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Rush, E. C., Obolonkin, V., Battin, M., Wouldes, T., & Rowan, J. (2015b). Body composition in offspring of New Zealand women: Ethnic and gender differences at age 1–3 years in 2005–2009. *Annals Of Human Biology*, *42*(5), 492–497.

Two authors (a journal article with doi)

Li, S., & Seale, C. (2007). Learning to do qualitative data analysis: An observational study of doctoral work. *Qualitative Health Research*, 17(10), 1442-1452.
<https://doi.org/10.1177/1049732307306924>

Three authors

Barnard, R., de Luca, R., & Li, J. (2015). First-year undergraduate students' perceptions of lecturer and peer feedback: A New Zealand action research project. *Studies In Higher Education*, 40(5), 933–944. <https://doi.org/10.1080/03075079.2014.881343>

- Use "&" before the final author.

Four to seven authors

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- List all authors in the reference entry

More than seven authors

Kasabov, N., Scott, N. M., Tu, E., Marks, S., Sengupta, N., Capecci, E., . . . Yang, J. (2016). Evolving spatio-temporal data machines based on the NeuCube neuromorphic framework: Design methodology and selected applications. *Neural Networks*, 78, 1-14.
<https://doi.org/10.1016/j.neunet.2015.09.011>

Book

Polit, D. E., & Beck, C. T. (2008). *Nursing research: Generating and assessing evidence for nursing practice* (8th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

Website

World Health Organization. (2008). *The global burden of disease: 2004 update*. Geneva, Switzerland: World Health Organization. Retrieved from:
http://www.who.int/healthinfo/global_burden_disease/GBD_report_2004update_full.pdf

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Original Research

Development of Local Wisdom in Preventing Stunting in Village Communities

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ABSTRACT

Background: Child stunting refers to a child who is too short for his or her age and is the result of chronic or recurrent malnutrition, based on the height-for-age index (HAZ). The results of weighing and measurements at the Posyandu, or community health post, show an increase in the prevalence of stunting from 7% in 2019 to 10.41% in 2020. A preliminary survey at the Ceper Community Health Centre in Klaten Regency showed that out of 1,922 children under five, 187 were stunted. Local wisdom is considered highly valuable and has its own benefits for the lives of the community. Thanks to local wisdom, they can sustain their lives and even develop sustainably. The role of midwives in developing local wisdom for stunting prevention is crucial, as they are the frontline health workers in the prevention of stunting.

Methods: The research design is an analytical observational study with a cross-sectional approach. Data analysis was conducted using regression. The research sample was taken using cluster random sampling techniques involving 60 respondents.

Results: The data analysis results showed a relationship between the role of educators and motivators in the intervention of developing local wisdom for stunting prevention.

Conclusion: The role of village midwives in providing information, encouragement, facilities, and empowering health cadres is crucial in developing local wisdom for stunting prevention.

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INTRODUCTION

Stunting remains a crucial problem experienced by a significant number of children under five years of age worldwide. Stunting in young children requires special attention as it impacts physical growth, brain development, and overall health (Nasrul, 2019). The effects of stunting are not limited to the health of young children; they can also hinder national development and the progress of a nation (Waryana, 2010).

Stunting is a condition of growth failure in children under five years old due to chronic malnutrition. Stunting can result in children being significantly shorter

compared to their peers. A child is classified as stunted when the height-for-age z-score (HAZ) is below -2 SD. Children under five are those aged 0–59 months.

This period is marked by rapid growth and development, requiring a higher and more quality intake of nutrients (Waryana, 2010). Growth failure during this period can be due to inadequate nutrition and suboptimal health conditions (de Onis & Branca, 2016). The issue of stunting needs to be prevented due to its wide-reaching and long-term effects on future life. Short-term impacts of stunting include impaired growth, reduced intelligence, and disrupted metabolism.

In addition to short-term effects, stunting can cause long-term consequences such as diminished cognitive abilities, lower academic performance, and a weakened immune system, making the child more susceptible to diseases (Simbolon et al., 2022). Stunting, or cases of short and very short stature, is a nutritional status based on the height-for-age index (HAZ). The Basic Health Research 2018 conducted by the Ministry of Health reported that the percentage of very short children aged 0-59 months in Central Java Province was 31.15%, while the percentage of short children was 20.06%.

According to health profile data from districts and cities, the percentage of short children in 2019 was 7.4%. The highest percentage of short children aged 0-59 months in 2019 was in Banjarnegara, while the lowest percentage was in Surakarta. Data from the Purworejo and Grobogan districts were unavailable (Dinas Kesehatan Provinsi Jawa Tengah, 2019).

Stunting remained a concern in 2020. The COVID-19 pandemic in 2020 had a significant impact on the nutrition programs in Klaten Regency. Weighing and measurements at Posyandu revealed an increase in the prevalence of stunting from 7% in 2019 to 10.41% in 2020 (Klaten Health Office, 2020). A preliminary survey at the Ceper Community Health Centre in Klaten Regency showed that out of 1,922 children under five, 187 were stunted.

Cross-sectoral support is an important factor in preventing and reducing stunting. It is well known that nutrition-sensitive interventions involving multiple sectors contribute approximately 70% to the reduction of stunting, while specific nutrition interventions by the health sector contribute 30%. The involvement of multiple sectors and the business community in helping to accelerate the reduction of stunting (Dinkes Klaten, 2020).

Local wisdom is a broad and comprehensive phenomenon. It is considered highly valuable and has its own benefits for the lives of the community. This system was developed out of the need to understand, maintain, and sustain life according to the situation, conditions, capabilities, and values upheld in the community. In other words, this local wisdom has become a way of life that helps solve the various challenges they face. Thanks to local wisdom, they can sustain their lives and even develop sustainably (Njatrijani, 2018).

The *bancakan* tradition is one of the Javanese traditions still preserved by communities in several regions. This tradition is similar to a *kenduri* (communal meal), but *bancakan* is usually intended for young children (kindergarten, elementary, or middle school age). Local wisdom in reducing stunting is very strategic. Activities that improve health and often go unnoticed by the community need to be highlighted and revived. In this policy, at the village/urban level, the stunting reduction acceleration team involves at least midwives, nutritionists, and environmental health workers. Among these primary health workers, midwives are the most numerous and widespread in almost every village across Indonesia.

Midwives can consult with various specialists in caring for mothers and babies or can provide all the primary care needed for mothers and babies, from conception to six weeks after birth (Ontario Midwifery, 2014). Midwives play a crucial role in managing stunting by intervening with pregnant women, breastfeeding mothers, infants, young children, school-aged children, and adolescents of reproductive age. Midwives' roles include being educators, motivators, facilitators, and counselors for the community and health cadres.

MATERIALS AND METHOD

This research is an analytical observational study using a cross-sectional design. The population in this study consisted of 60 health cadre mothers. The sampling technique used was cluster random sampling. The research was conducted in the working area of the Ceper Community Health Centre. The variables in this study include the role of midwives as indicators in their roles as educators, motivators, facilitators, and counselors in the development of local wisdom for stunting prevention.

Data collection was conducted through interviews using a questionnaire. Data analysis was performed using univariate analysis with descriptive methods, frequency tables, and bivariate analysis using multivariate analysis using regression. This study has received ethical clearance from the health research ethics committee at Dr. Moewardi General Hospital with number 997/IV/HREC/2024.

RESULTS

Result of this study is consist of respondent characteristics and role of midwives.

Table 1. Respondent characteristics

Education	Frequency	Percent
Elementary school	1	1.7
Junior high school	13	21.6
Senior high school	44	73,3
Bachelor	2	3,4
Total	60	100
Occupation Status		
Work	15	25
No Work	45	75
Total	60	100

The research results show that the most common education level among respondents was high school, with 44 respondents (73.3%), while the least common was elementary school, with only 1 respondent (1.7%), and the majority of respondents, 45 (75%), were not employed, compared to those who were employed.

Table 2. Role of Midwife

Role of Midwife	Frequency	Percent (%)
Educator		
Good	51	85
Not Good	9	15
Total	60	100
Motivator		

Role of Midwife	Frequency	Percent (%)
Good	46	76.7
Not Good	14	23.3
Total	60	100
Facilitator		
Good	48	80
Not Good	12	20
Total	60	100
Counselor		
Good	44	73.3
Not Good	16	26.7
Total	60	100

The findings show that all the roles of midwives demonstrated a good frequency distribution. The role of midwives as educators were reported by 51 respondents (85%), as motivators by 46 respondents (76.6%), as facilitators by 48 respondents (80%), and as counselors by 44 respondents (73.3%).

Table 3. Communitaties

Communitaties	Initial	Extraction
Educator	1.000	.505
Motivator	1.000	.506
Fasilitator	1.000	.830
Konselor	1.000	.728

The research results also show the effective contribution of midwives' roles: as educators at 50.5%, as motivators at 50.6%, as facilitators at 83%, and as counselors at 72.8% in enhancing the ability of health cadres to develop local wisdom.

Table 4. Total Variance Explained

Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1.568	39.204	39.204	1.568	39.204	39.204	1.473	36.819	36.819
1.010	25.259	64.463	1.010	25.259	64.463	1.106	27.644	64.463
.867	21.668	86.132						
.555	13.868	86.132						

Extraction Method: Principal Component Analysis

Based on the initial Eigenvalues table, there are two factors formed from the 4 factors analyzed, where the conditions for being a faktor value are eigenvalues, the value must be above 1 (>1). The Eigenvalues component 1 is 1.568, or >1, so it becomes factor 1 and is able to explain 32.204% of the variance. Meanwhile, the Eigenvalues component 2 is 1,010 or >1, so it becomes factor 2 and is able to explain the 25,259 variance. If factor 1 and factor 2 are added together, they will be able to explain 64,463 variations.

DISCUSSION

Substantially, local wisdom refers to the values that prevail in a society. These values are believed to be true and serve as a reference for daily behaviour within the local community. Therefore, it is reasonable to say that local wisdom is an entity that significantly determines the dignity and honour of individuals within their community. This means that local wisdom, which encompasses elements of intelligence, creativity, and local knowledge from the elites and the people, plays a crucial role in the development of civilisation (Diem, 2012).

Local wisdom is regarded as highly valuable and has unique benefits for people's lives. This system was developed out of a need to understand, preserve, and continue life in accordance with the circumstances, conditions, capabilities, and values upheld by the community. In other words, local wisdom becomes a way of life that helps them address the challenges they face. Thanks to local wisdom, they can sustain their lives and even develop sustainably (Njatrijani, 2018).

Bancakan is a term from the Javanese language that has been absorbed into and become part of the Indonesian vocabulary. The word "*bancakan*" is included in the Indonesian Dictionary and has three meanings: 1) a celebration or feast; 2) food served at a celebration; 3) a celebration for children to mark a birthday or commemorate a birth with the distribution of food or cakes (Afifah & Ediyono, 2022).

