RESILIENCE THROUGH WORKFORCE DEVELOPMENT**

Yogyakarta-Indonesia, 13-14 November 2024

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Proceeding The 3rd Unjaya International Conference of Health Sciences (UNICHS)



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The 3rd Unjaya International  
Conference of Health  
Sciences

FOSTERING NATIONAL  
RESILIENCE THROUGH  
WORKFORCE DEVELOPMENT



# Welcoming Speech

Rector of Universitas Jenderal Achmad Yani Yogyakarta



Assalamualaikum wr wb.

Dear distinguished guests speakers colleagues and students

Welcome to "The 1st UNJAYA International Conference of Health Care."

I am thrilled to meet you all and acknowledge our honored keynote speaker from

Indonesian Ministry of Health, dr. Ira Cyndira Tresna, M.I.Kom. We are also honored to have speaker with us today, Varsha Singh DNP, APN, CT-CP, NEA-BC, FAHA from St. Joseph's University Medical Center, New Jersey, US; Dr. Louise Hughes from Cardiff University, UK; Asst. Prof. Dr. Nittaya Pannangam from Khon Khaen University, Thailand; Prof. Intansari Nurjanah form Universitas Gadjah Mada; and apt. Niken Larasati, M.Si from Universitas Jenderal Achmad Yani Yogyakarta.

I would also like to warmly welcome representatives from various educational institutions who are joining us as webinar attendees.

Our deepest gratitude goes to all of the sponsors who have supported this event/ (PT Yakult, Terabit, Dana Dini, CV Kirana, Poli Justice, CV General Labora, CV Khrisna Utama, PT Kairos Jaya Sejahtera, Pentjipta Creative Communication, ObatApps and UNJAYA Press).

It is truly an honor to have each of you here as we gather to explore our theme "Resilient Healthcare Society." Today's event marks a significant step in our shared mission to build a robust and adaptable healthcare system which is fully aligned with our journey toward achieving the Sustainable Development Goals.

We are here to bridge essential gaps, especially in areas like digital health literacy and evidence-based practice. This conference is designed to empower healthcare professionals, educators, and students alike enabling each of us to turn knowledge into meaningful impact. And beyond this, today is also about creating lasting partnerships, transforming agreements into collaborations that will propel us forward.

Our program today is filled with impactful discussions on vital topics: from caring for vulnerable populations, to the transformative power of digital health, to ensuring a resilient supply chain. We will also hold parallel sessions where presenters will share their latest research, offering deeper insights and encouraging collaboration within each specialty area.

To all our speakers and participants, I want to extend a sincere thank you. Your commitment to this mission is invaluable. May today's conversations inspire us all sparking new ideas and fresh approaches.

And so, with great excitement, I am thrilled to officially declare "The 1st UNJAYA International Conference of Health Care" open, by saying Bismillahirrahmanirahim. Thank you, and I wish you all a meaningful and enriching day ahead.

Wassalamualaikum wr wb

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# Welcoming Speech

Committee Chair



To our Honorable Rector Universitas Jenderal Achmad Yani Yogyakarta, The Dean of Faculty of Health, the representative of Ministry of Health as a Keynote Speaker, our guest speaker from United States of America, United Kingdom, Indonesia, and Thailand, our lovely students, and distinguish guest ladies and gentlemen.

Good morning, Assalamualaikum wr. wb

First of all, let us praise to Allah for giving us His endless blessing so that we all can be here together in this special occasion in a perfect condition and health. It is an immense honor to welcome each of you to this First Unjaya International Conference of Healthcare. Today, we gather from across the globe, representing diverse cultures,

disciplines, and perspectives, united by a shared commitment to advancing knowledge and innovation related to Healthcare resilience. The 1st Unjaya International Conference of Healthcare held by Faculty of Health Universitas

Jenderal Achmad Yani Yogyakarta in conjunction with The 3rd Unjaya International Conference of Health Sciences (UNICHHS); The 1st Unjaya International Conference on Practice and Innovative Complementary in Midwifery (UNICOMMID); and The 1st Unjaya International Conference on Pharmacy and Pharmaceutical Science

(UNICOPPS). In an era defined by rapid change and unprecedented challenges, the importance of collaboration, knowledge exchange, and mutual understanding cannot be overstated. Each of us brings unique insights, expertise, and experiences to this gathering. Together, we hold the potential to create solutions that transcend borders and inspire progress on a global scale. This year's theme, "Resilient Healthcare Society," reflects the urgency and complexity of the issues we face today. It reminds us of the importance of collaboration, especially in times of change and transformation. Although we may not be able to meet face-to-face, this online format enables us to connect in ways that are more inclusive and far-reaching than ever before. We have attendees from Indonesia, Netherlands, Taiwan, Nigeria, Kenya and another country joining us, each bringing unique insights and perspectives that make our discussions richer and more dynamic.

Over the next few hours, we are privileged to hear from renowned speakers and experts, to participate in discussions on developing resilient health systems, and to engage with one another in sessions designed to stimulate learning and innovation. I encourage each of you to take full advantage of this platform—join in the sessions, ask questions, participate in the chat, and network with peers. Your participation is what makes this conference truly come alive. I would like to express my heartfelt gratitude to everyone who made this event possible: our dedicated organizers, sponsors, and technical teams who have worked tirelessly to ensure a seamless experience for all. Thank you for your hard work and dedication.

Finally, thank you to each of you for being here today. Your presence, your energy, and your ideas are what make this event meaningful. Together, we have the power to inspire one another and to pave the way for future advancements in healthcare.

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Proceeding The 3rd Unjaya International  
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# ABSTRACT SECTION

The 3rd Unjaya International  
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FOSTERING NATIONAL  
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# The Relationship Between Efforts to Prevent Bullying Behavior and The Level of Children's Confidence in SD Negeri Sleman 4

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## ABSTRACT

**Background:** Bullying is an act of violence, including verbal harassment or threats, physical violence or coercion, against a vulnerable person or group against their wishes, perhaps based on race, religion, gender, sexuality, or ability so that it can affect the child's level of confidence. Efforts to prevent bullying from recurring in school education in addition to teachers who provide knowledge and morals for children must also have a high sense of confidence so as not to become victims of violence in their environment.

**Purpose:** To determine the relationship between efforts to prevent bullying behavior and the level of children's confidence in SD Negeri Sleman 4.

**Method:** This study is quantitative research with a correlational analysis design and a cross-sectional approach. Sampling was done using the total sampling, Method. The total sample was 46 respondents. Data collection used a questionnaire on efforts to prevent bullying behavior and confidence levels. Data analysis using sperm rank test.

**Results:** The results of the statistical test using sperm rank obtained a p-value of 0.000 ( $P < 0.05$ ), it can be seen that there is a meaningful relationship between efforts to prevent bullying behavior and the level of children's confidence in SD Negeri Sleman 4.

**Conclusion:** There is an important relationship between efforts to prevent bullying behavior and the level of confidence of children in SD Negeri Sleman 4 with a p-value of 0.000 ( $P < 0.5$ ) with a correlation coefficient value ( $r$ ) of 0.609 with a strong relationship level and a positive relationship direction, namely the direction of the relationship between the two variables, identifies that the better the efforts to prevent bullying behavior, the better the level of children's confidence in SD Negeri Sleman 4.

**Keywords:** *Bullying prevention efforts; Confidence level; Elementary school children*

# Determinant of Factors Related to Premenstrual Syndrome at SMAN 1 Godean Sleman Yogyakarta

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## ABSTRACT

**Background:** Adolescent reproductive problems will lead to malnutrition, late growth, disease, and stress. During puberty, about 80-90% of women will experience PMS symptoms. Factors that cause PMS include hormonal factors, genetic factors, lifestyle factors related to weight gain, sleep quality, and physical activity. One of the psychological factors was stress. The symptoms of PMS will be even more intense when the woman continues to experience pressure.

**Purpose:** to determine the association between menarche, menstrual cycle, stress level, sleep quality, and BMI with the incidence of premenstrual syndrome.

**Methods:** Quantitative research design using a cross-sectional approach. Samples were taken using a stratified random sampling technique, namely 99 students of class XI at SMAN 1 Godean. Retrieval of data using Google form, namely in July 2020. The research instrument was a questionnaire. The results of the study were analyzed by univariate, bivariate using Somer's test, and logistic regression for multivariate analysis.

**Results:** In the characteristics of the respondents, most of the female students were at the age of 17 years with a total of 62 students (62.6%), and most of the menstrual habits in the routine category were 87 students (87,9%). There was an association between sleep quality, and stress level with premenstrual syndrome with each value of  $p=0.001$  (OR=7.043; 95%CI=1.542-32.164) and  $p=0.002$  (OR=1.025; 95%CI=0.296-3.554). There was no association between BMI, menstrual cycle, and menarche with the incidence of premenstrual syndrome with  $p=0.785$ ,  $p=0.969$ ,  $p=0.768$ , respectively.

**Conclusion:** A multivariate test with logistic regression found that the most dominant factor associated with the incidence of premenstrual syndrome was sleep quality.

**Keywords:** BMI; Menarche; Menstrual cycle; PMS; Sleep quality; Stress level

# The Association Between Family Support and Compliance in Undergoing Antenatal Checkups among Pregnant Women at Puskesmas Kasihan I

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## ABSTRACT

**Background:** Pregnant women have to undergo antenatal checkups at least six times during pregnancy. Family support is one of the factors that influence antenatal care screening. Irregular visits to antenatal care result in a lack of supervision on mother and baby conditions, pregnancy complications, and the birthing process which endanger the mother and the baby.

**Purpose:** Learning the association between family support and compliance in antenatal checkups for pregnant women at Puskesmas (Community Health Center) Kasihan I.

**Methods:** This research is a quantitative study with a cross-sectional design. The sampling technique used was accidental sampling. The sample was 53 respondents. The data collection was conducted using questionnaires and observation of the KIA book. The statistical test used was the Spearman test with a level of significance  $\alpha=0.05$ .

**Results:** Family support for pregnant women at Puskesmas Kasihan I was mostly in the sufficient category of 29 mothers (54.7%). Most mothers' compliance in undergoing antenatal checkups was non-compliant with 30 mothers (56.6%). The Spearman test results showed a significance level of p-value 0.003 (p-value  $<0.05$ ) and a correlation coefficient of 0.406.

**Conclusion:** There is an association between family support and adherence to conducting antenatal checkups on pregnant women at Puskesmas Kasihan I with moderate relationship closeness.

**Keywords:** *Compliance with antenatal care; Family support; Pregnant women.*

# The Effect of Puzzle Therapy on The Cognitive Status of The Elderly

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## ABSTRACT

**Background:** Maintaining cognitive health in the elderly has become a pressing concern for both healthcare providers and families. Cognitive decline, often manifested as memory loss, and slower processing speeds, is a common issue among the elderly, with conditions such as dementia and Alzheimer's disease being of particular concern. Current interventions often include medication, social and physical activity, and also non-pharmacological therapies, such as puzzle-based activities, which have gained attention as a potential avenue for enhancing cognitive function

**Purpose:** The purpose of this study is to analyze the effect of puzzle therapy on the cognitive status of elderly

**Methods:** The research was conducted in Aged Care in Yogyakarta. The sample consists of 36 elderly who are willing to participate as respondents for two weeks. The HVLIT Questionnaire was used to measure the cognitive status. The data was analyzed using the Wilcoxon Signed-Ranked Test.

**Result:** Before the puzzle therapy was carried out, the results showed that 36 elderly people experienced a high possibility of dementia. After the intervention, the result of HVLIT shows that 27 respondents have normal cognitive status (75%). From the results of the Wilcoxon test, the results obtained  $P = 0.000 < (0.05)$ .

**Conclusion:** Puzzle therapy has an impact on the cognitive status of the elderly

**Keywords:** *Cognitive status; Elderly; Puzzle therapy*

# Culture-Based Home Care by Nurses in A Hospital: Nurse's Perspective

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## ABSTRACT

**Background:** Nurses are home care health professionals who play a role in coordinating the team, patients, and their families. Nurses learn information related to patient expectations in their treatment and life, through ongoing care, and maintain good relationships with the patient's family. There are several obstacles such as understanding of home care itself and the lack of opportunities to share information with home care workers. Nursing practice is centered on the patient, collaborating in creativity and innovation. The cultural approach inherent in nurses can be a target for achieving future health equity goals.

**Purpose:** The purpose of this study was to determine nurses' perceptions of culture-based home care.

**Methods:** The research design used phenomenology by conducting focus group discussions (FGD) with hospital home care nurses. Information was reviewed related to home care services carried out by nurses with a cultural approach. This study was conducted in two hospitals in Yogyakarta with seven participants. Questions to participants used an interview guide to help researchers obtain keywords. Data analysis was carried out using the Collaizi approach. Reading the entire protocol, reviewing each meaningful statement, explaining the meaning of each statement, organizing objectives into theme groups, integrating results into a complete description of the phenomenon, developing explanations, and conducting the final.

**Result:** There are seven themes of culture-based home care developed from the sunrise enabler theory, namely Cultural Values-Beliefs-Lifestyle, Environment-Language- Ethnicity, Politics-Legal, Economy, Education, Kinship- Social, Religious-Philosophical. Culture is a set of attitudes, behaviors, and symbols shared by a group of people and communicated to the next generation. Attitudes include beliefs (political opinions, ideology, religion) values (deep principles referring to moral behavior, life in general, happiness), and general knowledge (empirical and theoretical, scientific and not). Behavior includes a wide variety of norms, roles, customs, traditions, habits, practices, and modes. Symbols represent things or ideas, the meanings of which are given to them by the people themselves. A symbol can be a material object, a color, a sound, a slogan, a building, or anything else.

**Conclusion:** Seven themes of culture-based home care from nurses' reviews are very effective in being applied to clients. Evaluation is needed such as satisfaction after the implementation of culture-based home care, which is expected to result in high satisfaction for clients. Clients receive services according to the cultural expectations they believe in.

**Keywords:** *Clients; Culture; Home care; Hospital; Nursing*



# Psychological Adaptation in Adolescents with and Without a Broken Home

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## ABSTRACT

**Background:** A broken home is a situation in which a family is not in harmony and does not function as a safe, secure, and happy family. This leads to frequent conflicts, which eventually lead to divorce and separation, which in turn have a negative impact on the children. Broken homes not only have an impact on the physical conditions but also the mental health of the children. This affects the child's ability to adapt, grow and develop, and to respond to changes that are occurring within and around them.

**Purpose:** Identified the differences in psychological adaptation between adolescents with and without broken homes.

**Methods:** This research was a comparative quantitative design. The sampling technique used was the convenience sampling technique with a total of 110 respondents. The instrument used was the Indonesian version of the Positivity Scale Questionnaire (PSIV). Since the data was normal, therefore, the data analysis was conducted using an independent samples T-test.

**Results:** The majority of respondents experienced a broken home, 37.3%, and those without a broken home, 62.7%. The majority of both broken home and non-broken home adolescents are aged 19-21 and female. The psychological adaptation score for adolescents from broken homes was  $27.61 \pm 5.431$ , and those without broken homes were  $30.81 \pm 3.327$ . The result of the p-value of the T-test is 0.001 with the T-value is -3414.

**Conclusion:** The psychological adaptations of adolescents from broken and non-broken homes differ on average.

**Keywords:** *Broken home; Family; Non broken home; Psychological adaptation*

# Knowledge Regarding HIV Pre-Exposure Prophylaxis (PrEP) and Associated Factors Among Men Who Have Sex with Men (MSM) in Yogyakarta

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## ABSTRACT

**Background:** PrEP is a new strategy to reduce the risk of acquiring HIV, which is proven safe and effective. Indonesia has just implemented a pilot study of PrEP in 2021, hence access and services for PrEP are still uneven. As PrEP potential users, MSM should be explored related to their knowledge. Along with the increasing MSM population in Yogyakarta and Indonesia.

**Purpose:** This study aims to determine how MSM know about PrEP and its related factors.

**Methods:** A cross-sectional survey was conducted on 92 MSM at an HIV outreach foundation in Yogyakarta, Indonesia. It was conducted between May and June 2022 via an online link containing characteristics and PrEP knowledge questions. The knowledge questionnaire comprised ten questions, with the lowest score of three and the highest score of 30. The data were processed using descriptive tests. Spearman's rho and Kruskal Wallis were then used for the bivariate test. Lastly, a multiple regression includes all variables with  $PV < .25$  used to see the most related factors to the PrEP knowledge among MSM.

**Results:** MSM in Yogyakarta had an average knowledge score related to PrEP of  $20.09 \pm 6.55$  or in the moderate category. The results of the bivariate test showed that age ( $PV: .011$ ) and marital status ( $PV: .036$ ) had a significant relationship with the level of MSM knowledge about PrEP. Multiple regression tests by adding the variable sexual orientation ( $PV: .073; < .25$ ) yielded the result that sexual orientation ( $B: -3.02; PV: .016; < .05$ ) was the variable most related to MSM knowledge regarding PrEP.

**Conclusions:** The average level of knowledge related to PrEP among MSM in Yogyakarta, Indonesia, is still within the moderate category and has the most significant relationship with sexual orientation. Therefore, there is a need to increase information and more comprehensive education related to PrEP to MSM by paying more attention to their sexual orientation.

**Keywords:** HIV/AIDS; Knowledge; MSM; PrEP; Sexual behavior

# Husband's Knowledge of Breastfeeding Is Associated with Successful First Month Breastfeeding

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## ABSTRACT

**Background:** Mothers and husbands who lack knowledge about nutrition for pregnant women and exclusive breastfeeding are one of the causes of stunting. Prevention of stunting can be done since pregnancy and exclusive breastfeeding after the baby is born. The success of exclusive breastfeeding requires husband support. The breastfeeding father is the involvement of the father/husband in providing full support morally and materially to his wife in the breastfeeding process. The role of a breastfeeding father requires good knowledge about breastfeeding fathers and breast milk. Husbands with good knowledge have a 1.7 times chance that the baby will get exclusive breastfeeding.

**Purpose:** To determine the relationship between the husband's knowledge about breastfeeding father and the success of the first-month breastfeeding at Pajangan Community Health Center.

**Methods:** This study used a cross-sectional method. Respondents in this study were husbands and breastfeeding mothers who had babies aged 1-2 months. The sampling technique used was accidental sampling. The instruments used in this study were a knowledge questionnaire about breastfeeding fathers and a checklist sheet about breastfeeding. Data analysis in this study used frequency distribution and the Chi-Square test.

**Results:** The majority of husband's knowledge about breastfeeding fathers is in the good category, namely 68%, and 80% of babies get full breastfeeding in the first month. Chi-Square test results showed a p-value of 0.001.

**Conclusion:** There is a relationship between the husband's knowledge about breastfeeding father and the success of breastfeeding in the first month.

**Keywords:** *Breastfeeding father; First-month breastfeeding; Knowledge*

# Impact of Climate Warming on Rodent Population Dynamics and Leptospirosis Risk in Yogyakarta, Indonesia: An Ecological and Biometeorological Analysis

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## ABSTRACT

**Background:** Climate warming contributes to shifts in animal populations, particularly affecting small rodent species. These species are influenced by extrinsic factors, such as climate warming and human activity. One such rodent, the rat, is a known vector for leptospirosis, a disease influenced by environmental factors, including biotic and abiotic conditions. Abiotic factors include rainfall, air temperature, water temperature, humidity, light intensity, and soil and water pH levels. Biotic factors encompass vegetation, trap success rate, and leptospirosis prevalence in rats.

**Purpose:** This study aimed to characterize abiotic biometeorological factors (rainfall index, air temperature, humidity, and sunlight radiation) and house rat density in areas with a history of zoonotic disease.

**Methods:** An ecological study using exploratory ecology design and time series analysis was conducted across seven districts in the Special Region of Yogyakarta (DIY) with known zoonosis history. The population and sample included all rats found in the region and climate data (rainfall, air temperature, humidity, solar radiation) from a five-year period (2019-2022). Sampling utilized total sampling, with rat trap success measured via Silantor 2.0 and climate data sourced from NASA-POWER.

**Results:** Findings indicated increased rat density in various districts, particularly during specific months with heightened zoonotic transmission risk, including leptospirosis. Climate factors such as rainfall, humidity, temperature, and radiation were key in influencing seasonal rat population patterns. High rat density was observed in specific months in districts such as Cangkringan, Minggir, Ngemplak, Nanggulan, and Gondokusuman, emphasizing the need for climate-informed rat control measures.

**Conclusion:** This study reveals increased rat density in several districts of DIY, exceeding environmental health standards at specific times. Climate-based control measures and cross-sectoral coordination are essential to manage rat populations and prevent zoonotic disease spread.

**Keywords:** *Biometeorology; Climate warming; Leptospirosis; Rat Density; Zoonosis*

## Bullying Behaviour Among Adolescents in The Gamping District of Yogyakarta

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### ABSTRACT

**Background:** Adolescents are known to be susceptible to risk and issues, including mental health disorders like depression, anxiety, and aggressive behavior. Environmental factors, especially in schools, play a role in the emergence of bullying behavior, which can have negative impacts on the mental health and behavior of adolescents.

**Purpose:** This study aims to describe adolescent bullying behavior in the Gamping district of Yogyakarta.

**Methods:** This study used a descriptive design using questionnaires. The data were collected in 2023 at SMP Negeri 3 Gamping Yogyakarta. The sample consisted of 96 respondents who were selected using stratified random sampling.

**Results:** Bullying behavior among adolescents is mostly at a moderate level, with 87 individuals (90,6%). Females (95%) and males (89,3%) display bullying behavior at a moderate level. Respondents who live with both parents (90,8%) tend to exhibit more moderate-level bullying behavior compared to those living with only their mother. The average indicator of bullying behavior frequently conducted by adolescents the most is verbal bullying (mean 33,66).

**Conclusion:** The incidence of bullying at the research location is moderate. Schools, government, health workers, and families are necessary to prevent bullying, especially in schools.

**Keywords:** Adolescent; Bullying behaviour; Yogyakarta

# On Care End of Life in the Emergency Department: Systematic Literature Review

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## ABSTRACT

**Background:** The Emergency Unit provides critical care to the most vulnerable senior members of society and is a vital component of the treatment plan for critically sick patients who are approaching the end of their lives. There is proof that certain EOL patients undergo a dying process that does not necessarily conform to the conventional wisdom on what constitutes a "good death".

**Purpose:** In this Article, how is end-of-life care in the Emergency Department.

**Methods:** This literature uses inclusion and exclusion criteria, articles that are obtained, reviewed, and sourced from databases, namely, Google Scholar (2020 - 2024), PubMed (2020 - 2024), and Science Direct. (2020–2024). The search strategy with the terms used in English is as follows: "last year of life" OR "Palliative Care" OR "emergency room" OR "Emergency Department" OR "death" OR "dying" OR "Clinical". The year of the literary sources is taken from 2020 to 2024. This is to ensure that all obtained articles are relevant and appropriate, then the full text is downloaded and saved.

**Results:** Initial identification of titles and abstracts in PubMed obtained 73 article, at ScieneDirect 85, whereas on Google Scholar acquired 783 article so total aobtained 941 article. Review Literature result from 14 article state that nurses and doctors provide end of life or palliative care to all age groups experiencing chronic illnesses. Thus showing the path of death according to palliative care protocols.

**Conclusion:** Nurses and doctors can provide services in Palliative Care, especially in the emergency department.

**Keywords:** *End of life; Emergency department; Emergency room; Doctor; Nurse; Palliative Care*

# The Hidden Strength: Family Caregivers' Resilience in Caring for Families with Chronic Illness in Yogyakarta

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## ABSTRACT

**Background:** Family caregivers play a crucial role in providing care for patients with chronic illnesses. The resilience of caregivers is essential to manage the physical, emotional, and psychological challenges associated with caregiving.

**Purpose:** To determine the resilience of family caregivers of patients with chronic illnesses in Yogyakarta.

**Methods:** This cross-sectional study was conducted in Balecatur Village Yogyakarta, with a sample of 100 family caregivers selected using purposive sampling. The Connor-Davidson Resilience Scale (CD-RISC) was used as the instrument for data collection, which has been validated and found to be reliable for measuring resilience. The analysis was conducted using descriptive statistics to determine the overall resilience level among participants.

**Results:** The results showed that the mean resilience score of the family caregivers was  $29.83 \pm 1.89$ , with a possible score range of 10 to 40. This indicates that the resilience level of the family caregivers caring for family members with chronic illnesses is relatively high.

**Conclusion:** The resilience of family caregivers was found to be relatively high, which is encouraging for their ability to cope with the stresses of caregiving. However, further interventions may be required to enhance resilience and provide additional support to those with lower scores. Developing programs focused on improving caregivers' resilience can help in maintaining their well-being and the quality of care they provide.

**Keywords:** *Chronic illness; Family caregivers; Resilience*

## The Correlation Between Happiness Levels and Quality of Life in Elderly

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### ABSTRACT

**Background:** Happiness correlates with good health. Happiness serves as an indicator for evaluating the quality of life, with those experiencing a high quality of life often reporting feelings of happiness. Happiness in the elderly can be attained by a high quality of life. A decline in the quality of life among the elderly would adversely impact their physical, psychological, and social health, thereby affecting their overall happiness.

**Purpose:** This study aims to determine the correlation between happiness levels and quality of life among the elderly residing in a nursing home.

**Methods:** This study employed a descriptive correlational method with a cross-sectional design. A sample size of 70 respondents participated in this study. OHQ and WHOQOL were utilized as instruments. The Pearson correlation coefficient, with a significance level of 0.013, was performed to analyse the data.

**Results:** This study's results indicated that the demographic characteristics of respondents revealed a predominance of women at 62.9%, while the age group with the largest representation was 60-69 years, comprising 45.71%. The elementary school dominated the education level of the respondents, reaching 42.9%. Most respondents were widows or widowers, reaching 90%, and 58.6% had comorbidities. Many of them, total 70%, exhibited a moderate level of happiness, accompanied by a quality of life rated at 100%. A relationship was identified with a positive value of 0.295, categorized as a moderate correlation.

**Conclusion:** This study concluded that a strong and significant correlation existed between happiness and quality of life. Hence, the higher the level of happiness of the elderly, the greater their quality of life.

**Keywords:** *Elderly; Happiness; Quality of life*



# The Correlation Between Personal Safety Skills and Self-Efficacy in Preventing Sexual Violence Among School-Aged Children

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## ABSTRACT

**Background:** Sexual violence against school-aged children remains a prominent issue worldwide, with cases continuing to rise and resulting in significant negative impacts for victims. The prevalence of sexual violence in children is influenced by various factors, including personal safety skills and self-efficacy. These two factors are critical for school-aged children to develop, as they promote awareness and understanding of sexual harassment risks and guide protective behaviours in environments where sexual violence may occur, thus reducing vulnerability to victimization.

**Purpose:** This study aims to investigate the relationship between personal safety skills and self-efficacy in preventing sexual violence among school-aged children.

**Methods:** This quantitative study employs a descriptive correlational design. Conducted at Muhammadiyah Warungboto Yogyakarta Elementary School, the study involved 50 school-aged children selected through purposive sampling. Two questionnaires were utilized, a personal safety skills questionnaire and a self-efficacy questionnaire focused on preventing sexual violence. Bivariate analysis was conducted using the Spearman test.

**Results:** Findings indicate that 50% of the participants had poor personal safety skills, while 44% demonstrated very high self-efficacy. The Spearman test yielded a p-value of 0.001 ( $p < 0.05$ ), demonstrating a significant relationship between personal safety skills and self-efficacy in preventing sexual violence among school-aged children. A correlation coefficient of 0.775 reflects a very strong, positive correlation between the variables.

**Conclusion:** Personal safety skills and self-efficacy are strongly correlated in preventing sexual violence among school-aged children. It is important to enhance school-aged children's understanding of these two aspects.

**Keywords:** *Personal Safety Skills; School-Aged Children; Self-Efficacy; Sexual Violence*

# Effectiveness of Self Compassion Training on Improving Psychological Well Being in Climacteric Women

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## ABSTRACT

**Background:** The climacterium period is a transition period from the reproductive period to the non-reproductive period. During climacterium there are changes in a woman due to reduced estrogen. One of these changes is changes in psychological well-being (PWB), which has an impact on women's quality of life. Self-Compassion training is needed to improve the ability to compassion for oneself. The design of this training module will refer to 3 aspects, namely self-kindness vs self-judgment, a sense of common humanity vs isolation, and mindfulness vs overidentification.

**Purpose:** to determine the effectiveness of self-compassion training on improving psychological well-being in women in the climacterium period.

**Methods:** This study is an action research with a type of single group design experiment pretest and posttest (One Group Pretest-Posttest Design), The sample in this study was 59 respondents taken with a simple random sampling technique, with inclusion criteria including willing to be respondents, not doing hormone replacement therapy, and still living with their husbands. Data analysis was conducted after the Psychological Well Being pretest and posttest data were collected, with the help of Statistical Product and Service Solution (SPSS) 17.0 release for Windows. Quantitative data analysis using Parametric Statistics Paired Sample t-test, with a set level of significance of  $p < 0.05$ .

**Results:** Based on the results of bivariate analysis, a significance value of 0.000 ( $p$ -value  $< 0.05$ ) was obtained, which means that there were differences in psychological well-being before and after self-compassion intervention in climacterium women.

**Conclusion:** The conclusion of this study is that self-compassion training is effective for improving psychological well-being of climacterium women.

**Keywords:** Menopause women; Psychological well-being; Self compassion training

# The Impact of Family Caregiver Burden on Stroke Patient Care Behavior

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## ABSTRACT

**Background:** Stroke prevalence in the Special Region of Yogyakarta is ranked second highest in Indonesia, with a prevalence of 14.6%. The highest prevalence is in the city of Yogyakarta at 1.50%. In cases of stroke, family caregivers must accompany the patient for up to 24 hours to meet all the patient's needs. The role of family caregivers aims to restore the quality of life of stroke patients and improve the therapeutic efforts of patients.

**Purpose:** This study aims to determine the relationship between family caregiver burden and behavior in caring for stroke patients at the Yogyakarta City Hospital.

**Methods:** This study is quantitative with a descriptive correlative design and a cross-sectional approach. The number of samples used was 39 respondents selected using purposive sampling techniques. Data collection used the Zarit Burden Interview Questionnaire and the Family Caregiver Behavior Questionnaire, which have been validated and are reliable. Data analysis in this study used univariate and bivariate analysis.

**Results:** The results showed that family caregiver burden is related to behavior in caring for stroke patients ( $r = -0.335$ ;  $p = 0.037$ ). The distribution of family caregiver burdens includes no burden 43.6%, light burden 51.3%, moderate burden 5.1%, while family caregiver behavior in the category of less 5.1%, family caregiver behavior in the category of sufficient 69.2%, and family caregiver behavior in the category of good 25.6%.

**Conclusion:** Good family caregiver behavior in caring for stroke patients will positively affect stroke patients. For family caregivers who are detected to have a high burden, it is hoped that they can consult on how to overcome it so that the quality of life of stroke patients and family caregivers can improve.

**Keywords:** *Behavior in Caring for Stroke Patients; Family Caregiver Burden; Stroke*

# The Role of Pain and Disease Severity in Determining Quality of Life Among Parkinson's Patients

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## ABSTRACT

**Background:** Parkinson's disease affects approximately 1.5%–2.0% of elderly individuals  $\geq 60$  years and approximately 4% of subjects aged  $>80$  years. In general, clinical symptoms appear after about 70-80% of dopaminergic neurons have been destroyed. Chronic pain is a major health concern that influences the functional, social, economic, and emotional well-being of patients, thereby diminishing their quality of life. Patients with Parkinson's disease who experience pain, regardless of disease type tend to have lower PDQ-39 scores than those who do not report pain.

**Purpose:** This study aimed to evaluate the relationship between pain, quality of life, and severity in patients with Parkinson's disease.

**Methods:** This cross-sectional observational study was conducted at the Neurology Clinic of RSUD dr. Saiful Anwar Malang, East Java examined the severity of PD, intensity of pain (NRS), and quality of life (PDQ-39) of each respondent. Purposive sampling was conducted from October 2023 to March 2024. The independent variables were Parkinson's disease severity and pain intensity, and the dependent variable was quality of life. Data were analyzed using SPSS Version 26.

**Results:** The PDQ-39 score was significantly higher in patients with Parkinson's disease than in healthy controls and correlated closely with PD severity ( $p=0.012$ ). PDQ-39 scores were not significantly correlated with pain intensity ( $p=0.117$ ). Pearson's correlation analysis also demonstrated no substantial correlation between Parkinson's disease severity and pain intensity scores ( $r=0.461$ ,  $p=0.154$ ). In detail, PDQ-39 scores were significantly influenced by the severity of Parkinson's (Hoehn and Yahr scale) ( $p=0.001$ ), but did not show a significant effect on the intensity of pain (NRS) ( $p=0.399$ ).

**Conclusion:** This study revealed a significant correlation between Parkinson's disease severity and quality of life; however, no significant relationship was found between pain levels and disease severity.

**Keywords:** Disease Severity; Pain Levels; Parkinson's; Parkinson's Disease; Quality of Life

# The Relationship Between Workload and The Implementation of Occupational Health and Safety Behavior of Nurses at Panembahan Senopati Hospital, Bantul

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## ABSTRACT

**Background:** Nurses are professionals responsible for providing high-quality nursing care, covering patients' bio-psycho-social and spiritual needs. In fulfilling their duties, nurses need to apply Occupational Health and Safety (OHS) principles to ensure a safe working environment. However, high workload often negatively impacts OHS practices, thereby increasing the risk of work-related accidents.

**Purpose:** This study aims to explore the relationship between workload and the implementation of OHS behavior among nurses at Panembahan Senopati Hospital, Bantul.

**Methods:** This research used a quantitative approach with a cross-sectional design. Data were collected from 72 outpatient and hemodialysis nurses at Panembahan Senopati Hospital, Bantul, through a questionnaire and analyzed using the Gamma correlation test to assess the relationship between workload and OHS behavior variables.

**Results:** The outpatient (OPD) and hemodialysis nurses are dominated by females, aged between 36 – and 55 years, with a level of education nursing diploma. The analysis showed that 76.5% of respondents had heavy workloads, with 88.9% lacking implementation of OHS practices. Gamma analysis showed a p-value of 0.000 with a correlation coefficient of -0.920.

**Conclusion:** There is a significant relationship between workload and the implementation of OHS behavior among nurses. This study's results can provide input for hospital management in designing policies related to workload balance and improving OHS standards to minimize work-related accidents and enhance service quality.

**Keywords:** Hospital; Nurses; Occupational health and safety; Workload

## Community Preparedness Volcanic Eruption Disasters in Yogyakarta, Indonesia

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### ABSTRACT

**Background:** Volcano Eruption disaster is an event that can threaten and disrupt people's lives and the environment. One effort the community can make to reduce disaster risk is to increase preparedness.

**Purpose:** This research aims to determine community preparedness for volcanic eruptions in Yogyakarta, Indonesia

**Methods:** This cross-sectional study was conducted in Cangkringan Sleman Yogyakarta. Sample using 144 respondents with a stratified random sampling technique. Data were collected using the volcanic eruption preparedness questionnaire. The questionnaire has been validated and found to be reliable. The analysis was conducted using descriptive statistics to determine community preparedness for volcanic eruptions

**Results:** In this research, the majority were female (54.2%), aged 17-25 years (32.6%), high school education (56.9%), and had been exposed to sources of information (61%). Preparedness in the emergency response plan aspect was a good category of 79 respondents (54.9%), knowledge aspect was a good category of 137 respondents (95.1%), disaster warning system aspect with a good category of 126 respondents (87.5%), and aspects of resource mobilization with good category 135 respondents (93.8%).

**Conclusion:** Most people have a good level of preparedness regarding good emergency response plans, good knowledge, good disaster warning system aspects, and good resource mobilization. But in practice, many things should have been prepared. The role of the government is very much needed to empower the community to be ready to deal with the volcanic eruption.

**Keywords:** *Community; Disaster preparedness; Volcanic eruption*

# The Effect of *Syzygium Aromaticum* on Uric Acid Levels Among Elderly in Ternate

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## ABSTRACT

**Background:** Gout is a degenerative condition that common happens among the elderly. Gout might occur due to excess production of uric acid levels can be influenced by the type of food consumed, and diuretic drugs and kidney disease or intoxication. *Syzygium aromaticum* is a non-pharmacological technique that can reduce uric acid levels.

**Purpose:** The research aims to determine the effect of *Syzygium aromaticum* on uric acid levels in the elderly in Ternate.

**Methods:** The research conducted in Ternate using experimental research design with a one group pretest-posttest design. There are 33 respondents included in this study recruited using total sampling technique. samples with total sampling technique. Data analysis used paired sample t-test

**Results:** Before the intervention, it was found that 31 elderly people had increased uric acid levels. After the intervention, 30 elderly people experienced a decrease in uric acid levels. The results of the paired sample t test showed p-value= 0.000 (p value < 0.05), which means that there was an effect of giving *Syzygium aromaticum* on uric acid levels in the elderly

**Conclusion:** There is an effect of *Syzygium aromaticum* on uric acid levels in the elderly in Ternate.

**Keywords:** *Elderly; Syzygium aromaticum; Uric Acid Levels*

## Effect of Buerger Allen Exercise on the Level of Blood Glucose

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### ABSTRACT

**Background:** Diabetes Mellitus (DM) has become one of the most prevalent chronic diseases worldwide, while ineffective peripheral perfusion is mainly manifested in type II diabetes mellitus. Physical exercise is essential to increase muscle cell membrane permeability to glucose, decrease insulin resistance, increase peripheral perfusion in lower extremities, and control blood glucose. Buerger Allen Exercise (BAE) is a physical activity that amplifies blood perfusion using gravity with specific muscle movement on the lower extremities.

**Purpose:** To identify the effect of BAE on the level of blood glucose of diabetic patients.

**Methods:** A quasi experiment with the pre-post-test design was applied to 30 respondents assigned to the control and intervention groups. The sample was type II diabetic patients with a low risk of diabetic ulcers who joined a community health center's chronic illness management program (Prolanis) in Yogyakarta, Indonesia. BAE was given to the intervention group for 7 days, while the control group received regular treatment. The blood glucose levels of all participants were assessed on day 1 and day 7. Mann-Whitney U statistical analysis was used to compare the median difference in blood glucose levels between groups.

**Results:** The mean age of the control group was  $64.2 \pm 5.9$  years, diagnosed with DM for  $4 \pm 2.9$  years, and the body mass index (BMI) was  $24.04 \pm 2.2$  while the intervention group's mean age was  $61.7 \pm 5.9$ , diagnosed with DM for  $7.3 \pm 5.7$  years, and the BMI was  $25.5 \pm 2.4$  respectively. There is a statistically significant difference in blood glucose levels between control and intervention groups ( $Z = -3.609$ ,  $p < 0,05$ ). BAE is an effective complementary therapy to control blood glucose levels in type II diabetic patients.

**Conclusion:** BAE can be performed as part of nursing intervention to control blood glucose in type II DM patients.

**Keywords:** Burger Allen Exercise; Complementary Therapy; Diabetes Mellitus; Exercise Therapy; Holistic Therapy.



# Adolescents' Knowledge and Attitudes Towards Balanced Nutrition Patterns to Prevent Type 2 Diabetes Mellitus

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## ABSTRACT

**Background:** The International Diabetes Federation predicts that by 2045, the number of people with diabetes mellitus will reach 783 million. The elderly age group generally suffers from Diabetes Mellitus, but currently, diabetes mellitus can also occur in adolescence. The leading cause of type 2 diabetes mellitus in adolescents is an unbalanced lifestyle, including an unbalanced diet.

**Purpose:** The study aimed to determine the relationship between adolescents'; knowledge and attitudes about a balanced diet and preventive measures for type 2 diabetes mellitus.

**Methods:** The research design uses a quantitative method with a proportionate stratified random sampling technique. The sample of this study was 93 respondents at SMAN 10 Yogyakarta. The study used a balanced diet knowledge questionnaire, Ques CA, with an r value above the r table (0.333) and a reliability value of  $\alpha = 0.687$ . The balanced diet attitude questionnaire was also tested for validity with an r table value (0.333) and a reliability test with an  $\alpha$  value = 0.680. The diabetes mellitus prevention action questionnaire has been tested for validity with a CVI value of 0.83 and a reliability test with a reliable value of 0.737. The data were analyzed univariate and bivariate using Kendal's Tau- Test.

**Results:** The results were obtained between adolescents'; knowledge about diet with preventive measures for type 2 diabetes mellitus with a p-value of 0.010 ( $p \leq 0.05$ ) with a positive correlation of r 0.264 (0.2-0.399) and results between adolescents'; attitudes about diet with preventive measures for type 2 diabetes mellitus with a p-value of 0.013 ( $p \leq 0.05$ ) with a positive correlation of r 0.300 (0.2-0.399).

**Conclusion:** There is a significant relationship between adolescents'; knowledge about a balanced diet and measures to prevent type 2 diabetes mellitus. There is a substantial relationship between adolescents' attitudes about a balanced diet and measures to prevent type 2 diabetes mellitus.

**Keywords:** *Adolescents; Balanced Diet; Diabetes Mellitus Prevention*

# How Peer Mentoring Increase Students Self Esteem in Academic Setting, Study in Nursing Students

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## ABSTRACT

**Background:** Mental health is an essential aspect for students that determines their success during their studies and future. Mental problems experienced by students can lead to self-harm and suicidal behaviour. Mental issues are rooted in students' low ability in self-management of problem-solving, low self-confidence and self-esteem. Interventions are needed to reduce the prevalence of mental problems and modify self-confidence, self-esteem, problem-solving, and self-management skills, especially time management.

**Purpose:** This study aimed to evaluate the effect of peer mentoring on students' self-esteem.

**Methods:** This is pre-experimental study without control group. In this study, 40 nursing students who perceived problem with self-esteem participated. During peer mentoring, nursing students were voluntarily assigned 2 session of peer mentoring program (first session for self-love materials and second session for time management). Using the CSSI 21 Checklist, we assessed the students at baseline and, after one weeks completed peer mentoring in order to measure the outcome. Finally, the data were analyzed using Wilcoxon Test statistical analysis

**Results:** Peer mentoring had significant impact on self-esteem levels among the students. The mean of self-esteem scores increased from  $112 \pm 46$  to  $118 \pm 66$  ( $p < .0001$ )

**Conclusion:** Peer mentoring had benefit on increasing students' self-esteem.

**Keywords:** *Nursing Students; Peer Mentoring; Self Esteem*

## Reducing Depression Using Herbal Therapy on Elderly in Indonesia

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### ABSTRACT

**Background:** Depression becomes a burden for the person, family, and the community because of lowered productivity and higher healthcare costs. Untreated depression affects the quality of life. Therefore, Complementary and Integrative Therapy (CIT) is needed to reduce depression.

**Purpose:** The purpose of the study is to know the effectiveness of CIT between Sahdu Tea, wedhang uwuh Javanese traditional drink, and Aromatic Footbath Hydrotherapy on reducing depression

**Methods:** The research was conducted using Quasi Experimental to 107 respondents. The older people who had two depression symptoms were included in this study. Those who had dementia, diabetes mellitus, and mental disorders were excluded. The questionnaire used in this research was Geriatric Depression Scale (GDS). The data were analyzed using Wilcoxon and Kruskal-Wallis test to measure the effectiveness of the therapy.

**Results:** The data found that aromatic footbath therapy and Sahdu tea are effective to decrease the elderly's' depression ( $p = 0.000$  and  $p = 0.004$ ).

**Conclusion:** The Sahdu Tea and Aromatic Footbath Hydrotherapy are effectively in decreasing the elderly's' depression.

**Keywords:** *Depression; Elder Adults; Herbal Therapy*

## Nutritional Content of Snakehead Fish Pempek (*Channa Striata*) with the Addition of Moringa Leaves (*Moringa Oleifera*) as an Effort to Prevent Stunting

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### ABSTRACT

**Background:** Pempek is one of the traditional foods from the city of Palembang. In this study, Pempek produced using snakehead fish (*Channa Striata*) and moringa leaf flour as the basic ingredients with high nutritional content.

**Purpose:** To determine the characteristics of the nutritional content of snakehead fish pempek (*Channa striata*) with the addition of moringa leaves (*Moringa oleifera*).

**Methods:** Proximate tests have been conducted three times to measure the levels of water, ash, protein, fat, carbohydrates, crude fiber, energy, and Fe (iron) content.

**Results:** The result of the last proximate test of snakehead fish pempek with the addition of moringa leaves are water content 69.23%, ash content 0.89%, protein content 6.02%, fat content 0.50%, crude fiber content 1.94%, carbohydrate content 21.42%, energy content 112.68cal/100g and Fe 5.36 mg /100g.

**Conclusion:** Pempek made from snakehead fish (*Channa striata*) with the addition of *Moringa Oleifera* leaves contains the highest levels of water, carbohydrates, protein, iron and energy and it is expected to improve nutritional status and stunting prevention.

**Keywords:** *Channa Striata; Moringa Leaf; Nutrition; Pempek; Stunting*

## Risk of Spouse HIV Status and Anal Sex on HIV/AIDS Transmission in Male Sex Men (MSM) at Kendari City Hospital

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### ABSTRACT

**Background:** HIV/AIDS cases occur mostly in productive age with the highest percentage in men. One of the risk factors contributing to the incidence of HIV/AIDS is the group of men who have sex with men (MSM). This is due to risky sexual practices in this group. At the Kendari City Hospital, there has been a significant increase in new cases of HIV/AIDS every year, especially in the MSM group. The average proportion of the number of HIV/AIDS cases in MSM in 2021 was 65.4%- in 2022 it was 74.3%, and in 2023 it was 77.1%.

