OPEN ACCESS

p-ISSN: 2355-1577
e-ISSN: 2656-4629

Pediomaternal NURSING JOURNAL

https://e-journal.unair.ac.id/PMNJ

Volume 11 No 2 (2025)

This journal is published by:
Universitas Airlangga

e-ISSN: 2656-4629
p-ISSN: 2355-1577

PEDIOMATERNAL NURSING JOURNAL

Pediomaternal Nursing Journal is a scientific media periodically published twice a year that contains scientific articles on health and nursing specifically related to the topic of child and maternity nursing, which was first published in 2012, is published by Universitas Airlangga Indonesia, in collaboration with the Indonesian National Nurses Association.

EDITORIAL ADDRESS:

Faculty of Nursing Universitas Airlangga

Campus C, Mulyorejo Street 60115 East Java, Indonesia

Phone/fax: (031)5913257, 5913257, +62 856-4823-0221

E-mail: secretariat_pmnj@fkp.unair.ac.id

Website: https://e-journal.unair.ac.id/PMNJ/index

Publication Schedule
Pediomaternal Nursing Journal published semi-annually (March and September).

Manuscript Submission
The manuscript should be written in Ms Word format. Figure, illustration, and picture are included in manuscript file. Submit manuscript directly to https://e-journal.unair.ac.id/PMNJ. Pediomaternal Nursing Journal will automatically reject any manuscript submitted via email or hardcopy.

Manuscript Publishing
The Editorial Board determines feasible manuscript after obtaining recommendations from peer reviewers. Manuscript revision is author responsibility, and manuscripts that are not feasible will be returned to the author.

ACKNOWLEDGEMENT TO REVIEWERS

The Editors gratefully acknowledge the assistance of the following people, who reviewed manuscripts for Pediomaternal Nursing Journal, Vol.11 No.2 September 2025.

1. **Retnayu Pradanie, S.Kep., Ns., M.Kep**

   Universitas Airlangga, Indonesia

2. **Ira Rahmawati, S. Kep., Ns.,**

   M. Kep., Ns., Sp. Kep.An

   Universitas Jember, Indonesia

3. **Ni Ketut Alit Armini, S. Kp., M. Kes.**

   Universitas Airlangga, Indonesia

4. **Qori' Ila Saidah, S. Kep., Ns., M. Kep., Ns., Sp., Kep.An.**

   Stikes Hang Tuah Surabaya, Indonesia

5. **Bernadetta Germia Aridamayanti S.Kep., Ns., M.kep.**

   Universitas Lambung Mangkurat, Indonesia

6. **Dr. Sirikanok Klankhajhon**

   Naresuan University, Thailand

7. **Christina Yeni Kustanti, M.Pall.C., Ph.D.**

   STIKes Bethesda Yakkum, Indonesia

8. **Heryyanoor, S.Kep., Ns., M.Kep**

   Sekolah Tinggi Ilmu Kesehatan Intan Martapura, Indonesia

9. **Shenda Maulina Wulandari, S.Kep., Ns., M.Kep.**

   Universitas Binawan, Indonesia

10. **Dr. Hurun Ain, S.Kep., Ns., M.Kep**

    Politeknik Kesehatan Kemenkes Malang, Indonesia

11. **Yosi Maria Wijaya, S.Kep., Ns., M. S**

    Universitas Santo Borromeus, Indonesia

12. **Yohanes Andy Rias, S.Kep., Ns., M.Kep., Ph.D**

    Institut Ilmu Kesehatan Bhakta, Indonesia

e-ISSN: 2656-4629
p-ISSN: 2355-1577

PEDIOMATERNAL NURSING JOURNAL

Accredited by Decree of The Directorate General of Higher Education, The Ministry of Education and Culture, Republic of Indonesia No. 177/E/KPT/2024.

TABLE OF CONTENT

Pediomaternal Nursing Journal Vol.11 No.2 September 2025

Pediomaternal Nursing Journal

Original Article

Development of a family empowerment model to enhance the parental monitoring of child development and reduce stunting through filial values

Nursalam Nursalam[1], Sri Utami[2*], Rekawati Susilaningrum[2], Evi Yunita[2]

ABSTRACT

Introduction: The monitoring of child development by parents plays an important role in reducing the incidence of stunting. This research aimed to develop a family empowerment model regarding the ability to monitor child development through the role of filial value.

Methods: The research design used was an explanatory survey method. The study population was all families with children living in the working area of the Health Center in Surabaya. Sampling was carried out using simple random sampling of 275 families from April to September 2024. A questionnaire was used and the secondary data was related to the nutritional status of toddlers. The data analysis involved the use of the smart PLS (Partial Least Squares) statistical test with a significance level of T > 1.96.

Results: Core values have a big impact on the commitment to monitoring toddler development (t = 14.375). Core values cannot directly influence monitoring toddler development (t = .664; *P*-value= .507) but must go through commitment (t = 2.521; *P*-value = .012) and empowerment (t = 3.781; *P*-value = < .001).

Conclusion: The role of filial value through commitment can shape family empowerment regarding the ability to monitor the development of children. These findings can be applied to families with children to accelerate the reduction in stunting rates. Further research is needed regarding the implementation of this model.

Keywords: children; empowerment; family; filial value; monitoring ability; stunting

INTRODUCTION

Stunting remains a global public health issue, marked by impaired growth and development in children under five due to chronic malnutrition and suboptimal living conditions (Hastuti et al., 2024; Lameky, 2024). In Indonesia, efforts have been made to reduce stunting through nutritional improvements and interventions targeting the root causes (Supadmi et al., 2024). However, these initiatives have not fully addressed the importance of parental involvement in monitoring child development, a critical factor in the early detection of growth and developmental delays (Hijrawati et al., 2021). Therefore, filial values, which include parental responsibility, respect, and care, need greater attention as the key factors supporting the effective parental monitoring of child development.

Based on data World Health Organization (WHO) (2021), there are 149.2 million children globally experiencing stunting. According to the World Bank, the prevalence of stunting in toddlers decreased from 37.2% in 2013 to 27.7% in 2018 (Purwita, 2022). The stunting prevalence in the city of Surabaya based on the 2021 SSGI was 28.9%. Although this is an encouraging decrease, it is still far from the government's target to reduce the stunting rate to 14% by 2024 (Siswati et al., 2022). Reducing the prevalence of stunting is also the goal of the 2025 Global Nutrition Target (WHO, 2014) and the main indicator number 2.2 of the Sustainable Development Goals (Komarulzaman et al., 2023). To accelerate progress towards this goal, efforts to reduce stunting need to be continued.

Various sectors have made concerted efforts to reduce the incidence of stunting; however, it is essential to recognize that nutritional status and physical growth are intrinsically linked to broader aspects of child development. Toddler development, in particular, represents a crucial period that significantly influences long-term developmental outcomes (Soetjiningsih, 2013). In Indonesia, approximately 21.6% of children aged 0.5–5.9 years old experience developmental delays, including delays in gross motor skills (11.5%), fine motor skills (11.8%), personal-social development (14.5%), and language development (15.8%) (Indonesian Ministry of Health, 2022).

Importantly, evidence suggests that stunted children are at a significantly higher risk of experiencing developmental delays across multiple domains. Studies have shown that stunting is associated with impaired cognitive, motor, and socio-emotional development due to chronic undernutrition during critical periods of brain growth (Zhang et al., 2018).

OPEN ACCESS
***Correspondence**: Sri Utami (sri.utami@poltekkesdepkes-sby.ac.id)
[1]Faculty of Nursing Universitas Airlangga, Surabaya Indonesia
[2]Midwifery Study Program, Health Polytechnic Surabaya, Surabaya, Indonesia

Volume 11 (2): 76-82
http://dx.doi.org/10.20473/pmnj.v11i2.70338

e-ISSN: 2355-1577 | p-ISSN: 2656-4629

Article History
Received: February 27, 2025 | Revised: June 08, 2025 | Accepted: July 25, 2025| Published : September 15, 2025

Despite these well-documented risks, recent data (from 2020 onward) specifically detailing the developmental status of stunted toddlers in East Java Province and Surabaya City is currently unavailable in official Health Profile reports for these regions. This lack of localized, up-to-date information hinders the formulation of targeted interventions addressing the full spectrum of challenges faced by stunted children.

The monitoring of child growth and development must be carried out routinely. Routine and regular early detection often means that it is not too late to handle any problems that are found regarding their growth and development (Indonesian Ministry of Health, 2022). The role of the family in monitoring child development is very important. However, the problem is that not all mothers can monitor and optimize their child's development. The monitoring of child development by families can be done by utilizing the Maternal and Child Health Handbook. Efforts to empower families are very important so then parents can monitor their child's development properly in the first 1000 days (Tengkawan et al., 2020). Basic parental values such as responsibility, respect, and caring for children play an important role in nutritional monitoring (Gandini et al., 2024). The monitoring and fulfillment of child growth and development has an impact on their nutritional status (Wiliyanarti et al., 2022).

Community empowerment in the health sector according to the Regulation of the Minister of Health of the Republic of Indonesia Number 8 of 2019 is a process used to increase the knowledge, awareness, and ability of individuals, families, and communities to allow them to play an active role in the health efforts carried out by facilitating the problem-solving process through an educational and participatory approach. This is done while paying attention to the local needs, potential and socio-culture (Indonesian Ministry of Health, 2022). This study aims to develop a family empowerment model based on filial values to enhance the parental monitoring of child development. Strengthening this monitoring process through value-based family empowerment is expected to contribute significantly to stunting prevention and the broader goal of improving child health outcomes.

METHODS

Study Design

The research design used was a cross-sectional method. This type of research was used because the research aimed to find an explanation for a phenomenon or event that occurred to produce a picture of the causal relationship between the independent variable and the dependent variable. This research aims to describe the phenomenon of child development monitoring based on the Caregiver Empowerment Model (CEM) theory, so it was very appropriate to use an explanatory research design.

Population

The population in this study was families with toddlers who lived in the working area of the Health Center in Surabaya.

Samples and Sampling

The sample used was families with toddlers who lived in the working area of the Health Center in Surabaya. Simple random sampling was used, and the sample size was calculated using the Rule of Thumb formula, with a sample size of 5 x 28 predicted parameters. The sample size used in this study was 275 families according to the April - September 2024 period. The participants were selected based on specified inclusion and exclusion criteria in order to ensure that the data gathered from them was meaningful and valid. The families were eligible for the study if they had children who were aged 12-59 months old, and if both the child and their primary caregiver had been a resident of the study area for at least six months. The primary caregiver was the mother, father, or legal guardian, and had to be accessible and willing to participate in the study. Caregivers also had to be Bahasa Indonesia speakers and willing to provide informed consent prior to the data gathering.

Families were not included in the analysis if the toddler had a diagnosis of a congenital abnormality or chronic illness affecting growth or development outcomes. Caregivers who, after repeated efforts, were not reached during the data collection time were also excluded. Any response that was labeled as incomplete or inconsistent in important sections of the questionnaire was ruled as invalid for the final analysis.

Variables

The independent variables in this study were the factors that influence family empowerment. The dependent variables were commitment, family empowerment, and the family ability to monitor child development.

The independent variables in this study were the factors that influence family empowerment. Personal factors consist of knowledge, self-esteem, self-motivation, and experience. Resources consist of family connectedness, community resources, and competing role demand. Behavioral factors consist of benefits, barriers, self-efficacy, and developmental affect. Interpersonal factors consist of family support, and health worker roles. Core values consist of responsibility, respect, and care.

Meanwhile, the dependent variables were commitment, family empowerment, and the family ability to monitor child development. Commitment consists of affective, continuance, and normative. Empowerment consists of motivation, self esteem, self-control, and perceived threat. Development Monitoring consists of development monitoring.

Instruments

The instrument used for the data collection at this stage was a questionnaire created by the researcher based on predictors according to the CEM theory through the development of theories and previous related research results. Before the analysis was carried out to test the hypothesis, validity and reliability tests were carried out on the questionnaire using data from 30 respondents. The results of the validity test were carried out on the knowledge variable through to the monitoring ability variable. The validity test was carried out using the Pearson correlation test while the reliability test was carried out using the Cronbach's alpha test. The results of the validity test all had a significance of less than .05, so all indicators of all variables were found to be valid. The results of the reliability test obtained a Cronbach's alpha value of .7, meaning that all variables were reliable.

Data Collection

The data collection for this study was obtained through a systematic series of thought-out and ethically guided steps. The researchers obtained formal research authorization from the Surabaya City Health Office and several Community Health Centers (*Puskesmas*) within the city. These

authorizations were key to institutional approval and access to the study population.

Following administrative clearance, the participants were sampled using simple random sampling. The sampling frame was drawn from the mothers' registration records for their toddlers aged 12–59 months registered in the sampled Puskesmas. To preclude selection bias and ensure representativeness, random numbers were applied to choose who among the selected should be approached to participate. Only those mothers who fit the inclusion criteria—being the main caregiver and being in the area for a period of at least six months—were deemed eligible for selection.

The data collection involved the completion of a structured questionnaire with closed- and open-ended questions to elicit information regarding the child's nutritional status, developmental progress, and related sociodemographic factors. Face-to-face interviews were conducted by interviewers who were trained to visit the selected respondents either at home or in the Puskesmas, depending on participant convenience and preference. Enumerators were provided with standardized training to provide uniformity while administering the questionnaire and to minimize interviewer-related bias when collecting data.

Prior to each interview, informed consent was obtained in line with ethical standards of research. The respondents were properly informed about the purpose of the study, procedures, potential risks and benefits, and their rights as participants, including withdrawal at any time without penalty. Written informed consent was obtained from all participants. For individuals with limited literacy, the consent form was read out loud, and verbal consent was requested and documented under the observation of an independent witness. This was a measure to ensure voluntariness and informed participation.

Data Analysis

The collected data was analyzed using SmartPLS software for statistical tests with t > 1.96. SmartPLS allows for the testing of relatively complex relationships between the variables simultaneously. The path analysis model for all variables in PLS consisted of three sets of relationships, namely: 1) the inner model that specializes in the relationship between the latent variables (structural model), and 2) the outer model that specializes in the relationship between the latent variables and indicators. Indicators are considered valid if they have an outer loading value above .5 and a t-statistic value above 1.96. Hypothesis testing was carried out using the t-test.

Ethical Clearance

This research was conducted by upholding human rights and applying ethical principles to all interactions with the human subjects. The researcher explained the objectives, benefits, risks, withdrawal rights, and rewards and compensation given to the respondents via form at the very beginning before they filled out the questionnaire. If the respondent agreed, the respondent clicked the agree button and continued filling out the questionnaire. For the respondents who did not agree, there was no need to continue filling out the questions. This research obtained ethical eligibility and approval from the Health Research Ethics Commission (KEPK) of the Surabaya Ministry of Health Polytechnic with number No.EA/2125/KEPK-Poltekkes_Sby/V/2024.

Table 1. Description of the Respondents' General Data (n=275)

Demographics	n	%
Child		
1	106	38.5
2	102	37.1
3	45	16.4
4	16	5.8
5	5	1.8
7	1	.4
Maternal and Childhealth Handbook		
Yes	271	98.5
No	4	1.5
Posyandu History		
1	232	84.4
2	28	10.2
3	11	4
4	1	.4
5	3	1.1
Education		
Uneducated	7	2.5
Basic Education (Elementary-Junior High School)	53	19.3

RESULTS

Based on the general data of the respondents in Table 1, most were mothers, and it can be seen that the number of first and second children in the family made up the highest percentage. Ownership of Maternal and Childhealth Handbook is almost universal, with 98.5% (271 respondents) reporting they have one. The history of utilizing the integrated health service post (posyandu) shows that most respondents (84.4%) had used it at least once. Regarding education, the majority (52%) of mothers have completed high school. In terms of employment, 64% of mothers were not working.