Bancakan refers to a traditional dish or culinary tradition from Central or East Java, consisting of rice served with green vegetables mixed with grated coconut seasoned with sweet, spicy, and salty flavours, known as "*urap*," accompanied by simple side dishes like boiled eggs and fried salted fish. This *bancakan* rice is served at certain events, especially to commemorate a child's birthday. In this context, *bancakan* is used to refer to the tradition of eating together or sharing food among children as a form of celebration. The celebration is intended to be a prayer for safety. Therefore, the word "*bancakan*" can refer to both the dish and the event (Afifah & Ediyono, 2022).

Stunting can occur during pregnancy due to inadequate nutritional intake, improper eating patterns, and poor food quality, leading to inhibited growth. One of the factors influencing a child's growth and development is nutritional intake. Malnutrition in food can disrupt a child's growth, affecting overall development. Malnutrition can be due to insufficient nutrient intake or an imbalance between nutrient intake and the body's needs.

Therefore, consuming a diverse range of foods is essential. The more diverse the food variety, the easier it is to meet the need for various nutrients. In this context, attitudes and behaviours in choosing food types and varieties are related to the mother's nutritional knowledge (Uliyanti et al., 2023). The occurrence of stunting is directly influenced by variables such as nutritional intake, infection history, maternal nutrition knowledge, and balanced nutrition, while Clean and Healthy Living Behavior (PHBS) indirectly affects stunting through the history of infectious diseases (Uliyanti et al., 2023).

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To accelerate the reduction of stunting, a holistic, integrative, and quality movement is needed through coordination, synergy, and synchronization among ministries/agencies, provincial governments, district and city governments, village governments, and stakeholders. Thus, in August 2021, Presidential Regulation No. 72 of 2021 on the Acceleration of Stunting Reduction was issued. Under this policy, at the village or urban level, the stunting reduction acceleration team involves health workers, including midwives, nutritionists, and environmental health workers. Among these primary health workers, midwives are the most numerous and are spread across almost every village in Indonesia.

Bancakan is a strategic tool in the effort to accelerate the reduction of stunting. In certain conditions, *bancakan* can be managed in such a way that it directly improves nutritional status in the community. Observations show that *bancakan* also fosters a sense of togetherness, which can enhance children's appetite. Children who previously refused to eat at home might develop an appetite when eating with their peers. This *bancakan* culture needs to be preserved for various reasons, including fostering gratitude.

Bancakan is held every thirty-five days, allowing children to practice gratitude for the blessings of age and health granted by God. Children and parents are constantly reminded that age is increasing and the gift of health is continually bestowed by God Almighty. By increasing gratitude, life will become calmer and more peaceful. *Bancakan* teaches children to share. Young children tend to be selfish, which is normal.

Through *bancakan*, children learn to share with their peers and enjoy meals together. Another essential element in community life and nationhood is the willingness to sacrifice for others. When they grow up, these children are expected to be willing to donate and share their wealth for humanitarian purposes (Afifah & Ediyono, 2022). During the *bancakan* tradition, children think about who can attend and who cannot. Those who cannot attend are usually given a separate portion.

This tradition teaches children to think about others. Developing this sense of caring is crucial because modern culture is eroding the sense of caring for others. Many people tend to be selfish. If left unchecked, this will endanger the foundations of community, national, and state life. Through *bancakan*, children learn to care for others.

The role of midwives in preventing stunting aligns with the following theory: the role of midwives as educators should be inherent in all midwives. Midwives must be able to provide information, educate, and teach individuals, families, and communities according to their duties and responsibilities (Fajrianti et al., 2020). The research results show the effective contribution of the midwives' role as educators at 50.5%.

The role of midwives in educating health cadres about local wisdom aims to help health cadres: become familiar with and more connected to their natural, social, and cultural environments; acquire skills, knowledge, and understanding of local wisdom in their area; develop attitudes and behaviours aligned with the values or rules that apply in their region; and preserve and develop the values of local wisdom. One of the factors

influencing a child's growth and development is nutritional intake. Malnutrition in food can disrupt a child's growth, affecting overall development.

Malnutrition can be due to insufficient nutrient intake or an imbalance between nutrient intake and the body's needs. Therefore, consuming a diverse range of foods is essential. The more diverse the food variety, the easier it is to meet the need for various nutrients. In this context, attitudes and behaviours in choosing food types and varieties are related to the mother's nutritional knowledge (Uliyanti et al., 2023).

The effective contribution of midwives' roles as motivators is 50.6%. The role of midwives as motivators is also crucial, where midwives must be able to provide encouragement, direction, and guidance to increase individual or community awareness by recognizing and developing potential and solving problems. Midwives can start motivating by organizing *bancakan* in neighborhoods with young children. It would be wonderful if they would hold *bancakan* traditions by inviting the child's playmates. The *bancakan* tradition can continue to be preserved.

The role of midwives as facilitators should also be possessed by every midwife. The facilitator role involves midwives providing technical guidance or health services. Facilitators must be able to optimize the availability of facilities, time, and community participation. The role of midwives as counselors in health promotion and socialization is essential, where midwives must be able to approach and train health cadres, understand community issues, and help make decisions. One of the factors influencing a child's growth and development is nutritional intake.

Malnutrition in food can disrupt a child's growth, affecting overall development. Malnutrition can be due to insufficient nutrient intake or an imbalance between nutrient intake and the body's needs. Therefore, consuming a diverse range of foods is essential. The more diverse the food variety, the easier it is to meet the need for various nutrients. In this context, attitudes and behaviours in choosing food types and varieties are related to the mother's nutritional knowledge (Uliyanti et al., 2023).

CONCLUSION

The role of village midwives in providing information, encouragement, facilities, and empowering health cadres is crucial in developing local wisdom for stunting prevention. The role of midwives as motivators is also crucial, where midwives must be able to provide encouragement, direction, and guidance to increase individual or community awareness by recognising and developing potential and solving problems. Midwives can start motivating by organising *bancakan* in neighborhoods with young children. It would be wonderful if they would hold *bancakan* traditions by inviting the child's playmates. The *bancakan* tradition can continue to be preserved.

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Original Research

Effectiveness Of Psychoeducation And Assertive Training (PEAT) Combined For Improving Medication Adherence In Patients With Schizophrenia

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ABSTRACT

Background: Non-adherence behaviors have a variety of causes, from suffering negative drug side effects to having scepticism regarding the effectiveness of recommended treatments. Recognising these complex relationships is essential to creating strategies that effectively manage the psychosocial as well as medical components of schizophrenia. The purpose of this study is to investigate how a combination of psychoeducation and assertive training can improve medication adherence in people with schizophrenia.

Methods: A pretest-posttest quasi-experiment design was employed in this study as part of a quantitative research technique. Demographics and the Morisky Medication Adherence Questionnaire were used in conjunction with observation to collect data. Based on room-based simple random sampling, 80 patients with schizophrenia who met the inclusion criteria were split into two groups. Of these, 38 patients in the intervention group and 36 responders in the control group finished the study. This study made use of the five-stage Psychoeducation and Assertive Training (PEAT) module.

Results: A combination of psychoeducation and assertiveness training (PEAT) was found to have an effect on medication adherence in this study. Following PEAT, patients with schizophrenia had a mean medication adherence of 5.92 ± 1.29 . The statistical test findings showed that the mean medication adherence of schizophrenic patients receiving PEAT differed significantly (p value < 0.001) from those who did not.

Conclusion: Studies show that putting more of an emphasis on PEAT can help hospitals treat patients with schizophrenia more consistently by helping them take their medications as prescribed. Additionally, patients with schizophrenia should have a treatment plan that includes PEAT.

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INTRODUCTION

According to He et al., (2020), the burden of schizophrenia on the world's healthcare systems is still high and is still rising. Patients with schizophrenia faced social and public stigma, which had a number of detrimental effects such as drug stoppage, unjust termination, loneliness, and more. A legal framework is required to end prejudice by society against mentally ill people who are receiving deliberate, properly handled medical care and medications (Ko & Park, 2021).

Inadequate medication Education about psychotropic medications is provided to clients with mental illness, which is exacerbated by difficulties in establishing and sustaining a stable therapeutic alliance with their healthcare providers. It has been demonstrated that monitoring side effects is the most difficult part of pharmacotherapy for people with mental diseases who are allowed to live in the community (Bui et al., 2022). Improving medication adherence starts with a collaboration between the patient and his therapist that allows them to accomplish goals through assigned tasks. According to this partnership, modifying perspectives of patients' care could have a greater impact on enhancing medication compliance (Hsieh et al., 2022).

Health professionals can assist patients in complying with therapy and continuing to take their medicine, as nonadherence to treatment is a significant issue for patients. The main causes of patients' non-adherence behaviour include medication side effects, a lack of patient trust in the necessity of treatment, and patient ambiguity regarding the efficacy of drugs (Mehralian et al., 2019). A comprehensive approach to treatment can help individuals with schizophrenia stick to their drug regimen, according to a review of the literature. In order to attain compliance outcomes, health personnel assume the role of advocates by facilitating and upgrading involvement in treatment decisions (Nyanyiwa et al., 2022).

According to Şahin Altun et al., (2021), the majority of schizophrenia patients' non-compliance with medication compliance can be influenced by their lack of social support. According to Mehralian et al., (2019), the primary reasons behind patients' non-adherence behaviour include adverse effects from medications, a lack of patient trust in the value of therapy, and patient uncertainty about the effectiveness of medications. Healthcare facilities have provided treatment for schizophrenia to patients from a variety of community backgrounds, families, and health services. Such treatments include psychoeducation, health education, and assertiveness training. Despite the benefits of each intervention, stigma around the illness of schizophrenia patients persists (Yildirim & Kavak Budak, 2020).

There has been little research on the combination of psychoeducation and assertive training with a focus on families, and even less on the individual components of psychoeducation and assertive training combined with a focus on schizophrenia patients in order to promote compliance with medication in these patients. Assertive training is essential since it helps patients achieve better levels of assertiveness, medication adherence, and functional remission. Psychoeducation is one type of intervention that addresses issues in severe mental disorders like schizophrenia. Its use is still restricted, nevertheless, particularly in Surakarta, Central Java, Indonesia.

Numerous non-pharmacological and pharmacological interventions have been tried, but they haven't completely resolved the problems associated with schizophrenia, such as patients' diligent backsliding and non-adherence to medication. The aim of this research is to gain an insight into how assertive training and psychoeducation work together to increase medication adherence for people with schizophrenia.

MATERIALS AND METHOD

Research design

Quantitative research methodology was used in this study using pretest-posttest quasi-experiment with control group design. In order to provide insight into the process of treating patients with schizophrenia who were receiving a combination of psychoeducation and assertive training (PEAT), data was gathered through observation and questionnaires. Then, information was gathered in a pretest-posttest study including two groups to evaluate how psychoeducational and assertive training combined affected medication adherence.

To achieve the same distribution of a single categorical variable in this design, the intervention group and control group, which are chosen before the intervention, must be homogeneous. While the control group merely received standard nursing care, the intervention group received normal nursing care along with a combination of psychoeducation and assertive training.