**Purpose:** This study aims to analyze the behavioral model of HIV/AIDS transmission risk in the group of Men Who Have Sex with Men (MSM) at the Kendari City Hospital.

**Methods:** This type of research is quantitative research with a case-control design. The study population consisted of 349 cases and 423 controls. The minimum sample size taken was 75 case subjects and 75 control subjects. So that the total number of subjects in this study was 150 people, with sampling using random sampling. Data collection was carried out through observation and interviews using questionnaires. Data analysis was conducted descriptively, epidemiologically and logistic regression analysis.

**Results:** The results of the study obtained the Odds Ratio (OR) value of the partner's HIV status of 30.545 and anal sex of 7.042.

**Conclusion:** The conclusion in this study is that the partners HIV status and anal sex are behavioral risk factors for HIV/AIDS in the Men Who Have Sex with Men group at the Kendari City Hospital. It is expected that the Kendari City Health Office will increase socialization activities on condom use and examination of sexually transmitted infections as an effort to prevent HIV/AIDS, especially for the MSM group. This can be done through cross-sectoral cooperation with other agencies as well as the involvement of NGOs and working together with the community.

**Keywords:** Anal Sex; HIV; HIV Status; MSM

## How The Psychological Issues of Diabetic Ulcer Patient?

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### ABSTRACT

**Background:** Diabetic ulcers are one of the complications of diabetes mellitus that affect both physical and psychological conditions. The psychological issues that arise include self-motivation, anxiety, self-esteem, and body image.

**Purpose:** To understand the psychological profile of patients with diabetic ulcers.

**Methods:** This research uses a quantitative descriptive method. This research was conducted at a wound clinic in the city of Semarang in July – August 2024. The population of this study consists of diabetic ulcer patients receiving treatment at a wound clinic in Semarang City, totaling 55 patients in April 2024. The instruments used in this study include the TSRQ (Treatment Self-Regulation Questionnaire) to assess self-motivation levels, the ZSAS (Zung Self Anxiety Scale) to assess anxiety levels, the RSES (Rosenberg Self Esteem Scale) to assess self-esteem levels, and the body image questionnaire.

**Results:** The results of this study indicate that diabetic ulcer patients have a good level of self-motivation with 12 respondents (21.8%) and a level with 43 respondents (78.2%). The level of mild anxiety was reported by 20 respondents (36.4%), moderate by 30 respondents (54.5%), and severe by 5 respondents (9.1%). The level of low self-esteem was reported by 29 respondents (52.7%), moderate by 24 respondents (43.6%), and high by 2 respondents (3.6%). The level of negative body image was reported by 12 respondents (21.8%) and positive by 43 respondents (78.2%).

**Conclusion:** Patients with diabetic ulcers have poor self-motivation, moderate anxiety, low self-esteem, and a positive body image. The suggestion for future researchers is exploring more of the relationship between respondent characteristics and one or more psychological components as factors influencing the healing process of diabetic ulcers.

**Keywords:** *Anxiety; Body image; Diabetic ulcer; Self-esteem; Self-motivation*

## Effect of Nutrition Counseling on Toddler Weight Change

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### ABSTRACT

**Background:** Less nutritional problems are one of the health problems found in many developing countries, including Indonesia countries. Based on an initial survey of the researcher in 2023 at the working area of Waara Health Center Lohia district in Mantobua Village, 65 children under five suffer from malnutrition

**Purpose:** To determine the effect of nutritional counseling on changes in toddlers' weight in Mantobua Village, Lohia District Muna Regency

**Methods:** The type of this research is pre-experimental and using one group pretest-posttest design. The population of this study was 65 toddlers, with a total sampling technique of sampling, with a sample size 65 toddlers. The method of analysis using Paired Samples Test Statistics

**Results:** The results showed that body weight before and after counseling has changed. It can be seen from the statistical test obtained  $p: 0,000$ . Therefore the value of the data is  $p < 0.05$  which shows a significant difference

**Conclusion:** Based on the results of the research can be concluded that there are influence of nutrition counseling on weight change in children who has under five in Mantobua Village, Lohia District Muna Regency

**Keywords:** *Nutrition Counseling; Toddler Weight*

## Ablution Therapy and Murottal Al-Qur'an Have an Effect on the Anxiety of Third Trimester Pregnant Women at Bangetayu Health Center, Semarang, Indonesia

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### ABSTRACT

**Background:** anxiety for pregnant women in the third trimester is a period where pregnant women feel afraid and worried about the health condition of the mother and baby to be born. One of the non-pharmacological therapies that can be done to reduce anxiety is ablution therapy and Murottal Al-Quran.

**Purpose:** this study aims to determine the effect of providing wudu and murrotal Al-Qur'an therapy on anxiety in third trimester pregnant women.

**Methods:** the research used was a pre-experiment with one group pretest-posttest. The sampling technique used purposive sampling of 30 third trimester pregnant women. The data analysis used is univariate and bivariate, where bivariate uses dependent T-test analysis. The instrument used was the Perinatal Anxiety Screening Scale (PASS) questionnaire.

**Results:** the results of this study indicate that there is an influence of ablution therapy and murottal Al-Qur'an on anxiety levels in pregnant women ( $p < 0.001$ ).

**Conclusion:** There is an influence of ablution therapy and murottal Al-Qur'an on the anxiety level of pregnant women in the third trimester provides the benefit of being more relaxed so that it can stimulate the body to release endorphin hormones.

**Keywords:** Al-Qur'an murottal therapy; Anxiety; Third trimester pregnant women; Wudu therapy



# Intervention Strategies to Improve HRQoL in Patients Undergoing Long-Term Dialysis Treatment: A Systematic Review

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## ABSTRACT

**Background:** Health-related quality of life (HRQoL) among patients undergoing long-term dialysis treatment is significantly impacted by both the physical and psychological burden of the disease. Various intervention strategies have been employed to improve HRQoL in these patients, but a comprehensive review of their effectiveness is lacking.

**Purpose:** This systematic review aims to assess the effectiveness of various intervention strategies in improving HRQoL among patients undergoing long-term dialysis treatment.

**Methods:** Following the PRISMA guidelines, a systematic review of the literature was conducted using databases such as Scopus, PubMed, Google Scholar, and ScienceDirect. The search focused on studies published in the last three years using keywords related to HRQoL, dialysis, adult patients, and interventions. After screening, 22 studies met the inclusion criteria.

**Results:** The review identifies various intervention strategies, including physical exercise, psychological counseling, nutritional support, and social engagement programs. Most studies demonstrated a positive impact on HRQoL, with improvements in both physical and mental health domains.

**Conclusion:** Intervention strategies, particularly those involving multidisciplinary approaches, show significant potential in improving HRQoL among long-term dialysis patients. Future research should explore the integration of personalized interventions based on individual patient needs.

**Keywords:** *Chronic kidney disease; Dialysis; Interventions; HRQoL*

# Use of BEFAST as an Early Stroke Detection Instrument in the Prehospital Phase: A Systematic Literature Review

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## ABSTRACT

**Background:** Stroke is the second leading cause of death in the world, as well as the main cause of disability throughout the world. Early recognition and decision making for Stroke can be improved by using the BEFAST (Balance, Eyes, Face, Arm, Speech, Time) as an initial assessment instrument at the prehospital stage.

**Purpose:** To determine the effectiveness of using BEFAST as an early detection of stroke in the prehospital setting.

**Methods:** This research design uses Systematic Review. Articles taken from PubMed, Science Direct, Google Scholar and Scopus from 2019 to 2024. Search for articles using the keywords Stroke OR cerebra arterial disease AND prehospital detection AND BEFAST. The study design used Preferred Reporting Items for Systemic Review and Meta-Analysis (PRISMA) Guidelines.

**Results:** 217 articles were found and 5 articles were reviewed in this study and supported that The use of BEFAST can be used as an early recognition of stroke in the pre-hospital setting, with high sensitivity and specificity.

**Conclusion:** The use of BEFAST is an objective aspect for early prehospital detection, preparation for stroke code activation in the emergency department, that can reduce the risk of death, disability, and get treatment more quickly.

**Keywords:** *BEFAST; Cerebrovascular Diseases; Prehospital Detection; Stroke*

# Comparison Of Insulin-Like Growth Factor-1 (IGF-1), Insulin-Like Growth Factor Binding Protein-3 (IGFBP-3), And Transforming Growth Factor- $\beta$ 1 (TGF- $\beta$ 1) Between Stunted And Non-Stunted Girls Adolescents

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## ABSTRACT

**Background:** Adolescents in good health have body mass index, height, and weight suitable for their age. Adolescents require a healthy diet to grow. Bone growth is influenced by nutritional factors as well as growth hormones and several other growth factors.

**Purpose:** This study aimed to determine the concentrations of IGF-1, IGFBP-3, and TGF- $\beta$ 1 in stunted and non-stunted adolescents.

**Methods:** A cross-sectional study was conducted. Adolescent girls between 12 and 14 served as the research subjects. Twenty-eight samples in the group were stunted, and 60 samples were not. Weight, height, nutritional status, and a nutritional intake questionnaire are among the examination methods used. Biochemical examination of IGF-1, IGFBP-3, and TGF- $\beta$ 1 was conducted using the Elisa method.

**Results:** The average height of stunted adolescents was  $140.64 \pm 3.08$  cm and non-stunted was  $149.15 \pm 4.05$  cm. Meanwhile, the average body weight of the stunted was  $34.64 \pm 5.69$  Kg, and non-stunted was  $34.64 \pm 8.48$  Kg. The average BMI result for stunted was  $17.54 \pm 3.02$  and for non-stunted  $17.54 \pm 3.02$ . There were 15 stunted sufferers with insufficient protein intake. The results of the analysis showed that the average concentration of IGF-1 in the stunted group was  $3.44 \pm 0.93$  ng/mL, and non-stunted, namely  $4.6 \pm 3.08$  ng/mL, there was a significant difference with a P value of 0.016. The mean concentration of IGFBP-3 in the stunted group is  $6.11 \pm 3.37$  ng/mL and non-stunted, namely  $9.55 \pm 4.24$  ng/mL, there was a significant difference with P value of 0.000. The average concentration of TGF- $\beta$ 1 in the stunted group was  $483.11 \pm 141.22$  pg/mL and non-stunted  $584.57 \pm 201.68$  pg/mL, and a significant difference between the two groups with P value of 0.019.

**Conclusion:** The occurrence of stunting in adolescents is influenced by nutritional factors and growth factors.

**Keywords:** Adolescents; IGF-1; IGFBP-3; TGF- $\beta$ 1; Stunted

# Correlations Of Dietary Consumption Of Carbohydrates And Lipids And Physical Activity Among Adults With Overweight And Obesity In Surakarta

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## ABSTRACT

**Background:** Overweight and obesity are global health concerns that result from multifactor interactions and contribute to type 2 diabetes mellitus (T2DM). Dietary habits, especially high consumption of carbohydrates and lipids and low physical activity are recognized as the main risk factors for obesity. Surakarta is one of the big cities in Central Java, Indonesia that notably has high prevalence of overweight and obesity among adults. However, the risk factors contributing to this high prevalence of obesity remain contradictory.

**Purpose:** This study aimed to investigate the correlation between dietary consumption of carbohydrates and lipids and physical activity among obese adults in Surakarta.

**Methods:** This analytical observational study used a case-control design that recruited 42 healthy adults who were overweight and obese as the control group, and 22 subjects who were overweight and obese with T2DM were assigned as the case group. Carbohydrate and lipid consumption and physical activity data were collected using SQ-FFQ and the IPAQ-SF. Body weight and height were measured using BIA Omron Karada Scan HBF-214 and stature meter. BMI for all participants was categorized in accordance with the Asia Pacific classification. Bivariate and multivariate analyses were performed using the Spearman correlation and multiple linear regression tests with  $p < 0.05$  for significance.

**Results:** Carbohydrate consumption ( $r=0.016$ ,  $p=0.711$ ), lipid consumption ( $r=-0.206$ ,  $p=0.108$ ), and physical activity ( $r=-0.044$ ,  $p=0.735$ ) weakly correlated with BMI. Altogether, a significant correlation was only found in lipid consumption (Beta=-0.268,  $p=0.046$ ).

**Conclusion:** Only lipid consumption significantly correlated with overweight and obesity among adults in Surakarta.

**Keywords:** *Body Mass Index; Carbohydrate and Lipid Consumption; Obesity; Physical Activity; Surakarta*

# Implementation of Patient-Centered Care for Patients with Disabilities in Rehabilitation Medical Center of RSPPN Soedirman Indonesia 2024

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## ABSTRACT

**Background:** The application of PCC in hospital accreditation standards is expected to have a significant positive impact on patient satisfaction. The measurement of patient satisfaction in hospitals, particularly among disabled patients as a special needs population in the outpatient rehabilitation unit at Dr. Suyoto Hospital, is conducted routinely.

**Purpose:** This study is conducted to determine the difference in satisfaction levels before and after accreditation, to identify the most important factors contributing to patient satisfaction, and to explore healthcare providers' experiences in implementing Patient-Centered Care (PCC), including both the benefits and challenges from the healthcare providers' perspectives.

**Methods:** The research utilizes a mixed-method approach. This research is a cross sectional analytical research using questionnaire adapted from Ministry of Administrative and Bureaucratic Reform (Kemenpan RB) No. 14 of 2017 regarding the Guidelines for Preparing Public Service Satisfaction Surveys and followed by qualitative research involving in-depth interviews with 9 loyal patients with disabilities in the outpatient rehabilitation unit and 5 healthcare personnel who have been working since 2017 to the present.

**Results:** There has been an increase in patient satisfaction following accreditation. Facilities and infrastructure are the most critical factors in determining the satisfaction of disabled patients and Healthcare workers recognize both benefits and challenges associated with accreditation also.

**Conclusion:** The implementation of Patient-Centered Care (PCC) in accreditation enhances the satisfaction of patients with disabilities, primarily influenced by the availability of facilities and infrastructure as a crucial factor. Additionally, there are both challenges and advantages to applying PCC from the perspective of healthcare providers.

**Keywords:** *Disabled Patients; Outpatient Rehabilitation Unit; Patient-Centered Care; Satisfaction; RSPPN Soedirman*

## The Impact of Dating Violence on Adolescents

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### ABSTRACT

**Background:** the phenomenon of violence during dating has increased in recent years. Referring to the National Commission on Women's annual records for 2022, namely data related to a series of reports of violence against women during 2021 which indicates an increase in cases of dating violence in recent years, which increased from 20% in 2020 to 23% in 2021, namely 1,222 cases (Note the National Commission on Women, 2022). Cases of dating violence have the same pattern every year with the second highest position in cases of personal relations against women.

**Purpose:** Can you provide an overview of the impact of dating violence on teenagers?

**Methods:** This research model is included in the mixed method research category with an embedded experimental design, so that the data analysis carried out in this research uses two approaches, namely a qualitative approach and a quantitative approach. The respondents of this study were late adolescents aged 18-21 years who experienced violence in dating.

**Results:** Based on research data, it is known that of the 227 respondents who joined this research, there were 87.2% who experienced violence in dating or as many as 198 respondents, while 12.8% or as many as 29 teenagers did not experience violence in dating when in romantic relationships with the opposite sex.

**Conclusion:** this study illustrate that dating violence has an impact on several things that can disrupt the daily functioning of the victim's life. This research explains that the biggest impact experienced by adolescent victims of dating violence is 1). psychological disorders, namely 102 teenagers (44.9%), 2). Disturbances in relationships/social relations were 98 teenagers (43.2%), 3). Suffering physical injuries, namely 29 teenagers (12.8%) and 4). The impact on sexual organ disorders/diseases was 14 teenagers (6.2%).

**Keywords:** *Impact; Teenagers; Violence in Dating*

## E-Modules to Improve the Knowledge of Cadres and Mothers in Managing Diarrhea Care in Children at Home

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### ABSTRACT

**Background:** Diarrhea can be a dangerous condition if not treated appropriately, as it can cause dehydration that requires inpatient treatment and can even cause stunting if the child has recurrent diarrhea. Knowledge of cadres and mothers of toddlers is very important in dealing with diarrhea children at home so that negative impacts do not occur.

**Purpose:** This study was to analyze the effect of e-modules on the knowledge of cadres and mothers of toddlers in the care of children with diarrhea at home.

**Methods:** Quasi-experiment with Pretest-Posttest Group Design control used. The sample in this study were 30 cadres and 60 mothers who had children who were diarrhea and had experienced diarrhea in Punggolaka Village. The statistical test used was paired t-test, the treatment group was given to 30 cadres and 30 mothers of toddlers and 30 other mothers of children as controls. The instrument used e-module media to provide education about the care of children with diarrhea at home and questionnaires to measure the knowledge of cadres and mothers of children in the management of children with diarrhea at home based on the Integrated Management of Childhood Illness (IMCI) approach, mothers of children as controls without treatment.

**Results:** Statistical results obtained knowledge of cadres and mothers of children each with a p value <0.001 in the treatment group and mothers of children in the control group with a p value of 0.024 and a sig value (<0.005) which indicates that there is an effect of e-module media on the knowledge of cadres and mothers of children.

**Conclusion:** E-modules can increase the knowledge of cadres and mothers of toddlers in the care of diarrheal children at home in Punggolaka village, this can be used as a reference in the care of diarrheal children at home.

**Keywords:** Children; Diarrhea Care; E-Modules; Knowledge

# Effectiveness of Assemblr Edu Augmented Reality to Improve Knowledge of Parenteral Medication Among Nursing Students in Yogyakarta Nursing College, Indonesia

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## ABSTRACT

**Background:** Parenteral medication administration errors among nursing students are most common in nursing laboratories and health services. Efforts to improve students' knowledge continue to be developed by nursing education in Indonesia. By using Assemblr edu about parenteral medication, it is hoped that students can access easily and quickly.

**Purpose:** The aims of this study are to develop and validate a assemblr edu to improve knowledge of parenteral medication among nursing students.

**Methods:** The research is a quasi-experimental study with a non-equivalent group pre-test and post-test designed with control group. This research to examine the effectivities of Assemblr edu parenteral medication on knowledge among nurse student. In a two-group experiment using pretest-posttest methodology with an added comparison group, the intervention group in the first group received. The research location at three nursing College in Yogyakarta. Respondents in this study in each group were 56, so the total respondents were 112 students.

**Results:** Statistic test shows thant the Sig. (2-Tailed) value from the Independent Sample t-test as 0.000 or <0.05, indicating a difference in the mean scores between the post-test measurements of knowledge and skills in the control and experimental groups.

**Conclusion:** Based on this value, it can be interpreted that there is a significant relationship regarding the effectiveness of Assemblr Edu Augmented Reality in improving the knowledge and skills of parenteral medication among nursing students at Yogyakarta Nursing College, Indonesia.

**Conclusion:** *Assemblr edu; Knowledge; Parenteral medication*



# Empowering Posyandu Cadres: Improving Maternal Mental Health Literacy as a Strategy to Reduce Stunting

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## ABSTRACT

**Background:** Stunting and mental health are two issues relevant to the context of public health in Indonesia. Maternal mental health plays a crucial role in preventing stunting. Mothers who experience mental health disorders are at a higher risk of not providing optimal care and nutrition for their children. Posyandu Cadres, as the frontline in maintaining maternal and child health, often are the first to detect health issues, including maternal mental health problems. Therefore, to improve maternal mental health literacy, Posyandu Cadres need not only to expand their knowledge about the symptoms and causes of mental health disorders but also to acquire skills to provide effective psychosocial support to mothers and families.

**Purpose:** This study aims to assess the effectiveness of training for Posyandu Cadres in increasing maternal mental health literacy.

**Methods:** Data collection used a maternal mental health literacy questionnaire measured before and after the training. The method used in this research is a quasi-experiment with a paired sample t-test.

**Results:** The analysis results show a significance value (2-tailed) of 0.028, indicating a significant difference in maternal mental health literacy levels among Posyandu Cadres before and after the training. Thus, the training is an effective method for improving maternal mental health literacy for Posyandu Cadres.

**Conclusion:** Skills were gained to help Posyandu Cadres identify and provide support for maternal mental health issues.

**Keywords:** *Maternal mental health literacy; Posyandu cadres; Stunting*

# Building Cross-Sector Collaboration in Breastfeeding Programs: Analysis of the Potential Role of the Non-Government Sectors in Aceh Province

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## ABSTRACT

**Background:** Aceh Province is one of the regions with a low exclusive breastfeeding coverage program below the national target. Despite the government's efforts and policies to support breastfeeding coverage, Aceh still faces challenges in achieving this, requiring collaborative efforts across sectors to overcome these challenges.

**Purpose:** This study aims to analyze the potential role of the nongovernmental sector in strengthening breastfeeding initiatives in Aceh Province, Indonesia.

**Methods:** This study used a descriptive qualitative approach to analyze the roles and interactions of stakeholders in the breastfeeding program in Aceh Province. Data was collected through structured interviews, observation, and document review in the form of policies, work programs, and other documents relevant to this study.

**Results:** The results showed that cross-sector collaboration in exclusive breastfeeding in Aceh Province has greater strengths. Several potential sectors can be identified in this collaboration effort outside the government, consisting of the private sector, mass media, academia and the non-profit sector. Important elements that must be developed in the sustainability of collaboration are trust, respect, communication, power, strategic alliances, equality, incentives and values, negotiation, and inter-organizational knowledge sharing.

**Conclusion:** The implication of this study is the need to strengthen cross-sector collaboration in breastfeeding policy with the support of sustainable incentives. This is expected to increase exclusive breastfeeding coverage in Aceh, support maternal and child health, and help achieve national targets.

**Keywords:** Aceh Province; Breastfeeding; Collaboration; Cross-Sector

# Pre-Disaster Financing Readiness at The Palu City Regional Disaster Management Agency

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## ABSTRACT

**Background:** Disaster is an event or incident that threatens and disrupts people's lives. Based on a preliminary study, through interviews with Palu City Regional Disaster Management Agency (BPBD) officers, disaster financing in Palu City has been available, but the available funds are inadequate so that several disaster programs have been implemented less than optimally.

**Purpose:** The purpose of this study was to analyze the readiness of pre-disaster financing in disaster risk reduction programs, disaster prevention programs, and disaster education at Palu City BPBD.

**Methods:** This type of research is qualitative research with a case study approach. There are three informants in this study, namely key informants, ordinary informants, and additional informants. To obtain data, a technique is needed, therefore in this qualitative research the technique used is triangulation of techniques and sources.

**Results:** The results showed that the budgeting for pre-disaster programs in Palu City is allocated annually, for the allocation of funds for disaster risk reduction programs is also the same, for the realization of funding for this disaster program does not meet the target because in the BPBD Renstra the budget for risk reduction for the last three years is not available. The budget for disaster prevention comes from the APBD and APBN, with or without a budget, Palu City BPBD can still run its disaster program. Disaster financing for disaster education programs at the Palu City BPBD comes from APBD and APBN funds, for previous disaster activities, a record must be made in advance regarding what programs will be implemented.

**Conclusion:** It is expected that financing for disaster risk reduction programs, disaster prevention programs, and disaster education at the Palu City BPBD must be allocated annually, and routine training must be carried out for staff.

**Keywords:** *Pre-Disaster Financing; Readiness*

## Intervention Design for Bullying Victims

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### ABSTRACT

**Background:** Bullying continues to show a significant increase in the number of cases. Bullying is defined as violent behavior that injures the victim physically, psychologically and socially. The phenomenon of widespread cases of bullying can indeed occur anywhere. However, educational institutions often become locations for bullying with a fairly high number of cases. Serious impacts for victims of bullying can appear in the form of: 1) various mental health problems such as depression, anxiety, trauma; 2) poor general health; 3) self-injurious behavior that does not lead to suicide; 4) suicidal ideation and suicide attempts; 5) detrimental psychosocial.

**Purpose:** This research reviews the condition of bullying victims and the appropriate intervention design for them from an empirical perspective.

**Methods:** A literature review of 8 articles was also carried out as the basis for this literature study.

**Results:** The literature review that has been carried out shows that several intervention steps are quite effective in helping bullying victims overcome the impact of the bullying they experience or feel, including: CBT (Cognitive Behavior Therapy), T-BIP (Target-Bullying Intervention Programme) dan intervensi sosial (social intervention).

**Conclusion:** These intervention programs have proven to be quite effective in helping victims of bullying overcome the impacts they feel due to the bullying they face.

**Keywords:** *Bullying; Intervention design*

## Evaluation of the Effectiveness of UV-Based Filtration Equipment in Removing Fe and Mn and E.Coli Bacteria in Tallo River, South Sulawesi

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### ABSTRACT

**Background:** Water pollution due to human activities such as industrial effluents often cannot be addressed by traditional filtration methods. UV radiation effectively inactivates microorganisms in water, but its effect on heavy metals has not been thoroughly studied. Based on reports, Tallo River is polluted by industrial waste in Biringkananaya and Tamalanrea.

**Purposa:** This study aims to evaluate the effectiveness of UV-based filtration devices in reducing heavy metal and microbial pollution in the Tallo River, to produce normal quality water.

**Methods:** The method that the researchers used was by taking samples at two points, namely the Tallo River flow behind the KIMA factory area and at the Lakkang dock of the Tallo River. Then test the samples with UV-based filtration devices that have been made by researchers.

**Results:** Based on the results obtained, it shows that the effectiveness of the filtration device in removing Mn levels in industrially polluted river water is 77% and in removing coliform bacteria has an effectiveness of 99%.

**Conclusion:** It can be concluded, UV-based filtration tools have a fairly good level of effectiveness in removing Mn metals and coliform bacteria but must still keep the filtration tool components sterile to get maximum results.

**Keywords:** *Filtration Device; Heavy Metals; Microorganisms; River Water; Waste Water*

## Fearing of Missing Out (FoMO) and Resilience in Nursing Students

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### ABSTRACT

**Background:** Fear of Missing Out (FoMO) is experienced by many younger people, including university students. FoMO has been proven to have a negative impact on mental health, namely lowering a person's coping ability to face problems. Therefore the person has a low resilience. Meanwhile, social media life is part of nursing students as well which put them on high risk of having high FoMO level. Moreover, they at the same time have high stressors originating from school assignments. Little is known about the impact of FoMO on resilience in nursing students.

**Purpose:** To measure the correlation of FoMO and resilience in nursing students.

**Methods:** This study is a quantitative study using descriptive analytical correlational research methods with a cross-sectional approach. The study was conducted in a school of health in Semarang City, Indonesia. The number of respondents was 158 students, obtained by purposive sampling technique. The FoMO level was measured using FoMO Scale and the resilience level was measured using Brief Resilience Scale (BRS). The data was analyzed using Spearman Correlation Test.

**Result:** Spearman correlation test results show p value <0.001 (p value <0.05). The Spearman correlation value of 0.293.

**Conclusion:** There is a correlation between FoMO and Resilience in nursing students. Spearman correlation result indicates a positive correlation with weak correlation strength. An approach to improve nursing students' resilience should be adopted during the learning sessions.

**Keywords:** *Adaptation; Coping; Mental health; Social media; Stress*

# Acceptance Of Parents in Children with Physical/Psychological Limitations

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## ABSTRACT

**Background:** One of the goals in marriage is to continue the offspring, but the presence of children is not always in accordance with the expectations of parents, especially children who are born with limitations, physically or psychologically. On the other hand, every child really needs parental support in their growth and development. Support begins with the acceptance of parents.

**Purpose:** this study is to find out description parents accept children with physical/psychological limitations.

**Methods:** The approach in this study uses a survey method with purposive sampling techniques, the respondent criteria are couples who have children with physical or psychological limitations, marital age 5-10 years. The number of respondents is 10 people. Data collection uses questionnaires.

**Results:** of the study show 1). Every parent wants to show their love for their child, but only 4 out of 10 parents really love their child by paying special attention. 2). When the child is in a sad/depressed or difficult situation, the parent's response is to help and support the child, out of 10 parents, only 1 parent does not support the child, and 2 parents do not know how to help the child's difficulties. 3). Rejection experienced by parents shows that 4 out of 10 parents feel frustrated and 9 out of 10 parents feel angry with their child's condition and 4 out of 10 parents do not care about their children's emotional needs...

**Conclusions:** Even though they still accept children, it does not mean that there is no rejection of the child's condition Acceptance of parents in children with physical/psychological limitations requires a process that begins with rejection of the child's condition, anger at the child's condition, neglect or indifference to the child, especially emotional needs.

**Keywords:** *Children with Physical/Psychological Limitations; Parental Acceptance; Parental Rejection*

## A Story from a Mother and HIV Survivor: A Phenomenological Study

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### ABSTRACT

**Background:** According to the United Nations Joint Program for HIV/AIDS in 2023, there are 39 million people living with HIV, and half of the sufferers are women. In Indonesia, the number of WLWH (Women Living With HIV) increased from 12,573 in 2015 to 17,839 in 2021. Mothers and housewives, while not classified as high-risk, but are among those most affected.

**Purpose:** This research aimed to explore the personal experiences of WLWH mothers.

**Methods:** This research used a qualitative design with in-depth interviews to explore subjective experiences of WLWH. The research was conducted in Surakarta City. The sample selection technique used snowball sampling, and the number of respondents in this study was 2 WLWH. Interview guidelines focused on knowledge about HIV, transmission factors, feelings upon diagnosis, the impact of HIV on life, support received, and reproductive health knowledge. Thematic analysis was performed using NVivo 12 software

**Results:** Initially, respondents viewed HIV as a deadly disease filled with stigma. However, this stigma gradually decreased as understanding grew regarding the treatability of HIV through regular ARV therapy. Transmission from partners was the primary source of infection for both respondents. Emotional experiences varied based on the support received, with limited family support due to fears of stigma and rejection. In contrast, social support from fellow WLWH and health facilities was crucial for building a quality lifestyle.

**Conclusion:** Overall, this research showed that despite progress in understanding HIV as a manageable virus, WLWH still faced a range of emotional and social challenges, along with inadequate access to information, particularly regarding reproductive health. Increasing education about HIV, especially in the context of reproductive health, was deemed essential to help WLWH lead healthier and more meaningful lives.

**Keywords:** Stigmatization; WLWH; Women



# The Impact of Whatsapp-Based Psychoeducation on Psychological Distress in Advanced Cancer Patients

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## ABSTRACT

**Background:** Psychoeducation has turned into an effective way in taking care of cancer patients and accelerate their psychological symptoms, particularly psychological distress. Despite of growing use of Whatsapp in medical setting for increasing patient's health status because whatsapp was easy to use and widely used in Indonesia, evidence supporting their benefits in educating patients are rarely applicable.

**Purpose:** The aim of this study was to explore whether Whatsapp-based education affected psychological distress in advanced cancer patients who underwent chemotherapy.

**Methods:** A quasi-experimental (pre-post) study design was conducted at a referral cancer hospital in Indonesia. 66 advanced cancer patients were assigned to an intervention group (n=33) and a control group (n=33) through purposive sampling. The intervention group received psychoeducational interventions modules about advanced cancer, coping and symptom management using whatsapp app and participated in nurse-assisted online support sessions for a total two weeks, whereas the control group did not receive any intervention. The Distress Thermometer were used to measure the levels of distress as the main outcomes at baseline and one week after the intervention. T-tests were performed to analyze the data.

**Results:** The paired sample t test showed a significant decrease in psychological distress (Mean difference = 0.909; 95% CI = 1.133, 0.685; P < 0.001) among experiment group. However, there are no significant different were found in control group (Mean difference = 0.242; 95% CI = 0.658, -0.174; P value = 0.244). After intervention, the mean difference between experiment and control group was statistically significant (Mean difference = -1.182; 95% CI = -1.715, -0.649; P value < 0,001).

**Conclusion:** Study findings confirmed the key role of whatsapp-based psychoeducation interventions in decreasing psychological distress in advanced cancer patients. Similar studies with longer follow-ups are proposed that be conducted in this context.

**Keywords:** *Advanced cancer; Psychological distress; Whatsapp-based education*

# Management Of High-Risk Pregnancy Using Telehealth: A Scoping Review

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## ABSTRACT

**Background:** Pregnancy complications lead to high maternal mortality rates. A comprehensive response is needed to achieve a maternal mortality rate of 70 per 100,000 live births by 2030. Telehealth, which provides remote medical care through digital platforms, has become a revolutionary method for healthcare delivery in recent years. Several studies have shown the benefits of telehealth in improving maternal well-being and birth outcomes, but rare studies that apply it to high-risk pregnancies.

**Purpose:** The aim was to determine the management of telehealth use in high-risk pregnant women.

**Methods:** The data bases used were EBSCOhost, ProQuest, Science Direct, Springer Nature, and Taylor & Francis. Inclusion materials were the research topic: telehealth in high-risk pregnancy, publications 2020-2024, and available full text. Exclusion items were review results. MeSH terms for article searches were telehealth OR mobile health AND high-risk AND pregnant women. We identified 991,308 article titles matching the search terms. We used the PRISMA flow chart to select articles. Twelve articles were found based on the extraction results.

**Results:** There were 991,308 articles from five databases found based on the inclusion criteria. The databases used were ProQuest 928,566, EBSCOhost 9,407, Science Direct 52,479, Taylor and Francis 542, and Springer Nature 314. There were 12 studies that discussed health apps for high-risk pregnant women. Telehealth that has been developed for pregnant women at risk are hypertension, gestational diabetes, type II diabetes mellitus in pregnancy, adolescent pregnancy, anaemia, and pregnant women with depressive symptoms.

**Conclusion:** The development of Health applications in high-risk pregnant women has been proven to be easy to use and optimize maternal visits and cost-effective.

**Keywords:** *High-risk; Management; Pregnant women; Telehealth*

# The Role of Religiosity and Self-Stigma on Mental Health Help-Seeking Intention among Adult Christian Community in Indonesia

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## ABSTRACT

**Background:** As the second-largest religious group in Indonesia, Christian community is not only known by their weekly gathering for prayer and worship but also their active contribution in upholding the religious harmony and sustaining their faith. The strong sense of community among Christian adherents may serve to both positive and negative impact on their personal matters, including their mental health. Various factors contribute to an individual's mental health help-seeking behavior; particularly religiosity and self-stigma that are often associated with help-seeking intentions. Those with stronger religiosity tend to consult their mental health with the religious advisors rather than mental health professionals, while personal negative attitudes towards mental health help-seeking are linked to a lower intention to pursue such help.

**Purpose:** This study aims to identify the impact of religiosity and self-stigma mental health help-seeking intention among adult Christian community in Indonesia.

**Methods:** 261 participants were recruited in this cross-sectional study through a convenience sampling technique. Due to the possibility contribution of age and gender in help-seeking behavior, this study employed a two-step hierarchical regression analysis to examine the impact of religiosity and self-stigma on help-seeking intentions.

**Results:** The initial results indicate that the help-seeking intention toward mental health professionals is significantly affected by religiosity, self-stigma, then also age and gender as the covariates ( $R^2 = 0.397$ ; sig < 0.001). When controlling for age and gender factors, the findings remain consistent, showing that religiosity and self-stigma simultaneously influenced mental health help-seeking intention ( $R^2 = 0.340$ ; sig < 0.001).

**Conclusion:** In conclusion, this study displayed a crucial role of both religiosity and self-stigma in reducing the intention of seeking help from mental health professionals among adult Christian community in Indonesia.

**Keywords:** *Help-seeking; Mental health, Religiosity; Self-stigma*

# Occupation as a Risk Factor for Postpartum Depression: Uncovering Insights from an Indonesian Clinic

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## ABSTRACT

**Background:** Postpartum depression (PPD) poses significant challenges for maternal and infant health, often going undetected in postpartum care due to the lack of standardized screening in Indonesian clinical settings. Despite the high prevalence of PPD, there is a gap in early detection practices within routine postpartum services. This study addresses this gap by introducing the Edinburgh Postnatal Depression Scale (EPDS) as a novel tool for identifying PPD risk in postpartum mothers.

**Purpose:** To evaluate the prevalence of PPD among mothers at a maternity clinic and assess the practicality of implementing the EPDS as a screening tool.

**Methods:** A cross-sectional design was conducted in a maternity clinic with 46 postpartum mothers. Participants completed the EPDS Indonesian version and data were analyzed using descriptive statistics and bivariate analysis (Spearman's rank) due to non-normal data distribution.

**Results:** The majority of mothers were 21-35 years (87%) and predominantly had education levels below a bachelor's degree (67.4%). PPD prevalence was 34.8%, with 15.2% experiencing mild symptoms and 19.6% experiencing severe symptoms. A significant association was found between maternal occupation and PPD ( $p = 0.02$ ), while other factors such as age, education, and pregnancy history showed no significant relationship.

**Conclusion:** This study highlights the feasibility of integrating EPDS into postpartum care to facilitate early detection of PPD. These findings underscore the importance of systematic screening, especially for working mothers who may be at higher risk. Early identification and intervention through routine screening could improve mental health outcomes for postpartum women in Indonesia.

**Keywords:** Depression; Detection EPDS; Postpartum

# Religiosity And Sexual Orientation: The Study of Islamic Boarding School's Students in Bangkalan

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## ABSTRACT

**Background:** Islamic boarding schools are institutions that have an important role in strengthening religion and increasing understanding of fiqh. Learning in Islamic boarding schools is directed at supporting students in acquiring understanding of fiqh, religious knowledge, values and skills that will form students who are guided by Islamic law. The function of religiosity as a value system that contains certain norms and generally becomes a frame of reference in behaving in line with one's religious belief. On the other hand, Islamic boarding school's life makes students grow with one gender (homogeneous) in monotonous interactions and not allowed to interact or communicate with the opposite gender within a certain period. This strict homogeneous social system has been considered to be one of the triggers for the practice of sexual deviation in the Islamic boarding schools from time to time.

**Purpose:** This article explains the role of religiosity in the formation of sexual orientation in Islamic boarding school students.

**Methods:** The explanation of the role of religiosity in the formation of sexual orientation in Islamic boarding school students is based on research conducted on 100 subjects who were Islamic boarding school students in Bangkalan. Research data collection uses measurement instruments in the form of questionnaires that measure each research variable, namely religiosity and sexual orientation. The religiosity scale was prepared by the researcher himself based on the aspects of religiosity proposed by Glock & Stark (in Ancok & Suroso, 1994; Subandi 1988). Meanwhile, for the sexual orientation scale, researchers adapted the Multidimensional Scale of Sexuality (MSS; Berkey, Perelman-Hall, & Kurdek, 1990). To data analysis, a simple linear regression test was used and the results obtained were that religiosity did not significantly influence the formation of a person's sexual orientation.

**Results:** Simple linear regression test result Sig = 0.233 (Sig. > 0.05). It means that religiosity did not significantly influence the formation of a person's sexual orientation. Meanwhile, regarding the strength of the correlation between the two variables results that R = 0.074 and R Square = 0.005. The influence of the religiosity to sexual orientation is 0.5%, and then 95% influenced by other factors.

**Conclusion:** Religiosity did not significantly influence the formation of a person's sexual orientation (Sig = 0.233 > 0.05). The influence of the religiosity to sexual orientation is 0.5% (R Square = 0.005). So, there are other factors that significantly influence sexual orientation.

**Keywords:** *Bangkalan; Islamic Boarding School; Santri; Sexual Orientation; Religiosity*

# Safety and Efficacy of Robotic-Assisted Versus Manual Percutaneous Coronary Intervention: A Systematic Review and Updated Meta-Analysis

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## ABSTRACT

**Background:** Percutaneous coronary intervention (PCI) plays a vital role in managing coronary artery disease (CAD). However, manual PCI (M-PCI) presents risks to operators, including prolonged radiation exposure, fatigue, and injuries, which may lead to long-term health issues like malignancies, orthopedic problems, and cataracts. The recently developed robotic-assisted PCI (R-PCI) allows procedures to be conducted from a protected cockpit, potentially reducing radiation exposure, orthopedic strain, and contrast media use, while improving stent placement precision.

**Purpose:** This study aims to compare the safety and efficacy of R-PCI with M-PCI.

**Methods:** This systematic review and meta-analysis was conducted according to PRISMA guidelines. We included studies that directly compared R-PCI with M-PCI in patients undergoing PCI for CAD. The outcome measures were categorized into safety and efficacy. Safety outcomes included (1) adverse event rates and (2) mortality rates. Efficacy outcomes included (1) procedural time, (2) fluoroscopy time, (3) contrast volume, (4) clinical procedural success, and (5) technical success. Six databases were searched, resulting in 15 eligible articles. Quality appraisal was performed using RoB 2.0, and meta-analysis was conducted with RevMan 5.4.

**Results:** R-PCI was associated with a significant reduction in fluoroscopy time (MD = -3.68; 95% CI: -6.25 to -1.11; p = 0.005) and contrast volume (MD = -16.79; 95% CI: -22.28 to -11.30; p < 0.00001) compared to M-PCI. However, there is no significant difference in terms of procedure-related adverse events, mortality rate, procedural time, clinical procedural and technical success. **Conclusion:** While R-PCI does not demonstrate superiority over M-PCI in overall efficacy and safety, it offers notable advantages in reducing fluoroscopy time and contrast volume, which may benefit operator safety and patient outcomes. As R-PCI technology continues to advance, further research could clarify its role in clinical practice and its potential to address specific limitations of M-PCI.

**Keywords:** Coronary artery disease; Clinical procedural success; Mortality; Procedure-related adverse events; Robotic-assisted percutaneous coronary intervention;

# Effects of Prenatal Yoga on Reducing Hip Pain Levels in Pregnant Women in The Third Trimester: Study Random Control Trial

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## ABSTRACT

**Background:** Various problems arise during pregnancy including hip pain. As many as 70% of 157 pregnant women experience it. One of them is to overcome it with prenatal yoga. Yoga is a healing method that has a positive influence on the health of the body, psychology, feelings, and reactions to the life we live.

**Purpose:** To analyze the effect of prenatal yoga on hip pain in pregnant women in the third trimester.

**Methods:** Quantitative Design with Random Control Trials. This research started from July to December 2023 at Independent Midwifery Practice Sites in East Jakarta and Bekasi. The quantitative sample was 120 people in the experimental group and 120 people in the control group. Sampling with non-probability sampling. Analyzed by Wilcoxon, manwitney and chi-square tests. Pain score using Visual Analogue Scale (VAS)

**Results:** The average hip pain score of the experimental group after being given prenatal yoga was 0.08% smaller than the average maternal pain score of the control group of 1.61%. There was a significant pain effect between the intervention group and the control group with a p value of 0.030. Of the 120 mothers who participated in the prenatal yoga experimental group, 96 respondents (78.2%) did not cause pain. The control group caused no pain with 10 respondents (8.3%). An RR value of 1,279 showed that mothers who participated in prenatal yoga were 1,279 times more likely to experience a reduction in hip pain compared to mothers who did not participate in prenatal yoga.

**Conclusion:** An RR value of 1,279 indicates that mothers who follow prenatal yoga are 1,279 times more likely to experience a reduction in hip pain compared to mothers who do not follow prenatal yoga. It is hoped that pregnant women will follow prenatal yoga so that they can reduce hip pain during pregnancy.

**Keywords:** Hip pain levels; Prenatal yoga; Pregnant

## The Sunrise Model of "Transcultural Nursing Leininger" in Relation to Stunting Incidents Among Toddlers

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### ABSTRACT

**Background:** Stunting is defined as chronic malnutrition caused by long-term nutrient deficiencies, short or very low height for age. Around a quarter of Indonesian children are stunted, according to estimates. Stunting is an unresolved nutrition issue in Indonesia.

**Purpose:** This study aimed to explore the determinants of toddlers stunting based on Transcultural Nursing theory. The study was carried out in Puskesmas Panggungrejo, Margomulyo Village.

**Methods:** A purposive sampling technique was used. Therefore, the sample size of this study was 154 respondents. The outcome variable of this study is the occurrence of stunting. Independent variables included technological factors, religiosity and philosophy, social support, cultural values and lifestyles, politics and legal, and economic and educational factors. They were collected using a questionnaire and analyzed by the Spearman rank statistical test with a significance level of  $\alpha < 0.05$ .

**Conclusion:** The findings of this study reveal significant relationships between stunting incidence and several factors, including technological factors ( $p=0.000$ ), religiosity and philosophical factors ( $p=0.010$ ), social support factors ( $p=0.002$ ), cultural values and lifestyle factors ( $p=0.000$ ), political and legal factors ( $p=0.000$ ), and economic factors ( $p=0.021$ ). However, the education factor ( $p=0.128$ ) showed no association with the occurrence of stunting.

**Keywords:** Sunrise Model; Stunting; Transcultural Nursing; Toddler



# Gender Differences in Quality of Life Among Elderly Populations: A Comparative Analysis Between Men and Women

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## ABSTRACT

**Background:** The global increase in the elderly population has significantly altered demographic structures, particularly in developing countries. In these regions, older adults often face additional burdens and challenges that impact their quality of life, affecting physical and mental health as well as community and social integration. A gender-sensitive approach is essential to recognize and address the unique needs, challenges, and roles of elderly men and women, thereby promoting equity and enhancing the overall quality of life for the aging population.