Table 2 shows that the majority of families have high basic values, commitment, empowerment, and monitoring capabilities. Basic values is evidenced by 74.2% having high responsibility, 73.8% having high respect, and 70.6% having high care. Commitment is proven by 70.9% having high affective, 70.5% having high continuance, and 66.9% having high normative. Empowerment is proven by 70.5% having motivation 56.7% having high perceived threat, 63.3% having self-esteem and 56.7% having moderate self-control. Monitoring ability is proven by 88.7% having high monitoring ability.

The PLS statistical test states that if the T value > 1.96, then there is an influence between the dependent variable and the independent variable. In addition, the influence is meaningful if *P*-value ≤ .05. The results of the hypothesis test using PLS show that the Personal factor consisting of Knowledge, Self-esteem, Self-motivation, and Experience influences the Behavioral factor variable consisting of Benefits, Barriers, Self-efficacy, and Developmental Affect (t = 2.320; *P*-value = .020). The Personal factor consisting of Knowledge, Self-esteem, Self-motivation, and Experience does not affect the Interpersonal factor variable consisting of Family Support and the Role of Health Workers (t = .804; *P*-value = .442).

Table 2. Description of the Research Variables (n=275)

Variables	n	%
Core Values		
Responsibility		
Low	1	.4
Medium	70	25.5
High	204	74.2
Respect		
Low	2	.7
Medium	70	25.5
High	203	73.8
Care		
Medium	81	29.5
High	194	70.5
Commitment		
Affective		
Medium	80	29.1
High	195	70.9
Continuance		
Medium	81	29.5
High	194	70.5
Normative		
Low	1	0.4
Medium	90	32.7
High	184	66.9
Empowerment		
Motivation		
Medium	81	29.5
High	194	70.5
Self-esteem		
Low	1	.4
Medium	174	63.3
High	100	36.4
Self-control		
Low	12	4.4
Medium	156	56.7
High	107	38.9
Perceived Threat		
Medium	119	43.3
High	156	56.7
Monitoring Ability		
Monitoring Capabilities		
Low	22	8.0
Medium	9	3.3
High	244	88.7

Resources consisting of Family Connectedness, Community Resources, and Competing Role Demand affect the Behavioral Factor variable consisting of Benefits, Barriers, Self-efficacy, and Developmental Affect (t = 8.932; *P*-value = < .001). Resources consisting of Family Connectedness, Community Resources, and Competing Role Demand affect the Interpersonal factor variable consisting of Family Support and Health Worker Role (t = 3.456; *P*-value = .001). Behavioral Factors consisting of Benefits, Barriers, Self-efficacy, and Developmental Affect affect the Basic Value variable consisting of Responsibility, Respect, and Care (t = 11.669; *P*-value = < .001).

Behavioral Factors consisting of Benefits, Barriers, Self-efficacy, and Developmental Affects affect the Commitment variable consisting of Affective, Continuance, and Normative (t = 2.344; *P*-value = .019). Interpersonal Factors consisting of Family Support and Health Worker Roles affect the Basic Values variable consisting of Responsibility, Respect, and Care (t = 2.751; *P*-value = .006). Interpersonal Factors consisting of Family Support and Health Worker Roles do not affect the Commitment variable consisting of Affective, Continuance, and Normative (t = 1.251; *P*-value = .211).

Basic Values consisting of Responsibility, Respect, and Care affect the Commitment variable consisting of Affective, Continuance, and Normative (t = 14.375; *P*-value = < .001). Basic Values consisting of Responsibility, Respect, and Care affect the Empowerment variable consisting of Motivation, Self-esteem, Self-control, and Perceive Threat (t = 5.425; *P*-value = < .001). Basic Values consisting of Responsibility, Respect, and Care do not affect the Development Monitoring variable consisting of Development Monitoring (t = .664; *P*-value = .507).

Commitment consists of Affective, Continuance, and Normative effects, while the Empowerment variable consists of Motivation, Self-esteem, Self-control, and Perceive Threat (t = 3.216; *P*-value = .001). Commitment consists of Affective, Continuance, and Normative influencing of the Development Monitoring variable, which consists of development monitoring (t = 2.521; *P*-value = .012). Empowerment consists of Motivation, Self-esteem, Self-control, and Perceive Threat, influencing the Development Monitoring variable that consists of development monitoring (t = 3.781; *P*-value = < .001).

These results indicate that self-value towards commitment is an important point in family empowerment in the monitoring of child development (t = 14.375). Personal factors cannot directly form interpersonal ones but must go through behavioral channels to form commitment. Interpersonal does not affect commitment, but commitment affects empowerment and monitoring ability. Basic values cannot directly affect monitoring ability but must go through commitment and empowerment. These results show that to form monitoring capabilities, commitment, and empowerment must be achieved (Table 3 and Figure 1).

DISCUSSION

Basic values, or filial values, are very important in the monitoring of child development by parents. Basic values have a significant impact on parenting style (de Meneses et al., 2022). In addition, filial values provide insights for the parents as part of them paying attention to and overseeing the growth and development of their children until adolescence (Leung et al., 2017). In this study, filial values are a significant factor influencing the parents' ability and willingness to monitor their toddlers' development. The statement item with the highest percentage is parental responsibility. This finding underscores that parents view themselves as the primary agents in ensuring their children's developmental well-being. This aligns with the prior research asserting that parents are the closest and most influential figures in early education and care (Gandini et al., 2024).

Moreover, filial values were shown to enhance parental commitment, with many respondents agreeing that caring

Table 3. Final Model Results for Family Empowerment Development and the Child Development Monitoring Ability

Relationship between variables	Coefficient	t statistics	*P*-values	Description
Personal Factors - Behavioral Factors	.152	2.230	.026	Significant
Personal Factors - Interpersonal Factors	.062	.804	.422	Not Significant
Resources - Behavioral Factors	.539	8.932	< .001	Significant
Resources - Interpersonal Factors	.301	3.456	.001	Significant
Behavioral Factors - Core Values	.493	11.669	< .001	Significant
Behavioral Factors - Commitment	.118	2.344	.019	Significant
Interpersonal Factors - Core Values	.158	2.751	.006	Significant
Interpersonal Factors - Commitment	-.042	1.251	.211	Not Significant
Core Values - Commitment	.705	14.375	< .001	Significant
Core Values - Empowerment	.450	5.425	< .001	Significant
Core Values - Monitoring Ability	-.084	.664	.507	Not Significant
Commitment - Empowerment	.277	3.216	.001	Significant
Commitment - Monitoring Ability	.300	2.521	.012	Significant
Empowerment - Monitoring Ability	.317	3.781	< .001	Significant

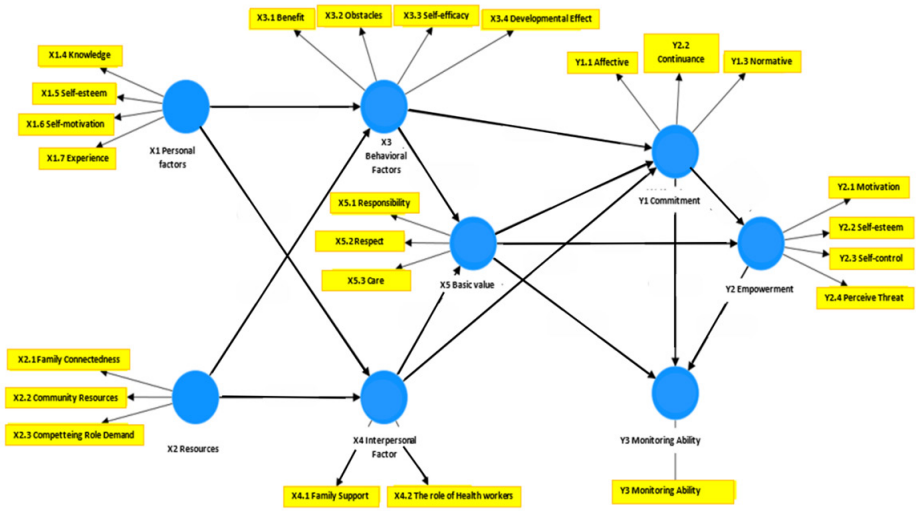

Figure 1. Final Model of Family Empowerment Development related to the Child Development Monitoring Ability

for and supporting children is a moral duty rooted in family culture. These values emphasize responsibility, respect, and care for family members. Filial piety significantly increases the parents' commitment to supporting their children's well-being through sacrifice and decisions (Leung et al., 2017). Family values encourage parents to see that they have a moral responsibility to take care of their children including their growth, as well as how they are developing physically, emotionally, and psychologically (Edwards et al., 2024). The filial value factor functions as an important mediator supporting individual factors that are responsible for increasing cognitive behavior. This increase the family commitment to monitoring child development. In such situations, filial values internalize and strengthen the relationship between parental bonds and beliefs in the way they care for children. Parents who are knowledgeable and motivated encourage better cognitive behavior, such as understanding the importance of monitoring child development. However, knowledge and motivation may not be fully translated into sustainable actions and strong commitments without strong filial values. Our findings suggest that strong filial values bridge this gap, turning cognitive understanding into consistent behavior. For example, respondents who strongly agreed with statements about family responsibility and care were also more likely to report the routine use of health services and regular completion of the Maternal and Child Health Handbook. A previous study mentions that cultural norms help develop both the children's self-regulation and parental regulation strategies (Mata & Pauen, 2023).

Additionally, access to resources and support systems, such as health services and community information, was another facilitating factor but the study suggests that the effectiveness of these resources depends heavily on the presence of strong filial values. For instance, among respondents with similar access to health services, those with higher filial value scores reported more frequent and consistent engagement with said services. This confirms the prior work indicating that values influence how families interpret and act upon the available support (Chang et al., 2015; Kehm et al., 2015).

Filial values also appeared to influence the interpersonal communication with healthcare workers. Respondents who scored higher for filial value items were more likely to report positive experiences when interacting with midwives, pediatricians, and community health workers. This

supports the theory that virtue-based family values improve interpersonal skills, facilitating better collaboration with health professionals (Mampane, 2020; Zimmerman, 2019; White & Pulla, 2023). Furthermore, the study found that families with strong filial values tend to seek out information more actively and are more proactive about using tools like the Maternal and Child Health Handbook. This aligns with the findings, where families with stronger cultural and moral commitments showed greater involvement in child health programs (Li & Guo, 2022; Nurhayati, 2021).

Family values help family members interact better with each other and it additionally helps them make decisions about child development and health (Elsayed, 2024). Families with strong virtue values are also more likely to use the Maternal and Child Health Handbook and receive better health services, enabling them to identify developmental problems at an early age. Families with strong family principles also tend to care more about their children's health, including tracking the development of their toddlers. Our findings are also consistent with research in low- and middle-income countries where strong family values compensate for the limited systemic support by driving parental engagement in cognitive, language, and motor development activities (Jeong et al., 2021). This suggests that cultural values can act as a buffer against systemic challenges in child development monitoring.

CONCLUSION

The formation of family commitment and empowerment can strengthen parents' ability to monitor the development of toddlers. Basic filial values are an important aspect in the formation of family commitment and empowerment. Filial values in the form of responsibility, respect, and care are necessary in the process of monitoring the development of toddlers as part of stunting prevention efforts. The personal and interpersonal resources of parents, children, health workers, and communities have an impact on parental commitment and empowerment. The model of developing family empowerment is related to the ability to monitor child development through basic filial values. Empowering parents improve the monitoring of child development not only in the non-academic realm also in the academic realm of adolescent health.

Declaration of Interest

Author declare that competing of interest.

Acknowledgment

None.

Funding

None.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

REFERENCES

Chang, H., Shaw, D. S., Dishion, T. J., Gardner, F., & Wilson, M. N. (2015). Proactive parenting and children's effortful control: Mediating role of language and indirect intervention effects. *Social Development, 24*(1), 206–223. https://doi.org/10.1111/sode.12069

de Oliveira Meneses, G., dos Santos, W. S., Biermann, M. C., Farias, M. G., & Plutarco, L. W. (2022). Influence of values and parenting styles perceived by children in the value transmission. *Psicologia: Teoria e Pesquisa, 38*, Article e38318. https://doi.org/10.1590/0102.3772e38318.en

Edwards, K. L., Blissett, J., Croker, H., Farrow, C., Herle, M., Kininmonth, A., Llewellyn, C., Pickard, A., & Haycraft, E. (2024). Examining parents' experiences and challenges of feeding preschool children with avid eating behaviour. *Appetite, 198*, Article 107372. https://doi.org/10.1016/j.appet.2024.107372

Elsayed, W. (2024). Building a better society: The vital role of family's social values in creating a culture of giving in young children's minds. *Heliyon, 10*(7), Article e29208. https://doi.org/10.1016/j.heliyon.2024.e29208

Gandini, A. L. A., Ummu Salmah, A., Stang, Arsunan Arsin, A., & Mallongi, A. (2024). The role of parents in monitoring the growth and development of toddlers: A systematic review. *Pharmacognosy Journal, 16*(3), 682–686. https://doi.org/10.5530/pj.2024.16.114

Hastuti, V. N., Afifah, D. N., Sugianto, D. N., Anjani, G., & Noer, E. R. (2024). Socio-demographics, dietary diversity score, and nutritional status of children aged 2–5 years: A cross-sectional study of Indonesian coastal areas. *Clinical Epidemiology and Global Health, 27*, Article 101599. https://doi.org/10.1016/j.cegh.2024.101599

Hijrawati, Usman, A. N., Syarif, S., Hadju, V., As'ad, S., & Baso, Y. S. (2021). Use of technology for monitoring the development of nutritional status 1000 hpk in stunting prevention in Indonesia. *Gaceta Sanitaria, 35*(Suppl. 2), S231–S234. https://doi.org/10.1016/j.gaceta.2021.10.028

Jeong, J., Franchett, E. E., Ramos de Oliveira, C. V., Rehmani, K., & Yousafzai, A. K. (2021). Parenting interventions to promote early child development in the first three years of life: A global systematic review and meta-analysis. *PLoS Medicine, 18*(5), Article e1003602. https://doi.org/10.1371/journal.pmed.1003602

Kehm, R., Davey, C. S., & Nanney, M. S. (2015). The role of family and community involvement in the development and implementation of school nutrition and physical activity policy. *Journal of School Health, 85*(10), 704–714. https://doi.org/10.1111/josh.12306

Kementerian Kesehatan RI. (2022). *Profil kesehatan Indonesia tahun 2021*.

Komarulzaman, A., Andoyo, R., Anna, Z., Ghina, A. A., Halim, P. R., Napitupulu, H., Karunia, M. R., & Andriani, A. (2023). Achieving zero stunting: A sustainable development goal interlinkage approach at district level. *Sustainability, 15*(11), Article 8890. https://doi.org/10.3390/su15118890

Lameky, V. Y. (2024). Stunting in Indonesia: Current progress and future directions. J*ournal of Healthcare Administration, 3*(1), 82–90. https://doi.org/10.33546/joha.3388

Leung, J. T. Y., Shek, D. T. L., & Lin, L. (2017). Mother-child discrepancy in perceived parental control and adolescent filial piety in poor single-mother families. *Journal of Adolescence, 60*, 1–10. https://doi.org/10.1016/j.adolescence.2017.06.006

Li, Y., & Guo, M. (2022). Filial piety matters: A study of intergenerational supports and parental health. *SSM - Population Health, 18*, Article 101096. https://doi.org/10.1016/j.ssmph.2022.101096

Mampane, M. R. (2020). The effect of a community-based social support programme on the resilience of children from vulnerable families. *Early Child Development and Care, 190*(10), 1638–1653. https://doi.org/10.1080/03004430.2019.1670653

Mata, C., & Pauen, S. (2023). The role of socio-cultural background and child age for parental regulation strategies and children's self-regulation: A comparison between Germany, Chile, and El Salvador. *Acta Psychologica, 234*, Article 103871. https://doi.org/10.1016/j.actpsy.2023.103871

Nurhayati, S. (2021). Parental involvement in early childhood education for family empowerment in the digital age. *Jurnal Empowerment, 10*(1), 54–62.