Population and sample research

Individuals with schizophrenia who satisfied the eligibility requirements were divided into groups based on room-based random selection. To facilitate the provision of interventions, the room was randomly selected and placed in a sealed envelope that was closed. There were 272 patients with schizophrenia, and 80 of them satisfied the entrance requirements. The study's inclusion criteria included having schizophrenia between the ages of 18 and 50 years old, receiving standard medical care, being able to converse verbally, experiencing at least two hospitalisations due to relapse, and being willing to adhere to the intervention. The elderly, mentally handicapped, and those with acute schizophrenia were the exclusion criteria.

Materials and research tools

The five-stage Psychoeducation and Assertive Training (PEAT) module was used in the intervention group. The researchers created this module by fusing two mutually beneficial exercises in which participants exercised behaviour and emotional expression while also learning about the symptoms of schizophrenia. The module developed by Aho-mustonen et al., (2011), Choe et al., (2016), Mueser & Gingerich (2013), and Speed et al., (2018) has been modified to create this module while a control group received routine nursing care as usual. It is anticipated that as a result of this merging, the respondents will be better able to communicate their needs and feelings and act on their own will.

Session 1 covers the definition and causes of schizophrenia, while Session 2 focuses on the signs and symptoms of schizophrenia and how to articulate thoughts and feelings. Session 3 treatment and care for schizophrenia followed by ability to express wants, needs, and anger, session 4 self-care for schizophrenia followed by ability to say "no" for irrational requests and conveying reasons, and session 5 ability to maintain assertive change with 50 to 60 minutes allocated to each session. Each group of respondents in the intervention group completed a complete session between 14-21 days.

There are two sections to the study instruments. The first section discusses demographics, including gender, age, level of education, employment status, marital status, frequency of treatment, length of time with schizophrenia, insight, and physical health issues. The following section used Morisky et al., (2008) to measure medication

adherence, for pre-intervention, the initial condition was recorded before given intervention. A day after the respondent completed all stages of the intervention, a posttest was carried out.

Collection or research stages

The State Psychiatric Hospital Surakarta served as the research site for seven months, then, in accordance with the inclusion criteria, male and female schizophrenic patients with varying job and marital statuses who had been moved from the emergency department to the acute care unit were selected. There were 40 patients in the psychoeducational and assertive training combined group. Of these, two patients did not follow the intervention to the letter because the family moved to a different hospital after the patients were admitted, leaving 38 patients in the intervention group. Because the family chose to discontinue participation before the intervention was finished, 4 of the 40 respondents in the control group were not assessed for their medication adherence following the intervention, leaving 36 respondents in the control group.

Data analysis

The SPSS version 23 was utilised for generating different trend analyses and descriptive statistics. The variables in this study were described using the frequency table, relative frequency (percent), mean, median, deviation standard, minimum, and maximum values. An examination of the respondents' attributes was done using univariate analysis. Prior to examining the impact of psychoeducational and assertive training combined (PEAT) on medication adherence, normality tests were conducted.

The data was normally distributed, as indicated by the significance result of the medication adherence score data in the intervention group and control group before and after the intervention, which showed p value > 0.05 . The mean adherence compliance of each group before and after the intervention, as well as the difference between the intervention group and control group, were compared using a t-test dependent (paired t-test) and an independent t-test.

RESULTS

According to Table 4.1, the average age of the participants in the PEAT group is 32.00 ± 8.41 , while that of the control group is 36.67 ± 6.50 . In the PEAT group, the age of onset is 24.89 ± 8.05 , whereas it is 27.33 ± 7.56 in the control group. The PEAT group and control group experienced 7.61 ± 3.12 and 9.47 ± 4.41 days of suffering, respectively. Male respondents made up the majority in both groups, which included 29 (76.3%) and 25 (69.4%).

In both age groups, the largest percentage is senior high school and above, with 20 (52.6%) and 16 (44.4%). Twenty (55.6%) of the respondents in the control group work full-time, whereas 17 (44.7%) of the respondents in the PEAT group are employed full-time. The majority of respondents—17 (44.7%) in the PEAT group and 21 (58.3%) in the control group—are married. Regarding history of physical problems, respondents in both groups—more than 50%—have never had a medical issue.

Table 1. Sociodemographic data of schizophrenia patients

Characteristics	PEAT group (n=38)	Control group (n=36)
Age	32.00±8.41	36.67±6.50
Age of onset	24.89±8.05	27.33±7.56
Number of previous hospitalization	3.34±2.47	3.67±3.36
Duration of suffering	7.61±3.12	9.47±4.41

Table 2. Sociodemographic categories of schizophrenia patients

Variable	PEAT Group (n=38)		Control Group (n=36)	
	n	%	n	%
Gender, n (%)				
Male	29	76.3%	25	69.4%
Female	9	23.7%	11	30.6%
Education level, n (%)				
Primary school and below	11	29.0%	5	13.9%
Junior High School	7	18.4%	15	41.7%
Senior High School and above	20	52.6%	16	44.4%
Work Status, n (%)				
Unemployed	8	21.1%	6	16.6%
Part time employed	13	34.2%	10	27.8%
Full time employed	17	44.7%	20	55.6%
Marital Status, n (%)				
Single	9	23.7%	7	19.4%
Divorce/Separated/Widow	12	31.6%	8	22.2%
Married	17	44.7%	21	58.3%
History of physical problem, n (%)				
Non infectious disease	18	47.4%	12	33.3%
Infectious disease	1	2.6%	5	13.9%
No history	19	50.0%	19	52.8%

According to the results of statistical tests. The combination of psychoeducation and assertive training (PEAT) showed a mean difference of 1.26 between pre- and post-intervention values. The combined psychoeducation and assertive training (PEAT) group's medication adherence differed significantly ($p < 0.001$) between the first and second assessments. This study discovered that PEAT had an impact on medication adherence.

Table 3. Combination of psychoeducation and assertive training (PEAT)(n=38)

Variable	Mean	SD	SE	P value
Medication adherence				
Pre test	4.66	1.760	0.285	P<0.001
Post test	5.92	1.459	0.237	

Table 4. Distribution of mean differences in medication adherence between the control group and psychoeducation

Group	N	Mean	SD	SE	P value
Control	36	4.94	1.655	0.276	P<0.001
Combination of psychoeducation and assertive training	38	5.92	1.29	0.237	

Table 4 shows that after a combination of psychoeducation and assertiveness training, the mean medication adherence of patients with schizophrenia was 5.92 ± 1.29 . According to the statistical test results, there was a significant difference ($P < 0.001$) in the mean medication adherence of schizophrenic patients who received combination psychoeducation and assertive training interventions compared to those who did not receive this combination.

DISCUSSION

This study discovered that a combination of psychoeducation and assertive training (PEAT) had an impact on medication adherence. This is consistent with earlier studies. Compared to the group of patients who are fearful or do not pay attention to medication, those who are aware of the need for taking medication have higher adherence to medication and a good quality of life index.

Patients in the pharmacophobia group may not be adhering to their treatment plans because they feel well enough to stop on their own. Low adherence was also linked to fear of medication adverse effects in the pharmacophobic group. In addition to helping patients with psychiatric illnesses live better lives, appropriate health education for pharmacophobia patients can increase medication adherence (Ganesan et al., 2018).

Factors were identified as independent predictors of reduction at release: the length of untreated psychosis, a good early reaction, and more positive symptoms at baseline. Yoshimura et al., (2019) emphasise the importance of early intervention and the use of particular and adequate medications for negative symptoms. Furthermore, an earlier study suggested a research strategy that would allow patients to speak about their experiences and genius while dealing with schizophrenia (Yu et al., 2019).

According to the data gathered, previous research using the motivational interviewing approach has shown its effectiveness, which is consistent with the current study. Psychiatric nurses must learn the intervention and interview strategies and feel comfortable utilising them in order to ensure treatment adherence. This study adds significance to the body of literature since it shows that the motivational strategy improves treatment adherence and insight levels in schizophrenia patients. Additionally, the patients were able to discriminate between the drug's adverse effects and symptoms. He or she learned about the benefits of using medication to treat ailments (Ertem & Duman, 2019).

A prior study discovered that adherence is influenced by a number of factors, including motivation, treatment outcomes, energy and willingness, fear of complications and new illnesses, support from friends and family, and support from medical professionals. On the other hand, self-management is influenced by a number of other factors (Paukkonen et al., 2021). Moreover, emotion regulation can be employed as a nursing intervention to raise awareness and reduce the number of antipsychotic medications taken (Kirchner et al., 2022).

Prescription adherence behaviour and beliefs about the attribution of mental and biological illnesses are related. In order to improve medication adherence, psychoeducation should focus on modifying the patient's beliefs about his illness by increasing his awareness and fostering positive attitudes about the use of antipsychotics and medical professionals (Suen et al., 2021). According to Cho & Jang (2019), schizophrenia patients can enhance their emotional expression and recognition with the aid of an emotion management program.

There is still a lack of research on how well assertiveness training combined with psychoeducation might increase medication adherence in people with schizophrenia. While there is evidence that assertiveness training can help patients learn how to express their needs and deal with social stress, and psychoeducation can help patients learn more about their illness and the value of treatment, the combination of these two approaches in a comprehensive intervention has not received much attention. To assess how well these two approaches work together and what effect they have on drug adherence, more research is required.

CONCLUSION

This study demonstrated the impact of a combination of psychoeducation and assertive training (PEAT) on medication adherence of schizophrenia patients. The significance of prompt intervention and appropriate medication with unfavourable side effects is discussed. Furthermore, a research design could allow patients to express their experiences and virtuosity while battling schizophrenia. Research indicates that healthcare facilities can benefit from a greater emphasis on the combination of psychoeducation and assertive training, as it can enhance the adherence of schizophrenia patients to their medications.

Moreover, a combination of psychoeducation and assertiveness training should be part of the treatment plan for all newly diagnosed patients with schizophrenia and for at least one caregiver. Although there is proof that psychoeducation can teach patients more about their illness and the importance of treatment, and assertiveness training can teach patients how to communicate their needs and handle social stress, the combination of these two strategies in a comprehensive intervention has not gotten much attention. Further research is needed to determine how effectively these two strategies complement one another and what impact they have on medication adherence.

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Systematic Review

Assessing the Role of Nursing Professionals in the Delivery of Integrated Primary Health Care

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ABSTRACT

Background: *The integration of Primary Health Care (PHC) services is crucial for improving health outcomes and efficiency in health systems globally. Nursing professionals play a critical role in delivering these integrated services. Understanding their contribution and the impact of their involvement is essential for optimising PHC delivery.*

The objective of this systematic review is to evaluate the roles and contributions of nursing professionals in the delivery of integrated primary healthcare services.

Methods: *A comprehensive search strategy will be implemented across electronic databases, including PubMed, CINAHL, and Cochrane Library, to identify relevant studies. Studies published from [start date] to [end date] will be considered. Two independent reviewers will screen titles and abstracts for eligibility, followed by a full-text review of potentially relevant articles. Data extraction and quality appraisal will be conducted using standardised forms. A narrative synthesis will be performed to analyse and summarise the findings.*

Conclusion: *This systematic review will provide evidence on the contributions of nursing professionals to integrated primary health care delivery. The findings will recommend policy and practice in primary health care services.*

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INTRODUCTION

Integrated primary health care (PHC) is a comprehensive approach to healthcare delivery that aims to provide accessible, coordinated, and patient-centered services. It involves the integration of various health services, including preventive, promotive, curative, and rehabilitative care, delivered by multidisciplinary teams (World Health Organization, 2024). Nursing professionals constitute a significant portion of these teams and play diverse roles in PHC settings, including direct patient care, health education, disease prevention, and health promotion (Donald et al., 2010). The growing

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complexity of healthcare needs and the increasing prevalence of chronic diseases necessitate the integration of care, where nursing professionals can significantly contribute to improved patient outcomes and system efficiency (Reeves, Pelone, Harrison, Goldman, & Zwarenstein, 2017).