**Purpose:** This study aims to explore difference factors between men and women in terms of 6 domains of quality of life measured by WHOQOL-OLD.

**Methods:** This study used a cross-sectional design with convenience sampling involving elderly participants over 59 years old, comprising 36 men and 36 women. The statistical test employed was the Mann-Whitney test to compare the quality of life between elderly men and women across the six dimensions of the WHOQOL-OLD. Sociodemographic data were collected through structured interviews, while quality of life was assessed using the WHOQOL-OLD questionnaire, covering six main dimensions.

**Results:** The analysis revealed a significant difference between elderly men and women in the domain of Past, Present, and Future Activities ( $p=0.015$ ), with women scoring higher on average than men. The other dimensions, including Sensory Abilities, Autonomy, Social Participation, Death and Dying, and Intimacy, showed no significant differences ( $p>0.05$ ).

**Conclusion:** Only the Past, Present, and Future Activities domain showed a significant gender difference. These findings highlight the importance of considering gender factors when planning interventions to improve quality of life for the elderly, particularly in areas related to past, present, and future activities.

**Keywords:** *Activities of Daily Living; Aged; Gender Identity; Health Status Disparities; Quality of Life*

## Literation of Health Seeking Behavior in Tanggobu Village

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### ABSTRACT

**Background:** Inappropriate health-seeking behavior (HSB) has been associated with poorer health outcomes, increased morbidity and mortality rates, and poorer health statistics. This is due to inadequate health literacy and individuals with low literacy levels tend to be poor at making decisions about health, such as behaviors that endanger health higher health care costs and poor health status.

**Purpose:** To improve community literacy in Tanggobu Village related to Health Behaviour Seeking (HBS) literacy or health service utilization behavior.

**Methods:** This study used a cross sectional method using instruments such as questionnaires as a medium for data collection both pretest and posttest.

**Results:** The results showed that education through health counseling had an effect on increasing the knowledge of the Tanggobu community regarding Health Seeking Behavior (HSB). This can be seen from the results of statistical tests that prove that there is a difference in knowledge before and after counseling with a p-value of 0.05.

**Conclusion:** There is an increase in community knowledge related to Health Seeking Behavior (HSB).

**Keywords:** *Health Seeking Behavior (HSB); Health Counseling; Literacy*

# Analysis The Utilization of Antimicrobials in Indonesian Hospital for Pneumonia Treatment

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## ABSTRACT

**Background:** Pneumonia is a substantial public health concern in Indonesia, resulting in elevated rates of hospital admissions and fatality. According to UNICEF, pneumonia accounts for approximately 16% of all under-five deaths in the country. Antimicrobial therapy is frequently employed in Indonesian hospitals for the treatment of pneumonia. However, there is a shortage of evidence regarding the suitability and efficacy of this approach.

**Purpose:** This study examines the utilization of antimicrobial agents for the treatment of pneumonia in ten publicly funded hospitals in ten provinces of Indonesia.

**Methods:** This study examines the utilization of antimicrobial agents for the treatment of pneumonia in ten publicly funded hospitals in ten provinces of Indonesia. The hospitals included were chosen based on the presence of established antimicrobial control programs and effective clinical pharmacy services. The data was derived from medical records, encompassing all antimicrobial agents administered to pneumonia patients aged 18 years or older with a primary diagnosis of pneumonia and treated with antimicrobials during 2017.

**Results:** The study revealed that cephalosporin (52.07%) is the predominant antibiotic class, with fluoroquinolone (21.90%) being the subsequent frequently utilized class. Third-line antimicrobials were utilized with lower frequency compared to first and second-line antimicrobials. The significant utilization of third-generation cephalosporins emphasizes the necessity for continuous surveillance and management initiatives to guarantee the proper utilization of these antimicrobial agents and to reduce the emergence and dissemination of antimicrobial resistance.

**Conclusion:** The study highlights the necessity of monitoring the utilization of antimicrobial agents in hospitals to avert the emergence and dissemination of antimicrobial resistance. The design of antimicrobial stewardship programs should aim to maximize the effectiveness of antibiotic usage, reduce the emergence of resistance, and enhance patient outcomes. The study emphasizes the necessity for researching to create novel antimicrobial drugs to address antimicrobial resistance effectively.

**Keywords:** Antimicrobials Resistance; Hospital; Pneumonia; Indonesia

# Understanding of the Halal Certification Process Among Business Actors in the Food and Beverage MSME Sector in Indonesia

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## ABSTRACT

**Background:** Regulations related to the obligation to have halal certification have been regulated in Law No. 33 of 2014 and confirmed in Law No. 6 of 2023. The targets of these regulations start from food and beverage producers, including MSMEs. In 2024, Indonesia will have 65 million MSMEs, the largest in the food sector. The understanding of business actors about the halal certification process with the self-declare scheme needs to be explored so that the certification process runs smoothly and that the existence of PPH (Halal Product Process) facilitators becomes more effective.

**Purpose:** This study aims to explore the understanding of business actors about the halal certification process with the self-declare scheme from the perspective of knowledge and experience they have.

**Methods:** Qualitative research with narrative design. Data from In-depth Interviews are analyzed and presented narratively. Respondents are 3 business actors who were selected purposefully. The study was conducted in July-August 2024 in Nomporejo Village, Galur District, Kulonprogo Regency.

**Results:** The results of the analysis show that business actors do not yet understand the halal certification process through the self-declare scheme, especially regarding the purpose of certification, the flow of the certification process, and who are the parties involved in the certification. The purpose of certification that is understood is still limited to the benefits of certification from the perspective of business actors; even the parties involved in the process are only understood as business actors and PPH facilitators. The certification process flow is only understood as far as file preparation, then the process is fully followed up by the PPH facilitator.

**Conclusion:** Lack of understanding by business actors will impact the effectiveness of the certification process because technically everything is charged to the PPH facilitator.

**Keywords:** *Business actors; Halal certification; UMKM; PPH facilitator; Self-declare*

## Self-Care Necessity of Postpartum Based on The Information Motivation And Behavioral Skills Model In Rural Indonesia

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### ABSTRACT

**Background:** Maternal Mortality Rate (MMR) in Indonesia is still major problem for government. Reduction in MMR is one of successes of health and welfare efforts. One of the efforts made is to implement postpartum visit (PV) program using the Information, Motivation and Behavioral (IMB) skills model that is accessible and that can be accessed and accepted by postpartum mothers.

**Purpose:** To explore self-care necessity of postpartum mothers based on IMB skills model in rural Indonesia.

**Methods:** Descriptive qualitative with cross sectional approach. Purposive sampling was used to collect sample of 11 postpartum women and 7 midwives working in Klaten Regency which was conducted in August - October 2022.

**Results:** Postpartum period (PP) that has been running until now is PV which is carried out 4 times during PP (42 days) guided by the mother and child health book. However, there are still obstacles encountered so that mothers do not get PP as whole so that mothers still look for other people besides health workers so that in performing postpartum self-care is not appropriate and can result in decrease in their health. Model of IMB skills is necessary to be able to assist postpartum mothers in understanding IMB skills in performing more specific postpartum self-care, such as: e-modules, in-person postpartum mentoring, online postpartum mentoring and postpartum care videos.

**Conclucion:** PP necessity that has been found should be immediately met by midwives who report their needs to HOWA and collaborate with cross-sectors to create an appropriate postpartum PP skills model.

**Keywords:** *IMB skills model; Postpartum; Rural area; Self-care needs of postpartum*

## Interaction between Psychological Distress and Total Cholesterol to Diagnosed Cancer in Adults: A Longitudinal Study in Bogor City, Indonesia

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### ABSTRACT

**Background:** Some research on the impact of psychological distress (PD) on cancer, revealed different results. In a human body, psychological distress may interact with a certain physiological condition such as dyslipidemia, which can induce a chronic disease. However, the study about the interaction on cancer is still limited.

**Purpose:** to assess the individual and synergistic interaction between PD and total cholesterol (TC) in relation to cancer risk.

**Methods:** A longitudinal study was performed using secondary data from a Cohort Study on non-communicable disease risk factors (NCDRF). Population: participants of NCDRF Cohort Study aged  $\geq 25$  years old during 6 years of monitoring in Bogor City, Indonesia. Inclusion: Participants who were not diagnosed with cancer at the baseline study. Exclusion: Incomplete data during monitoring. Sample: Participants of NCDRF Cohort Study aged  $\geq 25$  years old without Cancer diagnosis. Of 2,133 data respondents were analyzed with Chi-Square and Logistic Regression.

**Results:** Prevalence of PD was 7.2%; TC  $< 200$  mg/dL (lower) was 47.9%; diagnosed Cancer was 4.0%. There is a synergistic association between PD and lower TC in diagnosed cancer persons with Synergistic Effect Index  $[SI_{(PD+TC+)}] > 1$ . Compared to those without PD or lower TC, and adjusted for age, unintentional weight loss, and physical activity, subjects with PD and lower TC increase the risk of being diagnosed with Cancer with adjusted odds ratio (aOR) 11,15 (95% Confidence Interval (CI): 5.364—23.176;  $p=0.000$ ). Subjects with PD only increase the risk of being diagnosed with Cancer with aOR 4.56 (95% CI: 1.894—10.955;  $p=0.001$ ). Subjects with lower TC only increase the risk of being diagnosed with Cancer with aOR 1.65 (95% CI: 0.969—2.794;  $p=0.065$ ).

**Conclusion:** There is a synergistic interaction between PD and lower TC in diagnosed cancer persons. These findings highlight that it is important to increase the awareness of persons with lower TC, to avoid psychological distress.

**Keywords:** Cancer; Psychological distress; Total cholesterol

# Assessment of Loneliness among The Elderly in Selected Regions in Indonesia: Basis for Mental Health Awareness Development Program

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## ABSTRACT

**Background:** Loneliness is one of the mental health problems in several countries in the world. Some studies show that the elderly are very at risk of experiencing loneliness problems with various causes, including living alone away from children and grandchildren, as well as close people who care for them. This risk also occurs in developing countries such as Indonesia, so appropriate program design is needed to increase awareness related to mental health, especially for the elderly. Loneliness in the elderly needs to be studied in anticipation of interventions in mental health nursing.

**Purpose:** This study aims to assess loneliness in the elderly and develop program proposals for raising mental health awareness that can be implemented in Indonesia.

**Methods:** This study used a descriptive-analytic design; 257 elderly respondents in Yogyakarta and Palembang were assessed in terms of loneliness using the UCLA version 3 assessment of loneliness.

**Results:** The majority of respondents were at the low loneliness level (30.7%), moderately high (30%), moderate (21.8%), and high degree (17.5%). From the results of this study, researcher proposes a mental health awareness program package for the elderly that is possible in the Indonesian setting.

**Conclusion:** Mental health awareness programs can be carried out by nurses as therapy for the elderly who experience loneliness, as well as interventions that prevent loneliness in the elderly. This program can be carried out on a hospital and community basis.

**Keywords:** *Assessments; Awareness Program; Elderly; Loneliness; Mental Health*

# Quarter Life Crisis as A Moderator Between Resilience and Future Anxiety in Early Adulthood

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## ABSTRACT

**Background:** Anxiety and fear have the same psychological components, but anxiety and fear are different because anxiety has a higher emotional response to threats or dangers that come from outside, which are usually faced consciously by individuals. In early adulthood, individuals often experience many problems due to changing roles from adolescence to adulthood, causing individuals to experience quarter life crisis. The ability to survive in crisis or problem situations is one of the factors that can help a person survive. One of the things that can help a person to be able to survive in a crisis or problem is the existence of good resilience owned by the individual. Uncertainty during a quarter life crisis can affect an individual's ability to survive and develop positively. However, by controlling anxiety and taking productive positive actions, resilience can also help individuals overcome future anxiety.

**Purpose:** This study aims to examine the role of quarter life crisis as a mediator variable in the relationship between resilience and future anxiety in early adults.

**Methods:** This research is a moderation type correlation research using a survey method distributed using an online questionnaire using Google Forms. This study used early adult individual participants in Cilacap aged 20-29 years. The sample used was 75 individuals in this study. This study uses this scale that has been tested on 52 respondents who then conducted a validity test with a  $p < 0.05$  limit and a reliability test with a Cronbach alpha's ( $\alpha$ ) value  $> 0.6$ . Scale from Zaleski which has been modified by Hilmi to measure future anxiety variables. The quarter life crisis scale which has been adapted to measure the quarter life crisis variable. the Connor Davidson Resilience Scale (CD-RISC) 25 to measure the resilience variable Data analysis used in this study is to use classical assumption tests including the following: (normality test, multicollinearity test, heteroscedasticity test, moderation regression test).

**Result:** The results of this study indicate that quarter life crisis has a positive effect on future anxiety. Resilience has no effect on future anxiety. Then, quarter life crisis has no effect on the relationship between resilience and future anxiety. Thus, quarter life crisis is unable to moderate the relationship between resilience and future anxiety.

**Conclusion:** Quarter life crisis is unable to moderate the relationship between resilience and future anxiety.

**Keyword:** *Future Anxiety; Quarter Life Crisis; Resilience*



# Analysis of User Needs in Designing the SMARTKid Apps (Screening, Monitoring, and Reporting Tool for Kids) for Child Development

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## ABSTRACT

**Background:** Many preschool-aged children in Indonesia experience developmental delays, such as motor disorders and speech delays. Therefore, early detection of child developmental disorders through digitalization of health applications is needed, one of which is by designing the SMARTKid application. However, it is necessary to take a user-centered design (UCD) approach to analyze potential users' needs and experiences to ensure the developed application's success and usefulness.

**Purpose:** This study aimed to analyze the needs of potential users in making the SMARTKid application, which is an application to monitor child development.

**Methods:** This study used a qualitative approach through focus group discussion involving 14 informants: PAUD teachers, parents, health workers, and posyandu cadres. The informants were divided into two groups, each totaling 7 people. Data analysis was conducted by interpreting the transcript results, coding, and compiling the themes found.

**Results:** The results showed that informants could distinguish between growth and development measurements in children. Informants have experience measuring and monitoring child development manually and have never used a child development measurement application.

**Conclusion:** Prospective users want an application to measure and monitor children's development with an attractive design and easy-to-use menu equipped with a menu explaining child development stimulation based on age and a menu for periodically reporting measurement results.

**Keywords:** *Child Development; Child Development Pre-Screening Questionnaire; Mobile Application; User-Centered Design (UCD)*

# Application of Seci Discharge Planning Model to Stroke Patient Readiness to Go Home: Literature Review

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## ABSTRACT

**Background:** Discharge planning is an important element in nursing care, especially for patients recovering from serious medical conditions such as ischemic stroke. Effective discharge planning affects patient outcomes, including rate of recovery and quality of life. Comparisons from this research indicate that discharge planning based on the SECI model is not only more comprehensive but also more effective in addressing the challenges faced by stroke patients and their families after discharge. By integrating various factors and a multidimensional approach, the SECI model can enhance discharge outcomes and reduce existing barriers, making it a superior choice compared to methods lacking a systematic knowledge management approach. The SECI model in discharge planning, compared to other models, lies in its ability to dynamically manage explicit and implicit knowledge, enabling a deep and adaptive transfer of knowledge between healthcare providers, patients, and families. The SECI model does more than just deliver information; it ensures that practical knowledge is embedded through socialization, allowing patients and families to better implement care at home.

**Purpose:** to know related literature with Application of the SECI model in discharge panning of ischemic stroke patients.

**Method:** Databases used Google Scholar, PubMed, Science Direct, SeMtod with systematic literature review, mantic Scholar, Researchgate, BMC. Keywords used is ischemic stroke, discharge planning. Search results literature obtained as many as 120 articles. Search results go through the screening process with PICO elements and CRAAP method.

**Results:** SECI model-based discharge planning has been shown to be more effective than conventional methods. To improve discharge planning for ischemic stroke patients, hospitals and nurses need to train nurses in the SECI model and develop audiovisual-based educational modules. Good communication between healthcare teams should be maintained, and families should be involved in the discharge process. Periodic evaluation is also important to identify improvements and obtain feedback from patients and families.

**Conclusion:** Analysis This conclude that SECI model-based discharge planning has been shown to be more effective than conventional methods. However, further research is needed to explore additional factors that may influence the success of SECI model-based discharge planning.

**Keywords:** Care nursing; Discharge planning; Ischemic Stroke; SECI

# Cognitive Behaviour Modification Approach in Journaling Activity for Reducing Academic Stress in Preclinic Medical Students

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## ABSTRACT

**Background:** Academic stress among medical students is a common phenomenon, not only in Indonesia but also in other countries. Various factors such as excessive coursework, high social expectations, cause discomfort and stress among medical students, especially at the preclinical level.

**Purpose:** This study aims to provide an intervention in the form of journaling activities to reduce academic stress experienced by preclinical medical students.

**Methods:** The research was conducted with a one-group pretest-posttest design, consisting of 19 individuals as the sample, who participated in 7 sessions of journaling activities with a cognitive-behavioral approach.

**Results:** Based on the analysis results using the paired t-test, it can be concluded that journaling activities have been proven to reduce the level of stress experienced by preclinical medical students ( $p = 0.563$ -  $t = 0.589$ ,  $df = 18$ ), which is also supported by a significant improvement in participants' skills in managing stress ( $p=0.022$ -  $t -2.5$ ,  $df 18$ ).

**Conclusion:** The more often individuals express and reflect on their feelings, thoughts, and behaviors through journaling activities, the lower their perceived stress levels will be, and their stress management skills will also improve.

**Keywords:** *Academic Stress; Cognitive Behaviour Modification; Journaling; Medical Students*

# Differences in Elderly Gymnastics and Ergonomic Gymnastics on Reducing Blood Sugar Levels in 'Aisyiyah Branch Leadership (PCA) Pajangan Yogyakarta

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## ABSTRACT

**Background:** Increased blood sugar levels are influenced by several factors such as age, gender, Body Mass Index (BMI), genetics, physical activity, diet, and work.

**Purpose:** The purpose of the study was to determine the difference in the effect of elderly gymnastics and ergonomic gymnastics on reducing blood sugar levels in the 'Aisyiyah Branch Leadership (PCA) Pajangan Yogyakarta.

**Method:** The research method with an experimental design with a quasi-experiment approach to conduct pre and post-test two-group design treatment. The subjects of this study were elderly people in the 'Aisyiyah Branch Leadership (PCA) Pajangan Yogyakarta aged 60-74 years with a total population of 120 people. The sampling technique used purposive sampling, a sample of 24 people with an exercise program 2x a week for 3 weeks. The research instrument used Easy Touch GCU. Data analysis used an Independent Sample T-Test because the data was normally distributed and homogeneous.

**Results:** The results showed no differentiation between treatment group I and treatment group II, with a p-value = 0.554 ( $p > 0.05$ ).

**Conclusion:** The conclusion obtained is that there is no difference between elderly gymnastics and ergonomic gymnastics in reducing blood sugar levels in the 'Aisyiyah Branch Leadership (PCA) Pajangan Yogyakarta.

**Keywords:** *Blood sugar levels; Elderly gymnastics; Ergonomic gymnastics*

## Needs Analysis of Health Promotion Media on Latent Tuberculosis

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### ABSTRACT

**Background:** Tuberculosis (TB) is one of the world's major health problems. Based on data from the WHO Global TB Report 2023, the country with the second highest tuberculosis rate in the world is Indonesia. Infectious Latent Tuberculosis (ILTB) is a tuberculosis infection that does not give symptoms or is called latent tuberculosis. ILTB is a new challenge in the tuberculosis disease control program. WHO as a world health organization also recognizes that diagnosing and treating ILTB is an important strategy to accelerate the global reduction of tuberculosis to achieve tuberculosis elimination. Evaluation results through interview surveys illustrate that health promotion on latent tuberculosis is still not optimal due to a lack of resources. The lack of information and low knowledge of latent tuberculosis infection in the community, as well as the stigma surrounding tuberculosis in the community and low family support. This has resulted in low target achievement for ILTB.

**Purpose:** To analyze the need for health promotion media on latent tuberculosis.

**Methods:** This study is explanatory research, with a mixed method approach, namely a quantitative approach combined with a qualitative approach. The quantitative approach used a cross-sectional design to obtain information on health promotion that has been implemented, while the need for health promotion media on latent tuberculosis was studied using a qualitative approach. Data collection techniques used questionnaires and in-depth interview guides. Data analysis used descriptive analysis and content analysis.

**Results:** Health promotion media on latent tuberculosis needed are print and electronic media.

**Conclusion:** These media can be integrated with the home visit health promotion strategy in tuberculosis control

**Keywords:** *Health promotion; Media; Needs analysis; Tuberculosis latent*

# The Health Status among Female Workers at Traditional Market in Yogyakarta – Indonesia: A Survey

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## ABSTRACT

**Background:** Women who work in the informal sector at traditional markets are vulnerable to poor working environments such as unhealthy lifestyles, exposure to cigarette smoke, mental health, and NCD-related factors. Few studies examine the intersectionality of gender-specific health challenges and occupational risks in the informal sector.

**Purpose:** This study aims to analyze the health status and health-related behaviors among female workers in traditional markets in Yogyakarta.

**Methods:** Using simple random sampling, a cross-sectional study of 365 women working at the Beringharjo traditional market was conducted from 4,410 total population. Anthropometry data were taken by using height and weight measurements. Physical activities, BMI, and health status were measured by using a health status questionnaire. Analysis statistics were performed using the Chi-Square test.

**Result:** It was found that many female workers had non-communicable diseases namely 252 women (69%); 121 women (33.2%) with hypertension, 92 women (25.2%) with Diabetes Mellitus (DM), and 29 women (7.9%) heart disease. There are significant relations between chronic illness morbidity and physical activity as well as smoking behavior and health status.

**Conclusion:** The health status of female workers is still low and has risk behavior for non-communicable diseases. It is important to conduct further research to obtain comprehensive health services and health promotion as needed. Health policies should take into account these inequalities.

**Keywords:** *Female workers; Health promotion; Health status; NCD; The traditional market*

# Cervical Cancer Screening Practices among Health Workers: A Literature Review

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## ABSTRACT

**Introduction:** Cervical cancer is the fourth most common cancer among women. Indonesia ranked third in mortality. Deaths from cervical cancer can be prevented through early diagnosis and screening, allowing for timely treatment. Health workers play a vital role in increasing screening coverage, but the literature on healthcare workers' utilization of cervical cancer screening is limited. This review aims to explore published articles on this topic.

**Methods:** This study conducted a literature review using searches in PubMed, Science Direct, and Google Scholar. The keywords used were "Screening," "Cervical cancer," "Practices," and "Health worker." Articles published between January 2019 and December 2024 were included, and evaluated using the CRAAP criteria (Currency, Relevance, Authority, Accuracy, and Purpose).

**Results:** A total of 12 articles were analyzed. The findings showed that cervical cancer screening practices among health workers remain low. Key factors influencing this include insufficient knowledge and negative attitudes toward screening. Additionally, factors such as work experience, age at first sexual intercourse, history of sexually transmitted infections, and participation in training programs were significantly associated with screening practices. Training programs were found to be particularly influential in improving screening utilization.

**Conclusion:** These findings emphasize the need to improve healthcare workers' knowledge and attitudes toward cervical cancer screening. Training programs are essential to raise awareness and encourage the widespread use of screening among healthcare workers.

**Keywords:** *Cervical cancer; Healthcare workers; Screening; Practices*

# Rapid Molecular Test Gene-Xpert Mycobacterium Tuberculosis Examination, Previous Treatment History, Contact History and Patient Characteristics in Multi Drug-Resistant Tuberculosis Cases

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## ABSTRACT

**Background:** Multidrug-resistant Tuberculosis/MDR-TB (TB-RO) is an important problem in tuberculosis cases in Indonesia. It has ranked 8th out of 27 countries with the most MDR-TB cases in the world with 5,100 cases, consisting of 2.8% of new cases and 16% of TB cases receiving re-treatment.

The Gene-Xpert M. tuberculosis Rapid Molecular Test/RMT or Tes Cepat Molekular/TCM is a PCR-based molecular detection method for TB diagnosis which has become a national program of TB in Indonesia. RMT/TCM examination includes detection of M. tuberculosis and drug resistance with Rif resistance/Rif sensitive results. Previous treatment and contact history are important to assess the risk factors for MDR-TB.

**Purpose:** This study aims to determine the prevalence of patients with MDR-TB based on the RMT/TCM results, RMT/TCM Gene-Xpert M. tuberculosis examination results, previous treatment history, contact history, and characteristics of patient in BPKM Dr. H. A. Rotinsulu Cianjur.

**Methods:** This study is observational research with a cross-sectional design and sample collection using a consecutive sampling method. The population and inclusion criteria were patients diagnosed with MDR-TB with RMT/TCM results in 2019-2023.

**Results:** There were 103 subjects who met the inclusion criteria with RMT/TCM MDR-TB positive. Test results showed MTB Detected Rif Resistance Detected (41.7%) followed by MTB Detected High Rif Resistance Detected (20.4%), MTB Detected Medium Rif Resistance Detected (17.5%) and MTB Detected Very Low Rif Resistance Detected (6.8%). The majority of MDR-TB patients are aged 26-35 years (27.2%) and female gender (52.4%). Most patients' previous treatment histories are recovered cases (38.8%) and had a history of household contact with the patients (89.3%).

**Conclusion:** MDR-TB/TB-RO still has a high prevalence with MTB Detected Rif Resistance test results. Previous treatment and contact history, and patient characteristics contributes important role on MDR-TB management. Therefore, recent data are needed to improve the tracking and management of TB patients to reduce the incidence of MDR-TB.

**Keywords:** *Multidrug resistant-tuberculosis; Previous treatment history; Patient characteristics; RMT/TCM Gene-Xpert M. tuberculosis*



# Health Promotion and Implementation of Educating Pregnant Women to Prevent Malnutrition

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## ABSTRACT

**Background:** Malnutrition remains a significant health issue in Indonesia, particularly affecting toddlers. Various factors, including maternal age, socioeconomic status, gravida (number of pregnancies), and the implementation of health promotion efforts, influence the prevention of malnutrition.

**Objective:** This study aims to analyze the impact of maternal age, income, gravida, and the implementation of health promotion on pregnant women's perceptions regarding malnutrition prevention.

**Method:** A cross-sectional survey was conducted among 210 pregnant women residing in Kulon Progo Regency, Indonesia. Data were collected using a structured questionnaire, and statistical analysis was performed using the Chi-Square test to assess the relationships between variables.

**Results:** The study found that 52.3% of pregnant women had poor perceptions of malnutrition prevention. The majority were at a non-risk age (85.7%), belonged to low-income households (71%), and were multigravida (55.7%). Although the implementation of nutrition education was high, it had a significant effect on altering maternal perceptions, as indicated by a p-value of 0.000.

**Conclusion:** The study highlights that health promotion efforts, particularly nutrition education, significantly influence pregnant women's perceptions of malnutrition prevention. This suggests that targeted educational interventions can enhance the effectiveness of nursing care in preventing malnutrition during pregnancy.

**Keywords:** Health; Malnutrition; Promotion

# The Effect of Cinnamon Aromatherapy (*Cinnamomum Burmanni*) on Decreasing Dysmenorrhea in Junior High School Students 4 Gamping

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## ABSTRACT

**Background:** Dysmenorrhea is a brief pain in the lower abdomen that occurs before or during menstruation. To overcome this problem, most adolescents choose non-pharmacological treatment, because it does not cause harmful side effects to the body. Cinnamon aromatherapy is one that can overcome dysmenorrhea, the main content in essential oil consists of 55%-57% cinnamaldehyde and 5%-18% eugenol which can relax muscle spasms, abdominal cramps and reduce inflammation.

**Purpose:** Knowing the effect of cinnamon aromatherapy (*cinnamomum burmanni*) on reducing dysmenorrhea in female students of Junior High School 4 Gamping.

**Methods:** This study uses a quantitative method using a one group pretest posttest design. The population in this study were 88 female students who had menstruated and experienced dysmenorrhea. Sampling using purposive sampling technique as many as 47 respondents. The place of research was conducted at Junior High School Students 4 Gamping. The research time was conducted every Friday starting on May 3-June 7, 2024. The measuring instrument used in this study is Numeric Rating Scale (NRS). Data analysis using the Wilcoxon signed rank test.

**Results:** Before being given cinnamon aromatherapy most of the respondents as many as 31 respondents (66%) experienced moderate pain, after being given cinnamon aromatherapy most of the 34 respondents (72.3%) experienced a decrease in pain scale from before, namely pain in the mild pain category. The results of the Wilcoxon signed rank test showed a value of  $p < 0.001$  ( $p \leq 0.05$ ), meaning that there was a difference in the level of dysmenorrhea pain between before and after the administration of cinnamon aromatherapy (*cinnamomum burmanni*).

**Conclusion:** Cinnamon aromatherapy (*cinnamomum burmanni*) has an effect on reducing dysmenorrhea pain in female students at Junior High School 4 Gamping.

**Keywords:** *Cinnamon Aromatherapy; Dysmenorrhea*

# The Effect of "Go Mens" Flashcard Media Education on Readiness to Face Menarche in Elementary School Students in Bantul

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## ABSTRACT

**Background:** The arrival of menarche or the first menstruation can cause an adverse reaction. Children who are not ready for the first menstruation consider it to be a threat to them. Children feel dirty, sinful, afraid, anxious, and crying. Therefore, mental readiness to face menarche is essential.

**Purpose:** To find out the effect of "Go Mens" flashcard media education on the readiness to face menarche in elementary school students in Bantul.

**Methods:** This study is quantitative with a quasi-experimental design of pretest and posttest with control group. The population in this study is 105 female students who have not menstruated. Sampling used a total sampling technique of 105 respondents at an elementary school research site in Bantul. The research time is July-August 2024. The measuring tool used in this study is a questionnaire. Data analysis uses the Wilcoxon signed-rank test.

**Results:** The results of the study showed that the average pretest score of the readiness of the intervention group was 74.07, with a minimum score of 59 and a maximum score of 94, and the average posttest score of the preparedness of the intervention group was 79.48 with a minimum score of 59 and a maximum score of 108. There was an increase in the readiness score to face menarche before and after education was given. The results of the Wilcoxon test in the intervention group showed a value of  $p = 0.000$  ( $p < 0.05$ ), and in the control group showed a value of  $p = 0.225$  ( $p > 0.05$ ). Therefore, it can be concluded that there is a difference in readiness to face menarche in the intervention group and there is no difference in readiness to face menarche in the control group. In other words, health education using "Go Mens" flashcard media affects children's readiness to face menarche in elementary school students in Bantul.

**Conclusion:** The "Go Mens" flashcard increases the readiness to face menarche in elementary school students in Bantul.

**Keywords:** *Child; Flashcard; Menarche; Readiness*

# The Effect of Animation Video Education on the Level of Knowledge of Personal Hygiene in Children at SD Muhammadiyah Warungboto Yogyakarta

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## ABSTRACT

**Background:** Personal hygiene is self-care that can affect human health. Personal hygiene for children includes caring for the cleanliness of the mouth and teeth, hands, nails, feet and hands, hair and scalp, and cleanliness of the clothes they wear.

**Purpose:** Knowing the level of difference before and after being given animated video education on the level of personal hygiene knowledge.

**Methods:** This research method uses pre-experimental design with a one group pretest – posttest design. The research population of class 1 and 2 students was 54 respondents using total sampling technique. This research was analyzed using the marginal homogeneity test to determine differences in knowledge from the provision of animated video education.

**Results:** The majority of respondents' knowledge before the intervention had less knowledge, 43 respondents (79.6%) after being given the intervention, the majority of respondents had increased knowledge, 46 respondents (85.2%). The level of difference before and after being given animated video education using The marginal homogeneity test obtained a probability value ( $p$  value) =  $0.000 < 0.05$ , which means there are differences in children's personal hygiene knowledge using animated video education.

**Conclusion:** There is an influence of animated video education on the level of personal hygiene knowledge in children at SD Muhammadiyah Warungboto Yogyakarta.

**Keywords:** *Animated video; Knowledge; Personal hygiene*

# The Relationship Between Fast Food Consumption And Primary Dysmenorrhea In Adolescent Girls In High School

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## ABSTRACT

**Background:** The accumulation of prostaglandin hormones during menstruation results in excessive uterine contractions and impacts menstrual pain. The prevalence of adolescent girls who experience primary dysmenorrhea in Indonesia is around 54.89%. The impact that can occur if primary dysmenorrhea is not treated immediately is the disruption of adolescent girls' learning activities. Fast food consumption is one of the factors causing dysmenorrhea in adolescent girls.

**Purpose:** To determine the relationship between fast food consumption and primary dysmenorrhea in adolescent girls at SMK Koperasi Yogyakarta.

**Methods:** This type of research is quantitative correlation with a cross sectional approach. Data collection in this study used primary data. The population in this study were adolescent girls in grades X and XI at the Yogyakarta Cooperative Vocational High School, totaling 63 female students. The sample was determined using stratified random sampling technique with a sample size of 54 adolescent girls. Data collection was carried out in June 2024. The instruments used were FFQ questionnaire and dysmenorrhea questionnaire. Data analysis was performed using Spearman Rank statistical test.

**Results:** Fast food consumption is mostly in the frequent category, namely 29 respondents (53.7%), dysmenorrhea is mostly in the severe category, namely 28 respondents (51.9%). Statistical test results using the Spearman Rank test obtained a p-value of 0.001 (<0.05) with a very strong relationship (0.833). The positive correlation direction means that the more frequent fast food consumption, the heavier the dysmenorrhea experienced.

**Conclusion:** There is a relationship between fast food consumption and primary dysmenorrhea in adolescent girls. Nurses can provide counseling to adolescent girls regarding the need for adequate nutritional intake for the body during menstruation.

**Keywords:** *Adolescent Girls; Fast Food; Primary Dysmenorrhea*

# Validity, Reliability, and Inter-rater Reliability of Cognitive, Affective, and Psychomotor Instruments for Earthquake Disaster Preparedness for Health Cadres

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## ABSTRACT

**Background:** Health cadres have the potential to play an important role in community empowerment for disaster preparedness. However, it is crucial to have an instrument for assessing the cognitive, affective, and psychomotor levels of health cadres regarding earthquake disaster preparedness. This instrument is vital for the development of a comprehensive and efficient earthquake disaster preparedness education program for health cadres.

**Purpose:** Therefore, this study aims to assess the accuracy and consistency of the cognitive, affective, and psychomotor instruments in evaluating earthquake disaster preparedness among health cadres.

**Methods:** A cross-sectional study involving 90 respondents was conducted. The instruments were developed based on training modules and a literature review. The instruments consisted of 15 cognitive items, 18 affective statements, and 25 psychomotor statements, categorized into 5 cognitive categories, 6 affective categories, and 4 psychomotor categories.

**Results:** The results of this study showed that all participants (n=90) were women, with an average age of 36 years. All participants were active health cadres. The instruments used in this study were validated through content validity (Pearson Product Moment), biserial correlation, and Cohen's Kappa. Utilizing internal consistency reliability, the study found satisfactory inter-item reliability for all cognitive items (0.703 - 0.722), affective items (0.671 - 0.700), and all psychomotor items (0.464 - 1.000).

**Conclusion:** These findings indicate that cognitive, affective, and psychomotor preparedness for earthquake disaster response are essential for health cadres.

**Keywords:** *Affective; Cognitive; Disaster Preparedness; Health Cadres Validity; Instrument; Psychomotor; Reliability*

## Relationship Between Mother's Age at Birth And The Incidence of Stunting in Toddlers at Wonosari I Public Health Center

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### ABSTRACT

**Background:** Toddler stunting is a chronic nutritional problem that can be caused by various factors, including socio-economic conditions, nutrition during pregnancy, pain in infants, and lack of nutritional intake in the future of stunting. Pregnancy at a young age or pregnancy at adolescence can have an impact on child growth due to competition for nutrition between the mother and the baby.

**Purpose:** To determine the Relationship between Mother's Age at Birth and the Incidence of Stunting in Toddlers at Wonosari I Public Health Center.

**Methods:** Quantitative research method with descriptive correlation by utilizing a cross-sectional approach. The data collection technique used a non-probabilistic purposive sampling technique with a total sample of 83 respondents. The statistical test used in this study used the Somers's Test.

**Results:** The results of the Somers's test analysis obtained results, namely a p-value (0.562) > 0.05, which means that it can be concluded that there is no relationship between the age of the mother giving birth and the incidence of stunting in toddlers at the Wonosari I Health Center.

**Conclusion:** Conclusion: There is no relationship between maternal age and the incidence of stunting in toddlers at Wonosari I Health Center.

**Keywords:** Maternal age; Medical records; Secondary data; Stunting; Toddlers

# An Overview of Toddlers' Nutritional Status at Paliyan Health Center Gunungkidul Yogyakarta

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## ABSTRACT

**Background:** Toddlers experiencing a lack of nutritional intake can suffer from malnutrition. Factors that cause nutritional status problems in toddlers are poverty, low education, low skills, and so on. The prevalence of nutritional status problems throughout the world includes 8% being overweight while 23% experiencing stunting (short). The prevalence of nutritional status of toddlers in DIY has decreased by 0.04% in 2021 from 6.92% to 6.88% in 2022. Toddlers experiencing nutritional problems may occur with their growth and development in the future. Impaired cognitive function, decreased IQ, hampered physical and mental development, and metabolic problems.

**Purpose:** It aims to find out an overview of toddlers' nutritional status at Paliyan Health Center Gunung Kidul, Yogyakarta

**Methods:** This research used quantitative descriptive. The sampling technique was carried out using Proportionate Starfied Random Sampling. This research was located at Paliyan Health Center Gunungkidul using patient medical records, mothers with toddlers recorded in January-December 2023 with a population of 299 toddlers. The sample used was 171 toddlers while the weight measurement according to age was calculated using the Z-score.

**Results:** The research results showed that the nutritional status of toddlers was good at 76.0%. As an addition, the nutritional status of toddlers based on gender category was mostly male 60.2% while the nutritional status of toddlers based on the age category was mostly >24-36 months 31.6%. The description of the nutritional status of toddlers based on the highest weight category 2.7-9.6 kg is 40%. On the other hand, the description of the nutritional status of toddlers based on the job category of non-working mothers 80.7%.

**Conclusion:** The nutritional status of most toddlers is good.

**Keywords:** *Nutritional status; Toddlers; Z-score*



# Asthma Control Unveiled: A Systematic Review, Meta-Analysis, Meta-Regression, and Cost-Benefit Analysis of Regimen Effectiveness, Safety, and Cost Comparison for Optimal Patient Outcomes

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## ABSTRACT

**Background:** Asthma is an ongoing health threat that frequently creates trouble for millions worldwide. Long acting beta agonists (LABAs) in combination with inhaled corticosteroids (ICS) satisfy most of the symptoms of managing asthma, yet where resources are limited, the uncertainty about whether these are the most effective yet cheapest option remains.

**Purpose:** This study aims to clarify which asthma treatments are the most effective, safe, and cost efficient to guide decision making at the primary care level.

**Methods:** We conducted a systematic review, meta analysis, and meta regression using databases like Scopus and PubMed. Studies were checked with the Cochrane RoB 2 tool, and meta analyses were run in R Studio. We are concerned about comparing ICS/LABA combinations with other therapies regarding different outcome measures, including exacerbation rate, lung functions (FEV<sub>1</sub>, PEF<sub>R</sub>), and asthma control scores. We did a cost analysis with tornado plots, which outline the medication cost of each regiment and its deviation to get preferable regimens.

**Results:** Out of 5,083 studies, 11 met criteria, including 19,905 participants from the US, Canada, and China. ICS/LABA combinations significantly reduced exacerbations (pooled RR = 0.67 (95% CI 0.54; 0.84)), had minimal impact on FEV<sub>1</sub> (SMD 0.04 (95% CI 0.01; 0.09)), and showed a small effect on ACQ-5 scores (SMD -0.04 (95% CI -0.10; 0.01)). PEF<sub>R</sub> notably improved (SMD 1.25 (95% CI 1.09; 1.40)). High variability (I<sup>2</sup> = 88%-99%) indicated differences across studies. Cost analysis revealed ICS/LABA/MF as the most expensive, while terbutaline was affordable, emphasizing cost-effectiveness considerations. Meta-regression showed sample size, age, gender, and time to follow up impacted PEF<sub>R</sub>, not exacerbations, suggesting ICS/LABA's effectiveness but highlighting terbutaline as a viable, budget-friendly alternative.

**Conclusion:** This meta-analysis highlights ICS/LABA combinations, especially formoterol-budesonide, as effective in reducing asthma exacerbations. While ICS/LABA/MF offers strong benefits, terbutaline remains affordable.

**Keywords:** Asthma management; Asthma Controller Regiments; Cost-efficiency.

## Patient Perception of The Professionalism Medical Students in Teaching Hospitals

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### ABSTRACT

**Background:** Doctor's professionalism consists of clinical competence, communication skills, ethical and legal understanding, accountability, altruism, excellence and humanism, of which the seven pillars of professionalism are applied at the professional level.

**Purpose:** The research objective was to describe the patient's perception of the professionalism of a medical

student. The place for data collection is at Teaching Hospital. The time for data collection was carried out in November-December 2022. This research method is to use a quantitative approach with a descriptive research method with a cross sectional design.

**Results:** Results of the study with patient characteristics of age, sex, education level and length of stay based on the seven pillars showed results on clinical ability (97.6%), communication skills (95.4%), understanding of ethics and law (92%), accountability (94.8%), altruism (90.8%), and excellence (94.4%) are included in the very good category while the humanism aspect (66.2%) is in the quite good category.

**Conclusion:** Conclusion from researchers are that it is hoped that institutions and co assistant can re-evaluate the learning and application of the professionalism of co assistant and on aspects of humanism that are still categorized as quite good, learning and re-evaluation can be carried out regarding the professionalism aspect of humanism.

**Keywords:** Medical Student; Patient perception; Professionalism

**Proceeding The 3rd Unjaya International  
Conference of Health Sciences (UNICHS)**



# **FULLTEXT SECTION**

**The 3rd Unjaya International  
Conference of Health  
Sciences**

**FOSTERING NATIONAL  
RESILIENCE THROUGH  
WORKFORCE DEVELOPMENT**



# Supporting Factors for Recovery of Tuberculosis Sufferers in Kalumpang Health Center Working Area, Ternate City

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## ABSTRACT

**Background:** Tuberculosis is an infectious disease that is the main cause of disease and one of the leading causes of death worldwide and an infectious disease caused by Mycobacterium tuberculosis germs so that it can cause airway disorders. The aim of the study was to analyze supporting factors for recovery of Tb sufferers.

**Methods:** This type of study is observational analytic research with case control approach. The number of samples were 148 participants for case group of 74 people and control group of 74 people. So total sample was 148 people with ratio of 1:1. Analysis of relationship by considering the Odds Ratio (OR) and Confidence Interval (CI).

**Results:** There was statistically insignificant relationship between adherence to taking medication and recovery of Tb sufferers with OR 0.669 (95% CI: 0.240-1.863). There was statistically significant relationship between availability of PMO and recovery of Tb sufferers with OR 0.476 (95% CI: 0.243-0.931). There was statistically significant relationship between availability of PMO and recovery of Tb sufferers with OR 0.451 (95% CI: 0.231-0.882). There is simultaneous significant relationship between compliance level, availability of PMO, and family support on recovery of Tb sufferers with 95% CI: 0.000.

**Conclusion:** Recovery rate of Tb is not only treatment for Tb sufferers, but supporting factors for recovery of Tb sufferers are very important and necessary so that there is need for continuous and sustainable health promotion to all groups in community.

**Keywords:** Supporting factors; Recovery; TB sufferers; Ternate

## INTRODUCTION

The World Health Organization (WHO) states that Tuberculosis (Tb) in 2021 globally will be 10.6 million cases or an increase of around 600,000 cases from 2020 which is estimated at 10 million cases of Tb. Of these 10.6 million cases, there are 6.4 million (60.3%) people who have been reported and are undergoing treatment and another 4.2 million (39.7%) people have not been found / diagnosed and reported<sup>1</sup>. Tb sufferers are found in almost all countries, in all age groups of men and women<sup>2</sup>. Indonesia itself in 2020 is in the SECOND (2nd) position with the highest number of TB sufferers in the world after India, followed by China, Philippines, Pakistan, Nigeria, Bangladesh and the Democratic Republic of Congo in sequence. The death rate from TB in Indonesia reached 150,000 cases (one person every 4

minutes), up 60% from 2020 which was 93,000 cases of death from TB. With a mortality rate of 55 per 100,000 population (Yayasan KNCV Indonesia, 2022).

Tuberculosis is an infectious disease that is leading cause of illness and one of the leading causes of death worldwide. Before coronavirus (COVID-19) pandemic, Tb was leading cause of death from single infectious agent, ahead of HIV/AIDS (World Health Organization, 2022). Tuberculosis is an infectious disease caused by germ *Mycobacterium tuberculosis*, also known as Bacteria Resistant to Acid (BTA), group of bacteria that can cause airway disorders known as *Mycobacterium Other Than Tuberculosis* (MOTT) which can sometimes interfere with diagnosis and treatment of Tb (Kementerian Kesehatan, 2020).

Assessing Tb treatment outcomes and identifying predictors is an important part of treatment process. Globally, treatment success rates are reported to be 83% (Worku, et al., 2018). Tb treatment aims to cure patients and prevent the spread of Tb infection and emergence of new drug-resistant strains, goals that are not achieved in many parts of the world due to variety of contributing factors (Naidoo, et al., 2017). The success of Tb cure is certainly influenced by several supporting factors, such as medication adherence, PMO availability, and family support.