Purwita, E. (2022). Determinants of stunting in children under five in rural areas. *Science Midwifery, 10*(4), 2858–2865. https://doi.org/10.35335/midwifery.v10i4.729

Saputro, H., Tnomel, K., Wahyuningsih, A. S., & Acob, J. R. U. (2023). Children growth analysis reviewed from nutrition status of children age 0-5 years. *Open Access Health Scientific Journal, 4*(1), 19–24. https://doi.org/10.55700/oahsj.v4i1.35

Siswati, T., Iskandar, S., Pramestuti, N., Raharjo, J., Rubaya, A. K., & Wiratama, B. S. (2022). Drivers of stunting reduction in Yogyakarta, Indonesia: A case study. *International Journal of Environmental Research and Public Health, 19*(24), Article 16497. https://doi.org/10.3390/ijerph192416497

Soetjiningsih. (2013). *Tumbuh kembang anak*. EGC.

Supadmi, S., Laksono, A. D., Kusumawardani, H. D., Ashar, H., Nursafingi, A., Kusrini, I., & Musoddaq, M. A. (2024). Factor related to stunting of children under two years with working mothers in Indonesia. *Clinical Epidemiology and Global Health, 26*, Article 101538. https://doi.org/10.1016/j.cegh.2024.101538

Tengkawan, J., Anandhika, A., John, R. E., Ihyauddin, Z., Jessica, K., & Karuniawaty, T. P. (2020). Children growth awareness: An important role for reaching the optimal first 1000 days in life. *Advances in Social Science, Education and Humanities Research, 454*, 137–142. https://doi.org/10.2991/assehr.k.200808.028

White, A., & Pulla, V. (2023). *Strengthening the capacity for resilience in children*. In V. Pulla (Ed.), Perspectives on coping and resilience (pp. 122–151). Allied Publishers.

Wiliyanarti, P. F., Wulandari, Y., & Nasrullah, D. (2022). Behavior in fulfilling nutritional needs for Indonesian children with stunting: Related culture, family support, and mother's knowledge. *Journal of Public Health Research, 11*(4), Article 22799036221139938. https://doi.org/10.1177/22799036221139938

World Health Organization. (2014). *Global nutrition targets 2025 policy brief series* (Policy Brief Series). World Health Organization.

World Health Organization. (2021). *Levels and trends in child malnutrition: UNICEF/WHO/World Bank Group joint child malnutrition estimates – Key findings of the 2021 edition*. World Health Organization.

Zhang, S., Dang, R., Yang, N., Bai, Y., Wang, L., Abbey, C., & Rozelle, S. (2018). Effect of caregiver's mental health on early childhood development across different rural communities in China. *International Journal of Environmental Research and Public Health, 15*(11), Article 2341. https://doi.org/10.3390/ijerph15112341

Zimmerman, M. A. (2019). Empowerment theory in health promotion: Examining resources and family engagement. *Health Promotion International, 34*(4), 772–780. https://doi.org/10.1093/heapro/day018

Pediomaternal Nursing Journal

Original Article

The impact of the COVID-19 pandemic on the psychological distress of parents and children cancer care: A cross-sectional study

Ilya Krisnana[1,2*], Praba Diyan Rachmawati[1,2], Aria Aulia Nastiti[1,3], Domingos Soares[4], Novalia Puspitasary[1]

ABSTRACT

Introduction: The current situation of the COVID-19 pandemic has an impact on stress among parents of children with cancer. This uncertain situation can cause psychological distress experienced by parents and can reduce the level of care for children with cancer, it can reduce the cure rate and increase the morbidity rate of children with cancer. The study aimed to analyses the impact of the COVID-19 pandemic on the psychological distress of parents and the treatment of children with cancer.

Methods: The research design used was descriptive analytics with a cross-sectional approach. The population in this study were parents of children with cancer living in the Surabaya and East Java areas who lived in a halfway house. Respondents were 78 parents of children with cancer. The children were aged between 2 and 15 years. Selected using the convenience sampling technique for three months (June to August 2022). The independent variable in this study was the level of psychological distress, while the dependent variable was the treatment of children with cancer. The data was obtained using the DASS-21 questionnaire and analyzed using the Spearman Rank Correlation test with $\alpha = .05$.

Results: The results of the study showed that there was an impact of the COVID-19 pandemic on psychological distress [(stress *P*-value = .002; r = .341); (anxiety *P*-value = .013; r = .281), and depression *P*-value = .026; r = .252)] and cancer care for children.

Conclusion: The COVID-19 pandemic has an impact on the psychological distress of parents and the care of children with cancer. The level of stress experienced by parents should be given further treatment immediately.

Keywords: cancer; chronic diseases; COVID-19; pandemic; psychological distress

INTRODUCTION

According to World Health Organization (WHO), the rate of The world's nations must face the COVID-19 pandemic because it impacts all aspects, including the health sector. One aspect of health that the COVID-19 pandemic has impacted is changes in care for cancer patients and children with cancer (Jazieh et al., 2020; Moreira, 2021). The COVID-19 pandemic can lead to decreased patient attendance in chemotherapy and radiotherapy and fewer patient visits (Ranganathan et al., 2021). Chemotherapy is one of the treatments for children that children with cancer must carry out to control the number of cancer cells (Majorana et al., 2016). Delay and termination of chemotherapy can increase the severity of cancer. However, because of the pandemic situation, cancer patients and parents of children with cancer are afraid to come to the hospital (Indonesia Cancer Care Community, 2021).

Cancer care in Indonesia was greatly affected during the COVID-19 pandemic, making complex healthcare access even more complex. As an archipelagic nation, distance made specialized treatment more difficult, especially in remote areas (Harapan et al., 2023). Resources reallocated to facilitate COVID-19 management further restricted cancer services, while economic downturns left many families unable to afford treatment (Jumadi et al., 2024; Kong et al., 2020). With these and other factors, patients may delay cancer diagnosis or present with advanced-stage diseases (Dabkeviciene et al., 2021; Jazieh et al., 2020). While high-income countries adapted with telemedicine and home-based care, Indonesia's infrastructure limitations compounded treatment disruption and parental distress (Gatellier et al., 2021; Ray & Mukherjee, 2023).

Every parent will feel worried, fearful, anxious, and stressed when a child is sick, especially with a serious illness such as cancer (Krisnana, 2019; Krisnana et al., 2021). Parents who have children with cancer show increased symptoms of psychological distress (Patiño-fernández et al., 2008). Parents' stress levels can increase when parents feel a threat to their children's condition. Parents hope they can carry out therapeutic procedures for their children well in order to increase the cure rate. However, some things can change in a pandemic that affects child care. These changes include the possibility of parental difficulties due to limited public transportation facilities and the increase in transportation costs, especially coupled with a decrease in family income due to the termination of employment experienced by the head of the family.

Some treatments for cancer children include monitoring the child's response to chemotherapy treatment, preventing

OPEN ACCESS
***Correspondence**: Ilya Krisnana (ilya-k@fkp.unair.ac.id)
[1]Faculty of Nursing, Universitas Airlangga, Surabaya, Indonesia
[2]Research Group in Pediatric Nursing, Faculty of Nursing, Universitas Airlangga, Surabaya, Indonesia
[3]Research Group in Maternity Nursing, Faculty of Nursing Universitas Airlangga, Surabaya, Indonesia
[4]Instituto Superior Cristal dan Instituto Nacional de Saude Publica de Timor-Leste, Timor Leste

Volume 11 (2): 83-89
http://dx.doi.org/10.20473/pmnj.v11i2.70155

e-ISSN: 2355-1577 | p-ISSN: 2656-4629

Article History
Received: February 22, 2025 | Revised: May 14, 2025 | Accepted: July 25, 2025| Published : September 15, 2025

secondary infection or controlling signs of infection in children, preventing injuries that can cause bleeding, providing nutrition, overcoming pain with non-pharmacological techniques, and preventing and treating oral mucositis (Palestin, 2012). Parents must apply these various types of care as the main caregivers for children (Arabiat et al., 2018). Some treatments require patience and parental discipline; for example, for the prevention of oral mucositis due to chemotherapy, parents must be diligent in implementing oral care protocols, including brushing teeth, gargling, and mouth-rinsing using chlorhexidine (Allen et al., 2014; Qutob et al., 2013). However, this treatment can be interrupted if the parents experience psychological distress. This study aimed to analyze the impact of the COVID-19 pandemic on the psychological stresses and the treatment of children with cancer. This research is fundamental to do because the pandemic situation has an impact on various aspects including health. This uncertain situation can cause stress for parents. Psychological stresses experienced by parents can reduce the level of care for children with cancer to reduce the cure rate and increase the morbidity rate of children with cancer. The level of stress experienced must be identified immediately so that further management can be given.

METHODS

Study Design

This research's design was cross-sectional with correlation analysis without assessing causality or change over time between psychological distress and pediatric cancer care among parents of children with cancer.

Sample

The population in this research were parents of children with cancer living in the Surabaya and East Java areas who lived in shelters or at the Indonesian Children's Cancer Care Foundation (YPKAI). The sample was selected based on inclusion criteria, including 1) parents of children with cancer who had media to access online questionnaires through Android mobile phones or computers, 2) parents of cancer children who can speak Indonesian, 3) parents of children with cancer who underwent cancer treatment and care during the COVID-19 pandemic, 4) parents who were willing to do research.

The YPKAI administrators actively assisted in coordinating the supply of information about the study to eligible parents for recruiting participants. The researchers informed parents of the study objectives and procedures, thereby obtaining informed consent prior to questionnaire distribution. Parents considered to meet inclusion criteria were invited to voluntarily take part. In order to minimize selection bias, efforts were made to ensure the participants had a wide variety of socioeconomic status and geographical locations within the region of East Java.

Furthermore, including both shelters and YPKAI in recruitment gave access to parents with varying levels of healthcare service access. The researchers distributed online questionnaires for three months (June-August 2022) and obtained 78 respondents in East Java. The sampling method used was convenience sampling. The independent variable in this research was the level of psychological distress, while the dependent variable was pediatric cancer care.

Instruments

The instrument used in this research was the Depression Anxiety Stress Scale-21 (DASS-21) questionnaire to assess the level of psychological distress. Psychological distress was measured using the DASS-21 questionnaire (Lovibond & Lovibond, 1995). DASS-21 consisted of 21 statements with a Likert scale; never = 0; sometimes = 1; often = 2, almost always = 3. DASS-21 was designed to measure the psychological states of depression, anxiety and stress self-administered by respondents. Scores on the DASS-21 were multiplied by 2 to calculate the final score. The DASS-21 questionnaire has been translated into Indonesian by Damanik (Damanik, 2011) and tested for validity and reliability by Krisnana (Krisnana, 2012; Krisnana et al., 2019) with Cronbach Alpha = .97. The questionnaire was declared reliable to measure anxiety because it was more than .70 (Heale & Twycross, 2015).

A pediatric cancer care questionnaire was developed by research team has undergone validity and reliability testing to ensure its accuracy in measuring parental caregiving practices for children undergoing cancer treatment consist of the monitoring the children's response to chemotherapy treatment (Palestin, 2012). The cancer child care questionnaire consists of 20 questions with seven subscales, namely 1) care when children have diarrhea, 2) dry mouth, 3) nausea and vomiting, 4) fever, 5) oral mucositis, 6) hair loss, and 7) infection prevention efforts. The response is a Likert scale consisting of never = 0; sometimes = 1; often = 2, and almost always = 3.

Data Collection

Concerning the COVID-19 Pandemic, the data was collected through the spread of online questionnaires and offline questionnaires for parents who registered on YPKAI in Surabaya. Before filling out the questionnaire, respondents got a detailed explanation of the research. Then, if they agreed, the respondents gave their signatures directly through the online media as proof of approval. Respondents who agreed then continued to fill out the questionnaire completely.

Data Analysis

The data analysis used by the researchers in this study was descriptive and inferential. Measures of descriptive analysis included the mean, standard deviation, and minimum and maximum values. Meanwhile, the researchers used bivariate data analysis for the inferential analysis. The statistical tests used were Spearman Rank Correlation with the level of significance $\alpha = .05$.

Ethical Clearance

Ethics statement: The research was conducted with respect for human rights by applying ethical principles to human subjects. This research has obtained ethical clearance from the Health Research Ethics Commission of the Faculty of Nursing Universitas Airlangga, with certificate number 2532-KEPK. Informed consent was obtained from all participants.

RESULTS

The research proved that the age of mothers who had children with cancer was 63 people (80.8%) and 15 people (19.2%) who had cancer children aged 20-40 years. Parents have an equally important role in carrying out care for children with cancer. Mothers' education had a high level of variation, almost half of the mothers had the last education, namely high

school or equivalent (43.6%), and the other mothers' education was junior high school (32.1%). There were still mothers who had an education equivalent to elementary school, as many as 12 people (15.4%), and a small proportion of mothers who had the last education of diploma/bachelor as many as nine people (9%). Most of the mothers became housewives or did not work as many as 59 people (75.6%), and a small portion had jobs as private employees, civil servants, farmers, and entrepreneurs.

Providing care for children with cancer requires quite a lot of costs for treatment, transportation, and other additional costs. It can be interpreted that family income is very influential on the continuity of care in children with cancer. Most of the income of families who have children with cancer was Rp. 3.500,000 (lower middle class), as many as 64 families (82.1%) and the upper middle class (17.9%). Most parents had two children, with an average of the first order of children experiencing cancer (50%). The children were aged between 2 and 15 years. The length of time that children experienced cancer had a high level of variation, ranging from less than one year to more than four years (Table 1).

Table 2 shows that parents' care for children with cancer when children have diarrhea, including giving drinks through their mouths more often (44.9%), giving small portions of food but often (46.2%), and never avoiding giving vegetables and fruits when children have diarrhea (43.6%). However, there were still parents who never gave frequent drinks when children had diarrhea (9.0%). Statements about the treatment of dry mouth in children with cancer varied widely. Table 2 showed that parental care for children's mouths (oral hygiene) was still relatively lacking, as evidenced by most parents who never encouraged their children to chew gum, which was the most significant percentage compared to other statements (70.5%). The most significant percentage was that parents never gave cold water to drink when the child's mouth was dry (43.6%). Furthermore, parental statements regarding oral care when their child had canker sores were that most parents sometimes brushed their child's teeth twice daily (46.2%) and some parents often did it (38.5%). However, some parents still encouraged their children to rinse their mouths after eating every meal (46.2%) and gave a normal saline solution every time their child had thrush (26.9%).

Parents' statements about taking care when their child felt nauseous and vomiting also varied. The percentage of parents who sometimes avoided giving fatty foods was the most significant percentage compared to other statements (43.6%). However, some parents still always avoided pungent-smelling foods (25.6%). Then the statement of parents in caring for children when experiencing hair loss, namely preventing the use of chemicals on hair, was the most significant percentage compared to other statements (57.7%). Table 2 also showed that most parents had good attention to treating their children with leukemia. The highest percentage was concerning always preventing infection by washing their hands before and after having contact with children (71.8%). However, some parents still never washed their hands to prevent infection in children (2.6%). Prevention of other infections by limiting contact with other people was rarely done by most parents (33.3%).