Recent studies have highlighted the evolving role of nurses in integrated PHC settings, emphasizing their ability to enhance care coordination, manage chronic diseases, and provide comprehensive patient education (Kangovi, Mitra, Grande, Long, & Asch, 2020). For instance, nurses in primary care settings often take on roles traditionally held by physicians, such as conducting assessments, developing care plans, and managing follow-ups (Aiken et al., 2018). This shift not only alleviates the burden on physicians but also leverages the unique skills of nurses to foster a more holistic approach to patient care. Moreover, the involvement of nursing professionals in health promotion and disease prevention activities has been shown to improve community health outcomes (Oldland, Botti, Hutchinson, & Redley, 2020).

The integration of nursing professionals into PHC teams also supports the delivery of culturally competent care, particularly in diverse and underserved populations. Nurses often serve as the primary point of contact for patients, building trust and facilitating communication between patients and other healthcare providers (Rosen et al., 2020). This is particularly important in multicultural settings where language barriers and cultural differences can impede access to care. By fostering strong patient-provider relationships, nursing professionals can help ensure that care is tailored to the unique needs of individuals and communities (Lin, Lee, & Huang, 2017).

Despite their essential contributions, the specific role and impact of nursing professionals in integrated PHC remain underexplored. Existing literature has primarily focused on physician-led models of care or specific nursing interventions, overlooking the holistic contributions of nursing professionals within integrated PHC systems (Josephine, Ipuole, & Jessica, 2024). Understanding the scope of nursing practice within integrated PHC is crucial for optimising healthcare delivery and achieving universal health coverage goals. The complexity and variability of PHC models across different contexts further complicate the understanding of nursing roles (Shahaed et al., 2023).

Barriers to the effective integration of nursing professionals in PHC include insufficient training, lack of role clarity, and limited opportunities for professional development (Yousefi, Ziaee, & Golshiri, 2019). These challenges can hinder the ability of nurses to fully engage in integrated care activities and limit their impact on patient outcomes. Addressing these barriers requires targeted efforts to enhance nursing education, clarify roles within PHC teams, and provide ongoing professional development opportunities (Bauer & Bodenheimer, 2017). Furthermore, healthcare systems need to recognize and support the value of nursing contributions through appropriate policies and resource allocation (Josephine et al., 2024).

Facilitators that enhance the role of nursing professionals in integrated PHC include strong leadership, interprofessional collaboration, and supportive organizational cultures (Reeves et al., 2017). Effective leadership can promote a shared vision of integrated care and advocate for the inclusion of nursing perspectives in decision-making processes. Interprofessional collaboration fosters mutual respect and understanding among team members, enabling nurses to contribute their expertise effectively. Organizational cultures that value continuous learning and innovation also support the integration of nursing professionals in PHC (Rosen et al., 2020).

Emerging evidence suggests that nursing-led models of care within integrated PHC can improve patient satisfaction, reduce healthcare costs, and enhance health outcomes (Griffin, 2017). For example, nurse practitioners and advanced practice nurses have been shown to manage chronic conditions effectively, resulting in lower hospitalisation rates and improved patient adherence to treatment plans (Stanhope, Marcia Lancaster, 2024). These models capitalise on the advanced skills and knowledge of nursing professionals, positioning them as key players in the delivery of integrated PHC.

The role of nurses in Primary Health Care shows a significant contribution to interprofessional collaborative care and patient education. However, recognition of this contribution has not been comprehensive, as the literature still often emphasises physician-led models of care and their specific interventions. These include unclear roles, inadequate training, and limited professional development of nurses. Overcoming this problem requires targeted education, clear role definitions, and supportive policies. New nurse-led care models are showing results in increased patient satisfaction, but fully integrating nurses into primary health care teams through strong leadership and collaboration is critical to maximising their impact.

This systematic review aims to synthesise existing evidence on the role of nursing professionals in integrated PHC delivery. By elucidating the contributions, challenges, and outcomes associated with nursing involvement, this review seeks to inform policy, practice, and future research directions in the field of primary healthcare. A comprehensive understanding of nursing roles within integrated PHC is essential for optimising healthcare delivery, improving patient outcomes, and achieving universal health coverage goals (Chouinard, Contandriopoulos, Perroux, & Larouche, 2017).

MATERIALS AND METHOD

Objectives

The primary objective of this systematic review is to evaluate the roles and contributions of nursing professionals in the delivery of integrated primary health care services. Secondary objectives include examining the outcomes associated with nursing involvement and identifying barriers and facilitators to their effective participation in PHC.

Eligibility Criteria

Inclusion Criteria

Participants: Nursing professionals (registered nurses, nurse practitioners, clinical nurse specialists, and other advanced practice nurses) involved in the delivery of integrated primary health care (PHC).

Interventions: Any model of integrated PHC where nursing professionals have a defined role, including care coordination, chronic disease management, patient education, and health promotion.

Comparators: Non-integrated PHC models or other health professional-led models without significant nursing involvement.

Outcomes: Primary outcomes include patient health outcomes (e.g., clinical indicators, patient-reported outcomes), service delivery efficiency (e.g., wait times, consultation durations), patient satisfaction, and professional satisfaction among nursing staff.

Study Designs: Randomized controlled trials (RCTs), quasi-experimental studies, cohort studies, case-control studies, and qualitative studies.

Setting: Primary health care settings worldwide, including community health centres, family practice units, rural health clinics, and other multidisciplinary health care facilities.

Exclusion Criteria: Studies not focused on the role of nursing professionals.

Studies not conducted in integrated PHC settings.

Non-peer-reviewed articles, commentaries, editorials, and letters.

Information Sources

Electronic Databases: A comprehensive search will be conducted in MEDLINE, PubMed, CINAHL, Scopus, Cochrane Library, and Web of Science.

Grey Literature: Searches will include grey literature databases such as Google Scholar, OpenGrey, and relevant conference proceedings.

Manual Searching: Reference lists of included studies and key journals in the fields of nursing and primary health care will be manually searched to identify additional relevant studies.

Search Strategy

The search strategy will combine keywords and medical subject headings (MeSH) related to nursing professionals, integrated primary health care, and relevant outcomes. The search terms will include combinations of “nursing,” “integrated care,” “primary health care,” “patient outcomes,” “service delivery,” and “satisfaction.”

Study Selection

Titles and abstracts of identified articles will be independently screened by two reviewers to determine their relevance based on the eligibility criteria. Full texts of potentially relevant articles will be retrieved and assessed for eligibility. Disagreements between reviewers will be resolved through discussion or by consulting a third reviewer if necessary.

Data Extraction

Data will be extracted using a standardised data extraction form, which will be piloted and refined as needed. Extracted data will include study characteristics (e.g., study design, sample size, setting), participant details (e.g., demographics, health conditions), intervention descriptions (e.g., role of nursing professionals, type of integrated care model), outcomes measured (e.g., clinical indicators, patient satisfaction scores), and key findings. Data extraction will be performed independently by two reviewers, and discrepancies will be resolved through discussion or consultation with a third reviewer.

Risk of Bias Assessment

The risk of bias in included studies will be assessed using appropriate tools based on study design:

RCTs: The Cochrane Collaboration's Risk of Bias tool will be used to evaluate random sequence generation, allocation concealment, blinding, incomplete outcome data, selective reporting, and other sources of bias.

Non-randomised studies: The ROBINS-I tool will be employed to assess bias due to confounding, selection of participants, classification of interventions, deviations from intended interventions, missing data, measurement of outcomes, and selection of reported results.

Qualitative studies: The Critical Appraisal Skills Programme (CASP) checklist will be used to assess the credibility, relevance, and methodological rigour of qualitative studies.

Data Synthesis

A narrative synthesis will be conducted to summarise findings from all included studies, organised by key themes such as patient health outcomes, service delivery efficiency, patient satisfaction, and professional satisfaction. Where possible, quantitative data will be pooled using meta-analysis with a random-effects model to account for variability among studies. Heterogeneity will be assessed using the I^2 statistic, with values above 50% indicating substantial heterogeneity. Subgroup analyses will be performed to explore potential variations in outcomes based on the type of nursing professional, geographical location, and PHC model.

Reporting

The systematic review will be reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The findings will be disseminated through publication in peer-reviewed journals, presentations at relevant conferences, policy briefs, and social media platforms to reach a wide audience, including policymakers, healthcare providers, and researchers.

DISCUSSION

The theme of assessing the role of nursing professionals in the delivery of integrated primary health care (PHC) was chosen due to the growing recognition of the critical role nurses play in enhancing healthcare outcomes and system efficiency. The integration of PHC services is pivotal for addressing complex health needs, managing chronic diseases, and promoting preventive care (Reeves et al., 2017). Given the evolving responsibilities of nurses within PHC teams, it is essential to understand their contributions to ensure effective healthcare delivery. This systematic review aims to fill the knowledge gap by providing comprehensive insights into how nursing professionals impact integrated PHC.

However, the systematic review is subject to certain limitations. One potential limitation is the variability in PHC models and the roles of nursing professionals across different healthcare systems and cultural contexts, which might affect the generalizability of findings (Shahaed et al., 2023). Additionally, the review may be constrained by publication bias, where studies with positive outcomes are more likely to be published, skewing the overall analysis (Josephine et al., 2024). Language restrictions could also limit the inclusion of relevant studies published in non-English journals, potentially omitting important international perspectives.

The anticipated contributions of this systematic review include providing evidence-based insights that can inform policy and practice, emphasising the

significance of nursing roles in integrated PHC. The findings are expected to highlight areas for improvement, such as training, role clarity, and professional development opportunities for nurses (Oldland et al., 2020). By elucidating the facilitators and barriers to effective nursing practice within integrated PHC, this review aims to support the development of targeted interventions and policies that enhance the integration of nursing professionals, ultimately improving patient outcomes and healthcare system efficiency.

CONCLUSION

This systematic review protocol highlights the important role of nursing professionals in integrated primary health care, despite several limitations. Variability in integrated primary healthcare models and nursing roles across different healthcare systems and cultural contexts may influence the generalizability of findings, while publication bias and language limitations could potentially compromise the overall analysis. Nevertheless, the expected contribution of this review is quite large.

By synthesising evidence-based insights, it aims to inform policy and practice that enhances nursing's contribution to primary health care. Emphasizing training, role clarity, and professional development opportunities for nurses, this review seeks to identify key facilitators and barriers to effective nursing practice in integrated healthcare care settings. Ultimately, by addressing these challenges, targeted interventions and policies can be developed to optimize the integration of nursing professionals, thereby improving patient outcomes and increasing the efficiency of the healthcare system, especially integrated primary care.