The long duration of anti-Tb treatment poses significant challenges for Tb sufferers, particularly treatment non-adherence. Treatment lapses mainly occur at the time of completion of their treatment (Iribarren, 2013). Failure to complete anti-Tb treatment can lead to an increased risk of relapse, drug-resistant Tb, treatment failure, disease progression leading to complications and death, and continued transmission of infection (Van, et al., 2020; World Health Organization, 2010). Supervised treatment means helping patients to take Tb medications regularly and complete Tb treatment to ensure that healthcare providers provide appropriate care and are able to detect treatment interruptions. One example of supervised treatment is recording each dose of anti-Tb medication on the patient's medication card (Xu, et al., 2009). Recovery of Tb disease is influenced by family support. Attitude of family members can influence the patient's decision to stop or continue treatment or recovery (Xu, et al., 2017).

Family members, especially spouses, play very important role in encouraging, supporting, and supervising patients' treatment for recovery (World Health Organization, 2019). Tb treatment coverage is one of ten priority indicators to achieve the End Tb Strategy goals, and has increased from 51% in 2013 to 70% in 2017 (World Health Organization, 2015; Torres, et al., 2019). This situation may be related to limited evaluation of treatment outcomes in resource-limited countries and presence of factors that influence Tb treatment outcomes. Complete Tb treatment outcome estimates are needed to improve Tb program management (Ministry of Health, 2023). The cure rate in terms of Treatment Coverage (TC) describes how many Tb cases are found and reached by Tuberculosis Control program compared to estimated Tb cases. Based on reported data, there was a decrease in TC in 2020 and 2021 but began to increase in 2022. In 2022 it was 52% of the 90% target (Ranganathan and Aggarwal, 2019).

In Ternate City, the number of pulmonary Tb cases is increasing every year. Although Health Center has a good community health program infrastructure, it cannot guarantee risk supporting factors recovery of Tb patients which greatly affect increase in prevalence rate of pulmonary Tb which is not optimal in Ternate City Government. One of strategic goals for reducing Tb is to increase the success rate of anti-Tb treatment in region, which can be improved through identification of factors that influence good outcomes, to guide

implementation of preventive health measures in the population. Therefore, the aim of this study was to identify factors that influence successful anti-Tb treatment outcomes in patients at Kalumpang Health Center Working Area of Ternate City.

Problem of this study is lack of support for recovery of Tb sufferers, cause of this study is lack of family support for adherence to taking medication for patients with Tb. Judging from the title, this is the first time it has been studied in Kalumpang Health Center working area, so researcher feels curious about problem of Tb in Ternate City and is interested and explores further to improve the recovery of Tb sufferers, as far as this research is expected to support recovery of Tb sufferers, so that prevalence rate of Tb in coming year tends to decrease Tb cases compared to previous years and cause death.

## MATERIALS AND METHODS

This type of study is observational analytic study with case control approach. In analytic observational study, researchers try to establish relationship between exposure and outcome. analytic observations are usually used to test hypotheses or theories that have been formulated by researchers. The study uses primary data which aims to obtain information about relationship between family support factors and recovery of Tb patients. This study begins by identifying families with Tb patients. Then population in this study were all families suffering from Tb recorded in Kalumpang Health Center working area in Ternate City. From the results of calculation, sample size were 148 participants in Kalumpang Health Center working area in Ternate City. Analysis of relationship by considering the Odds Ratio (OR) and Confidence Interval (CI). From the results of calculation it is known that sample size in the study was for case group of 74 people and control group of 74 people. So the total sample was 148 people with a ratio of 1: 1.

## RESULTS

### Characteristics of participants

The characteristics of participants in this study were seen from age, gender, education level and occupation, drug compliance, availability of medication supervisors (MS), husband support, recovery and family of TB sufferers, husband support that always provides recovery level, and family of TB sufferers Table 1.

**Table 1. Distribution of Participant Characteristics**

Variable	Frequency	Percentage (%)
<b>Age</b>		
10-20 years	31	20,9
21-30 years	35	23,6
31-40 years	23	15,5
41-50 years	22	14,9
≥ 60 years	37	25,0
<b>Gender</b>		
Male	103	69,6
Female	45	30,4
<b>Education</b>		
No school	62	41,8
Elementary school	47	31,8
Junior high school	2	1,4

Variable	Frequency	Percentage (%)
Senior high school	37	25,0
<b>Work</b>		
Civil servant	34	23,0
Retirement	6	4,1
Privat enterpreneur	80	54,1
Housewife	28	18,9
<b>Medication adherence</b>		
No-compliant	131	88,5
Compliant	17	11,5
<b>Available of medication supervisor</b>		
Unavailable	89	60,1
Available	59	39,9
<b>Family support</b>		
Not good	88	59,5
Good	60	40,5
<b>Recovery</b>		
No-recovery	129	87,2
Recovery	19	12,8

Data Primer, in 2023

Based on Table 1, it is known that the age of participants is mostly at  $\geq 60$  years by 25.0%, and the most age is 10-20 years by 14.9%. Majority of participants were male (69.6%) and female (30.4%). Education level of participants was mostly out of school at 41.9%, followed by elementary school at 31.8%, high school at 25.0%, and junior high school at 1.4%. participants were mostly self-employed at 54.1%, followed by civil servants at 23.0%, unemployed at 18.9%, and retired at 4.1%.

Distribution of medication adherence was mostly non-compliant at 88.5% compared to those who were compliant with medication at 11.5%. Availability of MS was greater at 60.1% compared to having MS at 39.9%. The majority of family support was unfavorable at 59.5% compared to unfavorable at 40.5%. Majority of TB sufferers did not recover by 87.2% compared to those who recovered by 12.8%.

**Table 2 Recovery Rate of TB Sufferers**

Variable	TB Sufferers
No-recovery	62
Recovery	12

Data Primer, in 2023

Table 2 shows that participants who suffer from TB who do not recover from TB disease (62 participants) are more than participants who recover from TB disease (12 participants). Relationship between Supporting Factors and the Recovery of TB Sufferers.

### Supporting Factors for the Recovery of TB Sufferers

The analysis in this study tested with the chi square test can be seen in Table 3.

**Table 3. Relationship between Supporting Factors for TB Sufferers**

Variable	Tb Sufferers		Total	P	OR 95% CI
	Suffering TB	No.-suffering TB			
Medication adherence	64	67	131	0,607	0,669
No-adherence adherence	10	7	17		0,240-1,863
Available MS					
No-available	38	51	89	0,044*	0,476
available	36	23	59		0,243-0,931
Family support					
Not good	37	51	88	0,029	0,451
good	37	23	60		0,231-0,882

\*\*\*Significant probability value ( $p < 0.05$ ) from Chi Square test

Data Primer, in 2023

The results of analysis of Table 3 show that: a) there is statistically insignificant relationship between adherence to taking medication on recovery of Tb sufferers with p value of 0.607 and OR 0.669 (95% CI: 0.240-1.863) meaning that there is no relationship between adherence to taking medication 66.9 times greater to recovery of Tb sufferers. In participants who Tb suffered, majority were not compliant with taking medication (64 participants) compared to participants who were compliant with taking medication (7 participants). Not much different from participants who did not Tb suffer, which was more likely to choose not to adhere to taking medicine (67 participants) than those who chose to adhere to taking medicine (7 participants); b) there was statistically significant relationship between availability of MS and recovery of Tb sufferers with p value of 0.044 \* and OR 0.476 (95% CI: 0.243-0.931), meaning that there was 47.6 times greater relationship between availability of MS and the recovery of Tb sufferers. In participants who Tb suffered, there were no MS (38 participants) slightly more than participants who had MS (7 participants). However, it was much different with participants who did not Tb suffer, namely more preferring no MS (51 participants) than those who chose MS (23 participants); c) there is statistically significant relationship between availability of MS and recovery of Tb sufferers with p value of 0.029 \* and OR 0.451 (95% CI: 0.231-0.882) meaning that there is 45.1 times greater relationship between family support and recovery of Tb sufferers. In participants who Tb suffered lacking good family support (37 participants) was the same as participants who had good family support (37 participants). But it is much different from participants who do not Tb suffer, namely more family support that is less good (51 participants) than those who have good family support (23 participants).

### Supporting Factors for the Simultaneous Recovery of TB Suffers

Analysis used is binary logistic regression which aims to determine the relationship between recovery of TB sufferers who always provide MS availability, family support, and recovery rate. Results of analysis can be seen in Table 4.



**Table 3 Logistic Regression Analysis Model of Supporting Factors Recovery of TB Sufferers**

Variable	B	S.E	Wald	df	P value	Exp(B)	95% CI
Medication adherence level	-20.772	40192.876	0,000	1	1,000*	0,000	0,000
Available MS	21.582	40192.876	0,000	1	1,000*	2360037588	0,000
Family Support	21.582	28420.737	0,000	1	0.999*	2360037527	0,000

\*=  $p < 0.05$ ; \*\*\*=  $p < 0.001$

Data Primer, in 2023

Based on table 4, it shows that there is a significant relationship simultaneously, namely compliance level, the MS availability, and family support for the recovery of TB sufferers with 95% CI: 0.000.

### DISCUSSION

Study that has been conducted on 148 participants in families of TB sufferers and families not Tb sufferer with ratio of 1: 1 in Kalumpung Health Center Working Area of Ternate City. This study shows supporting factors for recovery of Tb sufferers in Kalumpung Health Center Working Area of Ternate City. The supporting factors studied were compliance with taking medication, MS availability, family support, and recovery rate.

In this study, medication adherence did not have significant relationship with Tb sufferers. However, results of the study are not in line with several other studies showing that there is relationship between medication compliance and recovery in pulmonary tuberculosis patients (Apriliyasari, Wulandar, and Purnanto, 2014; Syafakamila and Purbowati, 2022; Yoni, Juniarti, and Lukman, 2022). In fact, patient medication compliance is strongly influenced by several factors of public dissatisfaction with health services provided, such as: inconsistent service hours, discriminatory services, unclean facilities and environment, and lack of in-depth information about TB (Probandari, 2010). Patients who are not adherent to treatment will stop treatment by themselves. This will increase the prevalence of bacterial resistance to MTB, which is high and requires a longer cost and duration of treatment (Munro, et al., 2007; Ivers and Cullen, 2011). Poor treatment adherence means that people with Tb will continue to suffer from TB for longer and will be more likely to relapse and even die. It also results in *Mycobacterium tuberculosis* becoming drug-resistant (Kassim, et al., 2021).

This study shows that MS availability has significant relationship with recovery of TB sufferers. This study supports previous research which shows that majority of medication swallowing supervisors perform their role well and have significant correlation with recovery of TB patients (Selasa, et al., 2022). Other studies have also shown that TB medication swallowing supervisors (MS) by conducting home visits have positive correlation in monitoring and evaluating patient treatment so as to increase recovery of TB patients. And this study also illustrates that frequent visits by TB cadres have positive impact on high recovery rate of TB patients. This is evidenced by the high number of negative BTA results (Boy, 2015). Another study also showed that adherence to taking medication had significant relationship with recovery of TB patients (Khairunnisa, 2019). Home visits to conduct supervised medication swallowing interventions that are carried out regularly to patients visited, they will

have positive motivation to take complete medication and improve their adherence to treatment. Direct supervision of TB medication swallowing aims to ensure TB patients take anti-tuberculosis drugs without missing any (Santika and Hisyam, 2014).

This study also shows that family support has significant relationship with recovery of TB sufferers. This study supports previous research which shows that collaboration model between family support and health workers has an impact on clean living behavior that supports recovery (Stang, et al., 2023). TB patients generally have psychological burden in the form of fear of treatment failure and lack of confidence to recover from their illness, which hinders their compliance in undergoing treatment for recovery (Theron, et al., 2015). However, constant encouragement and attention from family can boost patient's self-confidence, and thus, influence patient's treatment adherence. During illness, family members who will help solve problems in their lives have no effect on adherence. Some experts believe that when intervening in patient adherence, what matters is whether the patient feels supported by family (Liu, et al., 2015). Researchers believe that family is the closest and most understanding person to patient, when family member is sick, other family members will definitely provide positive support for patient to recover. Sense of empathy that families have for fellow family members is very high compared to other people, this causes the sense of empathy to encourage families to provide full support to sufferers, especially because drug-resistant TB requires long treatment.

Supporting factors for recovery of TB sufferers, namely compliance level, MS availability, and family support simultaneously have significant relationship to recovery of Tb sufferers. Recovery rate of TB sufferers in this study was very low compared to Tb sufferers who recovered. This shows that several supporting factors for recovery for Tb sufferers are very important and mutually sustainable. This study shows that more than 50 percent of Tb sufferers do not recover. North Maluku itself in 2022 the success rate of TB treatment (83.6%) is still below the national target (90%). Indonesian Ministry of Health has developed an Elimination Roadmap in accordance with global target in 2030 with incidence falling 80% to 65 per 100,000 population and mortality falling to 6 per 100,000 population with efforts to increase the coverage of tuberculosis discovery and treatment  $\geq 90$ , tuberculosis treatment success rate  $\geq 90\%$  and tuberculosis prevention therapy (TPT)  $\geq 80\%$  (Kementerian Kesehatan, 2023).

## CONCLUSION

The cure rate of TB is not only treatment for TB sufferers, but support for recovery of TB sufferers is very important and necessary so that there is need for continuous and sustainable health promotion. Health promotion is not only targeting TB sufferers, but also must target family and surrounding community. Health promotion related to TB prevention needs to be improved again considering that recovery rate of Tb sufferers is still low.

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This study did not receive funding from any source.

## CONFLICT OF INTEREST

This study did have conflict of interest.

## ETHICAL CLEARANCE

This study was approved by the Health Research Ethics Committee Dr. Moewardi General Hospital RSUD Dr. Moewardi. (Num. 2.103/XI/HREC/2023).

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# Trends Research Medication Adherence of Hypertensive Patients: Bibliometric Analysis

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## ABSTRACT

**Background:** Hypertension is a serious global health problem. Medication adherence is one of the important factors in its control. However, hypertension patients' adherence to medication is still a major obstacle. Many studies have addressed medication adherence in hypertensive patients. However, the mapping of scientific contributions related to the topic is still limited. Therefore, bibliometric analysis is needed to identify them.

**Purpose:** This study aims to analyze publication trends and contributions of authors, sources, institutions, and countries, as well as potential future research directions in hypertension treatment adherence.

**Methods:** This study used bibliometric analysis with the Scopus database. Articles published between 2014 and 2023 were analyzed using the keywords "hypertension", "high blood pressure", "medication adherence", and "medication compliance", combined with boolean operators. The initial documents identified were 4,558 articles. The search focused on article titles, abstracts, keywords, restricted to publications in English, and completed metadata. A total of 3,100 articles met the inclusion and exclusion criteria for analysis.

**Results:** Scientific publications on hypertension medication adherence increased steadily over the period 2014-2023, with 364 publications in 2020 as the peak. By number of publications, the most prolific author was Bosworth with 28 articles, while the journal Patient Preference and Adherence led with 88 articles. The United States was the most productive country with 6,320 publications. Cluster analysis identified five main clusters, with hypertension and medication compliance as dominant topics and mobile health, health education, and adherence monitoring as emerging topics.

**Conclusion:** The topic of hypertension medication adherence remains important to research, with great potential in the currently under-discussed areas of mobile health and health education. Future research could focus on innovative interventions in these areas to improve patient medication adherence.

**Keywords:** *Bibliometric analysis; Health education; Hypertension; Medication adherence; Mobile health*

## INTRODUCTION

The world places hypertension as one of the global issues. Hypertension that is not well controlled can cause several complications including cardiovascular disease, stroke, kidney failure, and even death (Alawneh, Yasin and Musmar, 2022; Denisova et al., 2022; Burnier and Damianaki, 2023). The prevalence of hypertension shows an increasing trend every year in several countries such as Indonesia, Nepal, and Bangladesh (Badan

Penelitian dan Pengembangan, 2014, 2019; Chowdhury et al., 2020; Dhungana, Pandey and Shrestha, 2021; Badan Kebijakan Pembangunan Kesehatan, 2024). Efforts to control hypertension include pharmacological therapy. It is known as one of the effective ways to control hypertension (Campos et al., 2023; Karim et al., 2023; Podzolkov et al., 2023). However, the level of adherence of hypertensive patients to treatment is still a major obstacle in controlling cases of hypertension (Poulter et al., 2020). The results of the 2023 Indonesian Health Survey reported that hypertensive patients who did not regularly take medication were 32.27%, and did not take medication at all were 13.33%.

In addressing the problem of treatment non-adherence of hypertensive patients, researchers have developed various interventions to improve their treatment adherence, such as education, use of smartphones, collaboration of health workers in work teams, simplification of dosage, creating reminders for treatment, and providing financial incentives (Ampofo, Khan and Ibitoye, 2020; Anderson et al., 2020; Mohammadi Torkabad, Negahban Bonabi and Heidari, 2020; Svarstad, Brown and Shireman, 2022). Other researchers focus on examining risk factors for hypertension patient non-adherence (Algabbani and Algabbani, 2020; Burnier, Polychronopoulou and Wuerzner, 2020; Poulter et al., 2020). However, no study has specifically mapped the trend of study productivity and the contribution of authors, journals, institutions, and countries in adherence studies on medication adherence in hypertensive patients so far. A bibliometric approach can be used to generate such information, and the information will provide recommendations for reference frameworks and future study directions.

The use of bibliometric approaches in the study of health has been widely used in medicine and health care topics (Thompson and Walker, 2015; Kokol, Blažun Vošner and Završnik, 2021), eHealth and Digital Health (Ahmadvand et al., 2019; Kageyama et al., 2022; Tajudeen et al., 2022; Tian and Chen, 2022), hypertension cases (Devos and Menard, 2019; Devos and Ménard, 2020; Lou et al., 2023), medication adherence in infectious diseases and non-communicable diseases (Sweileh et al., 2019; Ye and Zhang, 2019). Therefore, this study aimed to conduct a comprehensive bibliometric analysis on medication adherence in hypertensive patients based on reported articles. We analyzed the reported articles on medication adherence in hypertensive patients, focusing on: (1) trend per year; (2) author contribution; (3) journal contribution; (4) affiliation contribution; (5) country contribution; and (6) projection of potential future research area.

## **MATERIALS AND METHODS**

The PICO (population, interventions, comparisons, outcomes) formula was used as an approach in developing keywords to search for article documents in journal databases (Methley et al., 2014). In this study, the Population component used the keywords "hypertension" and "high blood pressure", the Outcome component used the keywords "medication adherence" and "medication compliance", while the Interventions and Comparison components were not used in the article document search. The keywords were combined using Boolean operators "OR" and "AND" to search for article documents in the journal database. The article search was conducted on 20 May 2023 on the Scopus database. The search strategy used a combination of keywords ( ( TITLE-ABS-KEY ( hypertension ) OR TITLE-ABS-KEY ( "high blood pressure" ) ) AND ( ( TITLE-ABS-KEY ( "medication adherence" ) OR TITLE-ABS-KEY ( "medication compliance" ) ) AND PUBYEAR > 2013 AND PUBYEAR < 2024 AND ( LIMIT-TO ( SRCTYPE , "j" ) ) AND

( LIMIT-TO ( LANGUAGE , "English" ) ). Furthermore, the article document selection process and the results are explained using the PRISMA flowchart as shown in Figure 1 (Page et al., 2021).

Data were analyzed descriptively using VOS viewer, bibliometric, and Microsoft Excel software to answer the study questions: (1) What is the trend of hypertension treatment adherence research? (2) What is the contribution of authors in hypertension treatment adherence research? (3) What is the contribution of journals in hypertension treatment adherence research? (4) What is the contribution of affiliations in hypertension treatment adherence research? (5) What is the contribution of countries in hypertension treatment adherence research? and (6) What is the projection of the potential for further hypertension treatment adherence research? Co-occurrences analysis with VOS viewer uses a thesaurus to group similar topics but with slightly different keywords; for example, the topics of educational training, health coaching, health education, health knowledge, health literacy, health promotion, patient education, patient information leaflets, and patient medication knowledge are grouped into the topic of health education. The results of the analysis will be presented in the form of tables, graphs, and maps.

Inclusion and exclusion criteria were used to screen the articles. The inclusion criteria used were (1) Publication time period 2014-2023; (2) Type of publication was a journal; and (3) English language. Exclusion criteria for excluding articles were incomplete metadata. Screening was conducted using bibliometric. There were 3,100 articles submitted for analysis. Details of the article selection process are presented in Figure 1.

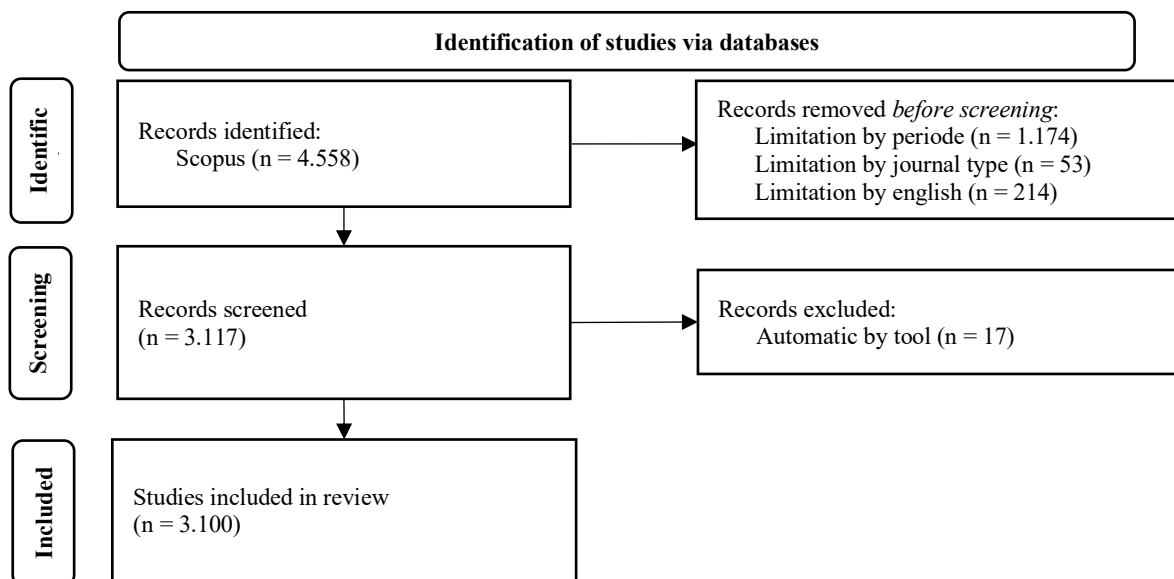


Figure 1 Flow diagram of article selection

## RESULTS

### Data characteristics

Based on a search using the Scopus database for a 10-year publication period from 2014 to 2023, 3,100 article documents related to hypertension patient medication adherence were obtained. The articles came from 982 sources, 15,062 authors, and the



document type consisted of 2,579 articles, 27 conference papers, 45 editorials, 25 erratum's, 33 letters, 40 notes, 346 reviews, and 4 short surveys. More detailed characteristics of the study data are shown in Table 1.

**Table 1. Data Characteristics**

Description	Results
<b>MAIN INFORMATION ABOUT DATA</b>	
Timespan	2014:2023
Sources (Journals, Books, etc)	982
Documents	3100
<b>AUTHORS</b>	
Authors	15062
<b>DOCUMENT TYPES</b>	
article	2579
conference paper	27
editorial	45
erratum	25
letter	33
note	40
retracted	1
review	346
short survey	4

#### **Trend overview of hypertension patient medication adherence study**

The development of publications on hypertension treatment adherence is shown in Figure 2. The number of documents published on hypertension treatment adherence in 10 years (2013 to 2023) in the Scopus database generally increased. However, the increase is not too sharp and tends to be stable. This shows that the research published in this field tends to be constant every year, with a minimum number of 241 publications in 2014 and a maximum of 364 publications in 2020. The trend for the next 5 years will continue to increase; this is based on the regression equation  $y = 12.879(\text{year}) + 240.87$ , which can be used to predict the number of publications in the following years.

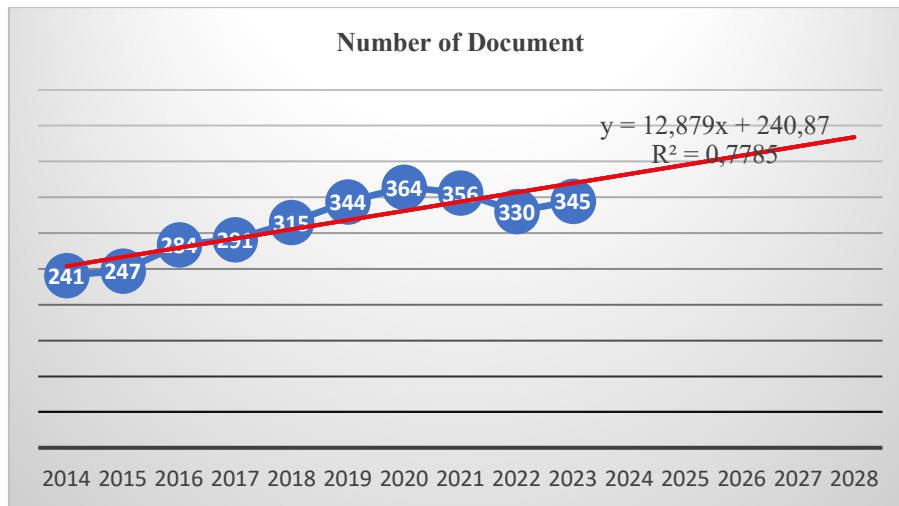


Figure 2. The progression of hypertension patient medication adherence research publications

### Author contribution to the publication of hypertension patient medication adherence

Table 2 shows the 10 most productive authors who published their study results in the field of hypertension patient treatment adherence. The first place is Bosworth HB with 28 articles, followed by Choudhry NK, and Morisky DE with 25 articles, Wang J with 24 articles, Muntner P with 20 articles, Ogedegbe G with 19 articles, and then Gupta P, Krousel-Wood M, Schmieder RE, and Wang Y with 18 articles.

Cluster analysis of authors to see the collaboration of author networks with a minimum cluster size criterion of 15 author appearances in the article resulted in 4 clusters as shown in Figure 2. Cluster 1 (red colour) includes Gupta, Mahfoud, Mancia, Patel, and Burnier. Cluster 2 (green colour) includes Morisky, Choudhry, Uchmanowicz, and Peacock. Cluster 3 (blue colour) includes Boshwort, Wang J, Chusman, and Zullig. Cluster 4 (yellow colour) includes Ogedegbe, Kronish, Steiner, and Ovbiagele.

Table 2. Top 10 author in publication medication adherence in hypertension

Authors	Articles
Bosworth HB	28
Choudhry NK	25
Morisky DE	25
Wang J	24
Muntner P	20
Ogedegbe G	19
Gupta P	18
Krousel-Wood M	18
Schmieder RE	18
Wang Y	18

### Journal contribution to the publication of hypertension patient medication adherence

Figure 4 illustrates the 10 most productive journal sources that have an impact on the scientific development of hypertension patient treatment adherence. Figure 4.a shows the 10 most productive journals, including Patient Preference and Adherence (n

= 88), followed by Plos One (n = 77), Journal of Clinical Hypertension (n = 66), BMJ Open (n = 63), Hypertension (n = 42), Journal of Hypertension (n = 42), Journal of Managed Care and Speciality Pharmacy (n = 35), American Journal of Hypertension (n = 34), Journal of Human Hypertension (n = 31), and International Journal of Environmental Research and Public Health (n = 29). While Figure 4.b. shows the 10 journals that have the highest h-index include Plos One, followed by Hypertension, Patient Preference and Adherence, Journal of Clinical Hypertension, Journal of Hypertension, BMJ Open, Journal of Human Hypertension, American Journal of Hypertension, BMC Cardiovascular Disorders, and Journal of Managed Care and Speciality Pharmacy.

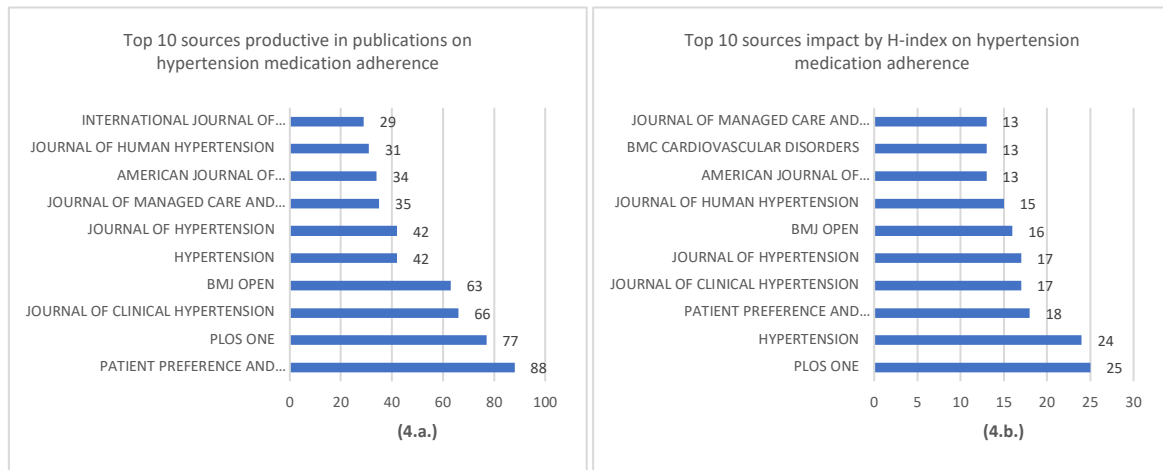


Figure (4a)Top 10 sources production in publication on hypertension medication adherence, (4b) Top 10 sources impact by H-index on hypertension medication adherence

### Contribution of affiliation in the publication of hypertension patient medication adherence

Table 3 shows the top 10 affiliations in the publication of hypertension patient treatment adherence. The University of Alabama at Birmingham was the most productive (n = 130), followed by the University of California (n = 118), Medical University of South Carolina (n = 98), University of Michigan (n = 89), University of Toronto (n = 83), Duke University (n = 79), University of Sydney (n = 72), Icahn School of Medicine at Mount Sinai (n = 71), National University of Singapore (n = 71), and Harvard Medical School (n = 68).

Table 3. Top 10 affiliation in publication medication adherence in hypertension

Affiliation	Articles
University of Alabama at Birmingham	130
University of California	118
Medical University of South Carolina	98
University of Michigan	89
University of Toronto	83
Duke University	79
University of Sydney	72
Icahn School of Medicine at Mount Sinai	71
National University of Singapore	71
Harvard Medical School	68

## Country contribution in the publication of hypertension patient medication adherence

Figure 6 shows the distribution of publications by country in the publication of medication adherence among hypertensive patients. The USA is the most productive country (n = 6,320), followed by China (n = 1,207), the UK (n = 872), Canada (n = 592), South Korea (n = 565), Brazil (n = 533), Australia (n = 525), India (n = 517), Italy (n = 510), and Spain (n = 507).

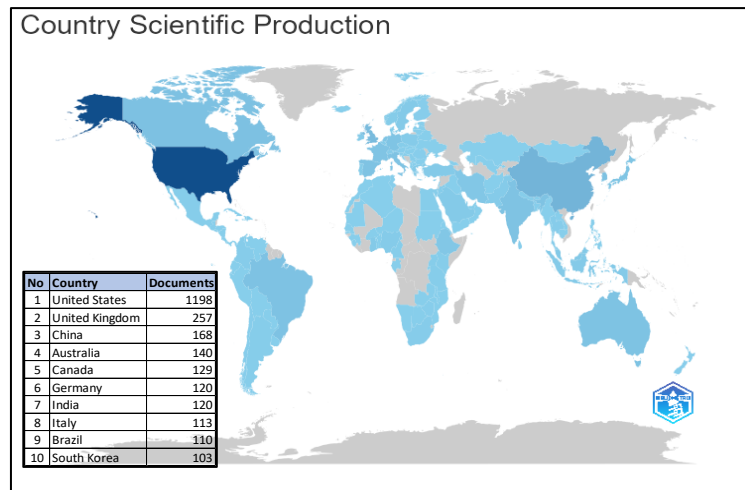


Figure 6. Contribution of countries in publication medication adherence in hypertension

## Cluster and research topic opportunities

Figure 7.a. shows the research topics grouped into 5 major clusters: Cluster 1 (red colour) consists of 7 topics, including anti-hypertensive drugs, blood pressure monitoring, depression, hypertension, medication adherence, medication monitoring, and persistence. Cluster 2 (green colour) consists of 7 topics, including behaviour change, chronic diseases, diabetes, health education, mobile health, primary health care, and self-management. Cluster 3 (blue colour) consists of 7 topics, including African, cardiovascular disease, intervention, prevention, randomised control trial, risk factor, and stroke. Cluster 4 (yellow colour) consists of 2 topics, including elderly patients and pharmaceutical services. Cluster 5 (purple colour) consists of 2 topics, including assessment and therapy. The research topics of hypertension and medication compliance fall into the basic theme quadrant, indicating that these topics are still very relevant for study as shown in Figure 7.b. Meanwhile, the newer topics include health education, mobile health, and depression, as shown in Figures 7.c. and 7.d.

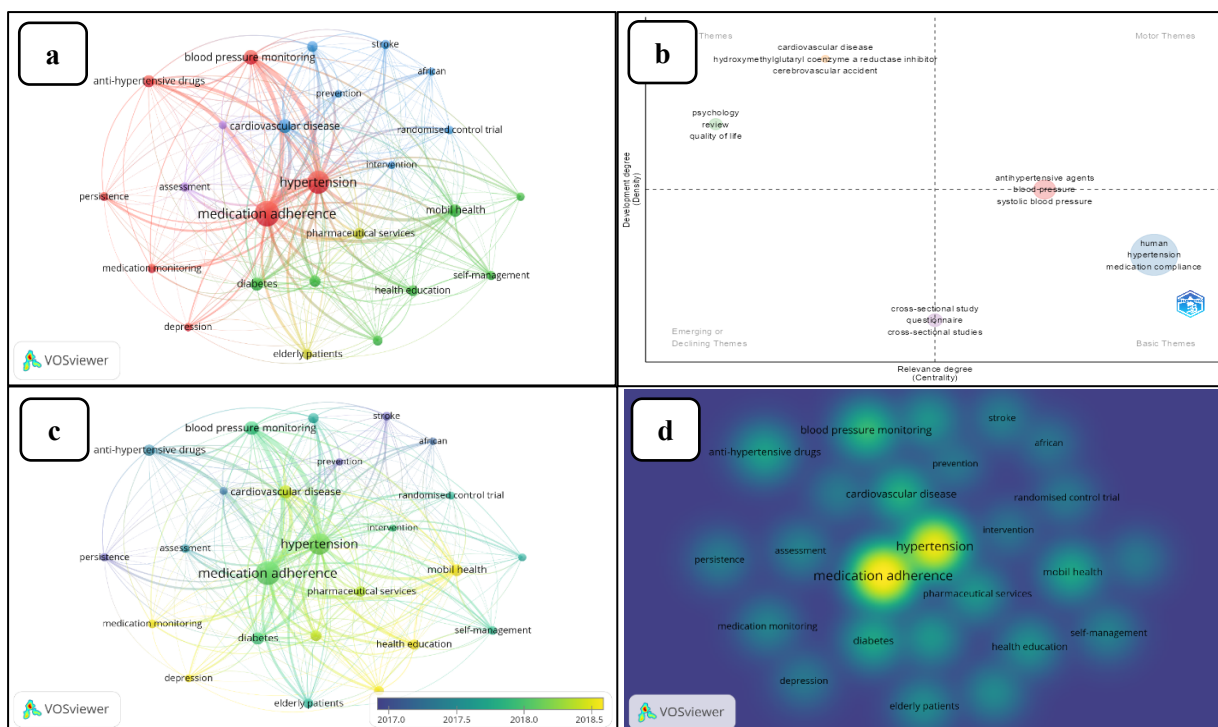


Figure 7. Research clusters and future research opportunities

## DISCUSSION

The number of published documents on hypertension patients' medication adherence during the period of 2014-2023 has increased significantly. The number each year is no less than 200 articles. The number of articles in 2024-2028 is predicted to increase steadily. This supports the findings of another study that found that adherence to chronic disease treatment remains a global issue (Vrijens et al., 2017). Another study found that the focus of medication adherence research is gradually shifting from infectious diseases to chronic diseases (Ye and Zhang, 2019). Therefore, researchers will certainly be interested in studying those topics.

Bosworth HB, Choudhry NK, Morisky DE, Wang J, Muntner P, Ogedegbe G, Gupta P, Krousel-Wood M, Schmieder RE, and Wang Y are the most productive authors during the period from 2014 to 2023. Meanwhile, Patient Preference and Adherence is the most productive journal. This journal is an open-access journal, with special topics discussed including patient satisfaction, treatment acceptance, treatment adherence, quality of life, and health management modeling. It recorded 344,738 annual downloads/views and has a 2.2 Impact Factor (Press, no date; Patient Preference and Adherence - Impact Factor, Quartile, Ranking, no date). Plos One is the most influential journal on the topic of medication adherence in hypertensive patients. This journal is a multidisciplinary journal with an Impact Factor of 3.7 (PLoS One - Impact Factor, Quartile, Ranking, no date).

University of Alabama at Birmingham, University of California, Medical University of South Carolina, University of Michigan, University of Toronto, Duke University, University of Sydney, Icahn School of Medicine at Mount Sinai, National University of Singapore and Harvard Medical School are productive affiliates. Meanwhile, the USA, China, UK,

Canada, South Korea, Brazil, Australia, India, Italy, and Spain are the most productive countries. The important finding is that there is a highly relevant connection between journals, affiliates, and countries. University of Alabama as the most productive affiliation and PLOS ONE as the journal with the highest impact factor, both are located in the USA (ABOUT UAB - The University of Alabama at Birmingham | UAB, no date; PLoS One - Impact Factor, Quartile, Ranking, no date).

Publication topics are grouped into 5 major clusters. The topics of hypertension and medication compliance are still very relevant for study (Vrijens et al., 2017; Ye and Zhang, 2019; Devos and Ménard, 2020; Poulter et al., 2020; Dhungana, Pandey and Shrestha, 2021; Lou et al., 2023). Meanwhile, the trend of new publication topics includes health education, mobile health, and medication adherence. This reinforces relatively recent articles related to global eHealth, mobile technologies, and education as an intervention for medication adherence in hypertensive patients (Ahmadvand et al., 2019; Ampofo, Khan and Ibitoye, 2020; Tajudeen et al., 2022; Tian and Chen, 2022).

## CONCLUSIONS

This study uses bibliometric methods to examine and map the state of research and its development in a specific field. The use of bibliometric analysis in the field of health has developed rapidly. In a bibliometric analysis of the research topic on hypertension patients' medication adherence from 2014 to 2023, a positive and stable publication trend was found. The USA is the most productive country, where Bosworth HB is the most productive author and PLOS ONE is the most productive journal. The research topics of medication compliance and hypertension are the most widely studied. Meanwhile, the topics of health education, mobile health, and compliance monitoring are relatively new areas of research. Thus, these topics remain relevant for future study.

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## CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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# Determinants of Stunting Incidence in Sukarame Village Tasikmalaya District Jawa Barat Province Indonesia

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## ABSTRACT

**Background:** Stunting is a disorder of children's growth and development due to chronic malnutrition and recurrent infections, which is characterized by their length or height being below standard. The prevalence of stunting in Indonesia continues to decline from 2018-2022, but the prevalence is still above the WHO prevalence. Stunting is still one of the health problems in Indonesia. The incidence of stunting in toddlers is related to various factors such as sanitation and clean water, worm diseases, immunization status, smoking behavior and Chronic Energy Deficiency (CHD) in pregnant women.

**Purpose:** The research aims to determine the distribution of stunting in the Sukarame District, Tasikmalaya Regency, West Java Province in 2024.

**Methods:** This study is an analytical descriptive research. The subjects targeted in this study are mothers who have stunted toddlers in February 2024, the inclusion criteria in this study are respondents who are declared stunted and willing to be interviewed. There were 341 stunting incidents in Sukarame District.

**Results:** Based on the results of the study, there are several determinants of stunting in Sukarame District, namely access to healthy latrines has only reached (77.7%), there are still (12.6%) people who do not have access to proper drinking water, there are (7%) mothers of stunted toddlers who experience KEK during pregnancy and only (30%) families of children under five who have BPJS/JKN.

**Conclusion:** Based on research that has been conducted in Sukarame Subdistrict, Tasikmalaya Regency, there are four main factors that influence the incidence of stunting in children under five years old, namely: 1. Community access to healthy latrines, 2. Community access to proper drinking water 3. Chronic Energy Deficiency (CHD) in pregnant women, 4. BPJS National Health Insurance coverage.

**Keywords :** *Determinant Factors; Stunting; Tasikmalaya; Toddlers*

## INTRODUCTION

According to the World Health Organization (WHO), Indonesia is the third country with the highest prevalence of stunting in the Southeast Asia region at World Health Organization (WHO) (World Bank, 2023). Based on data from the Nutrition Status Monitoring (PSG) in Indonesia during 2015-2017, stunting with a prevalence of 29.6% is the highest rate compared to other nutritional problems (undernutrition, thinness, and fatness) (Kemenkes RI, 2018). The results of the Survey on the Nutritional Status of Indonesian Under-five Children (SSGBI) in 2019 showed that the prevalence of stunting was 27.67%, down from 30.8% in 2018. However, this figure is still greater than the WHO target of 20% (Kemenkes RI, 2020).

The government's commitment stated in the policy can be the basis and direction of policy in designing programs and reducing stunting for stunting prevention.

Then based on the results of the Indonesian Nutrition Status Survey (SSGI) in 2021, there was a decrease in the prevalence of stunting to 24.4%. Then the latest data based on the results of the SSGI in 2022 there was another decrease in the prevalence of stunting to 21.6% (Kemenkes RI, 2022). However, this figure is still greater than the WHO target of 20% (Kemenkes, 2018). The government's commitment stated in the policy can be the basis and direction of policy in designing programs and reducing stunting for stunting prevention. This is contained in the AIMING HIFH Indonesia Ambition to Reduce Stunting, including interventions in diet, parenting, and sanitation. The program unites all existing efforts with the Gerakan Masyarakat Hidup Sehat (Germas) and the revitalization of posyandu in rural areas. At the same time, it ensures public access to proper sanitation and clean water facilities, so that by 2022 it has improved access. At the same time, it ensures public access to proper sanitation and clean water facilities, so that by 2022 it has improved access to decent water to 90.7% and access to sanitation to 80.2% (Portal Informasi Indonesia, 2022).

Based on the results of the Basic Health Research (Riskesmas) in 2018, many provinces have a high prevalence of stunting, one of which is West Java Province, which has a stunting prevalence of 29.08% (Kemenkes RI, 2018). Based on the results of SSGI in 2021, the prevalence of stunting in West Java Province was 24.5%. Then experienced a significant decrease to 20.2% in 2022 (Kemenkes RI, 2022). Tasikmalaya Regency is a district that still has a higher prevalence of stunting than the average of West Java Province.

During the last 5 years from 2017-2021, the prevalence of stunting in Tasikmalaya Regency showed fluctuating data. In 2017 Tasikmalaya Regency ranked third with the highest stunting prevalence in West Java province at 15.0% (Dinkes Jabar, 2017). Based on the regional health report of Tasikmalaya Regency, the prevalence of stunting in 2020 was 17.2%. The results of SSGI in 2021, Tasikmalaya Regency ranks in the top 10 of stunting prevalence in West Java Province at 24.4%. Then it increased by 2.8% to 27.2% in 2022 and ranked 4th in the prevalence of stunting out of 27 districts/cities in West Java Province (Pemkab Tasikmalaya, 2022). There are 21 sub-districts that are special locations (locus) of the Tasikmalaya Regency stunting intervention convergence in 2023 (Keputusan Bupati Tasikmalaya, 2022).

Sukarame sub-district is one of the sub-districts that is the locus of stunting intervention. The prevalence of stunting in Sukarame sub-district was 22.89% in 2020 and 18.60% in 2021. Then it increased to 20.16% in 2022. The Sukarame sub-district area consists of 6 village governments, namely Sukarapih Village, Sukamenak Village, Sukarame Village, Sukakarsa Village, Wargakerta Village, and Padasuka Village (Badan Pusat Statistik, 2014). There are 3 villages that are included in the stunting locus, namely Sukarame Village, Sukamenak Village, and Padasuka Village (Keputusan Bupati Tasikmalaya, 2022).

This decrease and increase occurs fluctuatively, and this must be addressed immediately, because according to Presidential Regulation 72 of 2021 concerning the acceleration of stunting reduction, it must be resolved immediately because it will have an impact on the development of future generations. Therefore, this research will look at the mapping of Sukarame Subdistrict, where the stunting rate is quite high and increasing. This study aimed to know the distribution of stunting in Sukarame Sub-district, Tasikmalaya Regency, West Kalimantan Province.