Based on the Spearman Rank Correlation statistical test, if significance value is .05, it is stated that there is an influence between the independent and dependent variable. In addition, the degree of strength of influence can be determined from the value of the correlation coefficient (r). The results of hypothesis testing using Spearman Rank Correlation showed that there was an effect of psychological distress on stress conditions

Table 1. Demographic Characteristics of Respondents (n=78)

Respondents' Characteristics	n	%
Mother's Age (Years Old)		
20 – 40	63	80.8
> 40	15	19.2
Mother's Education		
Elementary School	12	15.4
Junior High School	25	32.1
Senior High School	34	43.6
Bachelor	7	9.0
Mother's Job		
Housewife	59	75.6
Private employees	5	6.4
Government employees	2	2.6
Farmer	4	5.1
Entrepreneur	8	10.3
Family Income		
≤ IDR 3.500.000	64	82.1
≥ IDR 3.500.000	14	17.9
Number of Children		
One	9	11.5
Two	39	50.0
Three	19	24.4
>Three	11	14.2
Children with Cancer		
1st	39	50.0
2nd	26	33.3
3rd	9	11.5
4th	4	5.1
Cancer Duration		
≤ 1 year	18	23.1
> 1 years	12	15.4
> 2 years	13	16.7
> 3 years	6	7.7
> 4 years	29	37.2

(*P*-value = .002; r = .341), anxiety conditions (*P*-value = .013; r = .281), and depression conditions (*P*-value = .026; r = .252) for the pediatric cancer care (Y1) with a weak degree of strength indicate that other factors may influence in shaping caregiving behaviors. These results indicated that the hypothesis was accepted, which means that the COVID-19 pandemic has an impact on the psychological distress of parents in treating children with cancer in East Java.

DISCUSSION

Treatment for children with leukemia requires special attention from parents because children receiving chemotherapy can experience side effects such as nausea, vomiting, oral mucositis, and chapped lips (Majorana et al., 2016; Permono et al., 2006). In this condition, parents can play a role in providing oral hygiene for children (Potter & Perry, 2010). The greater the parental attention to the care of children with cancer, the lower the severity of cancer in children. However, due to the COVID-19 pandemic situation, patients and parents

Table 2. Frequency Distribution Children Cancer Care (n=78)

Indicators	Always (%)	Often (%)	Sometimes (%)	Never (%)
When the child has diarrhea				
Giving more drinks through the mouth	33.3	44.9	12.8	9.0
Feeding a little but often	26.9	46.2	19.2	7.7
Avoiding giving vegetables and fruit	19.2	10.3	26.9	43.6
When the child's mouth is dry				
Giving cold drink	5.1	17.9	33.3	43.6
Giving liquid food	12.8	34.6	42.3	10.3
Encouraging children to chew gum	5.1	7.7	16.7	70.5
When the child has nausea and vomiting				
Delivering dry food	16.7	16.7	39.7	26.9
Avoiding pungent smelling foods	25.6	10.3	33.3	30.8
Avoiding fatty foods	20.5	15.4	43.6	20.5
When the child has a fever and chills				
Wiping the child's body	52.6	28.2	14.1	5.1
Give a lot to drink	48.7	47.4	3.8	.0
Give a thick blanket	33.3	16.7	32.1	17.9
When a child has thrush				
Brushing children's teeth 2 times a day	38.5	12.8	46.2	2.6
Caring for children by gargling normal saline solution	26.9	26.9	25.6	20.5
Encourage children to rinse their mouths after every meal	46.2	28.2	17.9	7.7
When a child experiences hair loss				
Giving a hat or scarf to cover the child's baldness	24.4	28.2	26.9	20.5
Caring for children by shampooing as often as possible	29.5	21.8	34.6	14.1
Preventing the use of chemicals on hair	57.7	7.7	16.7	17.9
Infection prevention				
Washing hands before and after touching children	71.8	16.7	9.0	2.6
Preventing children from frequent contact with other people	28.2	24.4	33.3	14.1

Table 3. Psychological Distress Level of Parents with Cancer Children (n= 78)

Psychological Distress Level	%
Stress	
Normal	87.2
Mild stress	10.3
Moderate stress	2.6
Anxiety	
Normal	59
Mild anxiety	6.4
Moderate anxiety	24.4
Severe anxiety	10.3
Depression	
Normal	16.7
Mild depression	25.6
Moderate depression	20.5

Table 4. The relationship between parental psychological stress levels with children cancer care (n = 78)

Variables	*P*-value	r
The correlation between level of stress on parent and children cancer care	.002	.341
The correlation between level of anxiety on parent and children cancer care	.013	.281
The correlation between level of depression on parent and children cancer care	.026	.252

of children with cancer are afraid to come to the hospital, resulting in delays and termination of chemotherapy actions which can eventually increase the severity of the cancer itself (Indonesia Cancer Care Community, 2021).

Parents who have children with cancer show increased symptoms of psychological distress (Patiño-fernández et al., 2008). Parents' stress levels can increase when parents feel a threat to their child's condition. However, some things can change in a pandemic that affects child care. These changes include the possibility of parental difficulties due to limited public transportation facilities and the increase in transportation costs, especially coupled with a decrease in family income due to the termination of employment experienced by the head of the family. The results of this study indicated that during the last 7 days, there were parents who experienced increased psychological distress, both in conditions of anxiety, stress, and depression, while undergoing treatment for children with cancer during this pandemic. The level of anxiety experienced by parents also varied greatly, ranging from mild anxiety to severe anxiety. In these conditions, parents still have to carry out treatment for children with cancer. Treatment is primarily directed at the prevention of infection (Wong, Donna L, 2009). The results of this study indicated that the infection prevention efforts carried out by parents were quite reasonable. The statement item with a high value was that parents often applied hand washing before and after having contact with children. Washing hands before and after having contact with children is very important in preventing infection in children with cancer so that it can reduce the severity of children with cancer (Arabiat et al., 2018).

However, the prevention of other infections was still not maximally carried out by parents, namely by restricting visitors and limiting contact with children with cancer. In this pandemic situation, contact restrictions need to be considered because contact can increase the risk of exposure to infection in children, especially exposure to the COVID-19 virus, which can aggravate the condition of children with cancer. However, some parents felt that the support of others or the participation of others could help relieve the psychological distress experienced by parents in caring for their children with cancer during this pandemic.

Oral care in children with cancer is necessary to prevent chapped lips, canker sores, and dry mouth (Potter & Perry, 2010). This results indicated that children's oral care was relatively lacking, as evidenced by most parents never recommending their children chew gum or giving them cold water to drink. Overcoming the lack of saliva production can be done by chewing gum containing xylitol and with cold therapy. Both therapies were effective in increasing saliva production, thereby increasing oral humidity (Sholikhah et al., 2020).

Not only oral care, but when feeling nausea and vomiting is also an important thing that every parent must pay attention to their children with cancer. The results of this study indicated that there were still parents who still gave fatty foods when their children felt nauseous and vomiting and had not avoided pungent-smelling foods. In contrast, fatty foods can trigger nausea and vomiting in patients with cancer, especially patients with a history of chemotherapy (Zhou et al., 2021).

Treatment by parents for children with cancer is essential to increase the child's recovery rate and reduce morbidity in children with cancer, especially patients with post-chemotherapy who experience various side effects. The results of this study indicate that the COVID-19 pandemic has an impact on the psychological distress of parents and the care of children with cancer. The impact of the pandemic affects the psychological distress of parents, which then mostly has an impact on poor care. Cancer care for children, which includes many aspects, is still ignored by some parents. This is due to the condition of parents who have pressure on the treatment that must be carried out, coupled with the pandemic conditions that hinder the treatment of children with cancer (Indonesia Cancer Care Community, 2021). Specific interventions should be put in place to support parents and improve the quality of care for children with cancer to meet these challenges.

It's been proven by studies that psychosocial interventions, particularly cognitive behavioral therapy and problem-solving skills training, reduce distress and develop parents' coping strategies so that adjustment outcomes become better for both parents and children (Fair et al., 2021; Koumarianou et al., 2021). Establishing empowerment-based interventions can significantly improve parents' knowledge and caregiving behavior while reducing psychological distress, so they give very favorable health outcome improvements for their children, such as lessening oral mucositis or gastrointestinal complications (Nurhidayah et al., 2023). In addition, structured educational programs equipping parents with medical and nursing skills are essential to empower them so that they can manage their child's care effectively; however, such programs are still underused and need to be implemented broadly in facilities (Odom et al., 2023). It is also very important to address the issues of emotional and financial burden among parents. Regular psychosocial screening as well as tailored interventions can give emotional relief, while financial aid from medical institutions, charity, and public services can help to relieve the burden of stressed income (Hancock et al., 2022; Reshetnikov et al., 2024). These key areas of concern can contribute to strengthening the support systems that health providers administer to parents and at the same time foster effective healing and recovery operations for children with cancer.

Nonetheless, there are other limitations that must be noted, particularly concerning sample representation. Mostly mothers participated in the study, while fathers and other caregivers were scarcely involved. This particular gender disparity might limit the generalizability of the findings since fathers would have a different experience of psychological distress, or extended family members might add differing perspectives to caregiving responsibility. There must be future initiatives that target a more diverse caregiver sample to capture a more holistic perspective.

CONCLUSION

Based on the results of the research that has been done, it can be concluded that the COVID-19 pandemic has an impact on the psychological stresses of parents and the care of children with cancer. When viewed from their psychosocial problems, some parents experience mild to severe anxiety, some experience mild and moderate stress, and some experience mild and moderate depression. The condition of spiritual distress can affect the care parents should take for children with cancer. This study emphasizes the urgency of a strong response to provide interventions to reduce psychological stress in parents.

In the future, it would be beneficial to develop longitudinal studies to understand the long-term consequences of the pandemic on such areas as parental well-being and caregiving. It is also necessary to validate psychological evaluation

instruments in this particular population so as to improve the accurate assessment of mental health. Independence in the study of effective interventions, including telehealth-based psychological support, peer support programs, and culturally attuned mental health strategies, will inform the provision of care during similar crises.

Declaration of Interest

There is no potential conflict of interest.

Acknowledgment

The authors are thankful to all respondents in this study.

Funding

None.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

REFERENCES

Allen, G., Gue, S., Revesz, T., Logan, R., & Keefe, D. (2014). Oral care protocol for paediatric oncology patients part 1: Screening and preventative practices for children undergoing oncology therapy; an oral health perspective. *Oncology Nursing Review, 15*(2), 45-52.

Arabiat, D., Whitehead, L., Foster, M., Shields, L., & Harris, L. (2018). Parents' experiences of family centred care practices. *Journal of Pediatric Nursing, 42*, 39-44. https://doi.org/10.1016/j.pedn.2018.06.012

Dabkeviciene, D., Vincerzevskiene, I., Urbonas, V., Venius, J., Dulskas, A., Brasiuniene, B., Janulionis, E., Burneckis, A., Zileviciene, A., Tiskevicius, S., Vanseviciute-Petkeviciene, R., Usinskiene, J., Briediene, R., Bulotiene, G., Stratilatovas, E., Ostapenko, V., Gibaviciene, J., Karnas, I., Kekstaite, S., … Jarmalaite, S. (2021). The impact of the COVID-19 pandemic on cancer patient's management—Lithuanian cancer center experience. *Healthcare, 9*(11), Article 1522. https://doi.org/10.3390/healthcare9111522

Damanik, E. D. (2011). *The measurement of reliability, validity, items analysis and normative data of Depression Anxiety Stress Scale (DASS)* [Doctoral dissertation, Universitas Indonesia]. University Repository.

Fair, C., Thompson, A., Barnett, M., Flowers, S., Burke, J., & Wiener, L. (2021). Utilization of psychotherapeutic interventions by pediatric psychosocial providers. *Children, 8*(11), Article 1045. https://doi.org/10.3390/children8111045

Gatellier, L., Shankar, A., Dewi, L., Hussain, Q., Dendup Wangdi, T., Sukumaran, D., Sari, N., Tavakkoli Shiraji, S., Biglari, M., Tahmasebi, M., Iwata, S., Suzuki, T., Myung, S.-K., Chun, J. Y., Han, J. S., Lau, F. N., Yusak, S., Bayarsaikhan, L., Mu, K., … Hwang, W. (2021). The impact of COVID-19 on cancer care in the post pandemic world: Five major lessons learnt from challenges and countermeasures of major Asian cancer centres. *Asian Pacific Journal of Cancer Prevention, 22*(3), 681-690. https://doi.org/10.31557/APJCP.2021.22.3.681

Hancock, K., Barrera, M., Prasad, S., Desjardins, L., Shama, W., Alexander, S., & Szatmari, P. (2022). A qualitative examination of the benefits and challenges of a psychosocial screening intervention in pediatric oncology: "Support comes to us." *Pediatric Blood & Cancer, 69*(5), Article e29578. https://doi.org/10.1002/pbc.29578

Harapan, B. N., Harapan, T., Theodora, L., & Anantama, N. A. (2023). From archipelago to pandemic battleground: Unveiling Indonesia's COVID-19 crisis. *Journal of Epidemiology and Global Health, 13*(4), 591-603. https://doi.org/10.1007/s44197-023-00148-7

Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence-based nursing, 18*(3), 66–67. https://doi.org/10.1136/eb-2015-102129

Indonesia Cancer Care Community. (2021). *Pemberian kemoterapi saat wabah*. ICC Indonesia Cancer Care Community.

Jazieh, A. R., Akbulut, H., Curigliano, G., Rogado, A., Alsharm, A. A., Razis, E. D., Mula-Hussain, L., Errihani, H., Khattak, A., De Guzman, R. B., Mathias, C., Alkaiyat, M. O. F., Jradi, H., & Rolfo, C. (2020). Impact of the COVID-19 pandemic on cancer care: A global collaborative study. *JCO Global Oncology, 6*, 1428-1438. https://doi.org/10.1200/go.20.00351

Jumadi, Fikriyah, V. N., Hadibasyir, H. Z., Sunariya, M. I. T., Novitasari, D., Priyana, Y., Umrotun, Furoida, K., Madani, D. T., Nursanto, D., & Mokhtar, A. A. B. (2024). Accessibility of healthcare services of COVID-19 and its impact on fatalities in Jakarta, Indonesia. *E3S Web of Conferences, 500*, Article 04001. https://doi.org/10.1051/e3sconf/202450004001

Kong, Y.-C., Sakti, V.-V., Sullivan, R., & Bhoo-Pathy, N. (2020). Cancer and COVID-19: Economic impact on households in Southeast Asia. *Ecancermedicalscience, 14*, Article 1134. https://doi.org/10.3332/ecancer.2020.1134

Koumarianou, A., Symeonidi, A. E., Kattamis, A., Linardatou, K., Chrousos, G. P., & Darviri, C. (2021). A review of psychosocial interventions targeting families of children with cancer. *Palliative and Supportive Care, 19*(1), 103-118. https://doi.org/10.1017/S1478951520000449

Krisnana, I. (2012). Nursing care model development by COPE approach for reducing parent's hospitalization stress with cancer children. *Jurnal Ners, 8*(1), 27-40.