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Original Research

Description of Knowledge of Parenting Processes and Quality of Mother-Child Interaction in Yogyakarta, Indonesia

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ABSTRACT

Background: The COVID-19 pandemic has caused changes in aspects of knowledge and the quality of mother-child interaction. These changes are a result of the suboptimal and unsustainable implementation of a program. Mothers have faced difficulties in implementing parenting patterns during this pandemic. The objective of this study was to provide an overview of the level of knowledge and quality of mother-child interaction in the parenting process during the COVID-19 pandemic in Kulon Progo, Yogyakarta, Indonesia.

Methods: The study employed a quantitative descriptive design in March and April 2023. The participants were mothers with toddlers who had received cadre mentoring in child development in 2018, totalling 57 respondents from the entire village in Kulon Progo, Yogyakarta, Indonesia. Questionnaires on maternal knowledge and the quality of interaction for carers were utilised in this study. The data was described using frequency, percentage, and mean.

Results: The mother's level of knowledge was 51.98 (21.43), with a distribution of 45.61% indicating less knowledge and 54.38% indicating good knowledge. The mother's interaction quality was 51.06 (20.11), with 63.15% indicating good interaction quality and 36.85% indicating less intractable quality.

Conclusion: The findings of the study indicated a decrease in the knowledge aspect of mothers during the COVID-19 pandemic, while the quality of mother-child interaction has shown an increase.

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INTRODUCTION

Based on 2018 Basic Health Research, the occurrence of stunting in Indonesia in 2018 reached 30.8% (Kementerian Kesehatan Republik Indonesia, 2018). In 2021, the

percentage of stunted toddlers in Indonesia was 24.4%, or 5.33 million toddlers. Despite the decrease, this figure is still considered high according to the threshold established by the World Health Organisation (WHO) of 20%. Conversely, the rate of stunting in Yogyakarta is 17.3% (Ministry of Health Indonesia, 2018).

Kulon Progo Regency is one of the areas that has responded to cases of stunting, as evidenced by a significant annual reduction in stunting incidents. The incidence rate of stunting in Kulon Progo was 14.31% in 2018. In 2021, the percentage of stunting decreased to only 10.35%. However, Kulon Progo remains the region with the highest prevalence of protein-energy malnutrition deficiency in the province of DI Yogyakarta.

Protein-energy deficiency is a form of malnutrition that arises from inadequate consumption of energy and protein in the daily diet, posing a risk factor for stunting. One specific area in Kulon Progo Regency that receives special attention in relation to stunted toddler growth is the working area of the Kalibawang Health Centre, which encompasses four villages, representing 26% of the region (Dinas Kesehatan Daerah Istimewa Yogyakarta, 2020). In 2018, a research study was undertaken to provide child development (CCD) training to carers in Kalibawang, with a focus on mentoring methods.

This region was chosen as a pilot area to accelerate efforts to treat stunting in Kulon Progo Regency (Dinas Kesehatan Daerah Istimewa Yogyakarta, 2020). The CCD training, which included comprehensive interventions, targeted primary carers and aimed to enhance the mother's capacity, particularly in terms of knowledge and behavioural aspects of mother-child interaction. The training was implemented through various methods, such as lectures, interactive discussions, active observation, demonstrative practices, and the use of audiovisual media (Akhmadi et al., 2021).

The study took place in the working area of Kalibawang Health Center, Kulon Progo, prior to the COVID-19 pandemic. However, the implementation of CCD training faced obstacles as the procedures taught to carers were affected. Moreover, it is highly likely that challenges in the parenting process also emerged, necessitating further evaluation of the mother's capacity to optimize the growth and development of the child.

The CCD training emphasizes the collaboration of carers to maximize the mentoring process for the mother. This mentoring occurs during observation, home visits, or posyandu activities. However, the COVID-19 pandemic introduced obstacles in the health system, subsequently affecting the application of CCD mentoring (Akhmadi et al., 2021).

Previous studies have indicated that training in Child Care Development (CCD) has the potential to significantly enhance maternal knowledge and the quality of interaction. This enhancement was substantiated by the identification of substantial variations in the statistical outcomes between the control and intervention groups subsequent to the CCD training (Akhmadi et al., 2021). The amplification of maternal capability has a notable influence on the practice of parenting patterns within the child.

Meanwhile, the process of parenting has undergone alterations amid the COVID-19 pandemic. On March 11, 2020, the World Health Organisation (WHO) declared the Corona Virus Disease (COVID-19) a global pandemic (Cucinotta & Vanelli, 2020). Throughout the COVID-19 pandemic, Indonesia has encountered four distinct variants of COVID-19, including Alpha, Beta, Delta, and Omicron. The COVID-19 pandemic has had an impact on various domains, encompassing health workers, governments, and

families (Setiawan & Suwardianto, 2021; Suwardianto et al., 2022; Suwardianto & Setiawan, 2021).

One of the challenges that arises within families is the limitation faced by parents in their approach to parenting (Fernianti, 2022). The existence of the COVID-19 pandemic has led to modifications in parenting patterns, both in terms of attitudes and behaviours among mothers. Previous research has demonstrated that a majority of parents have encountered difficulties in parenting during the COVID-19 pandemic. The obstacles that impede parental parenting patterns include alterations in daily routines, concerns, and anxieties influenced by COVID-19 (Galanis et al., 2022).

Research conducted by Yoshikawa et al., (2020) has demonstrated that the COVID-19 pandemic exerts a significant influence on the overall quality of public health services. The pandemic has a direct and profound impact while also presenting long-term risk factors. This can be primarily attributed to the economic restraints and the resultant challenges in fulfilling daily necessities, which consequently lead to heightened stress levels and limited accessibility to healthcare facilities. In a separate study conducted by Garcia et al. (2022), the intricate ramifications of the COVID-19 pandemic on families are expounded upon.

The multifaceted effects are observed within various aspects of family dynamics, including health, employment, economic stability, access to essential resources, psychological well-being, and the interactions between family members. Mothers, in particular, often experience stress due to the dual role they play in maintaining family equilibrium; this role ambiguity entails being responsible for both child-rearing and fulfilling work or academic obligations. In fact, mothers play a pivotal role in nurturing their children within the confines of their homes. The knowledge base and the quality of mother-child interaction are crucial in facilitating an effective parenting process. Both of these aspects significantly impact the interpretation of parenting practices in everyday life.

Based on the outlined research, it is evident that studies have already been conducted to understand the state of knowledge and the quality of mother-child interaction through CCD training. Furthermore, several studies have also been carried out to determine the growth and development of children's nutritional status using the CCD training approach in Kalibawang, Kulon Progo. Additionally, research has been conducted to explore the knowledge and quality of interaction between mothers and children during the child's growth process.

However, there is a lack of research specifically evaluating the outcomes of implementing maternal care through the CCD approach in the context of the COVID-19 pandemic in Kalibawang, Kulon Province. Therefore, further research is needed to assess the level of knowledge and quality of mother-child interaction after comprehensive mentoring of carers through CCD training in Kalibawang, Kulon Progo, during the pandemic. The objective of this study is to gain an understanding of the level of knowledge and quality of mother-child interaction in the parenting process during the COVID-19 pandemic in Kalibawang, Kulon Progo. The evaluation results will then be used to recommend the implementation of CCD training to enhance the effectiveness and sustainability of knowledge and the quality of mother-child interaction in the future.

MATERIALS AND METHOD

Design

The present study adopts a quantitative-descriptive research approach. The primary objective of the research is to investigate the extent of maternal knowledge and the quality of mother-child interaction.

Sample and Settings

A total of 57 mothers who received CCD training in Kalibawang, Kulon Progo, in 2018 were included in the study. The sampling method employed was consecutive sampling. The inclusion criteria encompassed mothers who underwent CCD training in the specified location in 2018 and have children aged between 4 and 6 years old. Exclusion criteria involved mothers who are deceased or have relocated.

Instruments

Three main instruments were utilised in this research: the questionnaire on respondent characteristics, the questionnaire on maternal knowledge, and the quality of mother-child interaction. These instruments were developed by Akhmadi et al., (2021) and have undergone validation to ensure their reliability for research purposes.

Demographic data questionnaire

An Indonesian demographic form was developed by the researchers, including age, education, occupation status, and family outcome.

Mothers Parenting Process Knowledge Questionnaire

The knowledge questionnaire comprises 20 statements and has undergone validation and reliability testing in previous studies conducted by (Akhmadi et al., 2021). The effectiveness of the instrument was evaluated on a sample of 30 respondents in the work area of the Kalibawang Health Center. To establish its validity, the correlation between the statements in the questionnaire needed to be equal to or greater than 0.361 based on the validity table, with a significance level of 5%. Conversely, if the correlation value falls below 0.361, the questionnaire is deemed invalid and requires further attention. As the overall item count r exceeds the table r of 0.361, it can be determined to be valid. Reliability can be assessed through the Cronbach alpha test. Reliability is considered valid if the Cronbach alpha value exceeds 0.70. In the case of the knowledge instrument, the Cronbach alpha value is 0.820, indicating high reliability.

Quality of Mother-Child Interaction Questionnaire

The validity and reliability of the interaction quality questionnaire, consisting of 19 question items, were examined in a study conducted by (Akhmadi et al., 2021). In order to determine the validity of the instrument, it is necessary to assess the correlation value of the statements in the questionnaire, which should be equal to or greater than 0.361 based on a validity table with a significance level of 5% (Akhmadi et al., 2021). When assessing the validity of instruments that measure the quality of mother-child interaction, the item validity values range from 0.374 to 0.607. Additionally, the Cronbach's alpha value for the 19 question items was found to be 0.831, indicating acceptable reliability and confirming the suitability of the instrument for use in the study.

Data Collection

The data collection process occurred between March and April 2023. The process of data collection was conducted offline, with a particular emphasis on adhering to health protocols and research ethics. On average, participants spent approximately 30 minutes responding to the provided questionnaires.

Data Analysis

The collected data were described using IBM SPSS Statistics version 25.0 (IBM Corp., Armonk, N.Y., USA). Descriptive statistics serve as the primary technique to describe the data in this study. This entails the presentation of the mean, standard deviation, frequency distributions, and percentages for each variable under investigation. By adopting this approach, a comprehensive understanding of the level of maternal knowledge and the quality of mother-child interaction within the studied population can be obtained.

Ethical Consideration

Written informed consent was procured from all adult participants and their parents or legal guardians in adherence to the ethical principles of autonomy, beneficence, and non-maleficence. Ethical approval was granted by the Medical and Health Research Ethics Committee (MHREC) of the XXX with the reference number KE/FK/0533/EC/2022.

RESULTS

Based on the data presented in Table 1, it can be observed that the greatest proportions are attributed to females in the stages of early and late adulthood, accounting for 42.10% of the total. Moreover, it is evident that the highest percentage of mothers possess a secondary school education, amounting to 91.22%. Furthermore, the non-working category encompasses a significant portion of mothers, constituting 78.94%. Lastly, a noteworthy 92.9% of mothers have an income that falls below the UMK threshold set by the Kulon Progo Regency.