## MATERIALS AND METHODS

The incidence of stunting in the Puskesmas Sukarame area is the unit of analysis in this study. Mapping the incidence of stunting in the puskesmas sukarame area will provide an overview of what causes stunting, so that when getting the main problem, so that when intervening it can be right on target effective and efficient. This research is an Analytical Descriptive research. The subjects targeted in this study were mothers who had toddlers who experienced stunting in February 2024, the inclusion criteria in this study were respondents who were declared stunted and willing to be interviewed.

## RESULT

### 1. Distribution of Stunting Cases in Sukarame Subdistrict, Tasikmalaya Regency, West Java Province

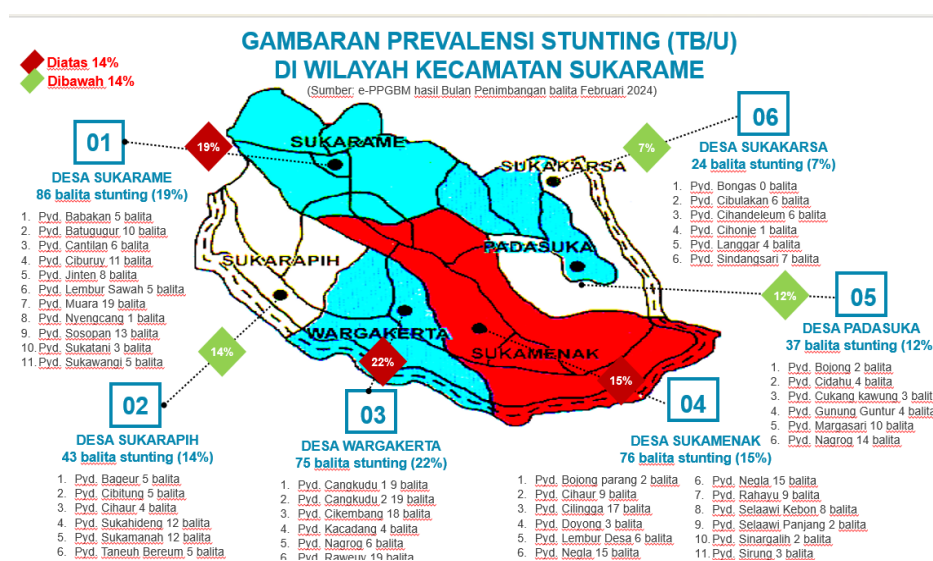


Figure 1: Stunting Prevalence Map by Area in Sukarame Subdistrict

Based on the data above, the prevalence of stunting in the Sukarame area shows that Sukarame, Sukarapih, Wargakerta, Sukamenak villages are above 14% while the rest are below 14%. This can be seen in table 1

Table 1: Prevalence of Stunting by Village in Sukarame Sub-district

No	Village	Total Stunting	Prevalensi Stunting (%)
1	Sukarame	86	19
2	Sukarapih	43	14
3	Wargakerta	75	22
4	Sukamenak	76	15
5	Padasuka	37	12
6	Sukakarsa	24	7

The 14% target must be implemented because it is in accordance with Presidential Regulation Number 71 of 2021 concerning Stunting Prevention. The regulation states that stunting cases in each region must be reduced to 14%.

## 2. Stunting Cases by Age Group

	Sukak arsa	Sukar apih	Warg akert a	Padas uka	Sukar ame	Suka mena k	Keca mata n
■ 25 - 59 bulan	19	30	58	29	61	59	256
■ 12-24 bulan	4	10	13	8	16	15	66
■ 6-11 bulan	1	1	3	0	8	2	15
■ 0-5 bulan	0	2	1	0	1	0	4

Figure 2: Stunting Cases by Age Group

If seen from this graph, the incidence of stunting in February 2024 is still mostly at the age of 25-59 months as many as 256, while at the age of 12-24 months there are 66 children, age 6-11 months as many as 15 children and 0-5 months as many as 4 children.

## 3. Stunting Prevalence Trends

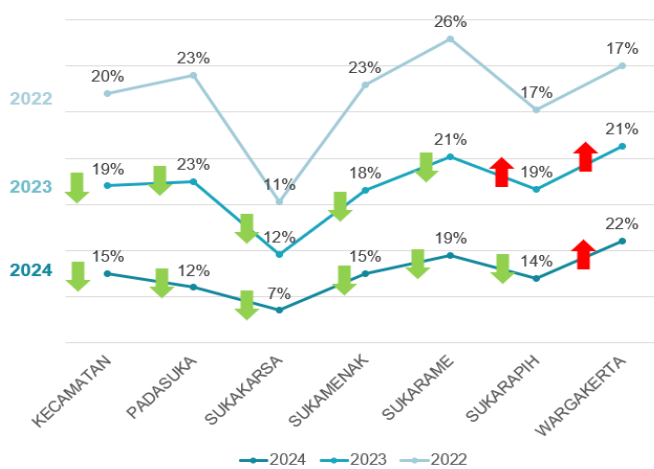


Figure 3: Trend of Stunting Prevalence

The figure above shows that:

- In 2022 (BPB August 2022) the number of stunted toddlers was 418 toddlers (20%), the number of toddlers measured by TB / TB was 2073 (86%).
- Year 2023 (BPB February 2023) the number of stunted toddlers is 414 toddlers (19%), the number of toddlers measured by TB / BP is 2170 (86%) there are 3 stunting locus villages namely Pdasuka, Sukarame and Sukamenak Villages.
- Year 2024 (BPB February 2024) the number of stunted toddlers is 341 toddlers (15%), the number of toddlers measured by TB/PB is 2254 (96%)

and there are 3 stunting locus villages namely Padasuka, Sukarame and Sukakarsa villages.

#### 4. Frequency Distribution of Underweight (BB/U) in Sukarame Subdistrict

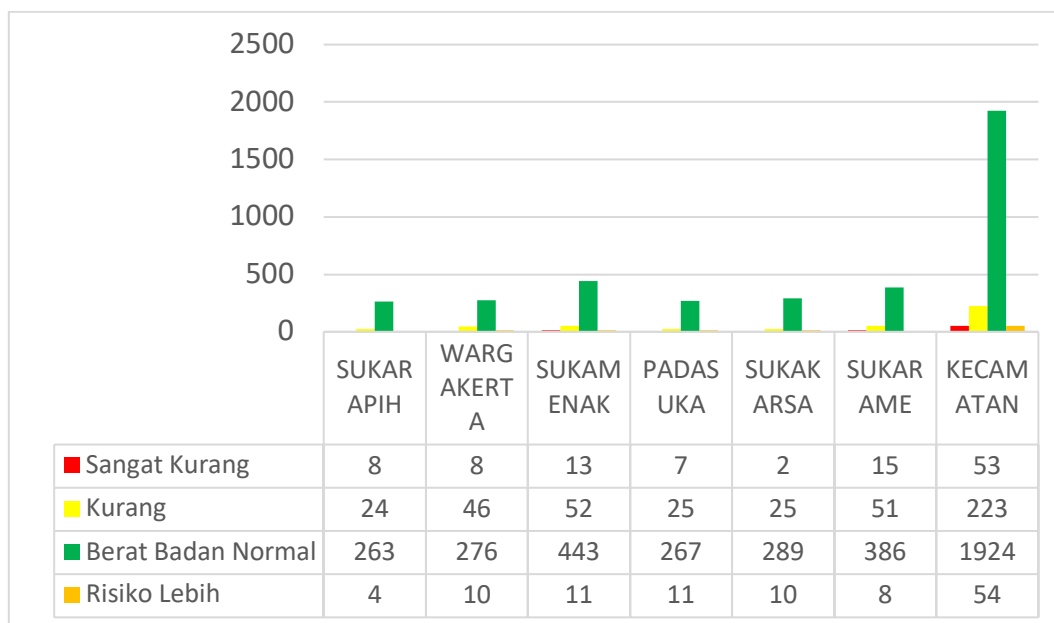


Figure 4: Frequency Distribution of Underweight (BB/U) in Sukarame Sub-district area

The prevalence of underweight toddlers (very low birth weight and low birth weight) in Sukarame sub-district was 12.2% (276 out of 2254 toddlers), still above the national target of 12% in 2024. This causes underweight to still be one of the nutrition problems in the community.

The risk of failure to thrive in toddlers can be detected through assessing growth trends using growth lines and weight gain over time and weight gain tables.

#### 5. Frequency Distribution of Wasting (BW/TB) in Sukarame Sub-district area

- The prevalence of wasting (malnutrition and undernutrition) in Sukarame sub-district was 4.8% (106 out of 2254 children under five).
- There were 3 toddlers with malnutrition in Wargakerta Village and 1 toddler with malnutrition in Padasuka Village.

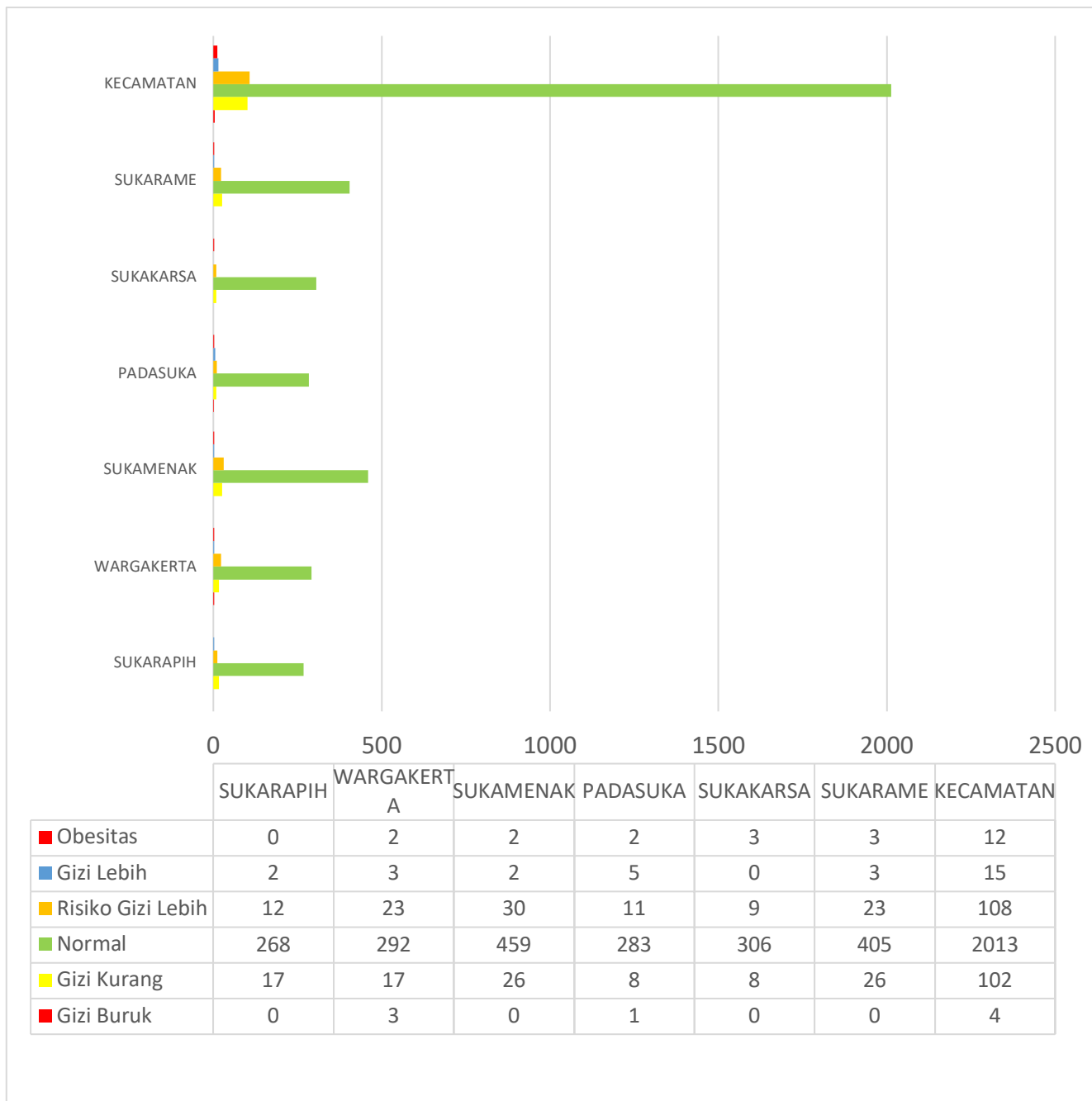


Figure 5: Frequency Distribution of Wasting (BW/TB) in Sukarame Sub-district.

## 6. Determinants of Stunting

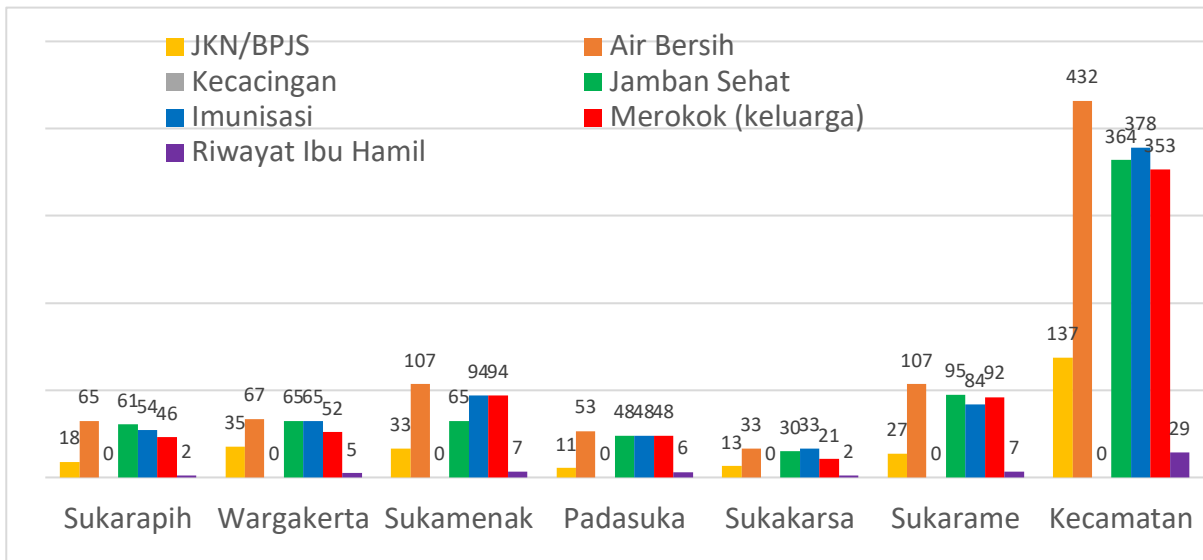


Figure 6: Graph of Determinants of Stunting in Sukarame Sub-district

- The survey found the following results:
  - - Only 30% of stunted toddlers have JKN / BPJS
  - - 98% of families of stunted toddlers use clean water
  - - 100% of stunted toddlers have never experienced helminthiasis
  - - 83% of families of stunting toddlers have access to latrines
  - - 86% of stunted toddlers are fully immunized
  - - 80% of family members of stunted toddlers smoke at home
  - - 7% of mothers of stunted toddlers experience CHRONIC ENERGY DEFICIENCY during pregnancy

## 7. Prevalence of women with severe pregnancy loss in 2022-2024

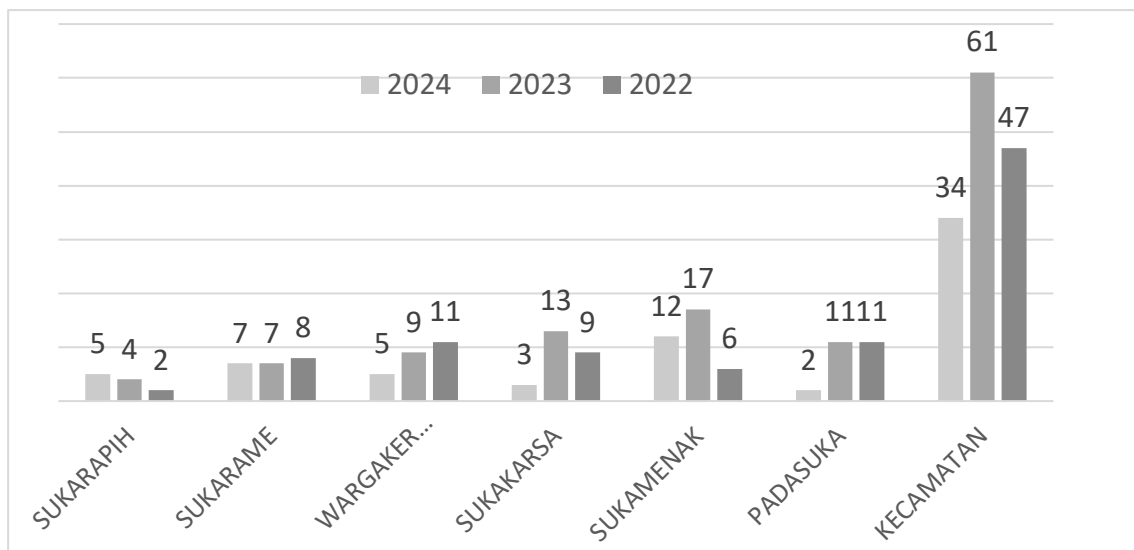




Figure 7: Graph of Prevalence of Pregnant Women with CHRONIC ENERGY DEFICIENCY in Sukarame Sub-district Year 2022-2024

- a. Based on the picture above, it shows:
  - b. 6.4% of pregnant women experienced CHRONIC ENERGY DEFICIENCY in 2022 (47 pregnant women)
  - c. 8% of pregnant women will experience CHRONIC ENERGY DEFICIENCY in 2023 (61 pregnant women)
  - d. 15.9% of pregnant women will experience SEVERITY in 2023 (34 pregnant women)
8. Overview of Access to Appropriate Sanitation Facilities
- a. 77.7% of people in Sukarame Sub-district have access to healthy latrines.
  - b. There are still 22.3% of people who do not have access to healthy latrines

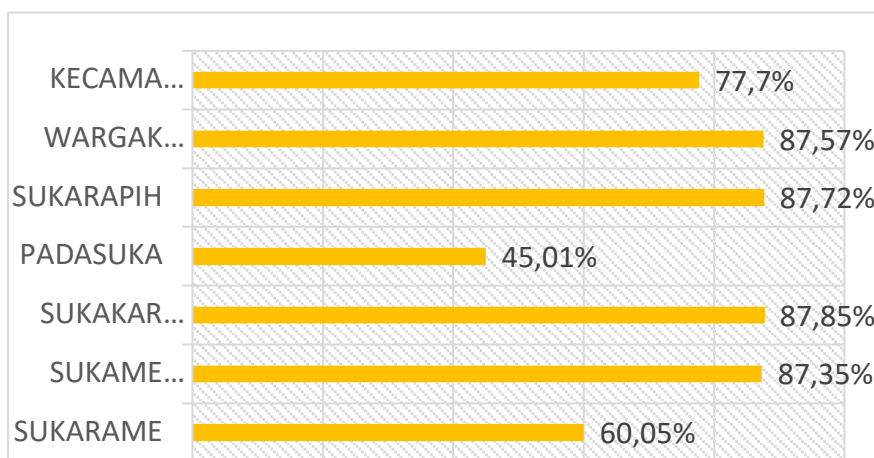


Figure 8: Graph of Prevalence of Pregnant Women with Chronic Energy Deficiency in Sukarame Sub-district Year 2022-2024

9. Overview of Access to Clean Water and Adequate Drinking Water

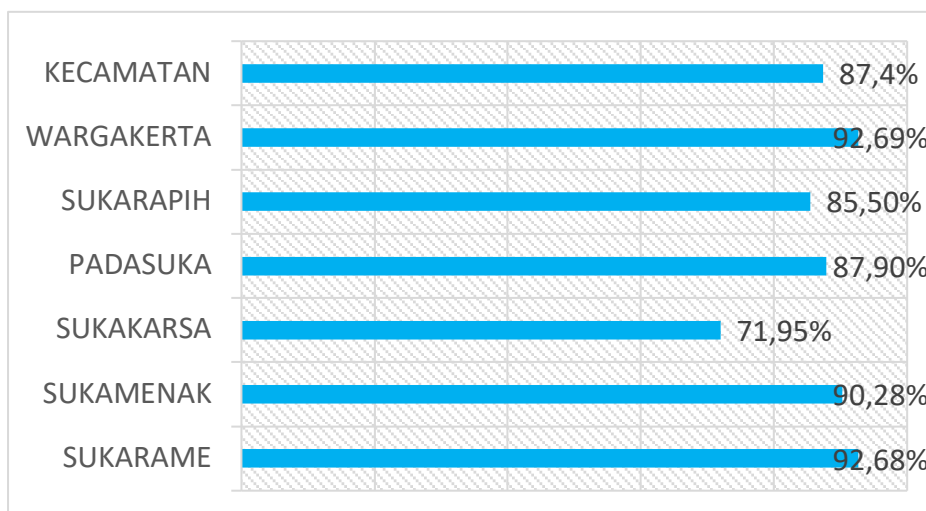


Figure 8 : Graph of Access to Clean Water and Adequate Drinking Water in Sukarame Sub-district

- Based on the figure above, the results show that:
- 87.4% of people in Sukarame Sub-district have access to clean water and proper drinking water.
- There are still 12.6% of people who do not have access to clean water and proper drinking water

## DISCUSSION

Based on the results of the study, there are 4 main determinant factors that influence the incidence of stunting in Sukarame Subdistrict. The four determinant factors are as follows:

### 1. Community Access to Healthy Latrines

The existence of healthy latrines is one of the indicators that must be met to reduce stunting rates in children under five. The existence of people who do not have access to proper healthy latrines is certainly closely related to the incidence of stunting in toddlers. This is due to the contamination of E.coli bacteria in water bodies caused by poor fecal management. The presence of E.coli bacteria in water bodies can interfere with the absorption of toddler nutrition if the water is consumed by the community.

In line with other studies that mention that the incidence of stunting in toddlers is closely correlated with sanitation in the region (Htet, et al., 2023). In accordance with the results of a survey conducted in Sukarame Subdistrict, Tasikmalaya Regency, not all people have access to healthy latrines. This is because not all people understand the criteria for healthy latrines, there are still people who do not have septic tanks and a lack of awareness about human feces management so as not to pollute the surrounding environment.

On the other hand, access to healthy latrines that have not reached 100% is an obstacle because stunting interventions in Sukarame Sub-district still focus on specific interventions in the form of supplementary feeding (PMT) to improve the nutritional status of toddlers. Whereas in other studies it is mentioned that there is a need for a combination of specific and sensitive interventions to reduce stunting rates (Dewey, 2016).

### 2. Community Access to Adequate Drinking Water

Drinking water is a basic need required by humans every day. Proper drinking water is drinking water that meets physical, chemical and microbiological requirements (Kemenkes RI, 2023). Decent drinking water should provide good benefits to everyone.

Based on the results of research that has been conducted, access to proper drinking water has not reached 100%. This is certainly a crucial problem because drinking water is a basic need for every human being. Inadequate drinking water can cause various diseases and developmental abnormalities in toddlers or what is called stunting.

Another study states that toddlers aged 24-59 months need a lot of micronutrients found in the drinking water they consume (Ashraf, et al., 2024). If the drinking water consumed is not suitable, some micronutrients are lost in the drinking water. As a result, the drinking water consumed cannot provide the micronutrient

value needed by the body. Thus, nutrient requirements are reduced, which can lead to impaired nutrient absorption, resulting in stunting

### 3. Chronic Energy Deficiency in Pregnant Women

The high number of pregnant women who experience chronic energy deficiency (CHD) can be a source of various health problems for infants and toddlers. One of the health problems caused by chronic energy deficiency in pregnant women is stunting.

The number of pregnant women who experience chronic energy deficiency in Sukarame Sub-district is 34 people. Meanwhile, Tasikmalaya Regency's target for pregnant women with chronic energy deficiency is no cases of pregnant women with chronic energy deficiency. This shows that the health program has not been effective in reducing the number of pregnant women with sex and stunting.

A study in Ethiopia found that children born to pregnant women with chronic energy deficiency and anemia had a higher risk (OR=1.25) of stunting compared to children born to pregnant women who were normal weight, not anemic and not chronic energy deficiency (Sahiledengle, et al., 2023). The study also mentioned that normal body mass index (BMI) and Hemoglobin (Hb) levels that meet the standards are protective factors so that mothers do not give birth to stunted children.

In line with research in Pakistan, specific nutrition interventions and improved antenatal care during pregnancy can reduce the risk of mothers giving birth to stunted babies. This reduction in risk has been shown to be effective in preventing stunting in children under 6-59 months of age (Kureishy, et al., 2017).

The presence of pregnant women with SEZ in Sukarame Sub-district is due to the low consumption of blood supplementation tablets (TTD) during pregnancy. As a result, in April 2023 there were 20.4% of pregnant women who were anemic. This is due to the lack of monitoring of the consumption of blood supplement tablets for pregnant women. Other factors include pregnant women's unwillingness to take blood tablets, lack of family support and antenatal care (ANC) coverage that still does not meet the target. Low ANC visits are caused by pregnant women not understanding the importance of antenatal care during pregnancy. In antenatal care, there are various kinds of information provided to pregnant women. The information can be in the form of health and nutrition evaluation for pregnant women. Low ANC visits lead to a lack of health information obtained by pregnant women. As a result, the knowledge of pregnant women in preparing for birth is low. This can lead to low birth weight (LBW) and stunting in toddlers. In line with research which states that ANC visits can reduce the risk of stunting in toddlers (Zaidi, et al., 2020).

### 4. BPJS National Health Insurance Ownership

BPJS national health insurance ownership is indirectly related to the incidence of stunting in toddlers. This is because ownership of national health insurance is a facility that can facilitate access to public health services. With national health insurance, people tend to find it easier to get checked at health care facilities.

Based on the results of research in Sukarame Sub-district, there are only 30% of families with stunted toddlers who have national health insurance. This can lead to low access to health care facilities because health services without insurance tend to be expensive for the community. As a result, people are not exposed to health services.

Unequal access to health services is one of the causes of high stunting rates in Indonesia. National health insurance has not been able to provide comprehensive services for everyone. This is due to low economic capacity. In a study conducted in Kigali in 2022, it was found that economic status correlated with health insurance ownership. Stunted toddlers who are born from families with low economic status and do not have health insurance, tend to receive health services less often than toddlers from middle to upper economic status families who have health insurance (Nzayirambaha, et al., 2022).

Having national health insurance is also associated with the frequency of visits to health care facilities. People who have health insurance will not feel burdened to visit and check themselves at health care facilities. The more often a person visits a health facility for nutrition consultation, the lower the risk of stunting (Khan, et al., 2019). Pada balita stunting, kunjungan ke fasilitas pelayanan kesehatan sangat dibutuhkan. Karena dengan begitu orang tua balita dapat berkonsultasi mengenai gizi atau kesehatan lingkungan sehingga dapat meningkatkan status gizi balita secara komprehensif.

## CONCLUSIONS

Based on research that has been conducted in Sukarame Subdistrict, Tasikmalaya Regency, there are four main factors that influence the incidence of stunting in children under five years old, namely:

1. Community access to healthy latrines
2. Community access to proper drinking water
3. Chronic Energy Deficiency (CHD) in pregnant women
4. BPJS National Health Insurance coverage

## ADVICE

1. Conduct nutrition-specific and sensitive interventions to reduce stunting in Sukarame Sub-district.
2. Conduct cross-sectoral collaboration to reduce stunting in Sukarame Sub-district.

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# Potential Interaction of Costunolide and Dehydrocostuslactone Compounds on Proteins Associated With Non-Alcoholic Fatty Liver Disease in An In-Silico Study

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## ABSTRACT

Non-alcoholic Fatty Liver Disease (NAFLD) is a growing health problem but there is no standard drug for its treatment. Costunolide and dehydrocostuslactone is the compound of *Saussurea costus*, and an antioxidant that has activities as anti-hepatotoxic, anti-inflammatory, and immunostimulants, which have been proven in-vivo and in-vitro. This study aims to identify the bioactive ingredients of *S. costus* that affect NAFLD and explore its therapeutic targets through pharmacological networking. Various tissue databases were identified to get the bioactive material *S. costus* and identify NAFLD therapeutic targets. Gene ontology enrichment (GO) and the Kyoto Encyclopedia of Genes and Genomes (KEGG) were performed to enrich the functions and molecular pathways of common targets. The analysis was carried out through the Structure-Activity-Relationship (SAR) search, with the determination of a range score of 0-1, where the closer to 1 the better the value. The results of the Structure-Activity-Relationship (SAR) analysis were that the costunolide and dehydrocostuslactone compounds had scored <0.5 as a hepatoprotector and as a regulator of fat metabolism. The potential of these two compounds as TNF-alpha inhibitors and Interleukin-6 antagonists also shows a score <0.5. Costunolide and Dehydrocostuslactone showed a score >0.5 for their activity as anti-inflammatory and NF- $\kappa$ B transcription inhibitors, indicating the existence of anti-inflammatory potential, and the potential as a candidate for NAFLD therapy indicated by the NF- $\kappa$ B transcription inhibitory pathway.

**Keywords:** Costunolide, Dehydrocostuslactone, NAFLD, NF- $\kappa$ B, *S. Costus*

## INTRODUCTION

Non-Alcoholic Fatty Liver Disease (NAFLD) has been considered one of the leading causes of cryptogenic cirrhosis and chronic liver disease. NAFLD is a common chronic liver disease with a high prevalence in developed countries. The global prevalence of NAFLD diagnosed by imaging is about 25.24%. The highest prevalence of NAFLD was reported from the Middle East (31.79%) and South America (30.45%), while the lowest prevalence rate was reported from Africa (13.48%). Fatty liver occurs in 10-15% of normal individuals, and 70-80% of people with obesity (Chalasan, et al., 2017; Lestari, et al., 2021; Setiono, Wantania, dan Polii, 2022).

The accumulation of fat in the liver is the initial stage of NAFLD. This occurs due to the large accumulation of triglycerides caused by an imbalance between the influx and synthesis of free fatty acids in the liver, the process of  $\beta$ -oxidation, and transport outside the cell arising from various causative factors. The next stage occurs liver steatosis which leads to the process of affecting and

inflamed liver cells and ends with the formation of scars or fibrosis (Berardo, et al., 2020; Godoy-Matos., et al., 2020; Han, et al., 2023).

Management of NAFLD requires long-term monitoring. Supportive therapy is carried out by losing weight for obese people and modifying lifestyles. Pharmacological therapy is only given to those who have not experienced improvement by making lifestyle changes, and the results are not necessarily satisfactory. Various studies have been conducted to be able to find the most effective therapy in the treatment of NAFLD, including the potential of natural ingredients that play a role in the prevention of liver disease (Beiriger, et al., 2023; Byrne, et al., 2020; Parlati, et al., 2021). Many efforts to prevent liver disease are carried out by utilizing various natural ingredients such as Curcuma, manga bark, red fruit, and pomegranate. One of the natural ingredients that is also suspected to be able to use alternative medicine is *S. costus* which has been proven in vivo and in vitro to have activities as antioxidants, antihepatotoxics, anti-inflammatory, and immunostimulants (Barghchi, et al., 2023; Karamalakova, et al., 2019; Tejaswi, et al., 2018).

The active content of *S. costus* is mainly terpene compounds, anthraquinones, alkaloids, and flavonoids. A significant element in *S. costus plants* is sesquiterpene lactones, namely costunolide, dehydrocostus lactone. The dried roots of this plant are used in the treatment of Unani as a powder form and for the treatment of diseases, such as asthma, joint pain, dysentery, skin diseases, neurological diseases, liver diseases, intestinal parasites, and others. *S. costus* has anti-cancer, antiviral, anti-arthritic, anti-inflammatory, anti-ulcer, anti-convulsant, and hepatoprotective properties that have been proven in vivo and in vitro. *S. costus extract* has anti-cancerous potential for the breast, colon, and liver (Nadda, et al., 2020; Shatti, et al., 2020). Costunolide and dehydrocostuslactone can inhibit Hepatoma Hep3B cells in humans, thereby inhibiting the production of hepatitis B antigen (HBsAg) and inhibiting breast cancer through the c-Myc/p53 and AKT/14-3-3 pathways (Jubayer, et al., 2020; Liu, et al., 2021; Semwal, et al., 2020). The interaction of the active compounds contained in *S. costus*, especially the main terpenes, namely costunolide and dehydrocostuslactone, against proteins involved in the course of NAFLD disease has not been studied definitively. Therefore, this research was carried out to identify *S. costus* bioactive materials that have the potential to interact with NAFLD-related proteins, as a step to explore the potential of *S. costus* for NAFLD therapy through pharmacological networking.

## MATERIALS AND METHODS

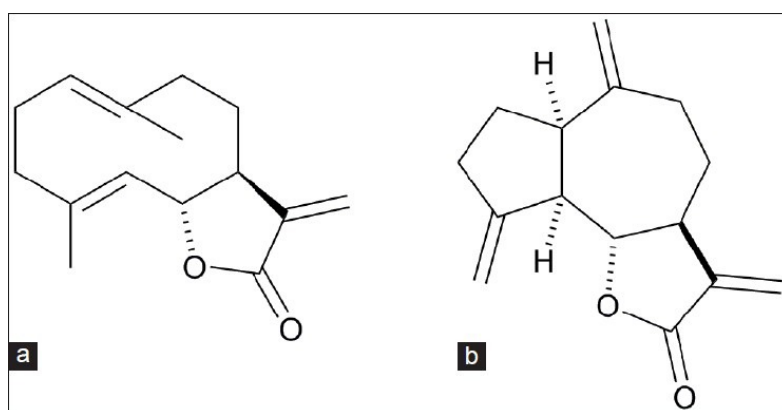
The study is experimental with a descriptive method. Data were obtained from the results of docking ligands and proteins whose interactions were analyzed. The research object uses ligands and model proteins obtained from the GDP database. The proteins associated with NAFLD were obtained from the GDP database at <http://www.rcsb.org/pdb/home/home.do> address. Then the costunolide and dehydrocostuslactone were obtained from the PubChem CID 689043 database. Costunolide and dehydrocostuslactone were obtained by reconstructing the three-dimensional shape using Canonical SMILES available in the PubChem database. Minimize energy and eliminate water molecules in costunolide and dehydrocostuslactone using the *PyRx virtual screening software program Open Babel tool*, with PyRx software used to convert SDF protein costunolide and dehydrocostuslactone files into PDB format (Abdulqahar, et al., 2023; Xu, et al., 2021)

Appropriate targets of *S. costus* bioactive materials were collected from the TCMSP database and the Swiss Target Prediction database (<http://www.swisstargetprediction.ch/>). The

GeneCards database (<http://www.genecards.org/>) and the DisGeNET database (<https://www.disgenet.org/>) were searched using the term "NAFLD" or non-alcoholic fatty liver disease (UMLS CUI: C0400966) to identify potential therapeutic targets for NAFLD. The UniProt (<https://www.uniprot.org/>) database is used to standardize gene information and subsequently to remove duplicate and pseudogene genes. The general target of the bioactive material was manually screened and the interaction tissue was visualized using Cytoscape 3.7.2. software (Abdulqahar, et al., 2023; Xu, et al., 2021). The analysis was carried out through the *Structure-Activity-Relationship (SAR) search*, with the determination of a range score of 0-1, where the closer to 1, the better the value (Devillers, et al., 2024). The first research was carried out at the Laboratory of Bioinformatics, Faculty of Medicine, Jenderal Achmad Yani University.

## RESULTS

The bioactive ingredients of *S. costus* were taken from the PubChem [CID 6436243](#) and CID 73174 database (National Center Information, 2024a; National Center Information, 2024a). The active ingredients to be analyzed in this study are costunolide and dehydrocostuslactone which are sequesterpen lactones as the main components of *S. costus* with an overview of the chemical structure shown in Figure 1 (Toda, et al., 2017).



**Figure 1. Chemical Structure of Costunolide and Dehydrocostuslactone**

Structurally, costunolide is a monocarboxylic acid that has three double bonds that through catalytic hydrogenation produce hexahydro-costunolide. Partial hydrogenation of costunolide produces dihydrocostunolide. Two bioactive ingredients of *S. costus* were analyzed to find compatibility with NAFLD-related proteins taken from the DisGeNet and Genecards databases. The results of the *Structure-Activity-Relationship (SAR) analysis* show the same picture as in Table 1, where the score range is 0 to 1, with the interpretation getting closer to the value of 1, the better the interaction between proteins (Devillers, et al., 2024; National Center Information, 2024a; National Center Information, 2024a; Toda, et al., 2017).



Table 1. SAR Analysis of Costunolide and Dehydrocostuslactone Compounds on NAFLD

Senyawa	ID	Canonical SMILE	Isomeric SMILE	Hepato-protectant	Lipid metabolism regulator	Antiinflammatory	TNF expression inhibitor	Transcription factor NF kappa B inhibitor	Interleukin 6 antagonist
Costunolide	5281437	CC1=CCCC(=CC2C(CC1)C(=C)C(=O)O2)C	C/C1=C\CC/C(=C/[C@@H]2[C@@H](CC1)C(=C)C(=O)O2)C	0.426	0.422	0.803	0.278	0.756	0.204
Dehydrocostuslactone	73174	C=C1CCC2C(C3C1CCC3=C)OC(=O)C2=C	C=C1CC[C@@H]2[C@@H](C[C@@H]3[C@@H]1CCC3=C)OC(=O)C2=C	0.372	0.312	0.857	0	0.715	0

## DISCUSSION

Based on the *Structure-Activity-Relationship (SAR)* analysis, it can be seen that the compounds *costunolide* and *dehydrocostuslactone* have the potential as hepatoprotectors with a score of 0.426 for costunolide and 0.372 for the dehydrocostuslactone compound, both of which have a score of less than 0.5, which can be concluded that the potential of the two compounds is not good. The potency as a regulator of fat metabolism also showed poor values, where there was a score of 0.422 for costunolide compounds and 0.312 for dehydrocostuslactone. The potential as a TNF-alpha inhibitor and Interleukin-6 antagonist is also not good. The costunolide compound showed a score of 0.278 for its potency on TNF inhibitor expression and 0.204 as an IL-6 antagonist, while the dehydrocostuslactone compound produced a score of 0 for both aspects.

The two active compounds of *S. costus* show good value as anti-inflammatory and NF-κB transcription inhibitors. Costunolide showed a score of 0.803 and dehydrocostuslactone showed a score of 0.857 as an anti-inflammatory. Its potency as an NF-κB transcription inhibitor shows a score of 0.756 for costunolide compounds and 0.715 for dehydrocostuslactone. This suggests the potential of costunolide and dehydrocostuslactone compounds in the therapy of NAFLD through both pathways. Oxidative stress due to cellular redox imbalance causes many diseases, such as diabetes, atherosclerosis, and cardiovascular diseases including fatty liver. Previous research studying the antioxidant activity of costunolide in a mouse model of streptozotocin-induced diabetes (STZ), showed a decrease in glutathione (GSH) levels in the brain, heart, liver, pancreas, and kidneys (Flieger, et al., 2021; Santos-Sanchez, et al., n.d; Rahman, et al., 2023). Oral administration of costunolide restores GSH levels in these tissues. Increased GSH levels can increase levels of GSH-dependent enzymes, such as glutathione peroxidase (GPx) and glutathione-S-transferase (GST), thereby reducing tissue damage. Oxidative stress oxidizes and damages membrane phospholipids to produce lipid peroxides, such as malondialdehyde (MDA) and hydroxyonenal (HNE), which by forming additional DNA products can cause oxidative tissue damage (Kim, et al., 2019). Costunolide also decreased lipid peroxidation rates and increased the activity of SOD, catalase, and GPx in MCF-7 & MDA-MB-231 cells. In a mouse intestinal mucositis (IM) model, administration of costunolide restored the levels of 5-fluorouracil (5FU)-depleted plasma superoxide dismutase (SOD) in the mucosa of the rat intestine. Costunolide also inhibits the production of hydrogen peroxide-induced ROS (H<sub>2</sub>O<sub>2</sub>) in mouse pheochromocytoma cells (PC12) (Kim, et al., 2019; Rao, et al., 2015; Yan, et al., 2019). This proves the potential of costunolide as an antioxidant.

Persistent tissue inflammation plays an important role in the pathogenesis of various diseases including the mechanism of occurrence of fatty liver. Costunolide has shown anti-

inflammatory properties in some preclinical studies. One of the transcription regulators of proinflammatory gene expression is the transcription Factor Nuclear-Kappa B factor (NF- $\kappa$ B). Costunolide negates NF- $\kappa$ B activation through blockade of I $\kappa$ B $\alpha$  phosphorylation in lipopolysaccharide (LPS)-stimulated RAW264.7 cells, thereby reducing the expression of proinflammatory markers, such as inducible nitric oxide synthase (iNOS), and nitric oxide (NO) production (Jubayer, et al., 2020; Kim, et al., 2019; Yan, et al., 2019). Chen et al. also showed that treatment with costunolide inhibited the expression of iNOS, cyclooxygenase-2 (COX-2), TNF- $\alpha$ , and 5-fluorouracil (5-FU)-induced nitric oxide (NO) production in a mouse model with intestinal mucositis. by blocking the activation of NF- $\kappa$ B (Chen, 2016). Costunolide reduces the phosphorylation of STAT1 and STAT3 in IL-22 or IFN- $\gamma$ -induced human keratinocytes. Costunolide showed anti-inflammatory effects as evidenced by the improvement of ethanol-induced peptic ulcers in rats. The study also reported that the compound suppressed the activation and/or induction of NF- $\kappa$ B, TNF- $\alpha$ , NO, iNOS, and COX-2. Costunolide inhibits interleukin (IL)-1 $\beta$  protein and mRNA expression in LPS-stimulated RAW264.7 cells by blocking the transcriptional activity of activator protein (AP-1) through mitogen-activated protein kinase (MAPK) phosphorylation downregulation (Kim, et al., 2019; Rao, et al., 2015; Yan, et al., 2019). This study shows the potential of costunolide and dehydrocostuslactone in non-alcoholic fatty liver disease through the inhibition of NF- $\kappa$ B transcription.

## CONCLUSION

Based on the results of the Structure-Activity-Relationship (SAR) analysis, *Costunolide*, and *Dehydrocostuslactone* showed anti-inflammatory potential, and the presumed potential as a candidate for NAFLD therapy was shown to inhibit the transcription pathway of NF- $\kappa$ B.

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# The Correlation of Environmental Sanitation and Diarrhoea Prevalence in Toddlers at Puskesmas Bantul I

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## ABSTRACT

**Background:** Diarrhea remains the second leading cause of death in toddlers. The causes of diarrhea in toddlers are diverse, including poor environmental sanitation. Poor sanitation that leads to diarrhea includes the lack of clean water facilities, high population density, unavailability of toilets, and other factors that cause environmental pollution.

**Purpose:** It aims to determine the correlation between environmental sanitation and diarrhoea prevalence in toddlers in Puskesmas Bantul 1.

**Methods:** The research was descriptive-analytic using a cross-sectional design. The population was 981 toddlers counted from the data from January until March 2024, and the sample was 98 respondents was purposive sampling. The research was conducted in Puskesmas Bantul 1 area from February until July 2024. The data analysis of bivariate used lambda symmetric. Data collection tools used environmental sanitation questionnaires and diarrhea incidence questionnaires.

**Results:** From the 98 respondents, the highest category of environment sanitation was the qualified as many as 75.5% and the unqualified as many as 24.5%. The most diarrhoea prevalence was 54.1% and non-diarrhoea was 45.9%. The result of the lambda symmetric test was a p-value of <0,001.

**Conclusion:** There was a strong correlation between environmental sanitation and diarrhoea prevalence in toddlers in Puskesmas Bantul 1. It is hoped that people can pay attention to the provision of clean water sources at least for daily usage and consumption.

**Keywords:** *Diarrhoea; Environment sanitation; Toddlers*

## INTRODUCTION

Diarrhea is defined as a condition in which a person has more than three bowel movements a day with soft or even liquid stool consistency, with or without the presence of blood and mucus, lasting for up to two weeks or longer (Ministry of Health of the Republic of Indonesia, 2023).

Diarrhea is commonly experienced by toddlers. A toddler is a child under the age of 5 years, or a child between 12 and 59 months (Ministry of Health, 2023). Toddlers are more susceptible to diarrhea because they are highly vulnerable to the transmission of diseases in their environment, as their lives are still dependent on their parents.

According to the WHO (2024), the factors that cause diarrhea include infections caused by bacteria, viruses, and parasites, malnutrition, lack of clean water, and other causes that are transmitted through people, as well as poor personal hygiene. Sugiharto (2019) stated that diarrhea can occur due to environmental factors such as the lack of clean water

facilities, high population density, the unavailability of toilets, lack of waste disposal facilities, and improper waste management, leading to environmental pollution.

The incidence of diarrhea in the Bantul 1 Community Health Center area was 15 cases in 2021, which increased to 23 cases or about 0.08% in 2022. In 2023, the incidence of diarrhea rose again to 31 cases, or around 0.31%. The increasing prevalence of diarrhea each year has mostly affected children under the age of 5.

One of the ways to prevent diarrhea is by using clean water for cooking and washing, maintaining proper sanitation, keeping the house clean, and ensuring good environmental hygiene. Environmental sanitation refers to activities aimed at creating a clean community environment in accordance with public health standards, improving, and maintaining healthy living conditions. Sanitation is beneficial for creating a comfortable and healthy environment, enabling people to achieve optimal health and avoid infectious diseases caused by air pollution, dirty and unpleasant-smelling environments, and environmental contamination (BKKBN, 2022).