Krisnana, I., Kurnia, I. D., Pujiati, P., Ugrasena, I. D. G., & Arief, Y. S. (2021). Psycho-education on knowledge of oral hygiene and psychological distress to the parents with leukemia children. *Asian Pacific Journal of Cancer Prevention, 22*(2), 485-490. https://doi.org/10.31557/APJCP.2021.22.2.485

Krisnana, I., Sulistyarini, H., Rachmawati, P. D., Arief, Y. S., & Kurnia, I. D. (2019). Reducing acute stress disorders in mothers of leukemic children by means of the family centered empowerment module (FACE). *Central European Journal of Nursing and Midwifery, 10*(2), 1035-1040. https://doi.org/10.15452/CEJNM.2019.10.0011

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour research and therapy, 33*(3), 335–343. https://doi.org/10.1016/0005-7967(94)00075-u

Majorana, A., Bardellini, E., & Amadori, F. (2016). *Oral complications related to cancer therapies in children*. In Radiation oncology (pp. 123-145). SMGroup.

Moreira, D. C. (2021). The impact of the COVID-19 pandemic on pediatric cancer care. *Cancer, 127*(19), 3452-3453. https://doi.org/10.1002/cncr.33946

Nurhidayah, I., Nurhaeni, N., Allenidekania, A., & Gayatri, D. (2023). A systematic review of experimental studies on the impact of empowerment-based interventions on child and parent outcomes in the pediatric oncology setting. *Journal of Multidisciplinary Healthcare, 16*, 3717-3735. https://doi.org/10.2147/JMDH.S436394

Odom, J. N., Applebaum, A., Bakitas, M. A., Bryant, T., Currie, E., Curry, K., Donovan, H., Fernandez, M. E., Ferrell, B., Azuero, A., Gray, T. F., Hendricks, B. A., Meier, D., Nightingale, C., Reinhard, S., Sannes, T. S., Sterba, K., & Young, H. M. (2023). Availability of family caregiver programs in US cancer centers. *JAMA Network Open, 6*(10), Article e2337250. https://doi.org/10.1001/jamanetworkopen.2023.37250

Palestin, B. (2012). Perawatan lanjutan di rumah pada penderita leukemia. *Caring, 1*(1), 79-90.

Patiño-Fernández, A. M., Pai, A. L. H., Alderfer, M., Hwang, T., Reilly, A., & Kazak, A. E. (2008). Acute stress in parents of children newly diagnosed with cancer. *Pediatric Blood & Cancer, 50*(2), 289-292. https://doi.org/10.1002/pbc.21262

Permono, B., Ugrasena, I. D. G., & Ratwita, M. (2006). *Pedoman diagnosis dan terapi bagian ilmu kesehatan anak* (3rd ed.). RSUD Dr Soetomo.

Potter, P., & Perry, A. (2010). *Fundamental keperawatan* (7th ed.). Salemba Medika.

Qutob, A. F., Gue, S., Revesz, T., Logan, R. M., & Keefe, D. (2013). Prevention of oral mucositis in children receiving cancer therapy: A systematic review and evidence-based analysis. *Oral Oncology, 49*(2), 102-107. https://doi.org/10.1016/j.oraloncology.2012.08.008

Ranganathan, P., Sengar, M., Chinnaswamy, G., Agrawal, G., Arumugham, R., Bhatt, R., Bilimagga, R., Chakrabarti, J., Chandrasekharan, A., Chaturvedi, H. K., Choudhrie, R., Dandekar, M., Das, A., Goel, V., Harris, C., Hegde, S. K., Hulikal, N., Joseph, D., Kantharia, R., … Pramesh, C. S. (2021). Impact of COVID-19 on cancer care in India: A cohort study. *The Lancet Oncology, 22*(7), 970-976. https://doi.org/10.1016/S1470-2045(21)00240-0

Ray, S. K., & Mukherjee, S. (2023). Interplay between SARS-CoV-2 and cancer: Plausible risk factors, cellular immune responses, cancer directed therapy- current challenges. *Infectious Disorders - Drug Targets, 23*(2), 145-158. https://doi.org/10.2174/1871526523666221028162406

Reshetnikov, A., Gevandova, M., Prisyazhnaya, N., & Vyatkina, N. (2024). The role of parents in their child's cancer diagnosis, treatment, rehabilitation, and socialization. *Indian Journal of Pediatrics, 91*(1), 30-34. https://doi.org/10.1007/s12098-022-04387-7

Sholikhah, D. U., Sudiana, I. K., & Kurniawati, N. D. (2020). The effectiveness chewing gum versus cryotherapy on salivary volume among patient with head and neck cancer undergoing radiotherapy. *Jurnal Ners, 15*(1), 91-97. https://doi.org/10.20473/jn.v15i1.19444

Wong, D. L. (2009). *Buku ajar keperawatan pediatrik* (Vol. 2). EGC.

Zhou, J., Xu, H., Jiang, M., Cao, H., Jiang, L., Xu, T., Teng, F., & Gu, F. (2021). Effect of PDCA-based nursing management model on the quality of life and complications of patients with acute leukemia undergoing chemotherapy. *American Journal of Translational Research, 13*(4), 3246-3253.

Pediomaternal Nursing Journal

Original Article

Associated factors of cervical cancer screening intention among reproductive-aged women: A cross-sectional study

Santy Irene Putri[1*], Hilda Mazarina Devi[2], Ratna Diana Fransiska[3]

ABSTRACT

Introduction: Cervical cancer screening has consistently proven effective in reducing both the incidence and mortality of cervical cancer. However, in many developing countries, including Indonesia, participation in screening programs remains considerably low. The primary objective of this study was to examine the intention toward cervical cancer screening and the associated factors among reproductive-aged women in Malang city, East Java, Indonesia.

Methods: This study employed an observational analytic approach with a cross-sectional design. Researchers conducted the study with 410 participants selected through a simple random sampling technique in Malang. The study focused on cervical cancer screening intention as the dependent variable, while considering attitude, affordability of health services, and health worker support as independent variables. The data collection instrument utilized was a questionnaire comprising various aspects such as attitude, affordability of healthcare services, and health worker support. The researcher-designed questionnaire was guided by the PRECEDE-PROCEED Model. The data were analyzed through multiple linear regression.

Results: The results revealed that favorable attitudes (B = .08, SE = .04, *P*-value = .026), affordable healthcare services (B = 1.06, SE = .19, *P*-value = < .001), and support from healthcare workers (B = .59, SE = .24, *P*-value = .013) were associated with an increased intention toward undergoing cervical cancer screening.

Conclusion: This study highlights that favorable attitudes, affordable access to healthcare services, and adequate support from health workers are significantly associated with the intention to undergo cervical cancer screening among reproductive-aged women.

Keywords: attitude; cervical cancer screening; health worker support; healthcare services; reproductive-aged women

INTRODUCTION

Cervical cancer remains one of the leading causes of cancer-related deaths in Indonesian women. Based on the Global Cancer Observatory statistics, at least 36,633 new cervical cancer cases were reported in Indonesia, with an imperative requirement for effective prevention strategies (Tjokroprawiro et al., 2024). Although cervical cancer is highly preventable by precancerous lesions being treated and detected early through screening, Indonesian women's participation in screening programs is still extremely low (Robbers et al., 2021).

Cervical cancer is caused by abnormal cells in the cervix tissue, and Human Papilloma Virus (HPV) infection contributes significantly to its causation (Sravani et al., 2023). Sexual activity and smoking are also risk factors for cervical cancer (Mekonnen & Mittiku, 2023). Nearly all cervical cancer cases are linked with HPV, where 70% of the cases in the world are caused by types 16 and 18 (Bobadilla et al., 2023; Chan et al., 2019; Yamaguchi et al., 2021; Zhang et al., 2020). As early cervical cancer does not typically present with symptoms, there is a necessity of having routine cervical screening to detect any cell abnormalities in time (Jallah et al., 2023; Gupta et. al., 2023). Moreover, even with prior cervical screening or HPV vaccination, it is essential to take immediate medical care if such symptoms develop (Chi Lim et al., 2022). Cervical cancer is preventable through vaccination or screening for cervical cancer (Mullapally et al.,2023).

Second, HPV vaccination has the purpose of preventing infection by HPV, where the vaccine is typically administered to children before puberty and before the commencement of sexual activity, often at 12-13 years of age (Diakite et al., 2023; Yusupov et al., 2019). Cervical screening, on the other hand, has the purpose of screening for cervical cell early changes so that intervention can be obtained in order to prevent cancer (Mustafa et al. 2023). Previous studies indicated high correlations between cervical cancer screening and age (Tiruneh et. al., 2017), insurance status (Ba et al., 2021), wealth index (Tiruneh et al., 2017), residence (Tiruneh et al., 2017), education (Morris, 2016), woman's autonomy to make decisions (Nguyen et al., 2014), access to a health facility (Ferlay et al., 2015), residence (Ba et al., 2021), use of mass media (Kangmennaang et al., 2015), surviving children (Ba et al., 2021), and visits to a health facility in the past year (Ba et al., 2021). Recurrent screening procedures for cervical screening include Pap smear and/or testing for HPV (Widayanti et al., 2020). In Indonesia, the programmes introduced by the Ministry of Health are Visual Inspection

OPEN ACCESS
***Correspondence**: Santy Irene Putri (santyireneacc@gmail.com)
[1]Midwifery Study Program, Politeknik Kesehatan Wira Husada Nusantara Malang, Malang, Indonesia
[2]Nursing Study Program, Universitas Tribhuwana Tungga Dewi, Malang, Indonesia
[3]Midwifery Study Program, Faculty of Medicine, Universitas Brawijaya, Malang, Indonesia

Volume 11 (2): 90-98
http://dx.doi.org/10.20473/pmnj.v11i2.70638

e-ISSN: 2355-1577 | p-ISSN: 2656-4629

Article History
Received: March 07, 2025 | Revised: May 22, 2025 | Accepted: July 23, 2025| Published : September 15, 2025

with Acetic Acid (VIA), Pap smear, and HPV DNA testing in recent times (Ekawati et al., 2024).

Malang City has also been zealous, including the organization of HPV vaccination campaigns and community education (Mauludiyah et al., 2025). This notwithstanding, cervical cancer screening service utilization remains low, with the majority of women presenting for care when the disease is in the advanced stages, typically precipitated by delay in detection (Sumarmi et al.,2021).

In an effort to eradicate cervical cancer cases in Malang City, the Health Office remains committed and actively conducts prevention socialization through HPV vaccination. Since 2021, Malang City has become a pilot project for a free HPV vaccination program by successfully reaching more than 500 participants aged 9-11 years in elementary schools. The age choice refers to the national guidelines and programs from the Ministry of Health wherein the current HPV vaccination target is focused on 9 to 13 years old, in the hope of providing effective early protection. Various efforts to prevent cervical cancer in Malang have been carried out, but cases of cervical cancer still remain. Programs that target the improvement of women's screening practices are essential. Information about the risk factors as well as the screening behavior of the study subjects is essential to provide targeted interventions. However, information on attitudes toward cervical cancer screening is limited in the country; especially in the study area. Thus, the findings of this study will provide the information needed to fill this gap, especially for the strengthening of primary care systems to address this growing public health problem. By filling these gaps, the aim of this study was to examine the intention toward cervical cancer screening and the associated factors among reproductive-aged women. Despite widespread preventive efforts in various countries, the mortality rate from cervical cancer has remained a persistent issue over the past three decades.

This study is urgent because limited research has explored the psychosocial and structural factors affecting screening intention in Indonesia. While prior studies have examined demographic and socioeconomic factors such as education, income, and health insurance status (Aoki et al., 2020; Ekawati et al., 2024; Sirait et al., 2022), fewer have focused on psychological (e.g., attitude), systemic (e.g., affordability), and interpersonal (e.g., health worker support) dimensions that are critical for understanding screening behaviors.

The variables chosen in this study, such as intention to undergo cervical cancer screening, attitude, affordability of health services, and health worker support are based on the PRECEDE-PROCEED model, which emphasizes predisposing, enabling, and reinforcing factors that influence health behavior (Kim et al., 2022). Intention is a well-documented predictor of actual behavior, particularly in health-related decision-making (Kim et al., 2022). Attitude reflects personal beliefs and perceptions toward screening, affordability assesses economic accessibility (Solmaz & Kıssal, 2025), and health worker support captures the interpersonal encouragement and facilitation provided by the healthcare system (Johnson et al., 2022).

A clear research gap exists in the Indonesian context, especially in mid-sized urban areas like Malang. Most previous studies were conducted in larger cities or rural regions and often focused only on awareness or knowledge levels (Permatasari & Putri, 2021; Winata et al., 2023). Few studies have integrated the behavioral intention framework while analyzing the influence of economic and health system support factors. Therefore, this study aims to fill these gaps by providing evidence on the determinants of cervical cancer screening intention among reproductive-aged women in Malang City. The findings are expected to inform more tailored, community-specific interventions and enhance the effectiveness of ongoing cervical cancer prevention programs in Indonesia.

METHODS

Study Design

This study employed an observational analytic approach with a cross-sectional design. This design was chosen because it allows for the examination of relationships between variables of interest, such as attitudes, affordability of health services, health worker support, and cervical cancer screening intentions, at a single point in time. The cross-sectional design is appropriate for this research as it enables efficient data collection from a relatively large sample within a limited period, facilitating the identification of potential associations and factors influencing cervical cancer screening behaviors (Wang & Cheng, 2020). This approach is commonly used in public health research to provide a snapshot of health behaviors and related determinants, which can inform the development of targeted interventions.

Samples and Sampling

The study utilized a simple random sampling technique without stratification considerations. The study population encompassed the entire community surrounding Malang City, while the sample was selected through simple random sampling. Furthermore, researchers determined the sample size using the Lemeshow formula due to the unknown population size.

In the equation, n represents the sample size, z denotes the standard value (1.96 at a 5% level of significance), p signifies the maximum estimate (50% or .5), and d represents the alpha (.05) or sampling error (5%). The calculations determined that the minimum required sample size was 384. However, this study exceeded expectations, with 410 individuals completing the questionnaires distributed via Google Forms. The inclusion criteria were women of reproductive age (15–49 years), who were willing to participate and completed the online questionnaire during the data collection period. Although the reproductive age range begins at 15, cervical cancer screening methods such as Pap smear and VIA are primarily recommended for sexually active women. Therefore, the questionnaire included items to identify the respondents' marital status and sexual activity history. These items helped ensure the relevance of their responses regarding cervical cancer screening behavior. Respondents who were under 15 or over 49 years of age, or those who did not meet the inclusion criteria, were excluded from the study. This approach aligns with the aim of understanding intention and associated factors for cervical cancer screening among women who are most likely eligible for such screening based on their sexual and reproductive health profiles. Only women aged 15 to 49 years who were married or had ever engaged in sexual intercourse were included in this study, as they are the target population for cervical cancer screening programs. Women who did not meet these criteria were excluded from the analysis.

Instruments

The study encompassed independent variables including attitude, affordability of healthcare services, and support from healthcare workers, while the dependent variable focused on the inclination to undergo cervical cancer screening. The data collection instrument utilized was a questionnaire comprising various aspects such as attitude, affordability of healthcare services, and health worker support, informed by relevant literature reviews.

The questionnaire, guided by the researcher using the PRECEDE-PROCEED model, was designed based on the recommendations identified through the literature review. It consisted of four sections: demographic information, predisposing factors such as attitudes toward cervical cancer screening; enabling factors such as accessibility of healthcare and proximity to public health facilities; and reinforcement factors regarding support by the health workers. Compared to other models such as the theory of planned behavior or the health belief model, PRECEDE-PROCEED is advantaged in the sense that it addresses a wide range of levels of determinants, from individual levels up to environment and policy levels (Huang et al., 2020). Consequently, the model is often applied in community-based health promotion intervention planning and evaluation, indeed particularly in the prevention of diseases such as cervical cancer (El Rahman et al., 2021). Additionally, selection of the model is also informed by the model's ability to inform primary data collection and the development of more contextual and relevant interventions within the field. Moreover, attitude was quantified by researchers using a 5-point Likert scale ranging from strongly agree to strongly disagree, and questions regarding support from the health worker were rated dichotomously as Yes or No.