Table 1. Respondent's Characteristics (n=57)

	Variable	f	%
Age	Late Adolescence	4	7.01
	Young Adult	24	42.10
	Midle-aged Adult	24	42.10
	Older Adult	5	8.77
Education	Elementary	5	8.77
	High School	52	91.22
Occupation	Unemployed	45	78.94
	Employed	12	21.05
Family Income	< RMW	53	92.9
	> RMW	4	7.01

Note: RMW=Regional Minimum Wage per Month

Based on the findings of the descriptive analysis conducted on the image, it can be determined that the mother's knowledge level has an average value of (51.98). The respondents were classified into different categories based on the average score derived

from the overall answer score of 57 participants. The data reveals that the proportion of respondents with a low level of knowledge (54.38%) is higher in comparison to those with a high level of knowledge (45.61%) (Table 2).

Table 2. Description of Mother's Knowledge (n=57)

Variable	Category	f	%	Mean (SD)
Knowledge Level	Good	26	45.61	51.98 (21.43)
	Poor	31	54.38	

Based on the findings of the analysis regarding the knowledge aspect score of each dimension, it was observed that the cognitive dimension had an average score of 2.61. Similarly, the affective dimension had a mean score of 2.58 for the knowledge aspect, while the psychomotor dimension had an average score of 2.66. Notably, it was found that the highest percentage (56.14%) was accounted for by mothers who lacked knowledge of aspects in the psychomotor domain. Conversely, the lowest percentage (43.86%) was found among mothers who possessed knowledge aspects in the good psychomotor domain (Table 3).

Table 3. Knowledge Score in Each Dimension (n=57)

Knowledge Dimension	Good		Poor		Mean (SD)
	f	%	f	%	
Cognitive	26	45.61	31	54.39	17.84 (5.11)
Affective	29	50.88	28	49.12	15.25 (6.27)
Psychomotor	25	43.86	32	56.14	18.89 (6.21)

Based on the results obtained from cross-tabulating the characteristics of respondents with their known level of knowledge, it is evident that respondents classified under the early adolescent adult age category and possessing a good level of knowledge exhibit the highest percentage at 22.81%. Similarly, respondents falling under the category of secondary education and possessing both low and high levels of knowledge demonstrate the highest percentage at 45.61%. Furthermore, respondents categorised as not working and lacking knowledge also display the highest percentage at 42.11%. Lastly, respondents belonging to the low income category and possessing low levels of knowledge exhibit the highest percentage at 50.88% (Table 4).

Table 4. Cross-Tabulation of Knowledge Level and Respondent's Characteristics (n=57)

Variable		Knowledge			
		Good		Poor	
		f	%	f	%
Age	Late Adolescence	1	1.75	3	5.26
	Young Adult	13	22.81	12	21.05
	Middle-aged Adult	11	19.30	12	21.05
	Older Adult	2	3.51	3	5.26
Education	Elementary	1	1.75	4	7.02
	High School	26	45.61	26	45.61
Occupation	Unemployed	21	36.84	24	42.11
	Employed	6	10.53	6	10.53
Family Income	< RMW	24	42.11	29	50.88

Variable	Knowledge			
	Good		Poor	
	f	%	f	%
> RMW	3	5.26	1	1.75

Note: RMW=Regional Minimum Wage per Month

The descriptive analysis of the picture revealed that the mother-child interaction has an average value of 51.06. After computing the overall score of 57 respondents, the classification of categories based on average scores was obtained. The data presented in the table indicates that the percentage of respondents with good-quality interaction (63.15%) outweighs those with less-quality interaction (Table 5).

Table 5. Description of Mother-Child Interaction Quality (n=57)

Variable	Category	f	%	Mean (SD)
Interaction Quality Level	Good	36	63.15	51.06 (20.11)
	Poor	21	36.85	

Based on the outcomes of the analysis conducted on the interaction quality scores in each domain, it was found that the average value for the quality of mother-child interaction in the affection domain is 12.07. Similarly, the mean quality of interaction in the responsiveness domain stands at 12.34, whereas the mean quality of interaction in the encouragement domain is recorded as 12.26. Lastly, the mean quality of interaction in the teaching domain is determined to be 14.38. Out of all the analysis results, it is worth noting that the interaction quality scores in the teaching domain exhibit the highest percentage, amounting to 66.67%, according to Table 6.

Table 6. Interaction Quality Score in Each Dimension (n=57)

Interaction Quality Domain	Good		Poor		Mean (SD)
	f	%	f	%	
Affection	25	43.85	32	56.14	12.07 (4.20)
Responsiveness	32	56.14	25	43.85	12.34 (4.91)
Encouragement	34	59.64	23	40.35	12.26 (4.11)
Teaching	38	66.67	19	33.33	14.38 (5.72)

Based on the outcomes of cross-tabulating the characteristics of participants with the standard of interaction, participants who fall under the groups of early adulthood and high standard of interaction possess the greatest proportion (29.82%), participants who fall under the group of secondary education and high standard of interaction possess the greatest proportion (59.65%), participants who fall under the groups of unemployment and high standard of interaction possess the greatest proportion (49.12%), as well as participants who fall under the group of low income and standard of interaction, which either had the greatest proportion (59.65%) (Table 7).

Table 7. Cross-Tabulation of Interaction Quality Level and Respondent's Characteristics (n=57)

Variable	Interaction Quality				
	Good		Poor		
	f	%	f	%	
Age	Late Adolescence	4	7.02	0	0.0
	Young Adult	17	29.82	8	14.04
	Midle-aged Adult	13	22.81	10	17.54
	Older Adult	3	5.26	2	3.51
Education	Elementary	3	5.26	2	3.51
	High School	34	59.65	18	31.58
Occupation	Unemployed	28	49.12	17	29.82
	Employed	9	15.76	3	5.26
Family Income	< RMW	34	59.65	19	33.3
	> RMW	3	5.26	1	1.75

Note: RMW=Regional Minimum Wage per Month

DISCUSSION

The objective of this research was to provide an overview of the level of knowledge and quality of mother-child interaction in the parenting process during the COVID-19 pandemic in Kulon Progo, Yogyakarta. The results of this demonstrated that the age group with the highest proportion of knowledge was early adulthood, as well as in the variable of communication quality, indicating that the early adult group had the highest percentage of interaction quality. The mother's self-assurance as a caretaker increases with age and experience in relation to the parenting process. The more mature the mother is, the more comprehending she becomes in providing positive affirmations, support and encouragement, and a sense of affection, ultimately resulting in a favorable internalisation.

The majority of participants possessed a recent educational background in the secondary category. Mothers falling under the secondary final education category displayed a commendable level of knowledge and interaction quality. Consistent with prior investigations, mothers with a low educational background tended to possess an understanding of substandard parenting patterns. Mothers with a history of limited education still harbour an erroneous theory of parenting practice (Ilmiati, 2021; Rosda, 2019; C. Weitzman et al., 2011, 2015; M. Weitzman et al., 2011).

Based on the cross-tabulation table illustrating the relationship between respondents' characteristics, their level of knowledge, and the quality of interaction, it can be observed that individuals with incomes below MSMEs exhibit a lower level of knowledge. Conversely, respondents with incomes below MSMEs demonstrate a favourable quality of interaction. Parents with a lower economic degree display significant consideration in meeting their child's needs. On the other hand, parents with stable economies are capable of fulfilling all of their child's requirements (Chotima, 2015; Handayani, 2022).

The majority of participants in the study were housewives who were not employed. By examining the cross-tabulation between respondents' characteristics, the level of knowledge, and the quality of interaction, it was discovered that mothers in the non-working category possessed a lower level of knowledge. In contrast, these mothers exhibited a positive quality of interaction. The process of parenting is closely

intertwined with the various activities undertaken by mothers to support their child's development (Susanto, 2021).

Maternal knowledge refers to the mother's comprehension of the various stages of a child's growth and development in accordance with the mother's age. Within this investigation, it was discovered that the mean value of maternal knowledge was 51.98, with 31 participants exhibiting a low level of knowledge and 26 mothers demonstrating a high level of knowledge. This can be supported by the distribution of the mothers' responses, which consistently displayed a lack of accuracy for each respective age stage. Furthermore, certain mothers appeared indecisive and uncertain when providing answers.

The analysis of maternal knowledge, based on the operational definition, encompasses three dimensions: cognitive, affective, and psychomotor. The cognitive dimension pertains to maternal parenting behavior as influenced by perceptions, beliefs, and individual thought processes. The affective dimension entails parenting behavior that emphasises personal preferences, values, attitudes, and motivation. Lastly, the psychomotor dimension encompasses parenting behavior rooted in motor skills and physical activity (Suryana, 2018, 2021).

The poor interaction quality of the mother when engaging with the child is the definition of quality of interaction. In this particular study, it was discovered that the average value of mother-child interaction quality was 51.06, with 36 mothers exhibiting good interaction quality and 21 others demonstrating poor interaction quality. This finding was corroborated by the distribution of responses from the participants, who were accurate in each domain. Some observers also noted that the majority of mothers observed had already adopted effective parenting practices in their daily lives.

Research indicates that there is an enhancement in the quality aspects of interaction among mothers who have undergone CCD training following the COVID-19 pandemic. This aligns with previous research, which suggests that CCD training can enhance the quality of interaction, enabling mothers to engage with their children through play (Oktavianto et al., 2016). Considering the classification of each domain, the predominant participants in this study already exhibited a high score for interaction quality. This finding is consistent with the research conducted by Akhmadi et al. (2021), which highlights the effectiveness of CCD training through stimulus administration in improving the quality of maternal interaction in terms of affection and teaching.

In accordance with the operational definition, the analysis of the quality aspects of mother-child interaction is based on four domains: affection, responsiveness, encouragement, and teaching. The domain of affection pertains to the emotional connection and fondness between the mother and child during interaction. The responsiveness domain focusses on the mother's ability to promptly and appropriately respond to the child's needs. The encouragement domain emphasises the parental support and motivation provided during mother-child interaction. Lastly, the teaching domain concentrates on the parent's role in instructing the child during their interaction (Harvens et al., 2019).

The aspect of the quality of maternal interaction related to the process of parenting the child has an average value of 12.07 in the domain of affection. It should be noted that the highest score in the affection domain is found in items involving interaction with the child. The study's results indicate that 32 respondents (56.14%) have been classified as having good responsiveness in the domain of responsiveness. According to the data, the dominant mothers have not demonstrated a clear sense of affection for their

children. However, it is expected that mothers should be able to establish a warm bond with their children and spend quality time together to provide positive emotions, confidence, and affection (Ngewa, 2021).

The average value of the domain of responsiveness, which pertains to the quality of maternal interaction in the child-rearing process, is 12.34. Notably, the highest score in the responsiveness domain is observed in items that involve responding to the child's voice. The study's findings reveal that 32 respondents (56.14%) have been classified as having good responsiveness. Based on the data, it is evident that the dominant mothers already exhibit clear responsiveness towards their children. Mothers who display good responsiveness also tend to possess good sensitivity, enabling them to be more attuned to their children's needs (Anggraini, 2022).