According to the Central Statistics Agency (BPS), in 2023, only 82.36% of households in Indonesia had access to proper sanitation, a result that has not yet met the target set in the National Medium-Term Development Plan, with a minimum target of 90% in 2024 for households to have access to proper sanitation. The Special Region of Yogyakarta (DIY) has met the standard for proper sanitation provision, which is 96.42%, meaning that 3.58% still do not have adequate sanitation. However, the provision of clean drinking water in DIY has not yet met the standard, with 96.69% coverage compared to the RPJMN target of 100%. According to a report by IDN Times Jogja, the Bantul Health Department stated that there are still 1,000 households in Bantul Regency that do not have proper sanitation facilities, which is causing inadequate sanitation and contaminated water, leading to continuous occurrences of diarrhea.

Based on a study by Santika (2022), it was found that there is a relationship between the availability of clean water ( $p$ -value 0.002), proper waste disposal ( $p$ -value 0.019), infectious diseases ( $p$ -value 0.028), and food preparation and provision ( $p$ -value 0.013) with the incidence of diarrhea in toddlers in the working area of the Menggamat Health Center. Similarly, Siregar's (2021) research showed results ( $p = 0.00$ , CI = 95%) and ( $p = 0.00$ , CI = 95%), indicating a strong relationship between environmental sanitation and the incidence of diarrhea in the Belongkut Health Center area.

A study by Siregar & Yuni (2021) mentioned that environmental sanitation, including the use of clean water, proper sanitation facilities for waste disposal, and the management of waste, has a strong relationship with the incidence of diarrhea in children under 5 years old. This is slightly different from the results obtained by Basyariyah (2022), who found that only the quality of clean water had a strong relationship with environmental sanitation, while other sanitation factors such as the availability of toilets and wastewater disposal systems did not show a significant relationship with the incidence of diarrhea.

## **MATERIALS AND METHODS**

This study uses an analytical descriptive research design, which involves the collection of objective information to determine the strength of the relationship between the two variables (Sugiyono, 2019). The research design employs a cross-sectional approach, which involves collecting data on independent and dependent variables simultaneously. The

population used in this study consists of all toddlers with diarrhea at the Bantul Community Health Center, totaling 981 toddlers based on data from January to March 2024.

The sampling technique used is purposive sampling, where the researcher has specific considerations in selecting the sample (Sugiyono, 2019). The sample in this study consists of 98 toddlers and parents from the integrated health service post (posyandu) in the working area of the Bantul I Community Health Center. Data collection was carried out by filling out environmental sanitation questionnaires and diarrhea occurrence questionnaires. Data analysis was performed using univariate and bivariate analysis with the Lambda Symmetric test. This study has been approved for ethical feasibility by the Ethics Committee of the General Achmad Yani University of Yogyakarta, issued on August 26, 2024, with the decision number SKep/515/KEP/VIII/2024.

## RESULTS

Characteristics of parents were shown in this table 1

Table 1 Characteristics of Respondent Parents

Characteristics	Frequency	Presentase (%)
Mother's Age		
20 – 35 Years	77	78,6
36 – 51 Years	21	21,4
Education		
Basic Education	41	41,8
Secondary Education	47	48,0
Higher Education	10	10,2
Occupation		
Housewife	42	42,9
Farmer	43	43,9
Civil Servant	8	8,2
Entrepreneur	5	5,1
Total	98	100,0

Source: Primary Data 2024

Based on Table 1, it can be explained that the majority of the parent respondents in the study are aged between 20 and 35 years, totaling 77 people (78.6%). In terms of education level, the majority had a secondary education, with 47 people (48.0%). Regarding occupation, most were farmers, with 43 people (43.9%).

Child characteristics were shown in Table 2 below

Table 2 Child Characteristics

Characteristics	Frequency	Presentase (%)
Child's Gender		
Male	52	53,1
Female	46	46,9
Child's Age		
1 Year	5	5,3

Characteristics	Frequency	Presentase (%)
2 Year	11	11,2
3 Year	27	27,6
4 Year	15	15,3
5 Year	40	40,8
Total	98	100,0

Source: Primary Data 2024

Based on Table 2, it can be explained that the majority of the children were male, with 52 children (53.1%), and in terms of age, the majority were 5 years old, with 40 children (40.8%).

Environmental sanitation overview was shown in Table 3 below

Table 3 Environmental Sanitation Overview

Environmental Sanitation	Frequency	Persentase (%)
Does Not Meet Standars	24	24,5
Meets Standars	74	75,5
Total	98	100,0

Source: Primary Data 2024

Based on Table 3, it can be explained that the majority of respondents had environmental sanitation that met the standards, with 74 respondents (75.5%). In contrast, the minority had environmental sanitation that did not meet the standards, with 24 respondents (24.5%).

Table 4 Overview of Diarrhea Incidence in Toddlers

Diarrhea	Frequency	Persentase (%)
Diarrhea	53	54,1
No Diarrhea	45	45,9
Total	98	100,0

Source: Primary Data 2024

Based on Table 4, it can be explained that the majority of respondents who experienced diarrhea were 53 respondents, accounting for 54.1%, while 45 respondents, or 45.9%, did not experience diarrhea.

Table 5 Relationship Between Environmental Sanitation and the Incidence of Diarrhea

Environmental Sanitation	Diarrhea		Total	<i>p-value</i>
	Diarrhea	No Diarrhea		
Not Meeting Requirements	22	2	24	0,000
Meeting Requirements	38	36	74	
Total	60	38	98	

Source: Primary Data 2024

Based on Table 5, from 98 respondents in the study, it was found that 24 respondents with inadequate environmental sanitation had 22 respondents who experienced diarrhea and



2 who did not. Meanwhile, 74 respondents with adequate environmental sanitation had 38 respondents who experienced diarrhea, and 36 did not.

The results of the symmetric lambda test yielded a p-value of  $0.000 < 0.05$  with an r-value of 0.127, meaning there is a strong relationship between environmental sanitation and the incidence of diarrhea in toddlers at the Bantul 1 Community Health Center.

## DISCUSSION

### *Overview of Environmental Sanitation in the Working Area of Bantul Health Center 1*

Based on Table 3, it can be seen that out of 98 respondents, the majority had environmental sanitation that met the standards, with 75.5%, while 24.5% did not meet the standards. Basic sanitation refers to the essential facilities needed in an environment to support human health. Environmental sanitation factors that significantly influence the occurrence of diarrhea include clean water, the use of latrines, wastewater disposal systems (SPAL), garbage disposal, and a healthy environment, as well as the implementation of healthy lifestyle behaviors in daily life, such as handwashing with soap.

According to research by Santi, the majority of environmental sanitation was categorized as "Good," with 46 respondents (76.7%). Deva Santika<sup>[3]</sup> noted that environments with poor sanitation can be a source of various diseases that affect human health, one of which is diarrhea. Important environmental sanitation factors include clean water sources, the presence of household latrines, clean homes, and environments free from disease sources.

### *Overview of Diarrhea Incidence in Toddlers in the Working Area of Bantul 1 Health Center*

Based on Table 4 above, it can be seen that out of 98 respondents, 54.1% experienced diarrhea, while 45.9% did not. Diarrhea is a disease characterized by an increased frequency of bowel movements beyond normal (usually more than three times a day), accompanied by changes in the shape and consistency of the stool, vomiting, or loose stools, often occurring once a day but marked by mucus or blood.

Diarrhea is more dominant in toddlers because their immune system is still weak, making them highly susceptible to the spread of bacteria that cause diarrhea. If diarrhea is accompanied by continuous vomiting, it can lead to dehydration (fluid deficiency). Diarrhea can occur due to both direct and indirect factors. Direct causes include infections by bacteria, viruses, and parasites, malabsorption, allergies, poisoning from chemicals, or toxins produced by microorganisms, fish, fruits, and vegetables. Indirect factors, or factors that accelerate the occurrence of diarrhea, include nutritional status, exclusive breastfeeding, the environment, clean and healthy living behavior (PHBS), handwashing habits, eating behavior, immunization, and socio-economic factors.

### *The Relationship Between Environmental Sanitation and Diarrhea Incidence in Toddlers at Bantul 1 Health Center*

Based on Table 5, it can be seen that out of 98 respondents, 24 had environmental sanitation that did not meet the standards, with 22 experiencing diarrhea and 2 not experiencing diarrhea. Meanwhile, 74 respondents had environmental sanitation that met the standards, with 38 experiencing diarrhea and 36 not experiencing diarrhea. The results of the lambda symmetric test yielded a p-value of  $0.000 < 0.05$ , indicating a strong relationship

between environmental sanitation and diarrhea incidence in toddlers at Bantul 1 Health Center.

The results of this study are consistent with research by Anggi Kurnia, which stated that one of the causes of diarrhea is improper management both at home and in the surrounding environment. Poor environmental sanitation increases the incidence of diarrhea, while a better environment reduces it. Good sanitation includes healthy housing, waste disposal, clean water supply, and more.

A key risk factor for diarrhea in toddlers is the health status of the environment (use of clean water facilities, household latrines, waste disposal, and wastewater disposal) and healthy living behaviors within the family. The most dominant environmental factor is the availability of clean water facilities.

## CONCLUSION

Based on the results of the research conducted in the working area of Puskesmas Bantul 1, it can be concluded that the environmental sanitation in this area is mostly categorized as meeting the standards, with 75.5%, while 24.5% is categorized as not meeting the standards. The incidence of diarrhea in children under five in the working area of Puskesmas Bantul 1 was highest for diarrhea, at 54.1%, and non-diarrhea at 45.9%.

The researcher has analyzed the relationship between Environmental Sanitation and the Incidence of Diarrhea in the Working Area of Puskesmas Bantul 1. The results of the lambda symmetric test yielded a p-value of  $0.000 < 0.05$  with an r value of 0.127, which indicates a significant relationship between environmental sanitation and the incidence of diarrhea in children under five in Puskesmas Bantul 1.

The researcher hopes that Puskesmas Bantul 1 can conduct counseling and involve village officials and local residents in efforts to improve environmental sanitation, including environmental cleanliness, personal hygiene (such as handwashing habits), regular clean water inspections, and monitoring the number of families who have not yet used proper sanitation facilities, in order to reduce the incidence of diarrhea, especially in children under five.

## SUGGESTIONS

It is hoped that this thesis and research can serve as a source of supporting data or references for future researchers on environmental sanitation, but with different variables, such as the impact of environmental sanitation on other disease causes.

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# Correlation of Knowledge Level with Body Mass Index and Chronic Energy Deficiency in Female Teenagers

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## ABSTRACT

**Background:** In 2020, the prevalence of chronic energy deficiency (CED) in female teenagers aged 15–19 years in Indonesia, using the upper arm circumference (UAC) measurement indicator, was 36.3%, indicating that nutritional problem was a serious problem in female teenagers because they affect their health status. In addition to UAC, body mass index (BMI) indicates nutritional status in female teenagers. Knowledge is an indirect factor in nutritional problems in female teenagers. However, knowledge is an important variable that can be changed through health education.

**Purpose:** Analyzing the correlation between knowledge level with CED and BMI in female teenagers.

**Methods:** This study used the quantitative method with a cross-sectional approach. The research sample was 88 female teenagers at Madrasah Aliyah Negeri (MAN) 2 Sleman, collected using purposive sampling. The research instruments were questionnaires, measurement sheets, microtoise, weight scales, and UAC measuring tapes. The data analysis used chi-square.

**Results:** Most of the knowledge level of female teenagers is in the Poor category (73.9%). Most female teenagers have a normal BMI (69.3%) and do not suffer from CED (68.2%). Most female teenagers with the knowledge level in the Poor category have a normal BMI (73.8%) and do not suffer from CED (66.2%). There is no correlation between the knowledge level of female teenagers with BMI ( $p$ -value = 0.163) and CED ( $p$ -value = 0.492).

**Conclusion:** There is no correlation between the level of knowledge of female teenagers with CED and BMI at MAN 2 Sleman. However, the incidence of CED was found to be 31.8%, so further CED handling intervention is recommended.

**Keywords:** BMI; CED; Knowledge; Nutrition

## INTRODUCTION

Chronic energy deficiency (CED) is a condition characterized by long-term nutritional deficits, particularly in energy and protein, affecting adolescent girls and women (Zaki & Sari, 2019). The risk of developing CED is identified when an individual's mid upper arm circumference (MUAC) measures less than 23.5cm. This condition often results from insufficient intake of macronutrients, especially energy and protein, which can also lead to inadequate micronutrient consumption. For adolescent girls with CED, inadequate treatment may result in persistent effects, including diminished academic performance. Malnutrition

significantly contributes to reduced academic achievement and school attendance (Zerga et al., 2022). Furthermore, CED can negatively impact pregnancy, potentially causing complications such as anemia, preterm labor, low birth weight (LBW) infants, stunted offspring, and even maternal mortality (Suarjana et al., 2020) The occurrence of chronic energy deficiency (CED) among adolescent girls (aged 15–19 years old).

In 2020, the prevalence of chronic energy deficiency (CED) in female teenagers aged 15–19 years in Indonesia was 36.3%, indicating that nutritional problem was a serious problem in female teenagers because they affect their health status (Ministry Of Health., 2021). In addition to UAC, body mass index (BMI) indicates nutritional status in female teenagers. Knowledge is an indirect factor in nutritional problems in female teenagers. However, knowledge is an important variable that can be changed through health education. The aim of the study is to analyzing the correlation between knowledge level with CED and BMI in female teenagers.

## MATERIALS AND METHODS

This study used the quantitative method with a cross-sectional approach. The independent variable of this study is the level of knowledge and the dependent variable is body mass index and chronic energy deficiency. The research sample was 88 female teenagers at *Madrasah Aliyah Negeri (MAN) 2 Sleman*, collected using purposive sampling. The research instruments were questionnaires, measurement sheets, microtoise, weight scales, and UAC measuring tapes. The data analysis used chi-square.

## RESULTS

**Tabel 1. Univariate Analysis Results (n= 88)**

Variabel	Kategori	Frequency (f)	Percentage (%)
Nutritional Status (BMI)	Skinny Weight	6	6,8
	Mildly Thin	7	8,0
	Normal	61	69,3
	Light Fat	7	8,0
	Heavy Fat	7	8,0
Chronic Energy Deficiency (CED)	CED	28	31,8
	No CED	60	68,2
Nutritional Knowledge	Less	65	73,9
	Simply	23	26,1

Table 1 shows that the most of the knowledge level of female teenagers is in the *Poor* category (73.9%). Most female teenagers have a normal BMI (69.3%) and do not suffer from CED (68.2%).

**Table 2. The correlation between the level of knowledge of female teenagers with BMI**

Variable	Categoric	Body Mass Index (BMI)										Total	p-value	
		Skinny Weight		Mildly Thin		Normal		Light Fat		Heavy Fat				
		f	%	f	%	f	%	f	%	f	%			
Nutritional Knowledge	Less	3	4,6	6	9,2	48	73,8	3	4,6	5	7,7	65	100	0,163
	Simply	3	13,0	1	4,3	13	56,5	4	17,4	2	8,7	23	100	

Based on the table 2, it can be seen that the most female teenagers with the knowledge level in the *Poor* category have a normal BMI (73.8%). There is no correlation between the knowledge level of female teenagers with BMI ( $p$ -value = 0.163)

**Table 3. The correlation between the level of knowledge of female teenagers with CED**

Variable	Categoric	Chronic Energy Deficiency (CED)				Total		<i>p</i> -value
		CED		No CED		f	%	
		f	%	f	%			
Nutritional Knowledge	Less	22	33,8	43	66,2	65	100	0,492
	Simply	6	26,1	17	73,9	23	100	

Table 3 shows that most female teenagers with the knowledge level in the *Poor* category do not suffer from CED (66.2%). There is no correlation between the knowledge level of female teenagers with CED ( $p$ -value = 0.492).

## DISCUSSION

Knowledge about nutrition is knowledge about food and nutrients, sources of nutrients in food, foods that are safe to consume so as not to cause disease and how to prepare good food so that nutrients are absorbed, to process food properly so that the nutrients in food not lost and how to live healthy (Adriani & Wirjatmadi, 2016). In this study, it was found that the most of the knowledge level of female teenagers is in the poor category (73.9%). This figure is greater than the results of research by Teesen et al (2024) in Kuala Lumpur, Malaysia which showed that half of by female teenagers have knowledge that is classified poor (50.0%). This is different from the results of the study in senior high school in Kupang City where most respondents had sufficient knowledge (79%)(Pantaleon, 2019).

Adolescent nutritional status is a body condition that arises due to the balance between consumption and expenditure of nutrients. Various physiological changes that occur in adolescents cause the assessment of nutritional status in adolescents to receive special attention. Assessment of nutritional status can be known through anthropometric measurements and calculating the body mass index. In this study, it was found that most of the female teenagers at MAN 2 Sleman have a normal BMI (69.3%). This is supported by Teesan's research which shows that out of 96 respondents, almost half of the respondents (46.9%) had normal BMI (Teesen et al., 2024). Likewise, Arista's research also showed that more than half of the BMI of respondents is normal (69.6%). (Arista et al., 2017).

The majority of female teenagers in this study do not suffer from CED (68.2%). This is different from the research findings of Khayatunnisa et al (2021) which showed that most of the adolescent girls at SMK Swagaya 1 Purwokerto experienced CED (56%) (Khayatunnisa & Permata Sari, 2021) and research by Arista et al (2017) which found 45.70% of adolescent girls at SMK Islamic Center Baiturrahman Semarang experienced CED (45.70%). (Arista et al., 2017). This is the case with the research results based on the results of upper arm circumference measurements, the prevalence of adolescent girls Poka-Rumah Tiga Village, Ambon who experienced CED was 45.8% (Ardianto et al., 2024).

In this study, it was found that there was no correlation between the knowledge level of female teenagers with BMI. This is not supported by Teesan's research which proves that

there is a relationship between a good level of knowledge and body mass index. The chi-square test showed that respondents whose body mass index was in the normal category had good knowledge (Teesen et al., 2024). Knowledge is essential in overt behavior and in shaping existing behavior. Knowledge is therefore a very important domain for shaping one's actions (Notoatmodjo, 2014). However, research in Kupang showed that there was no significant relationship between nutrition knowledge and nutritional status as measured by BMI (Pantaleon, 2019). The reason for the absence of a relationship between knowledge and BMI is because knowledge gives an indirect influence on nutritional status, while the direct causes of nutritional problems are nutrient intake and infectious diseases (Supariasa, 2016).

There is no correlation between the level of knowledge about nutrition of female teenagers with CED at MAN 2 Sleman. Similarly, the result of research in Semarang (2017) showed that there was no relationship between knowledge about nutrition and CED (Arista et al., 2017). These results are not in accordance with research in Langsa City, Aceh which states that there is a significant relationship between knowledge and the incidence of CED ( $p = 0.001$ ) (Hamzah, 2017). The study stated that the better the knowledge, the lower the risk of experiencing CED. The results of the study are also not in accordance with research in Banjarmasin which states that there is a relationship between knowledge and the incidence of CED ( $p = 0.002$ ) (Palimbo & Firdaus, 2014).

## CONCLUSIONS

There is no correlation between the level of knowledge of female teenagers with CED and BMI at MAN 2 Sleman. However, the incidence of CED was found to be 31.8%, so further CED handling intervention is recommended.

## ACKNOWLEDGEMENT

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## CONFLICT OF INTEREST

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest. This research has received ethical approval from the Ethics Commission for Health Research of the Faculty of Health Sciences, Respati University Yogyakarta number: 105.3/FIKES/PL/VIII/2024.

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# Hypertension in Suburban Communities: Study in Gedawang Semarang

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## ABSTRACT

**Background:** uncontrolled high blood pressure over long periods of time can lead to serious disease. The prevalence of hypertension in 2023 based on measurement results in Central Java Province is 31.3%, while the proportion of controlled hypertension based on a doctor's diagnosis is only 14.5%. Hypertension is the second largest disease in Semarang City health centers with 153,386 reported cases.

**Purpose:** this study was aimed to determine factors associated with hypertension in Gedawang District.

**Methods:** the research was conducted with an observational analytic with cross-sectional approach. The population of study were people who lived in four highest age specific morbidity rate of hypertension area in Gedawang. The total sample for this study was 86 participants aged over 17 years who were selected using cluster random sampling. Data analysis was performed using chi square-test to test the correlation between independent variable which is behavioral factors (smoking, consume caffeine, physical activity, sleep time, self-medical check-up, consumption of full-fed food) and health care (accessibility of health care, free medical check-up, health promotion, home visit by health worker, health service satisfaction) and hypertension as dependent variable

**Results:** there is significant correlation between smoking ( $p= 0.028$ - OR= 3.48), physical activity ( $p= 0.045$ - OR= 3.2), accessibility of health care ( $p= 0.013$ - OR= 4.91) and health promotion ( $p=0.000$ - OR= 7.83) with hypertension.

**Conclusion:** Hypertension is significantly related to smoking behavior, physical activity, ease of access to health services, and health education.

**Keywords:** Behavioral factors; Health care; Hypertension

## INTRODUCTION

Hypertension can cause heart disease, which is the leading cause of death in the world (WHO, 2021). An estimated 46% of adults with hypertension are unaware that they have the condition and only 42% adults with hypertension are diagnosed and treated (WHO, 2023). In Indonesia, the number of hypertension cases is 63,309,620 and the death rate due to hypertension is 427,218 deaths. Hypertension cases in the 31-44 year age group were 31.6%, 45-54 year olds were 45.3%, and 55-64 year old hypertension cases were 55.2% (Casmuti and Fibriana, 2023). The prevalence of hypertension in 2023 based on measurement results in Central Java Province is 31.3%, while the proportion of controlled hypertension based on a doctor's diagnosis is only 14.5% (BKPK, 2024). Hypertension is the second most common disease in Semarang City Health Centers with 153,386 cases reported by the end of 2023 (Dinas Kesehatan Kota Semarang, 2023).

Based on Puduk Payung Health Center data from March 2017 to March 2018, hypertension was in second place with a total of 113 cases and was included as a priority health problem in the results of the Musyawarah Mufakat Desa (MMD) (Tim Riskesdas 2018, 2019).

Hypertension or high blood pressure is a condition where blood pressure is higher than normal, namely 120/80 mmHg (Desai, 2020). WHO states that blood pressure that is higher than 140/90 mmHg is said to be hypertension. Hypertension often shows no symptoms, so people with hypertension cannot feel it. Although hypertension is one of the most preventable causes of disease and death (James *et al.*, 2014), if it is not controlled for a long time it will cause heart failure or coronary heart disease, stroke, vision problems and kidney failure (WHO, 2023).

Hypertension is a disease that has a complex pathogenesis and treatment management. Even though there have been many public health campaigns, it is still not able to control everyone's hypertension (Umanath, 2019). Identification of risk factors and behavior can contribute to improving the accuracy of health services for people with hypertension. The aim of this research is to provide an overview of behavioral factors and health services related to the incidence of hypertension in Gedawang Village, Banyumanik District which is located on the outskirts of Semarang City to formulate strategies for treating hypertension.

## MATERIALS AND METHODS

This research using analytical observational with a cross-sectional approach was carried out in Gedawang Village, Banyumanik District, Semarang City. Data collection was carried out from September to October 2018. The research population was 605 residents aged over 17 years old in four Rukun Warga (RW) which had the most cases of hypertension based on Puduk Payung Community Health Center data. The total sample was 86 participants which was determined using the Slovin formula. Sample selection used a cluster random sampling technique where clusters were selected from each Rukun Tangga (RT) in the population area.

Primary data was obtained through interviews and observations using questionnaires and documentation containing individual characteristics, behavior, health services and blood pressure. Testing the validity of each research instrument item uses the Pearson Product Moment and the reliability test uses the Cronbach Alpha Statistical Test ( $\alpha = 0.73$ ). Univariate analysis was used to explain the characteristics of research participants. Bivariate analysis used Chi-square to test the correlation between independent variables: behavior (smoking, drinking coffee, physical activity, length of sleep at night, self-health examination, consumption of fatty foods) and health services (ease of accessing health services, implementation of free health services, home visits by health workers, health education, satisfaction with health services) on the dependent variable: blood pressure.

## RESULTS

The results of the univariate analysis in Table 1 show that the characteristics of the respondents were 60.5% female and the majority (91.9%) aged 19-59 years old. 24.4% worked as private employees and 27.9% had a high school education.

The results of bivariate data analysis of behavioral variables in Table 2 show that

there is a significant correlation between smoking behavior and the incidence of hypertension ( $p= 0.028$ ;  $OR= 3.48$ ). The incidence of hypertension was more common in respondents who smoked (40%) compared to those who did not smoke (16.1%). Apart from that, physical activity is also related to the incidence of hypertension ( $p= 0.045$ ;  $OR= 3.2$ ). The incidence of hypertension occurred more frequently in respondents who did less than 150 minutes of physical activity per week (59%) compared to respondents who did 150 minutes of physical activity per week (27.7%).

The results of bivariate data analysis of health service variables in table 3 show that there is a correlation between ease of access to health services and the incidence of hypertension ( $p=0.013$ ;  $OR= 4.91$ ). The incidence of hypertension occurred more frequently in respondents who had difficulty accessing health services (53.8%) compared to those who had easy access to health services (19.2%). In addition, the provision of health education has a significant relationship with the incidence of hypertension ( $p=0.000$ ;  $OR= 7.83$ ). The incidence of hypertension occurred more frequently in respondents who did not receive health education (57.9%) compared to respondents who received health education (14.9%).

## DISCUSSION

The results of this research show that smoking behavior is one of the factors associated with the incidence of hypertension in Gedawang Village. Previous research also stated that smoking was significantly related to the prevalence of hypertension ( $RR = 1.016$ ) for both active and passive smokers (Lee *et al.*, 2017).

One cigarette contains more than 4000 types of chemical compounds, 400 dangerous substances and 43 carcinogenic substances. Apart from that, there is also carbon monoxide, tar and nicotine (Kemenkes RI, 2018). Nicotine primarily acts on the cardiovascular system through stimulation of the sympathetic nervous system leading to release of norepinephrine and increases in heart rate, blood pressure, myocardial contractility and systemic vasoconstriction (Price and Martinez, 2020). Despite awareness and knowledge of the dangers of cigarettes, smokers still continue to smoke because they are addicted (Ichsan, Nuredis and Priscillah, 2020). However, other research shows that respondents who have low knowledge about cigarettes are 0.37 times more likely to smoke than respondents who have high knowledge (Soesyasmoro, Demartoto and Adriani, 2016). There are a variety of strategies that can be used to promote smoking cessation, including advice from a doctor, nicotine replacement therapy, behavior modification, and smoking cessation programs (Samadian, Dalili and Jamalain, 2016).

This study also found that people who did less than 150 minutes of physical activity per week had a 3.2 times greater risk of hypertension compared to those who did at least 150 minutes of physical activity per week. This finding is in line with previous research which found that the risk of hypertension in people who exercised less than 30 minutes per day was 2.09 times greater than those who exercised regularly for at least 30 minutes (Shah *et al.*, 2015). A meta-analysis study that identified 93 RCT articles stated that exercise intervention and administration of anti-hypertensive drugs were effective in lowering blood pressure. Although drug administration has the highest probability of being the best treatment for hypertension (Noone *et al.*, 2020). However, there is another meta-analysis study that identified 391 RCTs, 197 of which evaluated exercise interventions (10,461 respondents) and 194 evaluated antihypertensive drugs (29,281 respondents), showing the

results that the difference in the blood pressure lowering effect of exercise interventions compared to administering anti-hypertensive drugs is not much different (Naci *et al.*, 2018), so exercise can also be considered as an additional intervention or main treatment for people with mild hypertension for 3 to 6 months after diagnosis.

The type of physical activity that is most effective in lowering blood pressure is high intensity interval training such as aerobics because it causes a greater increase in VO<sub>2</sub>max (Leal, Galliano and Del Vecchio, 2020)(Dassanayake *et al.*, 2022). VO<sub>2</sub>max or maximum oxygen consumption is considered the main indicator for assessing cardiorespiratory fitness and is directly related to cardiovascular health. The greater the VO<sub>2</sub>max, the lower the risk of death from cardiovascular disease (Arboleda-Serna *et al.*, 2019).

One of the treatments for hypertension to reduce mortality and morbidity is the administration of long-term, even lifelong, anti-hypertensive drugs. This treatment can be provided by health facilities. WHO also states that hypertension can only be treated effectively if the health system is strengthened, such as governance, finance, information, human resources, provision of health services, and access to quality, low-priced generic medicines. The government must ensure that all people have fair access to health services, both preventive, curative and rehabilitative to prevent hypertension and its complications (WHO, 2013). Previous research stated that one of the factors associated with routine blood pressure checks in hypertensive patients is access to health services (Idrus, Ansariadi and Ansar, 2021).

The results of this study also show that respondents who have difficulty accessing health services are at 4.91 times greater risk than respondents who have easy access to health services. Based on the results of interviews, respondents felt it was difficult to access health services because they had to use a vehicle to come to the community health centers and there were no pedestrian areas along the route to the community health centers. Based on Indonesian Minister of Health regulation number 43 of 2019, every district must have at least one community health center. Community health centers must be established in locations that are easily accessible to the public and can be accessed easily using public transportation (Kementerian Kesehatan Republik Indonesia, 2019).

Banyumanik district is one of the areas that is included in the suburban criteria in the Semarang City which directly borders with Semarang Regency (Ekawati, Hardiman and Pandelaki, 2018)(Prihanto, Purwanto and Pandelaki, 2022). Based on monograph data, Gedawang village only has 12 posyandu for toddler as health facilities. Primary health care facilities such as community health centers merge into the Pudak Payung's work area which is approximately 2.5 km away. Health facility services can be seen based on Indonesian National Standards (SNI) No. 03 – 1733 – 2004 Procedures for Urban Housing Environmental Planning. For Community Health Centers, the standard service radius for health facilities is set at 3,000 meters (3 Km) (BSN, 2004). Based on this, the coverage radius of the community health centers in Gedawang village has met national standards and in general the community health centers is able to serve the majority of the population. However, it is possible that there are some areas that are not reached by community health centers because the distance is longer and there is no public transportation (Salsabilah *et al.*, 2023)(Suryani and Adharina, 2024).

Research conducted in Saudi Arabia found that only 23.6% of people with hypertension were aware of their condition (Shah *et al.*, 2015). Because few people with hypertension are aware of their disease, support from the surrounding environment is really

needed, both from family and health workers or health service facilities. In accordance with Social Support Theory which is defined as verbal or nonverbal information, advice, or behavior provided by people who are familiar with the subject in their social environment or in the form of presence and things that can provide emotional benefits or influence behavior. Knowledge about hypertension can be increased through education or health promotion regarding hypertension (Nasution *et al.*, 2019)(Kang *et al.*, 2019)(Yu *et al.*, 2022).

## CONCLUSIONS

Hypertension is significantly related to smoking behavior, physical activity, easy access to health services, and the absence of health education in Gedawang Village. The preventive efforts needed are implementing healthy living behavior by not smoking and doing enough physical activity, as well as increasing knowledge about personal health and expanding the scope of health services.

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## CONFLICT OF INTEREST

The authors declare that the research was conducted without any commercial or financial relationships that could be construed as a potential conflict of interest.

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# Symptoms of COPD Patients With A History of Smoking and Non-Smoking

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## ABSTRACT

**Background:** Chronic Obstructive Pulmonary Disease (COPD) is a progressive, incurable lung disease that causes chronic respiratory difficulty. Smoking is the primary risk factor for COPD, while some patients with the disease have never smoked. Understanding the differences in symptoms between patients with and without a smoking history can help guide more effective intervention.

**Purpose:** The purpose of this study is to identify and compare COPD symptom reports in patients with and without smoking history.

**Methods:** This study used a descriptive method with secondary data from COPD patients divided into two groups: those with a history of smoking (n=20) and those who did not smoke (n=20). Symptom complaints were classified into three types: good (3), sufficient (2), and poor (1). The percentage of each category was calculated to describe how the symptom reports were distributed throughout each group.

**Results:** In the group of COPD patients with a smoking history, 6 patients (30%) reported good symptoms, while 14 patients (70%) reported sufficient symptoms. In the group without a smoking history, 14 patients reported good symptoms (70%), while 6 patients had sufficient symptoms (30%). In both groups, no patients reported problems that were rated insufficient. These findings suggest that patients with a history of smoking are more probable to suffer symptoms at a sufficient level than those without a history of smoking.

**Conclusion:** There is a difference in the distribution of COPD symptom reports between those with and without a smoking history, with those who have smoked having moderate symptoms. This study emphasizes the importance of stopping smoking in reducing the severity of symptoms in COPD patients.

**Keywords:** COPD; Dyspnea; Symptom

## INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is an important health issue around the world, and smoking is frequently cited as the causing risk factor. Smoking accelerates lung function decrease by causing chronic inflammation, which leads to airway narrowing and destruction of alveolar structures (Sundar & Rahman, 2020). According to research, tobacco exposure accounts for 80-90% of COPD diagnoses, with the risk increasing with smoking duration and intensity (Bernatsky et al., 2021). Because of this negative reference, stopping smoking has become one of the most important therapies for COPD care (Jin et al., 2019). COPD is the world's third biggest cause of death, accounting for an estimated 3.2 million

deaths per year (GBD 2019 Diseases and Injuries Collaborators, 2020). Despite advances in treatment, its incidence has remained high, with cases increasing due to aging populations and persistent smoking rates in several regions (Collaborators, 2020). COPD affects approximately 11% of people over the age of 40, with males having a higher prevalence due to historically higher smoking rates (WHO, 2022). Nonsmokers are also at risk, especially in areas that have severe indoor or outdoor air pollution, indicating other etiological factors contribute to COPD development (Soriano et al., 2022).

The relationship between smoking and COPD symptoms is determined, with smokers reporting more severe symptoms such as persistent cough, dyspnea, and frequent exacerbations (Vestbo et al., 2022). According to studies, smoking promotes airway obstruction and lung hyperinflation, leading to a significant increase in breathlessness and activity limitation among COPD patients (Hurst et al. 2019). Patients with a history of smoking had a higher probability of acute exacerbations than non-smokers, indicating the cumulative harm smoking causes to lung structures (Donaldson et al., 2020).

While smoking is the main cause of COPD, a sizable minority of COPD patients are nonsmokers, leading researchers to investigate into alternative risk factors such as environmental contaminants, genetic predispositions, and early respiratory infections (GOLD, 2023). Evidence suggests that non-smoking COPD patients experience similar symptoms, although having less severe airway restriction (Salvi & Barnes, 2021). Air pollutants, such as biomass smoke and occupational exposures, have been associated to similar inflammatory and obstructive changes in nonsmokers, potentially contributing to COPD onset and symptom burden (Arslan et al., 2022).

The differences in symptom severity and progression between smoking and non-smoking COPD patients has prompted concerns about specific therapies. To reduce the risk of exacerbation, smoking-induced COPD frequently need strong bronchodilator therapy and anti-inflammatory medication (Criner et al., 2021). Non-smoking COPD patients, on the other hand, may benefit from additional modifications to their lives, such as avoiding pollutants, as well as focused medicines that address specific etiological factors (Fabbri & Rabe, 2022). These distinctions emphasize the need of understanding symptom patterns across patient groups for effective illness management.

To summarize, COPD symptoms can differ greatly between smokers and nonsmokers. Smoking status is an important determinant in determining COPD severity, exacerbation frequency, and overall quality of life. As research improves, the involvement of nonsmoking etiological variables and focused therapy options for various COPD phenotypes remains a critical priority for improving patient outcomes (Global Initiative for Chronic Obstructive Lung Disease, 2023).

## **MATERIALS AND METHODS**

This study uses a descriptive methodology to investigate COPD symptoms in people with and without smoking history. The descriptive technique allows for a thorough analysis of symptom patterns and severity in these two groups, offering important insights into how smoking history influences COPD symptoms. The study sample consists of 20 COPD patients, divided evenly into two groups: 10 patients with a history of smoking and 10 patients with no history of smoking. This sample strategy provides a balanced comparison of smokers and nonsmokers, allowing us to identify any differences in symptom presentation due to smoking history.

The COPD Assessment Test (CAT) questionnaire is the primary data collection instrument, a standardized tool widely used to assess COPD symptom severity and the impact on quality of life. The CAT questionnaire consists of eight items that include symptoms such as cough, chest tightness, and dyspnea, each of which is graded on a scale of 0 to 5. CAT scores provide a measurable measure of COPD symptoms, with higher scores suggesting more symptom load. The CAT questionnaire is administered to all participants, and the mean scores and score distributions between the smoking and non-smoking groups are analyzed afterwards. This approach is likely to provide insights into specific symptom patterns as well as any significant variations in symptom severity between the two groups.

## RESULTS

The study's findings revealed significant disparities in COPD symptoms between patients who had smoked and those who did not. The COPD Assessment Test (CAT) questionnaire scores of 40 COPD patients revealed that smokers reported higher symptom severity than nonsmokers. Patients with a smoking history got higher average scores for symptoms such as chronic cough, chest tightness, and shortness of breath, indicating a higher total symptom load. Smokers' CAT scores were consistently higher, implying that smoking can worsen the severity of COPD symptoms.

Further analysis of the CAT scores indicated a broader range of symptom intensity within the smoking group, with some patients suffering substantially severe symptoms. Non-smoking COPD patients, on the other hand, reported moderate symptom levels with fewer incidences of severe dyspnea and coughing. The distribution of CAT scores implies that a smoking history may be associated with higher symptom variability and intensity in COPD patients. These findings indicate the possible impact of smoking on COPD symptomatology, emphasizing the necessity of smoking cessation and specific care measures for COPD patients with a smoking history.

**Table 1. Respondent Characteristics Based on Gender and Age**

Characteristics	Range	Frequency	Percentage
Age	50–54	1	5.0%
	55–59	5	25.0%
	60–64	3	15.0%
	65–69	3	15.0%
	70–74	7	35.0%
	75–79	0	0.0%
	80–84	1	5.0%
Gender	Male	20	100.0%
	Female	0	0.0%

According to table 1, the age range of participants is 50 to 84 years, with five-year intervals. The majority of participants (35%) are aged 70-74, with 25% falling between 55 and 59. The 60-64 and 65-69 age groups each account for 15% of participants, while the 50-54 and 80-84 age groups each make up 5%. There are no participants aged 75 to 79. This study's participants are all male, making up 100% of the sample, with no female representation.

**Table 2. Symptoms of COPD patients with a history and without history of smoking**

Symptom Category	Smoking COPD		Non-Smoking COPD	
	Frequency	Percentage	Frequency	Percentage

Poor	0	0	0	0
Sufficient	14	70.0%	6	30.0%
Good	6	30.0%	14	70.0%

Table 2 highlights the symptom severity categories among COPD patients with and without a history of smoking, which are split into three categories: poor, adequate, and good. There are no patients in either group with poor symptoms, indicating that all participants reported Sufficient or Good symptom levels. Among patients with a history of smoking, 14 (70%) reported Sufficient symptoms. In contrast, just six non-smoking COPD patients (30%) fell into this category, implying that a smoking history may be associated with a greater symptom burden. Six smoking COPD patients (30%) reported little symptoms, whereas 14 non-smoking COPD patients (70%) fell into this category. This finding suggests that nonsmoking COPD patients have milder symptoms than those who smoke. This table indicates that COPD patients with a history of smoking had more severe symptoms, with a higher percentage falling into the sufficient group, whereas non-smoking individuals are more likely to report good symptom levels.

## DISCUSSION

The study's findings indicate significant differences in symptom severity between COPD patients who have smoked and those who haven't. In the case the data demonstrates that the majority of smoking COPD patients fall into the sufficient symptom group (70%), whereas the majority of non-smoking COPD patients are classified as good (70%). This shows a link between smoking history and greater COPD symptom burden, as smokers report more frequent and severe symptoms than non-smokers. These findings are consistent with previous research indicating that smoking worsens COPD symptoms and reduces patients' quality of life (Adeloye et al., 2022).

Several studies support the correlation between smoking history and increased respiratory symptoms in COPD patients. Smoking has been associated with anatomical changes in the lungs, including increased airway inflammation and reduced mucociliary clearance, all of which lead to worsening COPD symptoms (GOLD, 2023). In the current study, 70% of smoking COPD patients had sufficient symptoms, which may represent the physiological effects of smoking, as they have larger symptom loads and potentially more frequent exacerbations than nonsmokers. This is consistent with research showing that smoking-related lung damage can lead to decreased pulmonary function and increasing symptom intensity over time (Barnes, 2021).

In contrast, the majority of the non-smoking COPD patients in this study reported good symptom levels, with only 30% falling into the adequate range. This shows that COPD patients who do not smoke may have milder symptoms and a slower disease progression. Non-smoking COPD patients may have milder symptoms due to less extensive lung damage and preserved lung function than their smoking counterparts (Chen et al., 2020). Previous research has shown that non-smoking COPD patients have fewer exacerbations and a shorter loss in lung function, which could explain the higher percentage of positive symptom ratings in this group (Lee & Park, 2022).

The lack of any patients in the poor symptom category in both groups is interesting, as it could reflect the study's sample characteristics or imply that the patients had generally well-managed COPD. However, it is possible that effective management options, including as

medication and pulmonary rehabilitation, have been beneficial in reducing severe symptoms. Previous research has found that both smoking and non-smoking COPD patients benefit from focused therapy strategies that include bronchodilators, corticosteroids, and lifestyle changes (Agusti et al., 2021). The lack of bad symptom ratings could possibly be related to regular healthcare access and adherence to prescribed therapies, as prior study has shown that patients who comply to their treatment regimens had better symptom control. (Global Strategy for the Diagnosis, Management, and Prevention of COPD, 2023).

The findings of this study highlight the necessity of smoking cessation programs for COPD patients who have previously smoked. Stopping a smoking habit appears to prevent the advancement of COPD while also considerably reducing symptom severity over time (Wang et al., 2021). 70% of smokers who reported enough symptoms in this study may find symptom relief if they quit smoking and participate in cessation programs. According to studies, former smokers with COPD have fewer exacerbations and a higher quality of life than current smokers (Tashkin & Murray, 2020). Smoking cessation should therefore be prioritized in COPD management strategies, especially for individuals with high symptom loads.

Finally, the study found that smoking and non-smoking COPD patients had different symptom severity levels, emphasizing the necessity for customized treatment techniques. Smoking history has a significant impact on symptom severity, and treatment regimens should account for this when addressing symptom management and disease progression. Future study should look into the long-term consequences of quitting smoking on symptom severity in COPD patients, as well as particular interventions that can assist lower symptom burdens for those who have smoked in the past. Furthermore, investigations with higher sample sizes may give additional information about the impact of smoking on various COPD phenotypes and symptom profiles (Fabbri & Rabe, 2023).

## CONCLUSIONS

The distribution of COPD symptom reports varies between those with and without a smoking history, with individuals with a history of smoking having moderate symptoms. This study emphasizes the importance of smoking cessation in reducing the severity of symptoms in COPD patients.

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# The Effectiveness of Sipping Ice Therapy and Chewing Gum in Reducing Thirst Intensity Among Hemodialysis Patients with Chronic Kidney Disease

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## ABSTRACT

**Background:** Hemodialysis is a vital procedure for patients with chronic kidney disease (CKD), yet one of its common side effects is excessive thirst due to fluid intake restrictions. This persistent thirst not only causes discomfort but also negatively impacts patients' quality of life and may worsen clinical outcomes if not managed properly. Various non-pharmacological interventions, such as sipping ice therapy and chewing gum, have been suggested to alleviate thirst intensity among hemodialysis patients; however, their effectiveness requires further evaluation.

**Purpose:** This study aims to examine the effectiveness of ice therapy and chewing gum in reducing thirst intensity in hemodialysis patients.

**Methods:** This study employed a case study approach with a sample of two patients to explore the application of sipping ice therapy and chewing gum in reducing thirst intensity among hemodialysis patients with chronic kidney disease at Dr Soeradji Tirtonegoro General Hospital, Klaten. The Visual Analogue Scale (VAS) was used as an instrument to measure thirst intensity. Each intervention was administered separately to evaluate its individual effectiveness in alleviating thirst, and measurements were taken to document changes in VAS scores before and after the interventions.

**Results:** In the application of therapy, Mrs. S experienced a reduction in thirst intensity by chewing gum, decreasing from a score of 6 to 4 on the VAS scale (a reduction of 2 points). Meanwhile, Mrs P showed a reduction in thirst intensity through the sipping ice therapy, decreasing from a score of 7 to 3 (a reduction of 4 points).

**Conclusion:** Sipping ice therapy and chewing gum can effectively reduce thirst intensity among hemodialysis patients with chronic kidney disease. Further studies with larger sample sizes are recommended to validate these findings.

**Keywords:** *Chewing Gum; Chronic Kidney Disease; Hemodialysis; Sipping Ice Therapy*

## INTRODUCTION

Chronic kidney disease is a condition characterised by kidney function which decreases progressively over many years. Progressive and reversible are signs of CKD. Symptoms of CKD include swelling in the upper and lower extremities, nausea, vomiting, loss of appetite, dizziness, fatigue, and shortness of breath. Patients with chronic kidney complications, namely disorders of the acid-base balance in the blood, are at risk of experiencing metabolic disorders, namely cardiovascular disease, kidney failure and diabetes (Jundiah et al., 2023).