The variable attitude towards cervical cancer screening was measured by a total of 15 statements scored on a 5-point Likert scale ranging from strongly disagree (score 1) to strongly agree (score 5). Higher scores indicate a good attitude towards cervical cancer screening. The measure for affordability of health services was established by three items that assessed the distance of respondents' residences to health facilities as close (<1 km), intermediate (1–3 km), and far (>3 km). This measure reflects the accessibility of healthcare services. The support from health workers variable comprised two dichotomous items (yes = 1, no = 0), which asked whether health professionals provided information and explanations about screening, offered positive feedback, assisted in accessing information, and paid attention to patient complaints. Finally, the intention to undergo cervical cancer screening was measured with 13 statements, also rated on a 5-point Likert scale from strongly disagree (score 1) to strongly agree (score 5). Higher scores indicate stronger intention to participate in cervical cancer screening. To ensure the instruments' validity, content validity was assessed by a panel of three experts in public health and cancer screening, who evaluated the relevance, clarity, and appropriateness of each item. Based on their feedback, minor revisions were made to improve the questionnaires. Reliability testing was performed using a pilot study with 30 respondents from a similar population, and internal consistency was measured by Cronbach's alpha. The reliability coefficients for the attitude, affordable healthcare services, health worker support, and screening intention scales were .91, .75, .73, and .78, respectively, indicating good reliability of the instruments. These steps ensured that the data collected were both valid and reliable for subsequent analysis.

Data Collection

Data collection was conducted from January to March 2024 in Malang City, East Java. The questionnaire was completed via the WhatsApp messaging application, and this was hosted on a Google Form. Recruitment for participants was aided by 40 trained community volunteers, locally known as cadres, who were selected on the basis of preselected criteria. These conditions were to be permanent residents of various neighborhoods of Malang City, being experienced in community health activities previously, and being capable of communicating with the target groups. The cadres received uniform training on the objectives of the study, ethics, and questionnaire distribution procedures in order to ensure uniformity and accuracy of data collection. Their primary tasks were to assist the research team in identifying potentially eligible respondents based on inclusion criteria, explaining the study purpose, obtaining informed consent, and distributing and collecting the questionnaires. The utilization of these cadres facilitated access to different community members and representative sampling from diverse geographic and socio-demographic subgroups in Malang. The questionnaire was distributed via the WhatsApp messaging platform using a Google Form link. Volunteers were given the questionnaire link and asked to share it with eligible women in their communities who met the inclusion criteria. Prior to being able to proceed to access the questionnaire, participants were shown an introduction page indicating the purpose of the study, that they voluntarily participated, confidentiality promises, and contact information for the research team. This was then followed by a computer-informed consent statement, and only participants who clicked "*I agree to participate*" were permitted to proceed and complete the questionnaire. Collection of data was carried out in several sub-districts of Malang, including Klojen, Lowokwaru, Blimbing, Kedungkandang, and Sukun. These sub-districts were selected in a way as to cover a diverse range of socioeconomic and demographic statuses to be able to assess the factors associated with intention for cervical cancer screening more precisely.

Data Analysis

The first task was to examine the data gathered for determining their relevance to later analysis. In doing so, attention was paid to the completeness of the replies in questionnaires, the readability of writing, and the relevance of replies given. The researchers then moved to numerically classify the response by assigning a particular code or sign to every reply since the questionnaire consisted of positive and negative statements. These were then added up to get a total score to facilitate further analysis using the SPSS package. Once coded, the data were inputted into a computer program table and underwent data cleaning procedures, during which unwanted entries were removed to fit the purpose of the study. The finalized dataset was then sorted according to the predefined variables and displayed in a tabular format for ease of management in following data processing procedures.

Descriptive statistics like frequency distributions were used to present the demographic description of the participants. Pearson's correlation coefficient was used in the examination of association between primary variables to establish linear relationships between attitude, affordability of health services, and health worker support. Multiple linear regression analysis was subsequently conducted to establish the variables significantly associated with the intention to receive screening

for cervical cancer. The b regression coefficients indicated the strength and direction of such correlations, with positive for direct correlation and negative for inverse correlation. Statistical significance was at .05. All the analyses were done using SPSS software to obtain accurate and reliable results.

Ethical Clearance

This study obtained ethical approval from the Research Ethics Commission of the Faculty of Medicine, Universitas Islam Al-Azhar Mataram, under the reference number 010/EC - 04/FK-06/UNIZAR/I/2024.

RESULTS

A total of 410 reproductive women from five sub-districts in Malang City participated as respondents. Data collection was carried out across several sub-districts in Malang, including Klojen, Lowokwaru, Blimbing, Kedungkandang, and Sukun. Sukun Sub-district had the highest number of respondents, namely 108 people (28.7%), followed by Blimbing Sub-district with 93 respondents (24.7%) and Lowokwaru with 81 respondents (22.3%). Meanwhile, Kedungkandang recorded 72 respondents (19.1%) and Klojen had a total of 56 respondents (14.9%) who participated in the study. The distribution of these respondents reflects variations in population distribution and differences in accessibility to health services in each sub-district (Figure 1).

A total of 410 respondents participated in this study, resulting in a response rate of 100%. The majority of respondents were aged 25-49 (87.6%), had attained a university degree (34.4%), were married (59.0%), and had 2-3 children (49.5%). Additionally, most respondents were employed in the private sector (45.4%), and 238 respondents (58.0%) reported a monthly family income ranging from 1-3 million IDR. The majority of respondents (213 people, 52.0%) involved in this study started marriage at the age of over 30 years. Respondents who got married at the age of 20–30 years amounted to 152 people (37.1%), while those who got married at the age of 15–20 years were only 45 people (10.9%). This shows that most respondents postpone the age of marriage until late adulthood. Meanwhile, related to the age of first sexual activity, most respondents reported starting it at the age of 30–39 years, which was 138 people (33.7%), followed by the age group of 20–29 years old as many as 107 people (26.0%). Respondents who started sexual activity at the age of 40–49 years were recorded as many as 106 people (25.9%), and at the age of 15–19 years as many as 59 people (14.4%). This is important in considering the clinical feasibility of cervical cancer screening such as Pap smears or VIAs, which are generally intended for women who have been sexually active (Table 1).

The mean attitude of the age among reproductive women was 28.9 (range for lowest-highest was 16-56 years old). The average for affordability of health services score was 2.5 (range for lowest-highest was 1-5). The mean of health worker support was 7.1 (range for lowest-highest was 5-8) and cervical cancer screening was 30.4 (range for lowest-highest was 16-45) (Table 2). The respondents' attitudes toward cervical cancer screening were measured using 15 statements rated on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Thus, the total possible score for this variable ranged from 15 to 75. To categorize the levels of attitude, Bloom's cut-off points were applied, dividing the scores into three categories: good, moderate, and poor. A score between 60 and 75 (equivalent to 80–100% of the maximum score) was classified as a good attitude, a score between 45 and 59 (60–79%) was considered moderate, and a score below 45 (less than 60%) was classified as poor. This classification approach was adopted to provide a systematic and clear interpretation of respondents' attitudes, facilitating meaningful analysis. The use of a 5-point Likert scale allowed for adequate variation in responses, capturing the nuances of individual attitudes toward cervical cancer screening. The cut-off points affordability of health services were: far (<3km), middle (1-3km), and near (>3km). The cut-off points of health worker support were: good: 6-8, moderate 5, and poor under 5. The cut-off points of cervical cancer screening were: 48-60, moderate 36-47, and poor under 47.

Before proceeding with multivariate analysis, a bivariate analysis using Pearson correlation was conducted to assess the linear relationship between each independent variable such as attitude, affordability of health services, health worker support, and the dependent variable, namely the

Table 1. Demographic characteristics of the research participants

Demographic	n	%
Age (years)		
15-24	51	12.4
25-49	359	87.6
Education		
Primary School	41	10.0
Secondary Education	118	28.8
Diploma	85	207
University Degree	141	34.4
Post-graduate Degree	25	6.1
Employment		
Unemployed	54	13.2
Government Sector	62	15.1
Private Sector	186	45.4
Self-employed	108	26.3
Marital Status		
Married	242	59.0
Not married	160	39.0
Divorce/ Windowed	8	2.0
Age of Marriages		
15-20	45	10.9
20-30	152	37.1
>30	213	52.0
Age of Initiation Sexual Activity		
15-19	59	14.4
20-29	107	26.0
30-39	138	33.7
40-49	106	25.9
Monthly Family Income (in IDR)		
<1 million	104	25.4
1-3 million	238	58.0
>3 million	68	16.6
Number of Children		
0–1 child	146	35.6
2-3 children	203	495
>4 children	61	14.9

Table 2. Frequency Distribution of Variable Dimensions Among Women Participating in the Study

Variables	Number of Questions	Mean ± SD	Median	Lowest - Highest
Attitude	15	28.9±5.8	29	16-56
Affordability of Health Services	3	2.5±1.2	2	1-5
Health Worker Support	4	7.1±0.9	7	5-8
Cervical Cancer Screening	12	30.4±4.4	30	16-45

Table 3. Correlation Analysis

Variables	Attitude	Affordability of health services	Health worker support	Screening intention
Attitude	1	.22**	-.01	.16**
Affordability of Health Services	.22**	1	-.11*	.28**
Health Worker Support	-.03	-.11*	1	.09

Note: * = Correlation is significant at .05 (2 tailed); **= Correlation is significant at .01 (2 tailed)

Table 4. Multiple Linear Regression Results

Variables	Unstandardized (b)	SE	Standardized (β)	CI 95%		t	*P*-value
				Lower	Upper		
Attitude	.08	.04	.11	.10	.16	2.24	.026
Affordability of Health Services	1.06	.19	.27	.69	1.43	5.65	< .001
Health Worker Support	.59	.24	.24	.13	1.05	2.51	.013

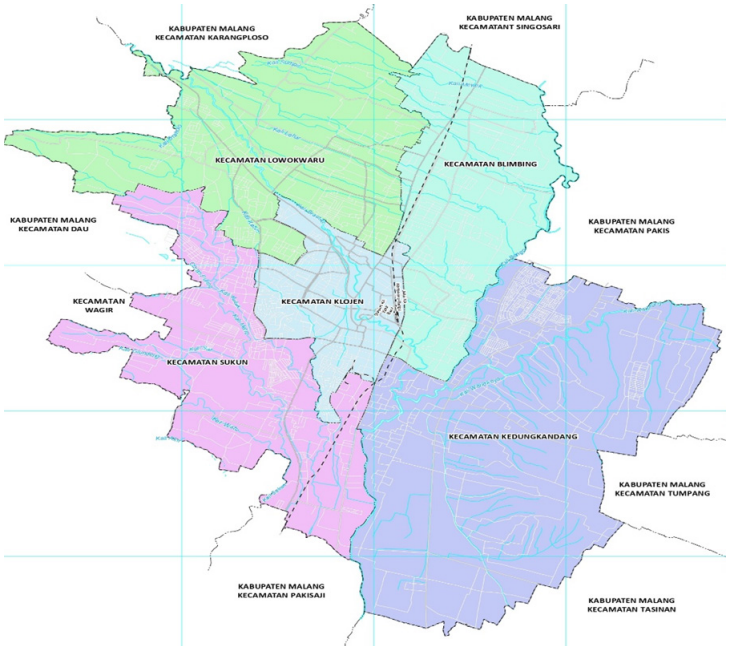

Figure 1. Respondent Distribution Map

intention to undergo cervical cancer screening. This step was essential to identify significant associations and ensure that only relevant predictors were included in the subsequent multiple linear regression model. The bivariate analysis also served to screen variables for multicollinearity and to confirm the appropriateness of model inclusion, thereby enhancing the robustness and interpretability of the final multivariate findings. Correlation serves as a statistical measure to assess the relationship between two variables. A monotonic relationship indicates that as one variable increases, the other variable consistently either increases or decreases. In correlated data, variation in one variable's magnitude corresponds to changes in another variable, either in the same or in opposite direction. Essentially, higher values of one variable are associated with either higher (positive correlation) or lower (negative correlation) values of the other. This study examined the correlation between elements of the PRECEDE PROCEED model and women's willingness to undergo cervical cancer screening using Pearson correlation analysis. The findings revealed a positive correlation between various components of the PRECEDE PROCEED model and intention for undergo screening. Table 3 depicts the correlation between the PRECEDE PROCEED model and screening intention.

The multiple linear regression analysis identified three significant predictors of cervical cancer screening intention. These included attitude (β = .11, *P*-value = .026), affordability of health services (β = .27, *P*-value < .001), and health worker support (β = .24, *P*-value = .013). Among these, affordability of health services emerged as the strongest predictor. This indicates that more positive attitudes, better affordability, and greater support from health workers are associated with higher intention to undergo screening (Table 4).

DISCUSSION

The main findings of this study revealed that the intention to undergo cervical cancer screening among women of reproductive age is significantly influenced by attitude, affordability of health services, and support from health workers. Demographically, most respondents were within the 25-49 age range, a group identified by the World Health Organization as critical for reproductive health interventions. The positive association between attitude and screening intention aligns with the PRECEDE-PROCEED model, which suggests that favorable evaluations of a behavior increase the likelihood of intention and action. Affordability, encompassing cost, distance, and time, emerged as the strongest predictor, highlighting the practical barriers faced by women in accessing screening services. Additionally, support from health workers plays a crucial role by providing education and motivation, reinforcing positive health behaviors. Together, these variables interact to shape women's willingness to participate in cervical cancer screening programs, underscoring the need for integrated interventions addressing both psychosocial and structural factors.

Most respondents who demonstrated a positive attitude toward cervical cancer prevention behavior are inclined to adopt positive practices for cervical cancer prevention. Nevertheless, this study noted instances where certain respondents exhibited a negative attitude yet engaged in positive cervical cancer prevention behaviors. The data presented above indicate that attitudes toward cervical cancer prevention behavior have a significant association with the actual adoption of preventive measures. The findings of this study regarding the association between attitudes toward cervical cancer prevention behavior and the actual behavior indicate a strong correlation between the two variables. This result in a line with the research conducted by Winata et al. (2023) which suggests a positive relationship between attitude and cervical cancer prevention behavior, where individuals with a positive attitude tend to exhibit good behaviors.

Attitude toward behavior denotes an evaluation of the degree to which an individual perceives advantages and disadvantages associated with the behavior (Fishman et al., 2021). This evaluation leads individuals to form either positive or negative judgment about an object. Moreover, attitudes play a significant role in influencing careful and rational decision-making process (Büdenbender et al., 2023). They serve as predisposing factors to behavioral actions, reflecting an individual's readiness to respond to objects within their environment. Furthermore, the more positively an individual perceives the potential outcomes of a behavior, the more likely they are to exhibit a positive attitude toward it (Brügger & Höchli, 2019). Conversely, negative perceptions of potential outcomes are associated with negative attitudes toward the behavior (Yuan et al., 2023).

Attitudes toward activities represent subjective feelings experience before and during the engagement in actions, whether they evoke positivity, negativity, amusement, intrigue, pleasure, or disfavor (Chen et al., 2022). These attitudes play a crucial role in determining whether an individual will persist with or cease the behavior. Behaviors yielding positive outcomes are often repeated, while those associated with negative consequences are usually avoided. Consequently, while a positive attitude typically leads to a favorable behavior, the absence of an accompanying intention to act upon the belief may hinder the realization of anticipated actions (Rejeski & Fanning, 2019).