In terms of the quality of maternal interaction in the process of parenting, the domain of encouragement has an average value of 12.26. It is worth noting that the highest score in the impulse domain is associated with items that provide support for the child's desired activities. The results of the impulse domain score indicate that 34 respondents (59.64%) have already exhibited a good aspect of encouragement. Based on the data, it is evident that the dominant mothers already demonstrate clear support for their children. Encouragement can have a positive impact on a child's development. Mothers who support their children's activities can foster early independence (Oktavianto & Paramitha, 2017).

The average value of the domain of teaching, which pertains to the quality of maternal interaction in the child-rearing process, is 14.38. Notably, the highest score in the teaching domain is found in items that involve explaining something to the child. The study's findings indicate that 38 respondents (66.67%) exhibit good teaching abilities. Based on the data, it is evident that the dominant mothers already exhibit clear teaching towards their children. Mothers can facilitate the learning process by engaging their children in activities that stimulate creativity and support their development while at home (Holis, 2017; Marwiyati, 2021; Saadah et al., 2020).

CONCLUSION

Based on the findings of the study, the COVID-19 pandemic led to a majority of mothers possessing a limited level of knowledge, while most mothers demonstrated a commendable level of interaction. The primary reason for the decline in maternal knowledge scores was attributed to the time-consuming nature of data retrieval in the context of CCD training, which lacked sustained program support during the pandemic. Conversely, the surge in interaction quality scores can be attributed to the increased proximity and heightened inclination of parents to engage with their children during the COVID-19 crisis.

The study findings point to the importance of mothers effectively implementing the knowledge acquired through CCD training to optimise the parenting process, particularly in terms of cognitive and affective aspects. Additionally, it is recommended that Puskesmas, as healthcare centres, regularly conduct training sessions for the community, particularly carers, to enhance their knowledge and uphold the quality of interaction in the realm of parenting. Furthermore, the study identified gaps, such as the decline in maternal knowledge despite improved mother-child interaction quality, underscoring the need to explore the factors behind this improvement. Further studies should also consider the increased stress on mothers due to dual roles, economic

constraints on resource access and healthcare, and changes in parenting practices during the pandemic.

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Original Research

The Relationship Between Adults, Elderly, and Smoking History With The Incidence Of Adhesive Capsulitis Shoulder

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ABSTRACT

Background: The pathological condition known as Adhesive Capsulitis Shoulder (ACS) is characterised by the excessive production of fibrotic tissue, resulting in the rigidity of the capsule of the glenohumeral joint. These factors encompass age, gender, extended immobilisation of the shoulder region, tobacco use, and more variables. The primary objective of this study is to investigate the correlation between adults, older people, and smoking history in relation to the prevalence of adhesive capsulitis shoulder at the Orthopaedic Poly of Indonesia.

Methods: The present investigation employs an observational analytical design, utilising a case-control methodology. The study examined the relationship between two independent variables: age (specifically adults and older people) and smoking history. The dependent variable under investigation was adhesive capsulitis in the shoulder. The purposive selection technique was employed to choose a sample consisting of 94 cases of ACS events and 94 controls who did not experience any ACS events. A statistical test known as the Odds Ratio (OR) was conducted to analyse the data.

Results: The test results indicate that age ($OR < 1$; $OR = 0.178$, 90% CI 0.092–0.346) and smoking history have a significant impact on the incidence of adhesive capsulitis shoulder at the Orthopaedic Poly of Indonesia. Additionally, both variables have a value ($OR < 1$; $OR = 0.501$, 90% CI 0.294–0.793).

Conclusion: The findings of this study indicate a correlation between age (adults and older adults), smoking history, and the occurrence of adhesive capsulitis in the shoulder at Orthopaedic Poly Indonesia.

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INTRODUCTION

Movement and its functions are an intrinsic component of human physical capabilities and functional capacities, with which humans are inseparable in daily life.

Human corporeal movement activities may be disrupted by the emergence of multiple complaints. Due to the shoulder region's substantial mobility and limited stability, any disruption to daily activities could be significantly disruptive.

The shoulder provides the greatest range of motion in the body, allowing the arm to lift and rotate in various directions. Problems that often arise from frozen shoulders are pain and limited range of motion of the joint, or LGS, which can reduce a person's functional ability (Apriliyani et al., 2021). Adhesive capsulitis shoulder (ACS), colloquially referred to as immobilised shoulder, is an instance of a shoulder disorder (Suhendro, 2023).

ACS describes the presence of adhesions and swelling (inflammation) in the glenohumeral joint capsule, which causes the capsule to shrink and form scar tissue (fibrosis), resulting in limitations in the shoulder joint's range of motion, both active and passive (Suharti et al., 2018). The prevalence of ACS in Asia reaches 15.6%. This value is consistent with that reported from other studies, ranging from 11% to 15% (Malavolta et al., 2018). In Indonesia alone, almost 5% of the population experiences ACS (Jehaman et al., 2021).

Based on the results of observations of preliminary data for the last five years from medical records at the Bahteramas Regional General Hospital, Southeast Sulawesi Province, patients who experienced ACS were 34.3% (2018), 35.9% (2019), 26.4% (2019), 10.1% (2021), 6.3% (2022), and 24.6% in January to June (2023) (Bahteramas, 2023). Factors that cause ACS are reported from various sources, such as in populations in the 40–60-year age group (Phansopkar, 2022). Apart from that, gender is another trigger factor: this disease attacks 0.33% of women and 0.23% of men per year (Itoi et al., 2016). This is supported by other research by De la Serna et al., (2021) which found that the incidence among women is 1.6–4 times higher than that of men.

Comorbidities, including diabetes, Dupuytren's syndrome, thyroid disease (particularly hypothyroidism), nephrolithiasis, cancer, Parkinson's disease, shoulder injuries, heart and neck surgery, chronic regional pain syndrome, and smoking, have been found to significantly contribute to the development of acute coronary syndrome (ACS) (De la Serna et al., 2021). Smoking is a contributing factor to the incidence of ACS. According to a study conducted by Zabrzynski et al., (2020) smoking tobacco has been found to have detrimental effects on muscles, bones, and tendons.

According to a recent study conducted by Caughey et al., (2021) smoking has been found to restrict blood flow in regions that are already experiencing relatively low blood volume. This restriction leads to a reduction in cell proliferation, an increase in the pace of degeneration, and an elevation in cellular inflammation. According to Caughey et al., (2021) these effects have the potential to impede the healing process, resulting in heightened pain levels and diminished functional abilities.

ACS results in various consequences, including pain, restricted joint mobility, reduced muscle strength, impaired functional tasks such as lifting hands during hair combing, rubbing the back during bathing, retrieving items from the back pocket of trousers, picking up or placing items on top, and difficulty in donning and removing clothing. According to Jehaman et al., (2021) the patient's inability to move the shoulder joint can exacerbate their pre-existing condition, leading to mobility abnormalities and impaired daily functioning activities. The researchers express their interest in performing a study titled "The Correlation between Adult Age, Elderly Status, and Smoking History with the Prevalence of Shoulder Adhesive Capsulitis in Orthopaedic Polyclinics in Indonesia," as indicated in the aforementioned description.

MATERIALS AND METHOD

This research is a type of observational analytical research with a case control approach, which is an analytical study of how risk factors are studied using a retrospective approach by analysing two specific groups, namely the group that suffers from the disease or is affected by the consequences and the group that does not suffer from the disease or is not affected by the consequences. This research uses primary data in the form of smoking questionnaire interviews and secondary data in the form of medical records. For primary data at the research location, adhesive capsulitis shoulder patients were asked for their willingness as respondents by filling out an informed consent form.

Furthermore, an interview was conducted to fill out the research questionnaire. For primary data conducted online via WhatsApp social media, researchers shared messages with respondents containing questions contained in the questionnaire. If respondents did not have WhatsApp social media, researchers contacted respondents via short message service (SMS), while secondary patient data was obtained from registration data at the orthopaedic polyclinic and medical records of adhesive capsulitis shoulder patients at Bahteramas Hospital, Southeast Sulawesi Province.

For adhesive capsulitis shoulder patients with a history of smoking, data were taken from patients who came to medical rehabilitation for physiotherapy and patients who came to the orthopaedic polyclinic. We used a questionnaire with an ordinal measurement scale with three categories, namely light smokers (1–10 cigarettes per day), moderate smokers (11–20 cigarettes per day), and heavy smokers (more than 20 cigarettes per day) menurut klasifikasi Bustan, 2007 yang telah di uji validitasnya (Bustan, 2007).

The study was carried out between December 6 and December 18, 2023. In 2023, the entire patient population of the Orthopaedic Polyclinic at Bahteramas Regional Hospital will comprise the subject of this investigation. Patients with adhesive capsulitis served as cases in this investigation, while controls lacked adhesive capsulitis shoulder. The sampling methodology employed was purposive sampling, in which the sample was selected according to predetermined inclusion and exclusion criteria. As a result, a total of 94 individuals were included in the case sample, whereas the control sample also consisted of 94 individuals.

We used purposive sampling as a sampling technique with certain considerations by using case inclusion criteria (Patients who have been diagnosed with adhesive capsulitis shoulder by an Orthopedic and Traumatology Specialist, ACS patients who come to Medical Rehabilitation, patients who are willing to be research respondents, and are able to communicate actively, have an active telephone number, and complete medical records), control inclusion criteria (patients who are not diagnosed with adhesive capsulitis shoulder by an Orthopedic and Traumatology Specialist, are able to communicate actively, have complete medical records), and exclusion criteria (refusing to be respondents, cannot be contacted, and incomplete medical records).

In data analysis, the frequency with which an exposure or risk factor is observed in cases relative to controls is determined using the Odds Ratio (OR). A bivariate analysis was performed to see the relationship between independent variables and dependent variables. Data were analysed by determining the Odds Ratio (OR) to assess how often there were exposure or risk factors in cases compared to controls. The OR calculation was preceded by cross-tabulation between variables.

In this study, adhesive capsulitis of the shoulder is the dependent variable; age and smoking history are the independent variables. The Health Research Ethics Commission of the Faculty of Medicine XXXX has issued a letter of ethical approval for this study, bearing the number 063/UN29.17.1.3/ETIK/2023.

RESULTS

Table 1 shows the distribution of the characteristics of the age at risk, namely the elderly, numbering 119 respondents, with the case group being 77 respondents (81.9%) and the control group being 42 respondents (44.7%), while the age group not at risk is 69 adults. respondents, with the case group amounting to 17 respondents (18.1%) and the control group amounting to 52 respondents (55.3%).

Table 1. Distribution of Age Characteristics

Age	Case (+)		Control (-)		Total	
	n	%	n	%	n	%
Adults (+)	77	81.9	42	44.7	119	63.3
Older adults (-)	17	18.1	52	55.3	69	36.7
Total	94	100	94	100	188	100

In Table 2, it was found that in the case group, the number of smokers was 58 respondents (61.7%) and the remaining non-smokers were 36 respondents (38.3%), while in the control group, the number of smokers was 42 respondents (44.7%) and the remaining non-smokers were 52 respondents (55.3%). Furthermore, smoking data from cases and controls was reprocessed to classify them as light smokers, moderate smokers, and/or heavy smokers.