According to the World Health Organization (WHO), in 2019, the incidence of CKD in the world increased from the 13th to the 10th death rate. The lift increased from 813,000 to 1.3 million. Based on data from Riskesda, the incidence of CKD in 2018 was 0.38% of the total population of Indonesia, namely 252,124,458 people, so there were 713,783 people suffering from it. *Chronic Kidney Disease (CKD)*. The prevalence of hemodialysis in Indonesia alone is

2,850 people, while the incidence of CKD in Central Java province based on doctor's diagnosis in 2018, the population aged > 15 years was 96,794 people (Amir A, 2023).

The main cause of *chronic kidney disease* is a complication of systemic diseases, namely hypertension, diabetes, leptospirosis, chronic kidney infections, urinary tract obstruction or kidney stones, collagen disease, drugs, chemicals and environmental factors (Sutisna & Khira, 2023). Impaired kidney function will result in damage to the system of excretion of substances in the body, resulting in the accumulation of dangerous chemicals in the body and metabolic changes occurring in addition to an increase in serum urea levels (uremia) as a result of the accumulation of toxic substances in the body. In this condition, other organ systems are disrupted, such as the circulatory, nervous, digestive, respiratory, skin, blood and hormone-producing glands (Wijayanti et al., 2024).

The main problem experienced in CKD patients is an increase in fluid volume (hypervolemia) between two dialysis times, which is characterised by oedema, shortness of breath and an increase in fluid volume, which is a manifestation of increased body weight or increased IDGW (interdialytic weight gain) (Siahaan, 2019). Someone diagnosed with chronic kidney disease Those who are in the PGTA stage (end-stage kidney disease) require hemodialysis therapy, which is the most frequently used dialysis therapy. Patients undergo hemodialysis 2-3 times a week with a hemodialysis time of 4-5 hours, depending on the stage. The purpose of hemodialysis is to remove waste. Protein metabolism and correcting fluid and electrolyte balance disorders (Rahayu & Sukraeny, 2021)). When patients do not undergo hemodialysis in the days between dialysis patients will experience fluid accumulation. Patients who do not adhere to a fluid-restricted diet will experience *overhydrate*, which causes fluid to accumulate and cause oedema. Blood pressure increases, makes the heart work harder, and fluid builds up in the lungs, resulting in shortness of breath and, indirectly an increase in body weight (Daryani et al., 2020). To prevent fluid buildup in the body, patients are still required to limit fluid intake when not undergoing hemodialysis (Syamsuddin et al., 2023).

Hemodialysis patients must maintain fluid intake between hemodialysis treatments. The effect of fluid restriction is that a decrease in oral intake will cause a dry mouth and the tongue is rarely supplied with water. This condition will cause a feeling of thirst. Thirst is an awareness of the need for fluids in the body. A dry mouth, among other things, can affect the feeling of thirst. Thirst is the most common problem experienced by patients undergoing hemodialysis with limited fluid intake and also occurs in patients with *chronic kidney disease*. Due to fluid restrictions, thirst can result in patients not adhering to a diet that limits fluid intake so patients experience overhydration or excess fluid (Armiyati & Khoiriyah, 2019). Excess fluid This can occur due to excessive fluid intake as a result of not being able to control thirst. Thirst management must be managed or controlled. Various studies say that thirst management can be done in various ways, namely by sucking ice cubes (sipping ice therapy), gargling with plain water, gargling with mouthwash, chewing gum or mints and use fruit frozen fruit (Philips et al., 2017). When the patient does not undergo hemodialysis, the patient will experience the problem of fluid accumulation in the body, so chronic kidney patients must limit their fluid intake. This fluid restriction will cause a feeling of thirst, which causes the patient's mouth to feel dry due to reduced saliva production or decreased production of the salivary glands, so the patient will drink lots of water to reduce these complaints. There are several ways to overcome thirst in patients with chronic kidney disease who suffer from hypervolemia problems. Sipping ice therapy is one of the effective measures to reduce the thirst experienced by patients chronic kidney disease who are undergoing hemodialysis. Other research also states that it is



an intervention that can be applied to overcome the problem of thirst in patients with *chronic kidney disease* namely by chewing ice cubes because it can give a fresher feeling than drinking mineral water little by little (Jundiah et al., 2023). Sucking on ice cubes is more effective than gargling with plain water to reduce thirst in patients *chronic kidney disease* who underwent hemolysis (Nurhayati, 2022).

Besides *sipping ice therapy*, chewing gum is also considered effective in reducing the intensity of thirst in CKD patients. In research conducted (Mansouri et al., 2018), it is stated that chewing gum can be used as an alternative treatment to reduce thirst in hemodialysis patients by chewing gum. 5 minutes can activate saliva production. This is in line with research conducted by Hamnari Sarwanti 2020 which states that chewing gum has the effect of reducing dry mouth (*xerostomia*) in HD patients. Chewing gum can increase blood flow to the salivary glands and then stimulate them to produce more saliva.

From the description above, the author provided nursing care to two patients *chronic kidney disease* who are undergoing hemodialysis. Where researchers carried out nursing interventions, namely implementing *sipping ice therapy* and chewing gum in patients with *chronic kidney disease* (CKD) who underwent hemolysis to reduce the intensity of thirst at DR Soeradji Tirtonegoro Hospital, Klaten.

## MATERIALS AND METHODS

This study employed a case study design to explore the application of sipping ice therapy and chewing gum in managing thirst among patients with chronic kidney disease undergoing hemodialysis. Conducted in October 2023 at the Hemodialysis Unit of DR. Soeradji Tirtonegoro General Hospital, Klaten, the research focused on two patients who addressed the nursing issue of hypervolemia through different approaches. One patient used chewing gum, while the other implemented sipping ice therapy.

The Visual Analogue Scale (VAS) was utilized to measure the patients' thirst intensity before and after the interventions. Data collection was conducted through observation, interviews, and document review. Observations provided real-time insights into the patient's responses to the therapies, while interviews captured subjective experiences and perceptions of thirst relief. Document review involved analyzing medical records to gather relevant clinical information and contextualize the findings. This combination of methods allowed for a comprehensive understanding of the effects of both therapeutic interventions.

## RESULTS

Table 1. Subjects of Case Study 1

Assessment	Pre Hemodialysis
	<b>Focus Data</b>
	<b>Subjective Data</b>
	- Mrs. S said he often felt thirsty
	- Mrs. S said BAK was not smooth and often incomplete, BAK 2-3x/day with a yellow color
	- Mrs. S said to drink 2-3 glasses of starfruit per day
	- Mrs. S said his weight rose 1 kg in 1 week
	- Mrs. S said he often felt thirsty and said he felt thirsty on a scale of 6
	<b>Objective Data</b>
	<b>Observasi Tanda vital :</b>
	- Blood Pressure: 163/92 mmHg

	<ul style="list-style-type: none"> <li>- Temperature: 36'C</li> <li>- Pulse: 93x/minute</li> <li>- Respiratory rate: 20x/minute</li> <li>- Current weight: 62 kg</li> <li>- Last Body Weight : 61 kg</li> <li>- Dry Body Weight: 61 kg</li> <li>- IDWG : 1.6%</li> </ul>
	<b>Lab Examination Results:</b> <ul style="list-style-type: none"> <li>- Ureum 143 mg/dL</li> <li>- Kreatinin 7.30 mg/dL</li> <li>- Hemoglobin 11.8 g/dL</li> <li>- Potassium 3.53 mEq/dL</li> </ul>
<b>Nursing Diagnosis</b>	Hypervolemia associated with impaired regulatory mechanisms (D. 0022)
<b>Nursing Intervention</b>	Chew gum

Based on the data in Table 1. The results of the assessment can formulate a nursing problem in subject 1, namely Hypervolemia related to Disorders of Regulatory Mechanisms. The data obtained to confirm this diagnosis includes subjective data which includes the patient saying he often feels thirsty, urinating 2-3x/day is not smooth or even incomplete, drinks 2-3 glasses/day, weight increases by 1 kg and the scale of perceived thirst is on a scale of 6 where the thirst felt is in the (moderate) category. Meanwhile, objective data obtained from the patient included observation of vital signs, BP: 163/92 mmHg, S: 36'C, N: 93x/minute, RR: 20x/minute, current weight is 62 kg while previous weight was 61 kg where there is weight gain in the patient. The supporting examination that supports the diagnosis is IDWG: 1.6%, laboratory examination results Ureum : 143 mg/dL, Kreatinin : 7.30 mg/dL, Hemoglobin : 11.8 g/dL, Kalium : 3.53 mEq/dL.

The approach used in subject 1 was chewing gum to reduce the thirst felt by the patient, using 1 piece of gum which was chewed for 10 minutes before carrying out the intervention to measure the level of thirst in the patient using a VAS instrument, measurements were carried out before and after the intervention. to determine the effectiveness of the therapy used.

From the data measuring the patient's thirst level after the chewing gum intervention, the evaluation results showed that the patient's thirst level decreased, whereas, before the intervention, the patient's perceived thirst was on a scale of 6 in the moderate category) after the intervention, the thirst scale decreased to a scale of 4 in the category ( currently).

**Table 2. Subjects of Case Study 2**

Assessment	Focus Data
	<b>Subjective Data</b> <ul style="list-style-type: none"> <li>- Mrs. P said he often felt thirsty</li> <li>- Mrs P said BAK was possible but not smoothly and often incomplete with a yellow colour</li> <li>- Mrs. P said to drink 2-4 glasses of starfruit per day</li> <li>- Mrs. P said his weight rose 3 kg in 1 week</li> <li>- 4,2%</li> <li>- Mrs. P says swelling in both legs</li> <li>- Mrs. P said he often felt thirsty and his perceived thirst scale was 7</li> </ul>

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**Objective Data****Observasi Tanda Vital :**

- Blood pressure: 170/66 mmHg
- Temperature: 36.6' C
- Pulse: 74x/minute
- Respiratory rate: 20x/minute
- Current weight: 48 kg
- Last weight: 45 kg
- Dry Body Weight: 45 kg
- IDWG : 6.6%

**Lab Examination Results:**

- Ureum 154 mg/dL
- Kreatinin 9.51 mg/dL
- Hemoglobin 8.8 g/dL
- Potassium 3.65 mEq/dL

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**Diagnosis** Hypervolemia associated with impaired regulatory mechanisms (D. 0022)

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**Intervention** *Sipping Ice Therapy*

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Based on the data in table 2. The nursing problem that arises is Hypervolemia related to Disorders of Regulatory Mechanisms in this case study involving 2 subjects who have the same problem, namely excess fluid volume and level of thirst. Subjective data obtained from subject 2 included the patient saying he often felt thirsty, urination was not smooth or even incomplete with the consistency of yellow urine, drank 2-4 glasses/day, body weight increased by 3 kg, there was edema in both lower extremities and the taste scale. The perceived thirst is on a scale of 7 in the (severe) category. Meanwhile, objective data obtained from the patient included observation of vital signs, BP: 170/66 mmHg, S: 36.6 C, N: 74x/minute, RR: 20x/minute, current weight is 48 kg while previous weight was 45 kg where there is weight gain in the patient. The diagnosis was supported by supporting data IDWG: 6.6% and laboratory examination results: Ureum: 154 mg/dL, Creatinine: 9.51 mg/dL, Hemoglobin: 8.8 g/dL, Potassium: 3.65 mEq/dL.

The intervention given to subject 2 was giving *Sipping Ice Therapy* To reduce the patient's thirst, the patient sucks ice cubes for 10 minutes. Thirst level assessment uses VAS and is carried out before and after the intervention to determine the effectiveness of the therapy carried out. From the data measuring the level of thirst of subject 2 using *sipping ice therapy* was before the therapy was given the perceived taste scale of 7 with the category (heavy) after being given the therapy there was a decrease in thirst to a scale of 3 with the category (light).

Based on the intervention carried out, there were differences in the scale of decreasing thirst for the intervention applied to the two patients, where both patients experienced a decrease in the scale of thirst after the intervention. The scale of thirst felt by patients with sipping ice therapy intervention is considered more effective as evidenced by the different levels of the thirst scale, the water content in ice cubes really helps provide a cooling effect and can be refreshing and able to overcome thirst in patients undergoing hemodialysis.

## DISCUSSION

Based on the results of the assessment of the two patients who had several differences in signs and symptoms of CKD stage V. In the patient Mrs. S experienced signs and symptoms that were found including a history of hypertension and had been undergoing hemodialysis

therapy for 3 years, experienced a weight gain of 1 kg and urinated incompletely or incessantly and complained of frequently feeling thirsty on a scale of 6 supported by supporting examination of urea 143 mg/dL and creatinine 7.30 mg/dL. Meanwhile, the patient Mrs. P found signs and symptoms including a history of hypertension and had been undergoing hemodialysis therapy for 2 years, experienced a weight gain of 3 kg, urinated often incompletely and had swelling in the lower extremities and complained of frequently feeling thirsty on a scale of 7 which was also supported by supporting examinations. urea 154 mg/dL and creatinine 9.51.

The risk factor that occurs in chronic kidney disease in both patients is having a history of hypertension, which is a very important risk factor in the development of chronic kidney failure, increased RAAS (Renin-Angiotensin-Aldosterone System), which is one of the main pathways involved in the homeostatic regulation of body fluids and blood pressure. with this condition, chronic kidney disease occurs excessive activation of this system, especially in response to kidney damage or a decrease in blood to the kidney organs. The cause is an increase in the production of angiotensin II which has a vasoconstrictor effect and causes salt and water retention. Salt and water retention increases the volume of fluid in circulation which in turn causes an increase in blood pressure and contributes to further kidney damage (Rahayu & Sukraeny, 2021).

Chronic kidney disease sufferers undergoing hemodialysis are required to adhere to a fluid-restricted diet during hemodialysis. This fluid restriction can cause several effects on the body, such as complaints of thirst and dry mouth (Handayani et al., 2023). It is known that the results of the study were obtained from the patient Mrs. S has a thirst level of 6 in the moderate category, while Mrs. P has a thirst level of 7 in the severe category. The second measurement of the thirst level scale was carried out before and after the intervention was carried out. This procedure was carried out between two dialysis sessions. The measurement of the thirst scale used the Visual Analog Scale (VAS) with a scale range of 0-10. The interpretation of the VAS measurement is a value of 1-3 light thirst, 4-6 moderate thirst and 7-10 severe thirst. This instrument has been used in several previous studies to measure the thirst scale and has carried out reliability tests on the instrument and the VAS results are declared reliable for measuring thirst with a Cronbach's alpha coefficient of 0.96 (Siska et al., 2023).

Based on the results of the study obtained from Mrs. S and Mrs. The diagnosis that emerges is hypervolemia related to impaired regulatory mechanisms. Signs and symptoms obtained by Mrs. S includes a history of hypertension and has been undergoing hemodialysis therapy for 3 years, has experienced a weight gain of 1 kg and urinated incompletely and complained of frequently feeling thirsty on a scale of 6 supported by supporting examinations for urea of 143 mg/dL and creatinine of 7.30 mg/dL. Meanwhile, Mrs. P found signs and symptoms including a history of hypertension and had been undergoing hemodialysis therapy for 2 years, experienced a weight gain of 3 kg, urinated often incompletely and had swelling in the lower extremities and complained of frequently feeling thirsty on a scale of 7 which was also supported by supporting examinations. urea 154 mg/dL and creatinine 9.51.

Based on the data described in accordance with the Indonesian Nursing Diagnosis Standards (SDKI), researchers established the main diagnosis, namely hypervolemia related to impaired regulatory mechanisms. This is supported by Siska B's research. One of the nursing problems that occurs in chronic kidney disease patients is excess fluid volume (Hypervolemia) which is caused by impaired kidney function. As a result of decreasing kidney function, there will be a buildup of metabolic waste and fluids in the body. This condition will cause several problems such as edema, difficulty sleeping and urinating more frequently (IDHS, 2017).

Excess fluid or hypervolemia in hemodialysis patients is one of the nursing diagnoses that results in an increase in intravascular, interstitial and intracellular volume (Al Falah et al., 2024). Chronic damage to the kidneys can physiologically cause disturbances in circulatory balance and vasomotor regulation, where at first there are certain initial signs and symptoms which may only be known through increased levels of creatinine in the serum, the discovery of protein in the serum and resulting in the accumulation of excessive fluid volume (Hasibuan & Hati, 2021).

Nursing intervention planning is based on the data that has been obtained for both patients referring to the Indonesian Nursing Intervention Standards (SIKI) book. Nursing planning has been adjusted to the expected outcome criteria. Nursing planning with a diagnosis of hypervolemia is related to failure of regulatory mechanisms, namely management of hypervolemia. The aim of diagnostic planning is that after 1x5 hours of nursing care, it is hoped that the patient will be able to improve fluid balance with the outcome criteria, namely fluid intake, dehydration, blood pressure and body weight.

The nursing intervention plan for dealing with excess fluid volume by managing hypervolemia is to check for signs and symptoms of hypervolemia, monitor hemodynamic status, monitor fluid intake and output, limit fluid and salt intake, elevate the head of the bed 30-40 degrees, recommend reporting if urine output is  $<0.5$  mL/kg/hour over 6 hours, recommend fluid restriction and collaboration with diuretics, if necessary.

Nursing diagnosis based on the case of the patient Mrs. S was given an intervention to chew gum for 10 minutes which aimed to reduce the intensity of thirst felt by the patient during hemodialysis therapy. In practice, patients want to limit fluids by chewing gum. This intervention is carried out before the patient undergoes hemolysis. Before intervening with a patient, the first thing to do is explain the procedure and the purpose of the action to be carried out. Then measure the thirst scale before chewing gum. After that, do the chewing gum intervention for 10 minutes on HD. After the intervention, the patient carried out an evaluation measuring the thirst scale. During the evaluation, there was a decrease in the thirst felt by the patient, where before the intervention was given the thirst felt was on a scale of 6 moderate and after the intervention the thirst decreased to a scale of 3 light. In research conducted by Hasibuan & Yati, it was stated that there was a change in thirst after giving chewing gum, where respondents who were originally patients with chronic kidney failure who were undergoing hemodialysis felt very thirsty, but after the intervention, patients with chronic kidney failure who were undergoing hemodialysis felt thirsty. mild or where the patient previously felt thirsty which has changed to mild thirst (Ardika & Veronika, 2021). This is also supported by research conducted by Ardika & Veronika on the effect of chewing gum on thirst in patients undergoing hemodialysis, where the thirst in the group given the chewing gum intervention before the intervention felt thirst was in the thirst category. severe and after the intervention there was a decrease in thirst which was in the light thirst category (Pebrianti et al., 2023). And the group that was not given intervention did not reduce their thirst and remained in the severe thirst category. Other research also states that chewing gum shows that chewing gum results in a large reduction in thirst until it becomes light, so this has a significant impact on thirst in patients undergoing hemodialysis (Dewi & Mustofa, 2021).

Nursing diagnosis for patient Mrs. P carried out a shipping ice/sucking ice cubes intervention where the intervention was considered effective in reducing the thirst felt in patients undergoing hemodialysis. Sipping ice/swallowing ice cubes is one of the independent nursing interventions to reduce the amount of fluid and/or limit daily fluid intake. In practice,

patients are willing to carry out the intervention of chewing ice cubes for 10 minutes on HD. Before giving the intervention, suck ice cubes, explain the purpose and procedure of the action to be carried out to the patient, then measure the scale of thirst felt before carrying out the intervention. Next, an ice cube chewing intervention was carried out for 10 minutes on HD. After that, re-evaluate the thirst scale after being given the ice cube chewing intervention. During the evaluation, there was a decrease in the thirst felt by the patient, where the thirst felt initially was on a scale of 7 in the severe category, decreasing to a scale of 3 in the light category. In research conducted by Dewi & Mustofa, it was explained that in cases with chronic kidney failure patients with a nursing diagnosis of hypervolemia, the application of evidence-based nursing, sucking ice cubes, was proven to be effective as a management of hypervolemia which was able to reduce the intensity of thirst felt in patients undergoing hemodialysis, so that intake fluids can be minimized in cases where there is a decrease in the intensity of thirst, which goes down from moderate thirst to light thirst (Lestari & Hidayati, 2022). This is also supported by research conducted by Lestari & Hifayati explaining that one of the main nursing actions is limiting fluids, the effect of limiting fluids is that the patient will feel thirsty so the nurse's action to reduce thirst without adding fluids to the body is to suck ice cubes for 10 minutes. The evaluation of this action is that there is a decrease in thirst and the action of chewing stones is considered effective in reducing thirst in patients undergoing dialysis (Novela et al., 2024). Other research also explains that giving zam-zam water sucking cubes can have an effect in reducing the level of thirst in patients with chronic kidney failure by giving ice cubes which provide a refreshing taste and make the mouth less dry (Aisara et al., 2018).

Implementation was carried out on two patients, namely Mrs. S and Mrs. P corresponds to the nursing intervention that has been carried out with 2 different interventions: chewing gum and sipping ice therapy with the same aim, namely reducing the intensity of thirst felt in patients who are undergoing hemodialysis. Nursing implementation carried out on October 18 2023 at 09.00 for patient 1 Mrs. S with the results obtained before and after the gum chewing intervention, namely a decrease in the intensity of thirst, before the intervention, the thirst scale was 6 in the moderate category and after the intervention, there was a decrease in thirst with a scale of 4, moderate. Nursing implementation carried out on October 19 2023 at 09.00 for patient 2 Mrs. P with the results obtained before and after the sipping ice therapy intervention, namely a decrease in the intensity of thirst, before the intervention the thirst scale was 7 in the heavy category and after the intervention there was a decrease in thirst with a scale of 3 light. After carrying out nursing procedures for 1x5 hours, Mrs. S experienced a decrease in the thirst scale from moderate 6 to mild 3, while Mrs. P experienced a decrease in his thirst scale from 7 heavy to 3 light.

Chronic Kidney Disease sufferers who undergo hemodialysis must comply with diet, take medication, limit activity, hemodialysis process and limit fluids. Restricting fluids during hemodialysis can cause several effects on the body, one of the effects that arises is complaints of feeling thirsty and dry mouth as a result of reduced salivary gland production (Dasuki & Basok, 2019)). Patients who usually undergo hemodialysis twice a week with a duration of 3 to 5 hours for each hemodialysis patient, which means that when the patient does not undergo hemodialysis, they will experience a buildup of fluid in the body. To prevent overhydration, patients must still limit fluid intake on days when and when not undergoing hemodialysis. As a result of limiting fluids, patients will feel thirsty. There are various ways to overcome the thirst felt by patients, namely by sucking ice cubes, chewing gum, gargling with water, brushing teeth and using frozen fruit. Some of these interventions are considered effective. in reducing the

intensity of thirst felt in patients who are undergoing hemodialysis or who are limiting fluid intake (Sujudi et al., 2014).

Based on patient evaluation, 1 Mrs. S with the results obtained before and after the chewing gum intervention, namely a decrease in the intensity of thirst, before the intervention, the thirst scale was 6 in the moderate category and after the intervention, there was a decrease in thirst with a scale of 3, light chewing gum. Patient 2 Mrs. P Based on the implementation of nursing carried out for 1x5 hours, Mrs. P experienced a decrease in his thirst scale from a severe scale of 7 to a mild scale of 3 with sipping ice therapy.

There was a difference in the scale of decreasing thirst for the intervention applied to the two patients, where both patients experienced a decrease in the scale of thirst after the intervention. The scale of thirst felt by patients with sipping ice therapy intervention is considered more effective as evidenced by the different levels of the thirst scale, the water content in ice cubes really helps provide a cooling effect and can be refreshing and able to overcome thirst in patients undergoing hemodialysis. The ice cubes will make the mucosa in the mouth moist after the ice cubes melt so that the patient's mouth does not dry out which can cause a feeling of thirst. The feeling of thirst is also reduced because the water from the ice melts so it can wet the esophagus and then cause the osmoreceptors to channel the fluid needed to the hypothalamus. the body has been fulfilled and then the feedback from this condition is reduced thirst (Dewi & Mustofa, 2021). Previous research shows that there is an effect of giving frozen fruit on reducing complaints of thirst in those undergoing fluid restriction. The water contained in ice cubes provides a cooling effect that can refresh and overcome the thirst of patients undergoing hemodialysis (Dasuki & Basok, 2019). In research conducted by Jundiah, it was stated that low-sugar chewing gum can reduce thirst because it increases saliva secretion through the mechanical and chemical processes of chewing gum. Low-sugar chewing gum can reduce xerostomia by increasing the pH of saliva (Nurhayati, 2022). Various studies show that thirst management interventions can be carried out in various ways, namely by sucking ice cubes, gargling with plain water, brushing teeth, gargling with mouthwash, chewing mint gum or low-sugar gum (xylitol) and using frozen fruit. frozen (Rantepadang & Tabenu, 2019).

## CONCLUSION

The analysis of nursing care for chronic kidney disease patients undergoing hemodialysis at the Hemodialysis Unit of DR. Soeradji Tirtonegoro General Hospital, Klaten, revealed significant findings regarding the reduction of thirst intensity. Both patients exhibited signs of hypervolemia, such as weight gain, reduced urine output, and swelling in the lower extremities. The nursing diagnosis for both patients was identified as hypervolemia related to impaired regulatory mechanisms. The care plan focused on fluid balance management, with interventions including independent nursing actions—chewing gum for Patient S and sipping ice therapy for Patient P. Evaluation results indicated that both interventions effectively reduced thirst intensity, with Patient S's thirst scale decreasing from moderate (scale 6) to moderate (scale 4) and Patient P's from severe (scale 7) to mild (scale 3). These findings highlight the potential of tailored nursing interventions in reducing thirst among hypervolemic patients undergoing hemodialysis.

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# The Impact of Stunting on Children's Quality: A Literature Review

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## ABSTRACT

**Background:** Child stunting remains a priority child health issue in many countries, especially in low-income families. Stunting not only affects a child's physical growth, but also has a wide-ranging impact on quality of life, including mental, social, and cognitive development.

**Purpose:** This study aims to review the quality of life of stunted children in poor family settings through literature reviews from various journals.

**Methods:** The research method used is a literature review, where relevant journals are selected and analyzed to deepen the understanding of the link between stunting and children's quality of life in poor families.

**Results:** The study results show that stunted children tend to have a lower quality of life than non-stunted children, especially in physical health, psychological well-being, and social participation. The main causes of the low quality of life of stunted children in poor families include limited access to health services, lack of nutritional intake, and lack of socio-economic support. Based on these results, comprehensive and integrative interventions from the government and related parties are needed to improve the quality of life of stunted children, especially through improving access to nutrition, health services, and education for poor families.

**Conclusion:** The conclusions of this study emphasize the importance of a multidimensional approach in addressing the impact of stunting on children's quality of life.

**Keywords:** *Stunting; Quality of Life; Children; Poor Families; Literature Review*

## INTRODUCTION

Nutritional imbalance in children significantly contributes to the prevalence of stunting, a persistent nutritional issue in Indonesia today (Sutarto et al., 2018). Stunting is characterized by chronic malnutrition that begins in utero and continues through the critical first two years of life, commonly referred to as the First 1000 Days of Life (HPK) (Sutrio & Lupiana, 2019). Adequate food intake, especially nutrient-rich foods, is essential for developing brain tissue and overall health, making proper nutrition a cornerstone in preventing stunting. Assessing a child's nutritional status is vital for identifying stunting early. They are defined as a condition where a child's growth is below the expected standard; stunting results in a height-for-age measurement below the -2 or -3 standard deviation (SD) threshold, according to the Ministry of Health (Kemenkes, 2018). Stunted children are often shorter than their peers and face physical, cognitive, and emotional developmental challenges.

Stunting is not unique to Indonesia but is a global public health issue. According to WHO data from 2019, approximately 144 million children worldwide under the age of five are stunted, accounting for 21.3% of the global population in this age group. Asia and Africa contribute the majority of cases, with Asia accounting for 54% and Africa 40%. Within Asia, South Asia bears the highest burden, with 55.9% of stunted children, while Central Asia has the lowest proportion (0.8%) (WHO, 2020). If these trends persist, projections estimate that by 2025, the number of stunted children will reduce slightly to 127 million, highlighting the slow progress in tackling this problem. In Indonesia, stunting remains a pressing issue, with poverty and inadequate nutrition being the primary causes. Poverty exacerbates food insecurity, preventing families from meeting the nutritional needs of their children, which in turn fuels the cycle of malnutrition. The effects of stunting are far-reaching. In the short term, stunted children face increased morbidity and impaired physical and cognitive development (WHO, 2023). Over the long term, stunting compromises survival by reducing intellectual capacity, productivity, and economic potential. Adults who were stunted as children often experience limited job opportunities, contributing to the perpetuation of poverty (Sutrio & Lupiana, 2019)).

The adverse effects of stunting extend beyond individuals to the broader societal level. A nation's productivity and economic growth can be hindered by the reduced capabilities of its workforce, driven by a generation affected by stunting. The condition is also linked to increased risks of obesity, non-communicable diseases, and mortality in later life. Addressing stunting is thus not only a health priority but also an essential factor in enhancing human resource quality and achieving sustainable development.

Stunting arises from a combination of factors, including inadequate nutritional intake, poor hygiene, and frequent illnesses due to poor sanitation. Parental knowledge and practices also play a significant role. Chronic poverty remains a major driver, limiting access to nutritious food, clean water, education, and healthcare services necessary for a child's growth and development ((UNICEF, 2020; WHO, 2020)

Efforts to address stunting must involve multidimensional strategies. Improving maternal nutrition during pregnancy, promoting exclusive breastfeeding, and ensuring the timely introduction of complementary feeding are critical steps during the first 1,000 days of a child's life. Education campaigns to enhance parental awareness and government programs to address poverty and food insecurity can also have significant impacts.

Stunting poses a formidable barrier to global human development. The issue is particularly concerning in regions like Indonesia, where a significant proportion of children remain affected. According to UNICEF, over half of all stunted children reside in Asia, and approximately 36% live in Africa. These figures underline the geographical disparity in the prevalence of stunting and its association with socioeconomic conditions. The cyclical relationship between stunting and poverty creates a substantial challenge for governments. Families with stunted children face increased healthcare costs and reduced income potential, perpetuating poverty. This cycle negatively impacts a country's Human Development Index (HDI), a measure of national progress in health, education, and income. Addressing stunting is thus not only a moral imperative but also an economic necessity for nations aiming to improve their HDI (Unicef, 2024).

## **MATERIALS AND METHODS**

The method used is a literature review, focusing on articles published in the last 10 years. The approach used in this study is to analyze each article related to the theme of the role

of family support in health promotion to improve children's quality of life. The data obtained are then analyzed and combined with relevant references. Scientific arguments support the information. This study examines four in-depth articles according to the objectives desired by the researcher and is supported by relevant theoretical foundations.

## RESULTS

The results of the review literature search with all keywords entered, 28 articles were obtained and re-selected which covered the quality of life of children with stunting under five and 4 articles were obtained.

**Tabel 1. Article Description**

No	Article Name & Title	Themes discussed	Article source
1	Nagwa Farag Elmighrabi, Catharine A. K. Fleming, dan Kingsley E. Agho. Factors Associated with Childhood Stunting in Four North African Countries: Evidence from Multiple Indicator Cluster Surveys, 2014–2019 <i>Nutrients</i> 2024, 16(4), 473;	Underlying factors: socio-economic factors, health service factors and household environmental factors. Direct factors: food intake factors and child health factors.	<a href="https://doi.org/10.3390/nu16040473">https://doi.org/10.3390/nu16040473</a>
2	Rahut D, Mishra R, Bera S. <i>Nutrition</i> . Geospatial and environmental determinants of stunting, wasting, and underweight: Empirical evidence from rural South and Southeast Asia (2024) <i>Nutrition</i> Volume 120	Determining geospatial and environmental implications of child malnutrition	<a href="https://doi.org/10.1016/j.nut.2023.112346">https://doi.org/10.1016/j.nut.2023.112346</a>
3	Muhammed A. K. Al-Mansoob dan Muhammed S. A. Masood The Relationship between Stunting and Some Demographic and Socioeconomic Factors among Yemeni Children and Adolescents 29 August 2018	The influence of gender, area of residence, age group, current school enrollment, poverty status, and income wealth index quintile variables on the prevalence of stunting among Yemeni children and adolescents.	<a href="https://doi.org/10.1155/2018/5619178">https://doi.org/10.1155/2018/5619178</a>
4	Jumhur, J. (2024). The effect of economic growth and poverty on stunting in Indonesia. <i>Jurnal Perspektif Pembiayaan Dan Pembangunan Daerah</i> , 11(6), 433 - 448.	This study examines the impact of the growth of the Gross Regional Domestic Product (GRDP) in the primary, secondary, and tertiary sectors and the level of rural poverty on stunting in Indonesia.	<a href="https://doi.org/10.2437/ppd.v11i6.26871">https://doi.org/10.2437/ppd.v11i6.26871</a>

## DISCUSSION

The results of the study showed that poverty did not have a significant effect on stunting in 34 provinces in Indonesia during the period 2019-2022. This finding is of concern because Indonesia has very wide geographic and social diversity, which allows the impact of poverty on children's health and nutrition to differ in each region. One of the main reasons why poverty does not always have a significant impact on stunting is the existence of access to adequate health services, such as integrated health posts and immunizations, which can help maintain children's nutritional status and health even though families are in difficult economic conditions.

Effective health programs can be balanced in dealing with family economic limitations (Permenkes, 2020).

In addition to health access, parental knowledge and awareness of nutrition and child health also play an important role. Families with higher levels of education tend to be more able to adopt practices that support optimal child growth, even in less supportive economic conditions. This finding is in line with (Jumhur's research 2024), which states that economic development indicators do not always have a direct effect on stunting incidence. In the study, the relationship between the prevalence of rural poverty and stunting incidence in Indonesia did not show a statistically significant correlation. However, a different view was expressed by Elmighrabi et al., (2024) and (Rahut et al., 2024), who stated that poverty has a positive correlation with growth disorders in children. They stated that the level of family wealth greatly affects the ability to obtain nutritious food and other essential needs that are important for children's health. (Al-Mansoob & Masood, 2018) also found that children from poor households have a higher risk of stunting compared to children from non-poor households, with proportions of 52.8% and 47.7%, respectively.

### **Stunting as a National Health Problem**

Stunting is not only a physical problem but also has serious long-term impacts on children's physical, cognitive, and social development. In Indonesia, stunting is one of the main indicators used to measure the quality of children's health. Based on data from the Indonesian Ministry of Health in 2020, the prevalence of stunting in Indonesia reached 27.7% (Rosita, 2021). This figure shows that almost one in three children in Indonesia experience stunting, which has the potential to inhibit their optimal growth and development. Children who experience stunting are at higher risk of facing various health problems, such as susceptibility to infection, cognitive impairment, low academic achievement, and the risk of chronic diseases such as diabetes and heart disease in adulthood. In addition to the health impacts, stunting also places a large economic burden on the country. Children who experience stunting tend to have low productivity, which ultimately affects their contribution to the economy.

The importance of this problem has encouraged the government, health organizations, and researchers to continue to make various prevention and handling efforts. These efforts involve cross-sectors, such as health, education, nutrition, and community empowerment. However, to overcome stunting effectively, a deep understanding of the causal factors is needed, including economic influences, access to health services, and family behavior and education. Poverty and large family size have a positive relationship with the incidence of stunting in children. Children from economically disadvantaged families are at greater risk of stunting due to limited access to nutritious food and basic necessities that support health. In addition, children from large families are also more susceptible to stunting due to limited resources for adequate care and less than optimal distribution of attention. Malnutrition in children under five is more severe in these conditions, especially in communities without social security or support for low-income families. These findings are consistent with previous research, which shows that high caregiver-to-child ratios in large families can affect the quality of care, feeding, hygiene, and stimulation needed for healthy growth (Elmighrabi et al., 2024).

### **The Relationship between Stunting and Children's Quality of Life**

Stunting has been shown to have a significant impact on children's quality of life. Research shows that stunting affects various aspects of quality of life, such as physical,

emotional, social functions, and the total score of children's quality of life. In children aged 2-4 years, the results of the study showed a significant relationship between stunting and children's quality of life, with a p-value of 0.000.

Research by Prendergast and Humprey (2014) and Onis and Branca (2016) supports these findings, where stunting is associated with linear growth failure that increases the risk of morbidity, mortality, and loss of physical and cognitive potential. Children with stunted growth often face irreversible neurocognitive developmental limitations, making it difficult for them to make optimal use of learning opportunities.

In addition, the quality of life of children is also influenced by many factors, such as government policies, environmental conditions, family socioeconomic status, and parental education. Children's nutritional status is one of the important indicators in determining their quality of life. Children with good nutritional status have a better quality of life than children with poor nutritional status.

### **External Factors and the Role of Parents**

External factors, such as family income, also affect children's quality of life. This study found that children from families with incomes below the minimum wage were 1.7 times more likely to experience poor quality of life compared to children from families with higher incomes. Research by (Rahut et al., 2024) also supports this finding, where higher family economic levels are associated with increased attention to children's health, including the ability to access better treatment and nutrition. The role of parents, especially mothers, is also an important factor. Children of working mothers are 1.6 times more likely to experience problems in quality of life compared to children of unemployed mothers. However, unemployed mothers must still be able to provide sufficient stimulation to their children because more than time is needed if it is accompanied by quality interaction.

## **CONCLUSIONS**

Stunting is a serious problem that not only affects children's physical growth but also their overall quality of life. Although poverty is not always directly related to stunting, economic factors still play an important role in supporting access to nutrition and health services. In addition, parental knowledge and behavior are also major factors that influence children's growth and development. To overcome stunting, a comprehensive approach involving various sectors is needed, such as improving health services, empowering family economy, nutrition education, and programs that support early stimulation for children. The government also needs to strengthen programs aimed at increasing public awareness of the importance of nutrition and children's health.

Through collaboration between the government, health organizations, and the community, it is hoped that the prevalence of stunting in Indonesia can decrease significantly. This will not only improve the quality of life of children but also contribute to the development of quality human resources in the future

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# Hazard Risks for Batik Artisans in Home-Based Industries in Bantul

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## ABSTRACT

**Background.** As the batik industry in Bantul continues to grow, most people use their homes as both living spaces and places of batik production. It is not unlikely that the expansion of the home-based batik industry could lead to health problems for the artisans. Factors that may contribute to these health issues include the physical environmental conditions of the home, the batik production process which uses chemical materials, and the waste generated. Batik is a method of applying patterns onto fabric through a dipping process, using a resist-dyeing technique, with wax as the intermediary medium.

**Objective.** This study aims to determine the environmental conditions of the batik industry and to identify health complaints related to the batik production process.

**Method.** The research was conducted through observation and interviews in November 2023 at four home-based batik industries in the Bantul region. Interviews were conducted with one person from management and six batik artisans from each home industry, making a total of 28 respondents. Observations were carried out by visiting the batik production sites using an observation guide that had been prepared in advance.

**Result.** The observation results revealed that one of the four locations had a cramped workspace, where workers were somewhat inconvenienced by the limited space, needing to move items or tools when using others. In contrast, at other locations, the batik workspace was outdoors with a zinc roof, and the artisans reported that after 11 AM, the heat became intense, causing them to sweat and feel uncomfortable while working. During work, employees involved in cap batik worked while standing, while the batik tulis (handwritten batik) workers performed their tasks while sitting. The workers reported that common health issues included being splashed with wax or malam. Additional data revealed that 17 artisans occasionally experienced shortness of breath while working due to inhaling the fumes from the wax/malam.

**Conclusion.** The results of this study indicate several health problems experienced by batik artisans, including burns and respiratory issues. Preventive efforts are necessary from both management and the batik artisans themselves to reduce these risks by implementing the five levels of disease prevention.

**Keyword:** *Batik; Hazard; Health; Wax*

## INTRODUCTION

Current technological advances have brought about an era of globalization that presents changes and challenges that must be anticipated early on. The era of globalization also has an impact on industry which is also growing throughout the world. It requires various companies to always be proactive in increasing their production which affects the use of machines, production equipment, and the use of hazardous materials which are growing to

support smooth production. With the increase in production, the potential for work accidents and occupational diseases will also increase (Budiono, 2003).

According to global data released by the International Labor Organization (ILO, 2017), the number of cases of Work Accidents (KK) and Occupational Diseases (PAK) in the world reaches 430 million per year consisting of 270 million (62.8%) KK cases and 160 million (37.2%) PAK cases, and causing the death of 2.78 million workers each year. As many as 40% of KK and PAK cases occur in young workers. The estimated economic loss is 3.94% - 4% of a country's Gross Domestic Product (GDP). Another reference states that medical costs related to KK and PAK in the United States are estimated at \$67 billion plus indirect costs of almost \$183 billion (Ministry of Manpower, 2022).

Sun Life in its survey of around 2,400 small and medium business owners in 7 regions of Asia, namely Hong Kong, India, Indonesia, Malaysia, the Philippines, Singapore, and Vietnam in 2021. It was stated that Micro, Small, and Medium Enterprises (MSMEs) have a positive level of optimism towards better growth opportunities, but it needs to be balanced with the understanding that they still have several risks. Regarding risk mitigation, only 61% of respondents have personal health and accident insurance; 36% have health and accident insurance for employees; and only 18% have insurance as a key man in the company. Therefore, real action is needed to mitigate the impact of risk into an effort that needs to be made to build stronger resilience in business continuity, as well as provide more security and peace of mind for business owners and employees (Sun Life, 2022).

Informal economic activities in the form of MSMEs concentrate on informal sector workers, namely those who are not registered and whose work contracts are based on mutual trust between workers and employers. These workers are called their own accounts, with low wages, no benefits, social protection, or health. They need to be distinguished from self-employed or autonomous workers whose activities can be regulated and registered such as consultants who may have high salaries even though social protection is absent or limited. In addition to having their businesses, the informal economy also involves individuals who carry out work tasks regularly for companies, namely as wage earners but do not have formal work contracts. (ILO, 2013). One form of informal economy that is widespread in society is the Batik Industry.

The batik industry originated from household crafts, which then increased to batik production in relatively large quantities. Batik was selected as inheritance World Culture Works Representative List of Intangible Cultural Heritage of Humanity by UNESCO on October 2, 2009. This wealth of Indonesia gives sufficient contribution big for the country through income exports. The domestic batik industry has contributed to the country's foreign exchange. The main markets for batik exports include the United States, Japan, and European countries. According to data from the Central Statistics Agency (BPS) in 2022, the value of Indonesian batik exports reached US\$ 25.31 million or around Rp. 392.74 billion with a volume of 987.71 thousand kilograms (CNBC Indonesia, 2023). The consequence faced is that the batik industry must make efforts to improve its performance, both in quality, productivity, and creativity. On the one hand, the batik industry has great opportunities in the future, on the other hand, as an informal industry, it is not free from health problems due to work.

The batik industry is currently small and medium, sometimes combined with a home industry. In 2014, the number of small and medium batik industries (IKM) in Bantul was 612 batik production houses and supported by 2,056 batik makers. The increasing development of the home batik industry can cause health problems for its craftsmen (Antaranews, 2014). Factors

that can influence these health problems are caused by the physical environmental conditions of the house, the batik production process that uses chemicals, and the waste produced (Puspo et al., 2016).

The batik industry activity does contribute to the welfare of the community, but it is also followed by the emergence of health problems for workers and the environment around the batik industry. This process also exposes batik makers to irritating, toxic, and carcinogenic chemicals and physical hazards, such as less ergonomic work positions and processes, exposure to hot steam and lighting, with high incidences of work-related diseases. Long-term exposure to heavy metals affects the health of organs including the kidneys and liver. In addition, observations show that there is still minimal protection for Occupational Health and Safety (K3) for batik makers, as well as a commitment to maintaining environmental health around the workplace by business owners (FKKMK UGM, 2020).

The growing batik industry in Bantul mostly uses their homes as a place for batik production. The growing home batik industry may cause health problems for its craftsmen. Factors that can influence these health problems are caused by the physical environmental conditions of the house, the batik production process that uses chemicals, and the waste produced. Batik is a method of applying patterns to cloth through a dyeing process, color barriers, with wax as the barrier medium. (FKKMK UGM, 2020).

Batik consists of several processes including preparation, batik, coloring, removing batik wax, and finishing. In these processes, several materials are used, namely paraffin, gondorukem (coophony, rosin), resin, Micromax and animal fat. These materials are processed into one called "batik wax". Pollutants found in the work environment if inhaled by workers are suspected of causing lung function disorders and if this process lasts for a long time can cause occupational diseases. Exposure to the coloring process of making batik in the Laweyan Solo batik industry has a significant impact on the exposed group compared to the unexposed group on clinical lung disorders in the form of respiratory complaints of chronic cough, chronic phlegm, wheezing, and shortness of breath (Puspo et al., 2016).

One of the components of wax used in making batik is paraffin. Paraffin is a hydrocarbon with the general formula  $C_nH_{2n+2}$ . Pharmaceutical paraffin is used for a variety of purposes. When inhaled, paraffin is deposited in the alveoli and can cause a variety of reactions, ranging from no pressure to acute respiratory distress syndrome. Common radiographic findings in exogenous lipoid pneumonia are heterogeneous airspace opacities, mostly in both lower lobes, with possible overlapping reticular opacities. Occasionally, local consolidation may be seen (Weinberg & Fridlender, 2010).