The attitude determined by an individual is highly subjective and is also influenced by the intention or commitment to act in accordance with existing beliefs (Fishman et al., 2021). Therefore, behaviors that yield positive impacts are likely to persist, whereas those with negative impacts are typically discontinued and avoided. In this study, attitudes associated with cervical cancer prevention behaviors among the majority of respondents were influenced by emotions arising from preventive measures, such as fear and embarrassment about undergoing cervical cancer screening. This emotional response may be influenced by inadequate information received regarding cervical cancer prevention behaviors (Zahra et al., 2024).

Based on the conducted research, a majority of respondents reside at a moderate distance from home to the health center. The proximity of healthcare facilities offering affordable cervical cancer screening services for women of reproductive age is expected to enhance their screening behavior. This is because distance may impede the ability and willingness women of reproductive age to access services, especially in cases where transportation options are limited (Treacy et al., 2018). Furthermore, the affordability of the distance to a healthcare center serves as an indicator of respondents' access to healthcare services. This affordability is assessed based on three factors: cost, time, and distance to healthcare facilities.

Cervical cancer screening services in Malang city are predominantly provided through public health centers, community clinics, and selected hospitals having screening facilities (Ana et al., 2021). These are the first points of entry for women receiving preventive health services, including Pap smears and VIA tests. Their availability is interconnected by various factors, specifically distance to the health facilities, travel time, and the cost. Existing studies and past local health reports have cited distance among primary barriers for women to access cervical cancer screening because the farther the distances traveled, the greater the cost and time to access care, thereby reducing the likelihood of women to register in screening programs (Robbers et al., 2021). Therefore, affordability was quantified in this research by considering cost, time, and distance to facilities to provide a comprehensive measure of accessibility to cervical cancer screening services that is well-suited to the local context.

The role of health workers entails providing support to individuals, especially with regards to matters of the participant state of health. Further, support from health workers is determinative in the determination of the reaction of an individual to recommended health behaviors (Panahi et al., 2022). Health workers possess the ability to model individual behavior through demonstrating interest in specific actions and reinforcing individuals who actively engage in involvement in health programs (Martínez et al., 2021). Furthermore, support from trained healthcare professionals is scored as one of the significant determinants because social support is more effective when provided by people who have a great deal of control over someone's life.

Healthcare providers in Malang city provide a number of services to women concerning cervical cancer screening, including health education and counseling about the necessity of screening. A few of the respondents, however, expressed a desire for more individualized and culturally sensitive information and for more female healthcare providers to be available. This indicates a mismatch between available support services and target group needs or preferences. Previous studies have established that programmatic support by health workers, especially high-quality communication and access, is crucial in enhancing screening rates among

women. Closing these gaps may maximize participation in cervical cancer screening and ultimately result in better health outcomes (Staley et al., 2021). The significance of support from health workers is in enhancing the quality of health services provided to the community (Ndambo et al., 2022).

Therefore, this creates great awareness, willingness, and ability within the population to maintain healthy lifestyles, thus contributing to the realization of optimal health. Despite the fact that they are given a lot of assistance by the health workers, many of them continue to miss cervical cancer screening appointments. This is attributed to other determinants influencing women of childbearing age to undergo screening, including knowledge, attitudes, education, culture beliefs, and affordability, in addition to support from family. While that happens, the individuals who continue to get minimal support may be confronted with barriers to aid delivery, i.e., social withdrawal, resistance to aid receipt, or negative interpersonal orientations such as suspicion, insensitivity, and lack of reciprocity (Chen et al., 2022; Winata et al., 2023). The support of health workers contributes significantly to the widening of women's enthusiasm and inclination towards having early detection checks. In addition, health workers are significant inducers in promoting the utilization of health services and actively reminding women to undergo cervical cancer screening within the public health center's predetermined schedule.

CONCLUSION

This study was performed with the purpose to investigate cervical cancer screening intention and factors among reproductive age women. The findings indicate that attitude, availability of health care expenses, and recommendations from health workers are strongly related to screening intention. Women who have a favorable attitude towards cervical cancer screening, perceive health services as being affordable, and receive right support from health workers are more likely to hold a strong intention to be screened. These results highlight the need to promote favorable attitudes, raise access to affordable screening services, and encourage health worker initiative in order to promote cervical cancer screening coverage. This study has several limitations that must be discussed. Data was collected using an online questionnaire distributed via WhatsApp, which will have the potential to introduce selection bias by excluding women who are not internet-savvy or are inactive on the platform. The study was only conducted in Malang city's chosen districts and thus may limit the applicability of the findings to other regions with different demographic and healthcare situations.

Declaration of Interest

The authors have no conflicts of interest to declare.

Acknowledgment

We express our sincere gratitude to those individuals who participated in this study.

Funding

None.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

REFERENCES

Ana, R., Endi, A., Hanifah, D., & Mauludiyah, I. (2021). Hubungan tentang faktor resiko dan skrining kanker serviks dengan perilaku deteksi dini kanker serviks pada WUS di RW 01 Kelurahan Polowijen Kec. Blimbing Kota Malang. *Kendedes Midwifery Journal, 1*(2), 6–7.

Aoki, E. S., Yin, R., Li, K., Bhatla, N., Singhal, S., Ocviyanti, D., Supakarapongkul, W., Kang, S., Tang, G., Prat, J., Tay, E. H., Chan, K. K. L., Ryom, K., Ryu, H. S., Garland, S. M., Basu, P., & Termrungruanglert, W. (2020). National screening programs for cervical cancer in Asian countries. *Journal of Gynecologic Oncology, 31*(3), Article e55. https://doi.org/10.3802/jgo.2020.31.e55

Ba, D. M., Ssentongo, P., Musa, J., Agbese, E., Diakite, B., Traore, C. B., Dabo, A., Ssentongo, A. E., Frontini, V., Wang, Y., Chinchilli, V. M., Du, P., & Maiga, M. (2021). Prevalence and determinants of cervical cancer screening in five sub-Saharan African countries: A population-based study. *Cancer Epidemiology, 72*, Article 101930. https://doi.org/10.1016/j.canep.2021.101930

Bobadilla, M. L., Villagra, V., Violeta, O., Deluca, G., & De Paula, V. S. (2023). High prevalence and co-infection of high-risk Human Papillomavirus genotypes among unvaccinated young women from Paraguay. *PLoS ONE, 18*(4), Article e0283542. https://doi.org/10.1371/journal.pone.0283542

Brügger, A., & Höchli, B. (2019). The role of attitude strength in behavioral spillover: Attitude matters—but not necessarily as a moderator. *Frontiers in Psychology, 10*, Article 1018. https://doi.org/10.3389/fpsyg.2019.01018

Büdenbender, B., Köther, A. K., Grüne, B., Michel, M. S., Kriegmair, M. C., & Alpers, G. W. (2023). When attitudes and beliefs get in the way of shared decision-making: A mediation analysis of participation preference. *Health Expectations, 26*(2), 740–751. https://doi.org/10.1111/hex.13699

Chan, C. K., Aimagambetova, G., Ukybassova, T., Kongrtay, K., & Azizan, A. (2019). Human Papillomavirus infection and cervical cancer: Epidemiology, screening, and vaccination—Review of current perspectives. *Journal of Oncology, 2019*, Article 3257939. https://doi.org/10.1155/2019/3257939

Chen, S. T., Hyun, J., Graefe, A. R., Mowen, A. J., Almeida, D. M., & Sliwinski, M. J. (2022). The influence of leisure engagement on daily emotional well-being. *Leisure Sciences, 44*(7), 995–1012. https://doi.org/10.1080/01490400.2020.1757537

Chi Lim, T. S., Ismail-Pratt, I., & Hoon Goh, L. (2022). Cervical cancer screening and vaccination: Understanding the latest guidelines. *Singapore Medical Journal, 63*(3), 125–129. https://doi.org/10.11622/smedj.2022045

Diakite, I., Kyle, J., Situ, S., Bai, P., Zhang, X., Wang, W., & Daniels, V. (2023). Public health impact of 2-, 4-, and 9-valent HPV vaccination in females on cervical and noncervical diseases in men and women under different coverage scenarios in China: A simulation study. *Human Vaccines and Immunotherapeutics, 19*(2), Article 2258569. https://doi.org/10.1080/21645515.2023.2258569

Ekawati, F. M., Listiani, P., Idaiani, S., Thobari, J. A., & Hafidz, F. (2024). Cervical cancer screening program in Indonesia: Is it time for HPV-DNA tests? Results of a qualitative study exploring the stakeholders' perspectives. *BMC Women's Health, 24*(1), Article 1. https://doi.org/10.1186/s12905-024-02946-y

El Rahman, W. K. S. A., Saber, N. M., & Ahmed, A. A. (2021). Efficacy of PRECEDE model-based educational program on women's knowledge and practice regarding cervical cancer prevention. *International Journal of Health Sciences, 5*(1), 565–581. https://doi.org/10.53730/ijhs.v5ns1.13896

Ferlay, J., Soerjomataram, I., Dikshit, R., Eser, S., Mathers, C., Rebelo, M., Parkin, D. M., Forman, D., & Bray, F. (2015). Cancer incidence and mortality worldwide: Sources, methods and major patterns in GLOBOCAN 2012. *International Journal of Cancer, 136*(5), E359–E386. https://doi.org/10.1002/ijc.29210

Fishman, J., Yang, C., & Mandell, D. (2021). Attitude theory and measurement in implementation science: A secondary review of empirical studies and opportunities for advancement. *Implementation Science, 16*(1), Article 1. https://doi.org/10.1186/s13012-021-01153-9

Gupta, S., Nagtode, N., Chandra, V., & Gomase, K. (2023). From diagnosis to treatment: Exploring the latest management trends in cervical intraepithelial neoplasia. *Cureus, 15*(12), Article e50291. https://doi.org/10.7759/cureus.50291

Huang, X., Dai, S., & Xu, H. (2020). Predicting tourists' health risk preventative behaviour and travelling satisfaction in Tibet: Combining the theory of planned behaviour and health belief model. *Tourism Management Perspectives, 33*, Article 100589. https://doi.org/10.1016/j.tmp.2019.100589

Jallah, J. K., Anjankar, A., & Nankong, F. A. (2023). Public health approach in the elimination and control of cervical cancer: A review. *Cureus, 15*(9), Article e44543. https://doi.org/10.7759/cureus.44543

Johnson, L. J., Schopp, L. H., Waggie, F., & Frantz, J. M. (2022). Challenges experienced by community health workers and their motivation to attend a self-management programme. *African Journal of Primary Health Care and Family Medicine, 14*(1), Article a2911. https://doi.org/10.4102/phcfm.v14i1.2911

Kangmennaang, J., Thogarapalli, N., Mkandawire, P., & Luginaah, I. (2015). Investigating the disparities in cervical cancer screening among Namibian women. *Gynecologic Oncology, 138*(2), 411–416. https://doi.org/10.1016/j.ygyno.2015.05.036

Kim, J., Jang, J., Kim, B., & Lee, K. H. (2022). Effect of the PRECEDE-PROCEED model on health programs: A systematic review and meta-analysis. *Systematic Reviews, 11*(1), Article 1. https://doi.org/10.1186/s13643-022-02092-2

Morris, R. M. (2016). Factors associated with the uptake of cervical cancer screening among women of reproductive age in Homabay County, Kenya: A case of Kanyadhiang Sub Location. *Clinics in Mother and Child Health, 13*(1), Article 232. https://doi.org/10.4172/2090-7214.1000232

Martínez, Á. M., Pérez-Fuentes, M. D. C., Jurado, M. D. M. M., Márquez, M. D. M. S., Martín, A. B. B., & Linares, J. J. G. (2021). Empathy, affect and personality as predictors of engagement in nursing professionals. *International Journal of Environmental Research and Public Health, 18*(8), Article 4110. https://doi.org/10.3390/ijerph18084110

Mauludiyah, I., Andarini, S., Holipah, Muflikhah, L., & Zuhriyah, L. (2025). Cervical cancer awareness and screening in Malang City, Indonesia: Sociodemographic determinants. *Journal of Medicinal and Pharmaceutical Chemistry Research, 7*(4), 714–724. https://doi.org/10.48309/jmpcr.2025.466820.1323

Mekonnen, A. G., & Mittiku, Y. M. (2023). Early-onset of sexual activity as a potential risk of cervical cancer in Africa: A review of literature. *PLOS Global Public Health, 3*(3), Article e0000941. https://doi.org/10.1371/journal.pgph.0000941

Mullapally, S. K., Basu, P., & Parikh, P. (2023). Prevention of cervical cancer through HPV vaccination and screening in Maldives. *South Asian Journal of Cancer, 12*(1), 44–46. https://doi.org/10.1055/s-0043-1764158

Mustafa, W. A., Ismail, S., Mokhtar, F. S., Alquran, H., & Al-Issa, Y. (2023). Cervical cancer detection techniques: A chronological review. *Diagnostics, 13*(10), Article 1763. https://doi.org/10.3390/diagnostics13101763

Ndambo, M. K., Munyaneza, F., Aron, M., Makungwa, H., Nhlema, B., & Connolly, E. (2022). The role of community health workers in influencing social connectedness using the household model: A qualitative case study from Malawi. *Global Health Action, 15*(1), Article 2090123. https://doi.org/10.1080/16549716.2022.2090123

Nguyen, A. B., Clark, T. T., & Belgrave, F. Z. (2014). Gender roles and acculturation: Relationships with cancer screening among Vietnamese American women. *Cultural Diversity & Ethnic Minority Psychology, 20*(1), 87–97. https://doi.org/10.1037/a0033474

Panahi, S., Rathi, N., Hurley, J., Sundrud, J., Lucero, M., & Kamimura, A. (2022). Patient adherence to health care provider recommendations and medication among free clinic patients. *Journal of Patient Experience, 9*, Article 23743735221077523. https://doi.org/10.1177/23743735221077523

Permatasari, N. U. I., & Putri, H. M. A. R. (2021). Cervical cancer awareness among women in North Jakarta. *Journal of Gynecologic Oncology, 4*(2), 2–5.