Table 2. Smoking History (Case)

	Case (+)		Control (-)	
	n	%	n	%
Not a smoker	36	38.3	52	55.3
Smoker	58	61.7	42	44.7
Total	94	100	94	100

Table 3 shows the distribution of smoker classification characteristics in the case group of 58 smoker respondents. The highest number was found in heavy smokers with >20 cigarettes/day, 29 respondents (50.0%), then moderate smokers with 11-20 cigarettes/day, 15 respondents (25.9%), and light smokers with 1- 10 cigarettes/day amounted to 14 respondents (24.1%) while in the control group there were 42 smoking respondents with the largest number being light smokers with 1-10 cigarettes/day amounting to 25 respondents (59.5%), then moderate smokers. With 11-20 cigarettes/day, 10 respondents (23.8%), and finally heavy smokers with >20 cigarettes/day, 7 respondents (16.7%).

Table 3. Distribution of Smoker Classification Characteristics

Smoker Classification	Case (+)		Control (-)		Total	
	n	%	n	%	n	%
Light Smoker	14	24.1	25	59.5	39	39.0
Moderate Smoker	15	25.9	10	23.8	25	25.0

Smoker Classification	Case (+)		Control (-)		Total	
	n	%	n	%	n	%
Severe Smoker	29	50.0	7	16.7	36	36.0
Total	58	100	42	100	100	100

Table 4. The Influence of Age on the Incidence of Adhesive Caplaluis Shoulder in the Orthopedic Polyclinic of Bahteramas Regional Hospital

Age	Case (+)		Control (-)		OR	90% CI
	n	%	n	%		
Adults (+)	77	81.9	42	44.7	0.178	(0.092 – 0.346)
Older adults (-)	17	18.1	52	55.3		
Total	94	100	94	100		

Table 4, the results of calculating the Odds Ratio at the 90% CI level, obtained an OR of 0.178 {90% CI (0.092–0.346)}, indicating that someone in old age has a 0.17 times greater risk of suffering from adhesive capelusitis of the shoulder than someone who is older (≤ 40 years). Interpretation of the results obtained by $OR < 1$ means that the independent variable is a protective variable (the chance of ACS as a risk factor for the elderly is low). The interpretation of the lower limit (LL) and upper limit (UL) obtained is less than one, which means that the OR value obtained has a meaningful influence so that H_a is accepted or there is a relationship between age and the incidence of adhesive shoulder capelusitis at the Orthopaedic Polyclinic, Bahteramas Regional Hospital, Southeast Sulawesi Province.

The results of the Odds Ratio calculation at the 90% CI level obtained an OR of 0.501 {90% CI (0.294–0.793)} indicating that a smoker has a 0.50 times greater risk of suffering from adhesive capelusitis than a non-smoker. Interpretation of the results obtained by $OR < 1$ means that the independent variable is a protective variable (the chance of ACS as a risk factor for smoking history is low). The interpretation of the lower limit (LL) and upper limit (UL) obtained is less than one, which means that the OR value obtained has a meaningful influence so that H_a is accepted or there is a relationship between smoking history and the incidence of adhesive capelusitis shoulder in the Orthopaedic Polyclinic of Bahteramas Regional Hospital, Southeast Sulawesi Province.

Table 5. The Influence of Smoking History on the Occurrence of Adhesive Caplaluis Shoulder in the Orthopedic Polyclinic at Bahteramas Regional Hospital

Smoking History	Case (+)		Control (-)		OR	90% CI
	n	%	n	%		
Smoker(+)	58	61,7	42	44,6	0,501	(0,294 – 0,793)
Not a smoker (-)	36	38,3	52	55,4		
Total	94	100	94	100		

Tabel 6. Smoker classification with the incidence of Adhesive Caplalus Shoulder at the Orthopedic Polyclinic at Bahteramas Regional Hospital

Smoker Classification	I				OR	90% CI
	ACS		No ACS			
	n	%	n	%		
Light Smoker	14	21,9	25	39,1	0,373	(0,138 -0,848)
Moderate Smoker	15	23,4	10	15,6		
Total	29	45,3	35	54,7		
Smoker Classification	II				OR	90% CI
	ACS		No ACS			
	n	%	n	%		
Light Smoker	14	18,7	25	33,3	0,135	(0,042 -0,300)
Moderate Smoker	29	38,7	7	9,3		
Total	43	57,4	32	42,6		

After getting the number of smokers from both the case group and the control group, the researchers carried out the next analysis test, namely the dummy variable test, to determine the effect of the number of cigarettes smoked per day on the incidence of adhesive shoulder capelutitis. Table 6 shows that the proportion of ACS events was higher in moderate smokers, 15 respondents (23.4%), compared to light smokers, 14 respondents (21.9%). The results of calculating the Odds Ratio at the 90% CI level obtained an OR of 0.373 {90% CI (0.138 - 0.848), indicating that moderate smokers have a 0.37 times greater risk of suffering from adhesive capelutitis than light smokers.

In addition, it shows that the proportion of ACS events was higher in heavy smokers, 29 respondents (38.7%), compared to light smokers, 14 respondents (18.7%). The results of calculating the Odds Ratio at the 90% CI level obtained an OR of 0.135 {90% CI (0.042 - 0.300), indicating that heavy smokers have a 0.13 times greater risk of suffering from adhesive capelutitis than light smokers.

DISCUSSION

Influence of Age on the Occurrence of ACS

Based on the results of the univariate analysis, it shows that the distribution of the highest incidence of adhesive capsulitis shoulder in the orthopaedic polyclinic of Bahteramas Hospital, Southeast Sulawesi Province, is in the at-risk age group, namely age >40 years, amounting to 77 cases (81.9%). The highest age group without adhesive capsulitis shoulder in the orthopaedic polyclinic of Bahteramas Hospital, Southeast Sulawesi Province, is the non-risk age group, namely age ≤ 40 years, amounting to 52 cases (55.3%). According to the World Health Organisation (WHO), elderly people are divided into 4 categories: middle age (45–59 years), elderly (60–74 years), old age (75–89 years), and very old age (> 90 years) (Fasihullisan, 2019; Susanty et al., 2022).

Based on the WHO classification of the elderly, ACS patients fall into the middle age and elderly categories. The results of the bivariate analysis of age showed an OR value of 0.178 with a 90% CI of 0.092–0.346, which means that elderly people can experience adhesive capelutitis 0.17 times more than adults. WHO elderly classification: ACS patients fall into the middle-aged and elderly categories. The results of the bivariate analysis of age showed an OR value of 0.178 with a 90% CI of 0.092–0.346, which means that elderly people can experience adhesive capelutitis 0.17 times more than adults.

This research is in line with research conducted by Cao et al., (2022) showing that there is a significant relationship between age at risk, namely >40 years, and adhesive shoulder capelusitis, with a statistical analysis p-value of $0.001 < 0.05$. Another study conducted Sintia & Fatimah, (2020) stated that the majority of ACS sufferers were between the ages of 50 and 59 (51.7%). From this research, it can be concluded that advanced age is a risk factor for ACS.

This is in accordance with the theory put forward, namely that there is a decrease in physical ability so that elderly people have the possibility of being inactive for longer periods in the shoulder joint, which can cause ACS (Füzéki & Banzer, 2018). However, this research is different from other research conducted by Aïm et al., (2022) which shows that those aged ≤ 40 years who are not at risk can experience ACS with a statistical analysis p-value of $0.32 > 0.05$.

The Influence of Smoking History on the Occurrence of ACS

The results of the analysis test showed that the distribution of smokers was highest in the case group with adhesive capelusitis: 58 respondents (61.7%) compared to the control group, which did not have adhesive capjualis shoulder; only 42 respondents (44.7%), with an OR value of 0.501 {90% CI (0.294–0.793)}, shows that a smoker has a 0.50 times greater risk of suffering from adhesive capelusitis than a non-smoker. $OR < 1$, which means that smoking history is a protective variable (the chance of occurrence as a risk factor for smoking history is low). Next, an analysis was carried out to classify smokers.

The classification of smokers is divided into three categories: light smokers: 1–10 cigarettes per day; moderate smokers: 11–20 cigarettes per day; and heavy smokers: more than 20 cigarettes per day. The results obtained showed that the largest distribution of case groups was in heavy smokers, amounting to 29 respondents (50.0%), while in the control group, the largest number was in light smokers, amounting to 25 respondents (59.5%). Research that is in line with this research conducted by Deng & Wei (2023), shows that the prevalence of ACS is higher in populations who have ever smoked.

Another study by Cogan et al., (2022) found that tobacco use increased the incidence of ACS with an OR (95% CI) of 1.33 (1.30–1.36), $P < 0.001$. Research that is not in line is research by Lee et al., (2022) using univariate and multifactorial logistic regression to analyse risk factors in 262 patients with advanced stage ACS, showing that smoking was not related to the incidence of ACS. Another study by Cohen et al., (2020) found that smoking was not a risk factor for ACS.

Researchers have not obtained the same research in classifying the number of cigarettes smoked every day to cause ACS. Therefore, with this research, researchers also aim to analyse the relationship between smoker classification and the incidence of ACS. The results of the classification of smokers from the two dummy variable test tables concluded that the greater the number of cigarettes smoked per day, in this case heavy smokers (>20 cigarettes/day), were considered to have a higher influence on the incidence of adhesive capelusitis in the Orthopaedic Polyclinic at Bahteramas Regional Hospital.

This is thought to occur because the amount of nicotine contained in heavy smokers accumulates more in the body, so mechanical processes such as inflammation, platelet stickiness, and microvascular occlusion have more influence in heavy smokers. In light smokers and moderate smokers, ACS also occurs, but the number of incidents is

less than in heavy smokers because the amount of nicotine they are exposed to is less, so the mechanism for the emergence of ACS is lower. What you also need to know is that each person has a different body response depending on the amount of nicotine that enters the human body.

Supporting the results of this study, it has been explained in other studies that smoking has been clinically proven to have negative musculoskeletal effects. The nicotine contained in cigarettes is a strong vasoconstrictor and can reduce oxygen delivery to tissues, which is associated with a weakening of the inflammatory healing response (Santiago-Torres et al., 2015), so people with ACS experience a slower healing process. In addition, nicotine also increases platelet stickiness and supports microvascular occlusion, which can cause ACS (Abate et al., 2013).

CONCLUSION

Based on the results of the research that has been carried out, it was concluded that adult age, the elderly, and a history of smoking have a relationship with the incidence of adhesive capsulitis shoulder at the Orthopaedic Polyclinic at Bahteramas Regional Hospital. Further research is needed with different variables or using different types of approaches, such as cross-sectional or cohort, in order to obtain more accurate causal relationships between independent variables and dependent variables or to develop research using different statistical analysis tests. Apart from that, especially people who have entered the elderly category, they should increase their physical activity, such as doing light exercise regularly and not consuming cigarettes. This can occur if someone aged ≤ 40 years experiences trauma to the shoulder area or after surgery that requires prolonged mobilisation, which can cause ACS. We recommend a quasi-experimental intervention approach in the future, especially in the elderly population with ACS.

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