Measurements from the Bantul Environmental Health Engineering Center (BBTKL) show that the dominant gas contained in the smoke from melting batik wax is carbon monoxide (CO) which also contains NO<sub>2</sub>, SO<sub>3</sub>, HC, H<sub>2</sub>S, and particles. Batik wax smoke can have a negative impact on workers' health, especially when workers attach wax to the fabric, either when canting or placing a printing tool that has been given batik liquid (stamp). CO gas causes hypoxia because hemoglobin has a greater affinity for binding CO than oxygen, which is 200-250 times greater. H<sub>2</sub>S triggers cell death and inhibits cell proliferation, which affects the life span of erythrocytes and hematocrit values. NO<sub>2</sub>, SO<sub>2</sub>, and formaldehyde gases are pollutants that are irritants and cause respiratory tract sensitization (Fauzia, 2015). The permissible exposure limit value for paraffin/wax smoke exposure according to the Occupational Safety and Health Administration (OSHA) is the average exposure to the contaminant over a certain period of time/ time-weighted averages (TWA) of 8 hours of 2 mg/m<sup>3</sup>. The agency has determined that

the adverse effects associated with excessive exposure to paraffin wax smoke are material health problems. Measurement of the threshold value of paraffin exposure by collecting paraffin smoke, namely by sucking air with a certain volume through a glass fiber filter. Then the sample is desorbed with Carbon Disulfide, and gas chromatography is carried out to analyze the sample using a Flame Ionization Detector. This study aims to determine the environmental conditions of the batik industry and to determine health complaints related to the batik process.

## MATERIALS AND METHODS

The study was conducted through observation and interviews in November 2023 in four batik home industries in the Bantul area. Interviews were conducted with one management and 6 batik craftsmen from each home industry so the total respondents were 28 people. Observations were carried out by reviewing the batik location using previously prepared observation guidelines.

## RESULTS

The results of this study are the results of interviews and observations. The results of the observation obtained data from one of the four locations showed a narrow workspace, workers were slightly disturbed because the room used was quite narrow so they needed to move some items or tools when they wanted to use other tools. While in other locations, the batik room was in an open place with a zinc roof and the batik makers said that at 11 am and above the atmosphere was very hot to the point of making the batik makers sweat and uncomfortable. The batik arrangement is in the form of a circle around a candle or wax so that it is easy to bump into the batik makers. During the batik process in all locations, workers did not wear masks or gloves. Gloves were only used by workers who colored the batik cloth that had been given a batik pattern. Of the four locations, only one had a first aid kit, but its contents did not meet the provisions of Permenakertrans No. PER.15 / MEN / VIII / 2008 concerning First Aid for Accidents in the Workplace.

Based on the results of interviews with 24 batik craftsmen in each location, data on employee working hours are obtained that are uncertain, depending on how many orders are ordered by customers, sometimes in one day, stamped batik completes 10 pieces of cloth with a size of 2 meters, while working, employees who work in stamped batik do their work standing up, while hand-drawn batik does their work sitting down, health workers or health centers have never come to provide education related to work safety. Employees conveyed the health problems that usually occur, namely being splashed with wax or candles, then if they are splashed with wax or candles, the action taken is to apply kerosene to the splashed area to melt the wax or candle that touches the skin so that it does not stick. The person who provides first aid in the event of a work accident is the business owner or other workers at the scene to be immediately taken to the nearest health service. Other data shows that as many as 17 craftsmen stated that sometimes they complain of shortness of breath when making batik due to inhaling wax/wax vapor. If one of the batik makers is injured or sick, there is no supply of medicine prepared, workers are only given permission not to go to work and check themselves at the nearest health facility. Workers also do not have social security, either health insurance or work accident insurance.

Based on the results of the study above, we can see several health problems experienced by batik craftsmen, including burns from hot wax splashes and complaints of shortness of breath due to inhaling wax vapor. while problems related to the environment

include, narrow workspaces, zinc roofs so that the atmosphere is hot, and working in a sitting position for too long.

## DISCUSSION

This study is in line with the results of a study by Fauzia et al. (2015) on batik craftsmen in Semarang where the measurement results showed that the average percentage of Forced vital capacity (FVC), Forced Expiratory Volume (FEV1), and Peak Expiratory Flow (APE) was lower and those who experienced impaired lung function were more in batik craftsmen than in the control group. Of the 32 study subjects, 10 samples (31.3%) had moderate to severe lung function disorders, while 22 samples (68.8%) had normal lung function or mild lung function disorders. Another study by Putri et al (2019) showed that as many as 60% of respondents who worked in the wax attachment section had impaired lung function. This value is greater than that of respondents in the coloring and wax removal section, who had 36.4% and 3.6% lung function disorders. The study also showed that out of 49 batik workers working in 5 industries, 57.1% had abnormal lung vital capacity. Factors related to lung vital capacity in workers were the length of service with an average of 10.63 years and length of service with an average of 7.96 hours/day.

Munthe et al.'s (2014) study showed that there was no significant relationship between exposure to batik candle smoke and decreased lung function ( $X^2=2.03$ ,  $p=0.154$ ). The exposed group had a 4.67 times greater risk of suffering from impaired lung function compared to the unexposed group (OR=4.67; 95% CI 0.48-45.62). In addition, workers exposed to batik candle smoke experienced a 12 times greater risk of clinical abnormalities compared to the unexposed group, with a statistically significant impact ( $p=0.009$ ). Occupational asthma was found in 1 person (2.3%) of 44 respondents, with a diagnosis based on anamnesis and lung function examination.

Based on the research results of Hasanah (2011), in the Semarang batik village, batik artisans admitted that they were often exposed to spilled wax liquid (30.76%), sore eyes due to boiling steam (23.07%), stiff neck when walling (30.76%), tight chest when making color recipes (7.69%), and stiff or feeling pain in the back (back) when dyeing and canting (23.07%). This occurs due to the lack of concern of workers in using PPE and incorrect ergonomics so batik artisans often experience problems with their spines and complain of burns on their hands. Not only that, artisans also complain of shortness of breath during the wax boiling process.

Efforts to reduce the number of occupational diseases, occupational diseases, and work accidents require coaching and inspection of workplaces and occupational health. Government Regulation No. 50 of 2012 concerning the Implementation of the Occupational Safety and Health Management System (SMK3) states that Occupational Safety and Health (K3) are all activities to guarantee and protect the safety and health of workers through efforts to prevent work accidents and work-related diseases. The implementation of K3 is intended to protect workers from Work Accidents (KK) and Work-Related Diseases (PAK) as well as other diseases/health disorders in workers and other people in the workplace, including ensuring that the production process can run efficiently and productively.

To prevent occupational diseases in the workplace, it is essential to implement effective occupational health and safety measures. These measures aim to anticipate, recognize, evaluate, and control workplace hazards that may cause injury or health problems among workers (Cavallari et al, 2024). By controlling occupational health hazards, the incidence of work-related diseases and accidents can be reduced, improving overall worker health and

morale, which in turn reduces absenteeism and increases worker efficiency (Rao et al, 2022). Integrating occupational safety and health protection with health promotion is a recommended strategy to prevent worker injuries and diseases while promoting health and well-being (Sorensen et al., 2013).

The concept of five levels of disease prevention in occupational diseases, namely (Jeyaratnam, 2009): 1) Health promotion. For example, health and safety counseling (K3) health education, improving good nutrition, personality development, healthy and adequate companies, recreation, adequate work environment, marriage counseling, and sexual education, consultation on heredity, and periodic health checks. 2) Specific protection. For example: immunization, personal hygiene, environmental sanitation, and protection against hazards and work accidents by using personal protective equipment (PPE) such as helmets, work glasses, masks, ear muffs and ear plugs, heat-resistant clothing, gloves, and so on. 3) Early diagnosis (detection) and immediate treatment and limitation of weak points to prevent complications. 4) Limiting the possibility of disability (disability limitation). For example: examining and treating workers comprehensively, treating workers perfectly, and health education. 5) Health recovery (rehabilitation). For example: rehabilitation and re-employment of workers who suffer from disabilities.

## CONCLUSION

The results of this study indicate several health problems experienced by batik craftsmen including burns and respiratory disorders. There needs to be preventive efforts from management and batik craftsmen to reduce the risk by implementing five levels of disease prevention.

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# The Experience of Social Support Received by Adolescents with Self-Harm Behavior in The Nursing Department at Universitas Jenderal Achmad Yani Yogyakarta

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## ABSTRACT

**Background:** Adolescents do self-harm as an act to control their emotional feelings. Self-Harm is an attempt to harm oneself without the desire to commit suicide. One of the factors that influence self-harm is social support.

**Objective:** Knowing the experience of social support received by adolescents with self-harm behavior in the Nursing Science Study Program at Jenderal Achmad Yani University Yogyakarta.

**Methods:** This research uses Qualitative method with descriptive phenomenology design. The interview method used structured interviews and sampling using snowball sampling with a total of 5 participants.

**Results:** This study obtained 6 themes, namely (1) Self harm as an attempt to hurt oneself; (2) Receiving support in the form of instrumental, appreciation, and information; (3) Sadness, pain, and fear as the dominant responses that arise when self-harming; (4) Feelings of satisfaction when self-harming; (5) Feelings of emotion to get attention and affection from good friend support; and (6) The need for full support from parents and friends to get better.

**Conclusion:** Social support is defined as the feeling of being moved to get attention and affection because of the support of good friends. Attention and affection because of good friends' support is interpreted as a meaningful form of support, which can cause deep emotional feelings to control self-harm behavior.

**Keywords:** *Adolescents, Self\_Harm, Social\_Support*

## INTRODUCTION

The adolescent phase is a transitional phase from the child phase to the adult phase, where physical and psychological changes occur (Ajhuri, 2019). In 2021, the population of adolescents aged 10-19 years is 46 million (UNICEF, 2021). Indonesia in 2023, there was 23.18% or equivalent to a quarter of the population in Indonesia and the number of youths in Yogyakarta was 22.57% (Central Bureau of Statistics, 2023).

Physical changes in adolescents are characterized by hormonal changes in the endocrine glands, resulting in primary and secondary sex signs (Ajhuri, 2019) and it occurs at the age of 10-19 years, which are followed by primary and secondary sex signs (Panjaitan *et al.*, 2020; Mutia, 2022), such as in adolescent boys include wet dreams as much as 34.6%, voice changes as much as 50.3%, and growing Adam's apple as much as 35.3% (Nasution & Pakpahan, 2021). Psychological changes in adolescents can be interpreted as the ability of adolescents to process emotions. Psychological problems that occur in adolescents include anxiety 22.5%, depression 7.5%, *panic attacks* 5%, bipolar 2.5% (Anggadewi, 2020). Cognitive changes in adolescents are characterized by the thinking process of adolescents from the child phase to the adult phase.



(Bintang & Mandagi, 2021).

Factors that influence mental health in adolescents include parenting, social and economic status, and environment. (Reza *et al.*, 2022). Parental parenting consists of a less caring attitude towards adolescents as much as 33.69% (Pangestu *et al.*, 2022), there were conflict with parents, which is characterized by an attitude of withdrawal from parents as much as 44% (Apriyeni *et al.*, 2019). Besides, the others factors are poor environments and socio-economic (Haniyah *et al.*, 2019).

The impact of these problems causes adolescents to fall into the behavior of free sex, smoking, LGBT, clubbing, and dating (Widiatanti *et al.*, 2022) others mental problems and depression (Azzahro & Sari, 2021). When these factors and impacts cannot be overcome, it will cause adolescents to fall into *self-harm* behavior. *Self harm* is a way to solve problems emotionally by hurting oneself without the intention of committing suicide (Chantika *et al.*, 2023). Individuals do *self-harm*, namely to get comfort, calmness, and divert pain. (Asyafina & Salam, 2022). The latest data on the incidence of *self harm* in Indonesia is 20.21% and 93% of them are adolescent girls (Faradiba & Abidin, 2022) including sharp objects, hitting, banging their heads against hard objects, grabbing their hair, biting body parts, burning the skin, stabbing themselves with sharp objects, scratching the body as much as 42.53%, and inhibiting the wound healing process as much as 28.74% (Rini, 2022). Factors that make adolescents commit self-harm consist of external factors including poor parental communication patterns, internal factors consisting of loneliness, low levels of difficulty and tolerance in solving problems, using *emotion focus coping* in solving problems, with the incidence of internal factors, namely loneliness in adolescents as much as 20-50% (Ana *et al.*, 2024).

Social support obtained by adolescents will reduce *self-harm* behavior by 26% or even more (Hanan *et al.*, 2024). The low social support received by adolescents will increase self-harm by 7 times (Ratida *et al.*, 2023). Research conducted by Sulfemi & Yasita (2020) explains that positive social support will cause individuals to be able to control themselves in acting and feel respected, and can adapt when feeling stressed. Meanwhile, negative social support will cause individuals to behave badly, such as physical and non-physical violence, intimidating and even bullying. Individuals with *self-harm* behavior cannot stop their behavior by themselves. However, social support can reduce their behavior to harm themselves (Yuni & Rahmasari, 2011). This happens because the more adolescents receive social support, it will cause adolescents to be happier. (Akasyah & Efendi, 2020)..

In previous studies, it discussed more about the description of *self harm* behavior in adolescents, the factors that influence adolescents to do *self harm*, the results of which were presented in the form of quantitative research in the form of numbers. In research conducted by Prasetyo & Engry (2023) by using quantitative data with a correlation design, explaining that social support, especially emotional support, greatly influences *self harm* behavior. Based on preliminary studies conducted by researchers on March 18, 2024, clients said they really needed social support from their environment to reduce *self-harm* behavior. They do not want to hurt themselves and try to eliminate the scars or pain received when doing *self harm*. In addition, based on the results of screening conducted by researchers on 70 adolescents in the Nursing Science Study Program using the SHI (*Self Harm Inventory*) instrument consisting of 22 questions, it was found that 21.4% of adolescents had committed *self harm*. Based on the background description above, the authors are interested in conducting qualitative research with a phenomenological design that aims to determine the meaning and how much influence social support has on adolescents with *self harm* behavior to survive.

## MATERIALS AND METHODS

This research uses a qualitative research design with a descriptive phenomenological design. This research was conducted at the Nursing Science Study Program, Faculty of Health, Jenderal Achmad Yani University, Yogyakarta. The participants used in this study were adolescents with *self-harm* behavior. The participant selection technique used was *snowball sampling* technique. The number of participants in this study was 5 people. In addition, this study also requires criteria to determine the research sample. The inclusion criteria applied by researchers: Teenagers 18-21 years old, Adolescents with experience of self-harm behavior within 1 year, & Willing to be participant. Exclusion criteria include: Adolescents at risk of suicide & Adolescents with medical mental disorders. The data collection method in this research uses observation and interview methods, with data analysis using *Braun and Clarke* analysis.

## RESULTS

This research was conducted on 5 participants who were at Jenderal Achmad Yani University Yogyakarta. Demographic data of participants can be seen in the following table.

**Table 1 Demographic data of participants**

No.	Name	Gender	Religion	Age	Education
1	P1	Female	Islam	21	Student
2	P2	Female	Islam	21	Student
3	P3	Female	Islam	21	Student
4	P4	Female	Islam	20	Student
5	P5	Female	Islam	21	Student

### 1. Participant 1

Female aged 21 years, Muslim with an address in Jatimulyo, Kulon Progo. The participant lives in a boarding house because the distance between home and campus is very far. Her parents are divorced, the participant explained that there was no problem because of this situation. *Self-harm* behavior by participants is to cut their hands using a needle.

### 2. Participant 2

Female aged 21 years, Muslim with an address in Gondokusuman, Yogyakarta. Participants live with their parents. Participants do self-harm because of the many lecture assignments and feel that the tasks undertaken are endless. Self-harm behavior is by hitting the body and cutting body parts using needles and rulers.

### 3. Participant 3

She is 21 years old, Muslim with an address in Tamantirto, Bantul. Participants live in boarding houses because participants are overseas students. Participants do *self-harm* because they feel that they are unable to complete lecture assignments. *Self-harm* behavior is by hitting the body and cutting the body until bruised and bleeding.

### 4. Participant 4

Female aged 20 years, Muslim with an address in Gamping, Sleman. Participants live in boarding houses because participants are overseas students. Participants do *self-harm* because of the many lecture assignments. *Self-harm* is by cutting body parts.

### 5. Participant 5

Female aged 21 years, Muslim with an address in Sonopakis, Kasihan. Participants live

with their parents. Participants do *self-harm* because of lecture assignments, where the task is a pressure for participants. *Self-harm* behavior is by hitting the body.

### The Themes:

#### 1. Theme 1: Self harm as an attempt to harm oneself

The first theme in this study is self-harm as an attempt to harm oneself. This theme is formed from sub-themes, namely feeling like hurting yourself and hurting yourself by hitting and cutting. Based on the interviews that have been conducted, researchers obtained the results that each participant has a different understanding of the meaning of self-harm. Self-harm behavior can be interpreted as behavior to hurt yourself. Participants explained that self-harm behavior is a desire to hurt themselves. Not only in the form of desire, they also explained that self-harm is related to self-harming behavior by hitting or cutting themselves. Literally based on the Big Indonesian Dictionary (*KBBI*) desire is defined as a desire. Meanwhile, harm means a form of behavior that causes pain or misery. This can be proven from the following interview fragment:

*"Eee...as far as I know, self harm is like self-harm" (P4: 56).*

*"...Self harm is hurting yourself... Like there is already a desire to hurt yourself" (P5: 53,55).*

*"Eee...self-harm yes. Like hitting, then stabbing. That's the kind of thing I think" (P2: 48)*

#### 2. Theme 2: Getting instrumental support, appreciation, and information

Getting instrumental support, appreciation, and information is the second theme in this study. This theme consists of the sub-themes of getting support to be better, strengthening oneself and self-encouragement, being given motivation and comforting advice, being encouraged when one is down, and receiving gifts from friends. Literally according to (*KBBI*) Kamus Besar Bahasa Indonesia support is defined as encouragement or support. This theme explains how participants understand the meaning of social support and what forms of support they receive. Research participants explained that social support is a support that is obtained to get better. In addition, the social support they receive can be used as an effort to strengthen themselves and as self-encouragement to stop *self-harm* behavior. According to (*KBBI*) given advice means that participants get suggestions or suggestions that are submitted for consideration. Motivation has the meaning of an encouragement that exists in individuals consciously or unconsciously to do certain things. So, overall this theme explains that participants receive social support in various forms. The support obtained can be in the form of motivation, advice that can calm their feelings, being encouraged when they are down, and receiving small gifts from friends. This proves that social support given to adolescents with *self-harm* behavior does not have to be in the form of goods, but can be in the form of motivation or advice that can make them feel calmer. This is supported by the following sentence fragment:

*"Eee...support is usually what supports the behavior so that it is reduced, and so that it is not done again" (P1: 136,137).*

*"It's more about motivation, suggestions" (P1: 140).*

*"...Confide in me... It's more like they will give me advice if I'm like that" (P2: 145,146).*

*"And then sometimes I'm given a small gift, so that I don't do it again" (P1: 140,141).*

***"I like to be treated by them. Either invited to eat or shopping" (P3: 184,185).***

3. Theme 3: Sadness, pain, and fear as dominant responses to self-harm

The next theme is sadness, pain, and fear as the dominant responses that arise when self-harming. This theme is formed from sub-themes, namely having fear from within and feeling mixed between sadness and pain. Literally according to (KBBI) mixed up has the meaning of being mixed up. This theme explains how participants feel before they do self harm. Participants explained that the feelings that arose before doing self harm were mixed feelings. The mixed feelings refer to the erratic feelings between sadness and pain felt by participants. In addition, feelings of fear also arise when they are about to do self harm. This feeling of fear shows that participants still have a fear of hurting themselves. This statement is evidenced in the following sentence fragment:

***"...Before I did it, I had mixed feelings, sis. I was sad, and eee...sick too..." (P1: 119,120)***

***"...Before it was like sadness, yes, mbak. I was crying too" (P4: 152,153).***

***"It hurts mbak. So before going to the toilet, I feel mixed up. Between being afraid of pain and wanting to feel the pleasure of going to the toilet" (P5: 161,162,163).***

4. Theme 4: Feeling satisfied when self-harming

The theme of feeling satisfied when self-harming consists of sub-themes, namely feeling relieved and happy and feeling sick and good. This theme explains how participants feel when they have done *self harm*. Literally according to (KBBI)(KBBI), satisfaction is defined as relief or pleasure. Participants explained that they would feel relieved, feel good, and feel happy when self-harming. However, behind the feeling of relief that participants feel they will also feel pain as a result of their actions. The feeling of relief is a feeling that participants have been looking for. This feeling will arise after they do *self harm*, which will then provide relief even though it cannot solve the problems experienced by participants. This statement is supported in the following sentence fragment:

***"Then when it bleeds, it's relieved. It's more relieved if I've treated myself" (P1: 121, 122, 123).***

***"...Then when I've embraced it, it feels good...eee...just relieved, it's fresher mbak. Yes, even though it can't solve the problem" (P4: 154,155,156).***

5. Theme 5: The emotion of receiving attention and affection from a good friend's support

The theme of feelings of emotion to get attention and affection from the support of good friends consists of sub-themes, namely feeling that you get attention and affection from others, feeling moved and grateful, feeling that it is not difficult to be given support, and feeling given the support of good friends. This theme explains how participants feel when they receive social support from their surrounding environment and what challenges they face in receiving social support. Literally according to (KBBI) support is defined as support or assistance. The theme explained that during the participants' *self-harm*, they did not find it difficult to get social support to survive. Participants said that they always easily get support from their surroundings, especially support from good friends. Touched is defined as a feeling of pity or feeling vulnerable. While affection is defined as a feeling of affection and love. Research participants said that they felt cared for and given affection even though they were not from family. The attention and affection they have received so far comes from the friendship environment. The feeling of being moved also appeared in this theme. These feelings show that participants feel touched and grateful because they are not alone in living life. This statement is evidenced in the following sentence fragment:

**"Eee...yes, I'm happy. I mean, there are people who still care. There are still people who care even though they are not from the family" (P1: 153,154,155).  
"Yes, I am sad... I am also happy... I mean they really care about me...  
They still love me" (P3: 196,197,198,199).**

6. Theme 6: The need for full support from parents and friends to improve

The theme of needing full support from parents and friends to be better is formed from sub-themes, namely feeling like you want to be supported by parents and friends, feeling the need for motivation and affection, feeling the need for attention, and feeling the need for support for positive things. Need literally means to require and support is defined as support or help. The word better has the meaning of being beautiful, recovering or recovering from adversity. Motivation means the urge that exists in a person either consciously or unconsciously to take a certain action. Affection has the meaning of love and positive steps are defined as actions that are real and constructive. as This theme explains how participants' expectations in receiving social support from the surrounding environment. Research participants explained that they felt they wanted to be supported for every positive step they took. In addition, they also want to be supported, want to be cared for, want to be encouraged, given love, advice, and motivation. In addition, this theme also illustrates that the main sources of receiving social support are from parents and friends. Participants said that they wanted to be supported and given support from their surroundings, especially family and friends. The statement explains that support from family and friends is needed in everyday life. Support from the environment received is expected to make participants a better individual. This can be proven in the following sentence fragment:

**"...From family, yes, parents. Eee...I want friends too... I just want to be supported to stop, to get better" (P2: 183,184,185).**

**"From family, because parents are number one. I want it from friends too, if it's a boyfriend, I can do it later" (P5: 239,240).**

## DISCUSSION

1. *Self-harm* as an attempt to harm oneself

*Self-harm* as an attempt to harm oneself is a theme that exists in this study. This theme discusses how participants understand *self-harm* behavior. *Self-harm* is a sign of problems experienced that require serious attention. *Self-harm* behavior is a form of action by someone to hurt themselves in various ways regardless of whether or not there is an intention to end their life. This behavior is also associated with a form of emotional release that can provide peace and be able to control the psychological pain experienced by adolescents (Asyafina & Salam, 2022). This statement is in line with research conducted by Anugrah *et al.*, (2023) which explains that *self-harm* behavior is behavior that is carried out to harm oneself without the desire to commit suicide. In addition, *self-harm* behavior is carried out because someone is unable to deal with the stress they experience.

Adolescents often commit *self-harm* because they are unable to cope with the problems they experience. In addition, the reason adolescents do *self-harm* is because they do not want to share their pain with others. *Self-harm* behaviors committed by adolescents are very diverse. The results in this study explain that participants do *self-*

harm by hitting and even cutting certain body parts. This behavior is the most common behavior carried out by adolescents, reaching a level of 82.76% for self-hitting behavior and 29.89% for body piercing with sharp objects (Rini, 2022).

2. Receive instrumental, appreciative, and informational support

Individuals with *self-harm* behavior need good support to overcome *self-harm* behavior. Social support is defined as a source of social networks that have the aim of overcoming perceived pressure. In addition to social support, a person also needs a good coping mechanism to get up so as not to stay in unwanted conditions for a long time. Each individual has a different coping mechanism that is influenced by many things, one of which is motivation. Motivation is influenced by two elements, namely intrinsic elements and extrinsic elements. Intrinsic elements are elements of motivation that come from within a person. Meanwhile, extrinsic elements are elements of motivation that come from outside, one of which is from the friendship environment. (Cahyabuan & Ramdani, 2024). Motivation is a support in the form of appreciation support. While advice is a form of information support and small gifts are instrumental support that can be given to individuals with *self-harm* behavior. (Yuni & Rahmasari, 2022). The purpose of providing motivation and advice is to make them feel calmer and safer, so that they are able to control thoughts of self-harm. The more motivation and advice they get, the more they will try to reduce and even eliminate self-harm behavior (Zulkifli et al., 2022). Someone with *self-harm* behavior really needs motivation to reduce the behavior. Motivation can make them feel better. This can be obtained by talking to trusted people in order to control the desire to hurt themselves. Low motivation will have a negative impact on the process and results expected by a person (Primanita et al., 2020).

3. Sadness, pain, and fear as the dominant responses when self-harming

Mixed feelings of sadness, pain, and fear are associated with the dominant feelings or responses of participants when doing *self-harm*. Someone who is unable to overcome a problem will create negative feelings for the body. When they have a problem, these feelings will always appear and it will be difficult to control *self-harm* behavior. These feelings include disappointment, sadness, frustration, and others. (Malumbot et al., 2022). Before self-harm, individuals with self-harm behavior will feel a feeling of fear in themselves. They feel anxious if their actions are found out. They are also afraid that the scars they create will arouse the suspicion of many people and will be treated differently by others. Therefore, they will cover their scars as best they can. (Wurisetyaningrum et al., 2024).

4. Feeling of satisfaction when self-harming

Self-harm behavior is often explained as self-harming behavior with the aim of obtaining satisfaction or relief. The relief is associated with the pleasure obtained when someone hurts themselves. However, the relief they feel is only temporary. This happens because self-harm will only have a negative impact and cannot solve the problem. (Zulkifli et al., 2024). The pain that arises after self-harm is created because of the perception that the pain felt will be able to divert the problems being experienced. Therefore, they will choose to hurt themselves to divert all the negative feelings they feel (Elvira & Sakti, 2024). (Elvira & Sakti, 2021).

5. It's a great feeling to get attention and affection from a good friend's support.

Feeling touched by attention and affection is associated with how participants feel when receiving social support from the surrounding environment. Affection is one part

of social support in the form of emotional support. The social emotional support received will make a person feel that they are cared for and loved. Social support is defined as a source of social networks that have the aim of overcoming perceived pressure. The effect of positive social support will make individuals feel that they are valuable, so that it will cause positive feelings to emerge that can divert *self-harm* behavior (Yuni & Rahmasari, 2022). In addition, the social emotional support that a person receives can make them reduce feelings of stress, provide relief, happiness and meaningfulness of life (Prasetyo & Engry, 2023).

Participants also explained that they never felt difficulties when they wanted to get support from their environment. *Support* is defined as an action to help or support someone. To deal with problems, adolescents need social support. Social support can be obtained from anywhere, one of which is from the friendship environment. Feeling *supported* by good friends means that participants have a good relationship with their friendship environment. When individuals have a good relationship with their environment, they will feel that they are not alone and feel supported. Healthy friendships will create positive energy for a person (Hanan et al., 2024). The function of the friendship environment is as a place to convey the emotions felt, so that adolescents are able to develop the ability to improve *coping*. (Fadilah & Nurhadianti, 2022).

6. The need for full support from parents and friends to improve

Self-harming behavior often appears when a person is in adolescence. At this age, adolescents need guidance and social support from their environment, especially parents or other environments. Support from parents and friends has an important role in the lives of adolescents with *self-harm* behavior. They have a role to advise, guide, and love adolescents. Therefore, adolescents with *self-harm* behavior really need support from their environment in order to control this behavior. (Insani & Savira, 2023). With the support of parents and the friendship environment, adolescents with *self-harm* behavior will have positive strength so that it will affect their psychological development (Julianto et al., 2023). (Julianto et al., 2024).

The feeling when we feel the need for motivation and affection means that we are looking for strength to become a better person. Motivation and affection are a form of social support that can be obtained from the surrounding environment. The position of motivation and affection in social support is as emotional support. When someone feels that the motivation and affection they get is starting to diminish, it will again make them self-harm. Therefore, individuals with self-harm behavior must be given social support so that they can commit to the positive steps that will be taken. (Prasetyo & Engry, 2023).

## CONCLUSIONS

This study has 6 themes consisting of Self harm as an attempt to harm oneself, receiving support in the form of instrumental, appreciation, and information, Sadness, pain, and fear as the dominant responses that arise when self-harming, Feelings of emotion to get attention and affection from good friend support, and the need for full support from parents and friends to be better. Adolescents with self-harm behavior tend to need social support from their surroundings. Social support has an important role in controlling *self-harm* behavior in adolescents.

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# Relationship between Self-Readiness and Anxiety Level in Facing Menarche in Elementary School Students in Donoharjo Area

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## ABSTRACT

**Background:** Children perceive *menarche* as a scary thing because *menarche* will cause discomfort. *Menarche* is the first menstruation that usually occurs aged 10 - 16 years. One of the psychological risk factors for *menarche* is readiness, because unpreparedness causes feelings of anxiety.

**Objective:** Knowing the relationship between the level of self-readiness with the level of anxiety in facing *menarche* in elementary school students in the Donoharjo area.

**Methods:** This study is a quantitative study with a *cross-sectional* design. The sampling technique used *simple random sampling* of 71 respondents. And using the *Gamma* test.

**Results:** The majority of respondents were 10 years old (50.7%), the majority of students who lived with their parents (91.5%), the majority of respondents (70.4%) had not received menstrual education. The *r* value was 0.692 while the significance value of 0.030 was smaller than  $p = \leq 0.05$ .

**Conclusion:** There is a significant and strong relationship between the relationship between self-readiness and anxiety level in facing *menarche*. It can be said that if the readiness is good, then the respondent will not be anxious in facing *menarche*.

**Keywords:** *Anxiety Level; Menarche; Self-readiness*

## INTRODUCTION

Primary schools in Indonesia in 2022, there are around 394 thousand school units in Indonesia, with 87.74% being public primary schools (Geograf, 2023). Students in the age range of 10-12 years old are early adolescents. In Sleman Regency, the number of female adolescents in 2023 is estimated to reach 1.2 million people, while in Ngaglik District it is 53.4 thousand people (BPS, 2022).

During the adolescents, there were physiological changes such as widening hips, growing hair around the genitals and enlarging breasts (Aisyaroh, 2020) and menstruation cycles (Wahab et al., 2020). Adolescence or puberty is a stage of development in which physical maturity occurs, the development of sexual organs, and the achievement of reproductive abilities (Timiyatun & Okta, 2021). These physiological changes have an impact on the lack of self-confidence of an adolescent girl (Madya, 2023). Other changes that occur are psychological changes in the form of anxiety, low self-esteem disorders, self-image disorders and social disorders (Bunga, 2023; Hidayatus Sholeha, 2016).

Beside psychological, cognitive changes also interfere the readiness of *menarche*, because of learning, memory, reasoning, thinking, and language changing (Nur et al., 2017). Research conducted by Bharatwaj et al, (2014) stated that of 101 female early adolescent respondents, 61.3% of early adolescent respondents did not have knowledge about menstruation. Based on research there is 12% of adolescents who did not prepare for the arrival of *menarche* revealed that they felt dirty, embarrassing, and disgusting because they found

their pants full of menstrual blood stains (Marhamatunnisa, 2012). However, this process is basically natural things related to their growth (Nur et al., 2017).

Adolescents who are not ready to face *menarche* may have the desire to reject these physiological, psychological, biological and cognitive processes and feel that menstruation is cruel and scary (Sainah et al., 2022). Elvina's study (2021) on factors related to facing *menarche*, the results of low knowledge (47.9%), negative attitudes (40.9%), parental support is not supportive (44.7%), not ready (64%). Meanwhile, Simon's research (2021) found the results of poor knowledge (41.2%) and negative attitudes (38.6%), not ready (52.4%), this means that the majority of female students are not ready to face *menarche*.

The impact of unpreparedness in facing *menarche* in adolescent girls can cause anxiety, causing pathological symptoms such as fear, headache, dysmenorrhea, aches in the legs and back (Winarti et al., 2017; Yeung & Retnaningsih, 2020; Retnaningsih et al. 2020). The psychological health problems as the result unreadiness are social isolation, low self-esteem, early adolescents who have not accepted physical changes and cognitive changes in themselves will feel inferior or lack of self-confidence (Retnaningsih et al. 2020).

According to the results of a preliminary study at elementary schools in the Donoharjo area that I conducted by 17 students in grades 4 and 5, out of 17 students 40% of students said they were able to change pads correctly and 50% of students said they did not know how to change pads, 30% of students said they knew what menstruation was and 60% of students said they did not know what menstruation was, 70% of students said that menstruation was a taboo and 20% of students said that menstruation was a mandatory thing for a woman. Therefore, to ascertain whether there is a relationship between self-readiness and anxiety level in facing *menarche*, researchers are interested in conducting this study on the relationship between self-readiness and anxiety level in facing *menarche* in elementary school students in the Donoharjo area in 2024 to complement previous research. The elementary schools that I will conduct research on are SD Negeri Brengosan 1, SD Negeri Brengosan 2 and SD Negeri Banteran 1 which is one of the elementary schools in Sleman Regency which is in the working area of the Ngaglik Health Center. From the search results, no research was found in the elementary school related to the relationship between self-readiness and anxiety level in facing *menarche*.

From the description above, the problem that will be analyzed in this study is "Is there a relationship between self-readiness and anxiety level in facing *menarche* in elementary school students in the Donoharjo area?"

## MATERIALS AND METHODS

The research design used in this study is a non-experimental analytic descriptive method with a *cross-sectional* approach, which aims to see a picture and study the dynamics of the correlation between the relationship between elementary school students' self-readiness about menstruation and the level of anxiety in facing *menarche*. The population is the students who had in grade IV and V elementary school students at SDN Brengosan 1, SDN Brengosan 2, and SDN Banteran 1. The sample size used in this study was 67 respondents.

The instrument in this study used 2 (two) questionnaires, namely the self-readiness questionnaire and the anxiety level questionnaire. The readiness questionnaire in this study took from previous research, namely from researchers (Andayani, 2022). The anxiety questionnaire uses the *Zung Self-Rating Anxiety Scale (Z-SAS)*.

## RESULT

**Table 1. Characteristics of early adolescent respondents in facing *menarche* in elementary school students in the Donoharjo area.**

Variables	N (N = 67)	%	Mean $\pm$ SD
<b>Age</b>			10 $\pm$ 0.66
<b>Living Together:</b>			
Parents	64	91,5	
Mom	3	4,2	
<b>Menstrual Education:</b>			
Already	19	29,6	
Not Yet	48	70,4	

Source: Primary Data 2024

In Table 6 the results of the respondent characteristics are explained as follows: Based on Table 6. The mean of the respondents' age was 10 years old. It was found that the majority of 64 respondents (91.5%) lived with their parents. The majority of respondents as many as 48 (70.4%) had not received education about menstruation.

**Table 2. Frequency distribution of students' readiness**

Menarche readiness	Frequency (n)	Percentage (%)
Ready	55	83,1
Not ready	12	16,9
<b>Total</b>	<b>67</b>	<b>100,0</b>

Source: Primary Data 2024

Based on the distribution results in Table 7, it shows that most of the female students have a level of readiness to face *menarche*, namely 55 respondents (83.1%).

**Table 3. Frequency Distribution of Anxiety Level**

Anxiety Level	Frequency (n)	Percentage (%)
Normal	7	15,5
Mild	54	76,1
Medium	6	8,5
<b>Total</b>	<b>67</b>	<b>100,0</b>

Source: Primary Data 2024

Based on Table 8, the majority of respondents (76.1%) experienced mild anxiety as many as 54 respondents.

Table 4. The readiness and anxiety level

Readiness	Anxiety			Total	<i>p</i> -value	<i>R</i> -sign
	Normal	Lightweight	Medium			
Ready	7	44	4	56	0,030	0,692
Percentage (%)	15,4	61,9	5,6	82,9		
Not ready	0	10	2	12		
Percentage (%)	0,0	14,0	2,8	16,9		
<b>Total</b>				<b>67</b>		

Source: Primary Data 2024

Based on Table 4, it can be seen that the majority of respondents experienced mild anxiety as many as 44 respondents. In the *Gamma* test, the *r* value is 0.692, this means that there is a significant and strong relationship between the relationship between self-readiness and anxiety level in facing *menarche*.

## DISCUSSION

The results showed that mean of the ages was 10 years old. The results of Lutfiyah's research (2020) show that the percentage of unpreparedness in facing *menarche* decreases with age. This shows that physical development should be followed by psychological development, one of which is in order to mentally prepare for puberty. Jayanti & Purwati's research (2019) shows that the younger the age of female students, the more unprepared they are to face *menarche*. At a very young age they have not received complete information about menstruation. So that *menarche* will be considered a burden by children, and cause unpreparedness to face *menarche*.

When facing *menarche*, mental readiness is very necessary, because feelings of anxiety and fear will arise if adolescent girls lack understanding about *menarche*. For this reason, adolescents need to prepare themselves in facing the arrival of *menarche* (Sukarni & Wahyu, 2020). Self-acceptance in adolescents in facing *menarche* can be obtained by getting social emotional support. Emotional, moral, spiritual support, such as forms of support, information, and appreciation are indispensable instruments during the period of facing *menarche*. This support is obtained both from the family environment, especially parents, siblings, peers, the environment, teachers and also the community. Several factors can affect the readiness of adolescent girls in facing *menarche*, including knowledge, age, maturity, and also those closest to them (namely parents, especially mothers). Emotional, instrumental and informational support is needed by adolescent girls in preparing for the arrival of *menarche*, where the family is the first and most important place to provide support and education in child development (Permatasari, 2020).

Parents should provide an explanation about *menarche* to their daughters early on, so that adolescent girls can understand and prepare themselves for *menarche*. In general, adolescent girls tell their mothers when they have their first period. Septianingrum & Wardani (2020), Kharunia Khazani's (2019), and Cahyani (2019) explain that in facing *menarche*, adolescent girls need to make behavioral adjustments that they cannot always do, especially without the support of parents, especially mothers. Parental support is very important in helping adolescent girls understand about their menstrual cycle. Mothers are often best equipped to provide support and guidance. This study explained that most of the students had not received information about menstruation 70.4%. Ningrum & Indriyanti (2018) stated that the source of adolescents obtaining information about menstruation and how to maintain their hygiene comes from parents. Family members, especially parents, play an important role in children's readiness to face their first menstruation (*menarche*), for example mothers who provide information openly and are not shy to ask or tell their children.

The results showed that 83.1% was ready to face *menarche*. It is in line with Nurul & Sara (2018) and Fajri & Khairani (2019) states that most the students are ready to face *menarche* at the age of ten to sixteen years. The results in this study found that there was highest readiness in facing *menarche* because most of them saw their mothers and sisters (93%). One

of the readiness of female students to face *menarche* is also influenced by sources of information from the family. The family is the closest and main source of information for adolescent development (Indarsita & Purba, 2019).

There are three aspects of readiness according to Fajri (2019), the first aspect is understanding, namely a person's experience of the events they experience. When someone understands and knows about the events they experience, this can help them to feel ready to deal with things that happen. Besides the adolescences also need appreciation and spiritualism. They need to know that it is natural, normal and nothing to worry about. In addition, individuals also feel high confidence, especially regarding religious views (Islam). God Almighty has given a gift to women in the form of menstrual experience. Yusuf et al. (2014) said that a woman is said to be *baligh* when menstruation arrives, which means that she already has an obligation to religious law. Someone who empathizes means that they can transfer positive feelings towards someone who experiences events similar to them.

The level of anxiety facing *menarche* had mild anxiety 76.1%. In the research, the majority of primary school students experienced mild anxiety. The symptoms of anxiety felt by respondents are sweaty hands, easy body fatigue, confusion and anxiety. Based on the research, the highest average percentage of statements is item number 17, namely my hands are warm and dry as usual with an average of (2.92) and the least statement item is item number 12, I often faint or feel like I want to faint with an average of (1.21). The individual feels uncomfortable or afraid or may have a premonition of impending doom even though they do not understand why these threatening emotions occur. There is no object that can be identified as a stimulus for anxiety (Rista, 2020).

Student anxiety in facing *menarche* is strongly influenced by several factors. According to Rista (2020), one of the factors is the schoolgirl's knowledge about *menarche* itself. If the schoolgirl's knowledge is good, it is less likely that she will experience anxiety. Apart from the results of the study above, the reason why girls experience *menarche* earlier than in previous years is due to the rapid development of information technology lately. In addition to the free association of children now, it is also due to the frequent access of children to pornographic sites, which can affect the psychological condition of the girls themselves. From this it can cause the age of *menarche* to increase every year. This experience underlies research conducted by Rizanna Fajrunni'mah (2018) which examines the factors that influence the readiness of adolescent girls to face *menarche* at SMPN 1 Karangrayung with the result that factors that influence the readiness of adolescent girls are the level of emotional maturity, environment, and knowledge. In other words, good knowledge does not cause anxiety to face anything. In this case is the anxiety of facing *menarche*.

The relationship between readiness and anxiety level based on the results of cross tabulation in this study, out of 71 respondents at SDN Brengosan 1, SDN Brengosan 2 and SDN Banteran 1 with *p value* (0.030) <0.05. The results of readiness with mild and moderate anxiety were 59 respondents (83.1%) and unpreparedness and normal, mild and moderate anxiety were 12 respondents (16.9%). The readiness of children in facing *menarche* according to Suryani and Widiasih (2018), namely the younger the age of the child, the more he is not ready to accept *menarche* because he considers it a burden. But it is different for those who are ready to face *menarche*, they will feel happy and proud, because they consider themselves biologically mature. Cognitive theory states that anxiety reactions arise due to mental errors. This mental error is due to an error in interpreting a situation that for individuals is something threatening. An individual factor that greatly affects anxiety levels is readiness. If the student

has high readiness, it is very likely that the student will have low anxiety. Whereas students who have low readiness, it is very likely that these students will have a high level of anxiety.

Adolescents who are ready to face *menarche* have mild anxiety with 44 respondents (62%). This is because according to Desi, Ferika (2016) anxiety factors that influence in facing *menarche* include knowledge, age of *menarche*, maternal support, information sources, unpreparedness. Based on the results of preliminary studies conducted by researchers in December 2016, Negeri Plalangan 01 Semarang obtained interview results from 7 5th grade students, namely 2 students said they had experienced *menarche* and 5 students had not experienced *menarche*. Of the 5 students, 4 students said they were anxious, nervous and there was a feeling of fear about facing *menarche* and 1 student said she was confused about facing *menarche*. They feel that the blood that comes out of the body will cause pain so that it makes them afraid and anxious in facing *menarche*.

Students who have mild and normal anxiety are characterized by students who are ready to face menstruation because they see their mothers and sisters also menstruating, but based on research it also appears that students are ready to face *menarche* but have moderate anxiety, namely (5.6%). Based on this data, some female students have problems when thinking about menstruation, characterized by the statement I feel more restless and anxious than usual (1.87), I feel afraid for no apparent reason (1.84) and I feel panic (1.81). Based on the results of research conducted by Rista (2020) from 10 female students who have experienced *menarche*, information was obtained that 6 students (60%) felt anxious when facing *menarche*. This is due to their ignorance of what to do and they feel worried about being penetrated at school later. This concern is caused by their ignorance of how to use sanitary napkins. Meanwhile, as many as (40%) felt afraid in facing *menarche* because they were embarrassed if known by male friends for fear of being ridiculed.

Based on the *Gamma* test, the *p* value (0.030) < 0.05 and the correlation coefficient value of 0.692, there is a relationship between self-readiness to face *menarche* and anxiety levels in elementary school-age children in the Donoharjo area. This means that there is a significant relationship between self-readiness and anxiety level in facing *menarche* in elementary school students in the Donoharjo area. It can be said that if the readiness is good, then the respondent will not be anxious in facing *menarche*.

## CONCLUSION

There is a relationship between self-readiness and anxiety level in facing *menarche* in elementary school-age children in the Donoharjo area with an *r* value of 0.692 while the significance value of 0.030 is smaller than the significance level  $p = \leq 0.05$  (0.030 < 0.05). This means that there is a significant relationship between self-readiness and anxiety level in facing *menarche* in elementary school students in the Donoharjo area.

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