Rejeski, W. J., & Fanning, J. (2019). Models and theories of health behavior and clinical interventions in aging: A contemporary, integrative approach. *Clinical Interventions in Aging, 14*, 1007–1019. https://doi.org/10.2147/CIA.S206974

Robbers, G. M. L., Bennett, L. R., Spagnoletti, B. R. M., & Wilopo, S. A. (2021). Facilitators and barriers for the delivery and uptake of cervical cancer screening in Indonesia: A scoping review. *Global Health Action, 14*(1), Article 1979280. https://doi.org/10.1080/16549716.2021.1979280

Sirait, L. M. F., Hamajima, N., Suzuki, Y., Wahyuningsih, E. S., Oktavia, D., Widyastuti, Y., Wulandari, F. D., Tanaka, M., Putri, A. S., & Yamamoto, E. (2022). Factors associated with positive cancer screening for the uterine cervix and breast in Jakarta Province, Indonesia: A cross-sectional study. *BMC Cancer, 22*(1), Article 1. https://doi.org/10.1186/s12885-022-10381-1

Solmaz, T., & Kıssal, A. (2025). The relationship between cancer information burden, attitudes, and behaviors toward cancer screenings in women aged 30–70 years. *Revista da Associação Médica Brasileira, 71*(2), Article e20241395. https://doi.org/10.1590/1806-9282.20241395

Sravani, A. B., Ghate, V., & Lewis, S. (2023). Human papillomavirus infection, cervical cancer and the less explored role of trace elements. *Biological Trace Element Research, 201*(3), 1026–1050. https://doi.org/10.1007/s12011-022-03226-2

Staley, H., Shiraz, A., Shreeve, N., Bryant, A., Martin-Hirsch, P. P. L., & Gajjar, K. (2021). Interventions targeted at women to encourage the uptake of cervical screening. *Cochrane Database of Systematic Reviews, 9,* Article CD002834. https://doi.org/10.1002/14651858.CD002834.pub3

Sumarmi, S., Hsu, Y. Y., Cheng, Y. M., & Lee, S. H. (2021). Factors associated with the intention to undergo Pap smear testing in the rural areas of Indonesia: A health belief model. *Reproductive Health, 18*(1), Article 1. https://doi.org/10.1186/s12978-021-01188-7

Tiruneh, F. N., Chuang, K. Y., Ntenda, P. A. M., & Chuang, Y. C. (2017). Individual-level and community-level determinants of cervical cancer screening among Kenyan women: A multilevel analysis of a nationwide survey. *BMC Women's Health, 17*(1), Article 1. https://doi.org/10.1186/s12905-017-0469-9

Tjokroprawiro, B. A., Novitasari, K., Saraswati, W., Yuliati, I., Ulhaq, R. A., & Sulistya, H. A. (2024). The challenging journey of cervical cancer diagnosis and treatment at the second largest hospital in Indonesia. *Gynecologic Oncology Reports, 51*, Article 101325. https://doi.org/10.1016/j.gore.2024.101325

Treacy, L., Bolkan, H. A., & Sagbakken, M. (2018). Distance, accessibility and costs: Decision-making during childbirth in rural Sierra Leone: A qualitative study. *PLoS ONE, 13*(2), Article e0188280. https://doi.org/10.1371/journal.pone.0188280

Wang, X., & Cheng, Z. (2020). Cross-sectional studies: Strengths, weaknesses, and recommendations. *Chest, 158*(1), S65–S71. https://doi.org/10.1016/j.chest.2020.03.012

Widayanti, D. M., Irawandi, D., & Qomaruddin, M. B. (2020). Mother's knowledge and attitudes towards visual acetate acid inspection test in Surabaya. *Journal of Public Health Research, 9*(2), 113–116. https://doi.org/10.4081/jphr.2020.1815

Winata, I. G. S., Paramitha, P. P., & Yusrika, M. U. (2023). Correlation between knowledge, attitude, and partner support towards visual inspection with acetic acid test among women in Denpasar City, Indonesia. *Asian Pacific Journal of Cancer Prevention, 24*(10), 3543–3547. https://doi.org/10.31557/APJCP.2023.24.10.3543

Yamaguchi, M., Sekine, M., Hanley, S. J. B., Kudo, R., Hara, M., Adachi, S., Ueda, Y., Miyagi, E., Ikeda, S., Yagi, A., Sawada, M., Nakagawa, S., Hirashima, Y., Saito, J., Tabata, T., Tanaka, Y., Yokota, H., Kobayashi, E., Ikeda, Y., ... Enomoto, T. (2021). Risk factors for HPV infection and high-grade cervical disease in sexually active Japanese women. *Scientific Reports, 11*(1), Article 1. https://doi.org/10.1038/s41598-021-82354-6

Yuan, Y., Sun, R., Zuo, J., & Chen, X. (2023). A new explanation for the attitude-behavior inconsistency based on the contextualized attitude. *Behavioral Sciences, 13*(3), Article 223. https://doi.org/10.3390/bs13030223

Yusupov, A., Popovsky, D., Mahmood, L., Kim, A. S., Akman, A. E., & Yuan, H. (2019). The nonavalent vaccine: A review of high-risk HPVs and a plea to the CDC. *American Journal of Stem Cells, 8*(3), 52–64. http://www.ncbi.nlm.nih.gov/pubmed/31976155

Zahra, S. N., Kusdiyah, E., Indah, W., & Aurora, D. (2024). Cervical cancer knowledge, attitudes, and VIA willingness among married women. *Journal of Medical Studies, 4*(3), 1–12.

Zhang, S., Xu, H., Zhang, L., & Qiao, Y. (2020). Cervical cancer: Epidemiology, risk factors and screening. *Chinese Journal of Cancer Research, 32*(6), 720–728. https://doi.org/10.21147/j.issn.1000-9604.2020.06.05

Pediomaternal Nursing Journal

Original Article

Translation and validation of the premenstrual change coping inventory in Indonesian version

Henny Dwi Susanti[1*], Rintan Rikawati[1], Ninik Yunitri[2], Christina Yeni Kustanti[3]

ABSTRACT

Introduction: Premenstrual syndrome (PMS) affects millions of women worldwide, characterized by physical and psychological symptoms that occur cyclically before menstruation. In Indonesia, understanding and managing PMS remains challenging due to social stigma and lack of awareness. The Premenstrual Change Coping Inventory (PMS-Cope) is a validated tool designed to measure mental strategies used to adapt to menstrual cycle changes. However, no validated Indonesian version exists, creating a significant gap in research and clinical practice for Indonesian womens. The research evaluated the translation and validation of the premenstrual change coping inventory (PMS-Cope) in Indonesia

Methods: 321 Indonesian women were included in this study. PMS-Cope used Cronbach's alpha and convenience sampling. Exploratory factor analysis (EFA) was used in this study to determine factor structure and evaluate the structural model fit. Confirmatory factor analysis was also used in this study.

Results: The Cronbach's alpha value for the study was .90 overall. The CFA results for this study showed goodness of fit. The comparative fit index was .91, the related fit index (RFI) was .80, and the normed fit index was .83. The value of the Kaiser–Meier–Olkin test was .873, and Bartlett's test value of sphericity was statistically significant and indicated adequate EFA

Conclusion: The result of this study showed that the PMS-Cope has satisfactory reliability and validity for evaluating PMS-cope in Indonesia.

Keywords: premenstrual syndrome; translation; validation; women

INTRODUCTION

Premenstrual syndrome (PMS) is a condition that affects millions of women all over the world. It is characterized by a pattern of physical and psychological manifestations recurring cyclically prior to menstruation (Gudipally & Sharma, 2025; Takeda, 2023). PMS symptoms include fatigue, tenderness in breasts, bloating, mood swings, and irritability, which affect day-to-day activities among women (Itriyeva, 2022; Mishra, Elliott, & Marwaha, 2025). At the same time, in Indonesia, understanding and managing PMS remain a significant challenge. Most of them are not offered medical or psychological interventions because of social stigma or lack of awareness about the condition. Social stigma surrounding PMS in Indonesia is entrenched, where complaints of women are considered fantasy or an excuse to avoid responsibilities. Taboos and ignorance surrounding PMS ensure that most women are not ready to talk about it or approach physicians for help. Good and trustworthy tools must be used so as to objectively determine evidence of PMS, especially in a society that is still tainted with taboo regarding the disease. Premenstrual Change Coping Inventory (PMS-Cope) is a scale used so as to measure and evaluate mental strategies used to adapt to menstrual cycle changes (Read, Perz, & Ussher, 2014). The self-report scale questionnaire tool was meant to enlighten researchers on how people may handle PMS symptoms and how well and effectively they manage symptoms (Read et al., 2014). The PMS-Cope scale has a number of subdomains, including cognitive, emotional, and behavioral ways of coping with PMS symptoms that arise.

There is limited research on coping styles in Indonesian women and PMS. Coping and therapeutic dimensions are also not studied well, whereas previous research was primarily symptom- and prevalence-based on PMS (Noviyanti, Gusriani, Ruqaiyah, Mappaware, & Ahmad, 2021), Indonesian women's coping with PMS and the ways in which they cope need to be studied, taking into account the diversity of Indonesian culture, i.e., many ethnic groups, religion, and socioeconomic status. Indonesian norms and cultural values have the ability to affect women's choice of coping mechanisms and responses to PMS. For instance, talking about reproductive health issues can be forbidden in some cultures, and therefore, women cannot obtain help or support. The problem of coping with PMS symptoms is also enhanced by the fact that access to mental health services remains low in most locations. The purpose of the PMS-Cope study in Indonesia is to fill the current gap in the literature and develop a better understanding of Indonesian women's coping

***Correspondence**: Henny Dwi Susanti (hennydwi@umm.ac.id)
[1]Faculty of Health Sciences, Universitas Muhammadiyah Malang, Malang, Indonesia
[2]Faculty of Nursing, Universitas Muhammadiyah Jakarta, Jakarta, Indonesia
[3]Nursing Study Program, STIKes Bethesda Yakkum Yogyakarta, Yogyakarta, Indonesia

Volume 11 (2): 99-105
http://dx.doi.org/10.20473/pmnj.v11i2.71695

e-ISSN: 2355-1577 | p-ISSN: 2656-4629

Article History
Received: April 21, 2025 | Revised: June 22, 2025 | Accepted: July 21, 2025| Published : September 15, 2025

with PMS. Researchers can determine the most prevalent coping behaviors and determinants of these behaviors' selection through the use of PMS-Cope. Moreover, this study can assist in the development of more culturally sensitive and impactful interventions for the Indonesian population.

This study also has deep implications. Physicians can develop more effective education interventions and programs to aid women in controlling PMS symptoms through understanding effective coping strategies. For example, coping education and emotional support for PMS, counseling or group support programs may be designed (Read et al., 2014). Findings of this study can also be utilized to raise awareness among the public about PMS and the necessity of coping with mental illness issues prior to menstruation. Moreover, Indonesia's PMS-Cope study finds its niche in international knowledge regarding PMS and coping. Researchers are able to explain more fully how cultural influences form experience of PMS and selection of coping mechanism by incorporating voice from developing nations like Indonesia. Creating a more specific and full plan for knowing and treating PMS across cultures is significant.

Different nations have piloted and validated the PMS-Cope tool, including Turkey (Çetin & Erbil, 2024), German (Kaiser et al., 2018), and Australia (Read et al., 2014). PMS-Cope is a valid and effective method for assessing coping mechanisms employed by women in dealing with PMS symptoms, as tests conducted in these nations have indicated. To make this instrument valid and useful, the instrument has to be adapted and validated in the Indonesian setting. There are numerous challenges that need to be overcome in order to achieve this study. No articles have been written and published and sent out in overseas journals, yet the validity and accuracy of the instrument need to be guaranteed in Indonesia. One of the primary problems is the fact that Indonesian lacks sound and viable measuring tools. Therefore, before using the PMS-Cope widely to clinical practice and research, it is crucial that it must be validated and translated into Indonesian. The activity of ensuring that the PMS-Cope can be used to measure coping among the Indonesian people consists of translation, validation testing, and reliability testing.

METHODS

Instrument of the PMS-Cope

Kaiser et al. (2018) developed the PMS-Cope to gauge how people handle the changes that come with PMS. There are three components and seventeen items on the scale. The subscales include seeking positive outcomes behaviors (items 1, 2, 3, 4, 5, 6, 7), seeking support (items 8, 9, 10, 11, 12), and seeking health services (items 13, 14, 15, 16, 17). A four-point Likert scale is used to rate the scale's items ranging from strongly disagree (1 point), not sure (2 points), agree (3 points), to strongly agree (4 points); 17 is the lowest number, and 68 is the highest.

Statistical Analysis

This study utilized SPSS version 26 and AMOS version 18. Minimum, maximum, mean, standard deviation, skewness, and kurtosis values were used to analyze the quantitative data. The degree of data asymmetry toward the mean is measured using skewness. If the skewness value is less than 3 and the kurtosis value is less than 7, then none of these metrics significantly deviates from normalcy and, consequently, from psychometric sensitivity (Martins, Silva, Marôco, & Campos, 2024).

Reliability

Internal consistency reliability was assessed using Cronbach's alpha, and a value higher than .7 indicated appropriate internal consistency (Aday, 1998; Rau, 2023). The intra-class correlation coefficient was used to assess the PMS-Cope instruments' test-retest reliability; a score of .75 indicates stability or sufficient test-retest reliability (Shrout & Fleiss, 1979).

Factor Structure of PMS-Cope

Principal axis factoring with varimax rotation was employed in exploratory factor analysis to determine construct validity. To assess sampling acceptability, the Kaiser–Meyer–Olkin measurement and Bartlett's test of sphericity were used to test the factor analysis (Coakes & Steed, 1997). To indicate capacity, the Bartlett's test value of sphericity must be significant (P-value < .001) and the Kaiser–Meyer–Olkin measure of sampling must be larger than .60.

Construct Validity

CFA was used to evaluate the structural model fit for the DRSP. The study employed AMOS software version 21.0 to analyze the goodness of fit. The following fit indices were computed: the goodness of fit index (GFI), normed fit index, comparative fit index, adjusted goodness-of-fit index (AGFI), and x2/df (the ratio of Chi-square to the degree of freedom). The majority of the fit indices satisfy the criteria for SEM analysis (Doll, Xia, and Torkzadeh, 1994).

Doll, Xia, and Torkzadeh (1994), Baumgartner and Homburg (1996) and Torkzadeh, Koufteros, and Pflughoeft (2003) also recommended that a value be acceptable if it is above .8, even though the values for GFI and AGFI are not above .9. While the root mean square error of approximation (RMSEA) values for both models are less than .08, the SRMR is likewise near the threshold value (Hair, Black, Babin, Anderson, & Tatham, 1998).

Ethical Clearance

This research was approved by the Ethics Research Committee of the Faculty of Health, University of Muhammadiyah Malang, Indonesia, on July 18, 2024 (approval number: E.4.d/007/KEPK/FIKES-UMM/VII/2024).

RESULTS

Participants' Characteristics

Table 1 shows that the respondents in this study were mostly young women, with an average age of 2.87 with a standard deviation of .33. As many as 97.5% of respondents were Muslim and most were unmarried (97.5%). The majority were unemployed (79.4%), had low education (90.7%), and lived in rural areas (71.3%). More than half had low incomes (56.7%) and were inactive in social activities (68.8%). Most of the skewness and kurtosis values are in the range of -1 to +1 (Table 2).

Reliability

The internal reliability of the Indonesian version of the PMS-Cope instrument is very good, with a Cronbach's alpha of .90, which is above the general threshold of .70 (Nunnally & Bernstein, 1994). This indicates that the items in the instrument are consistent in measuring the same construct, namely coping strategies for PMS (Table 3).

Table 1. Demographics of Characteristics

Characteristics	n	%
Age Mean ± SD	2.87 ± .334	
Religion		
Muslim	313	97.5
Non-muslim	8	2.5
Ethnic		
Java	137	42.7
Non-Java	184	57.3
Marital Status		
Married	8	2.5
Unmarried	313	97.5
Education		
Low	291	90.7
High	30	9.3
Employment		
Unemployed	255	29.5
Employed	66	70.5
Income		
Low	182	56.7
High	139	43.3
Social Activity		
No	221	68.8
Yes	100	31.2
Menstrual Period		
Normal	318	98.8
Unnormal	4	1.2
Cycle of Regularity		
Regular	238	74.1
Irregular	83	25.9
History of Disease		
Yes	55	17.1
No	266	82.9
Age of Menarche		
Normal	247	76.9
Unnormal	74	23.1
Residence		
Rural	229	71.3
Urban	92	28.7
Sports Activity		
No	99	30.8
Yes	222	69.2
Dysmenorrhea		
No	87	27.1
Yes	234	72.9
Smoking History		
No	313	97.5
Yes	8	2.5
Family at Home		
Nuclear Family	261	81.3
Not Nuclear Family	60	18.7
Social Support Mean ± SD	2.53 ± .536	
Low	6	1.9
Medium	139	43.3
High	176	54.8
Psychological Changes Mean ± SD	2.53 ± .536	
Coping Mechanism Mean ± SD	1.78 ± .416	
Adaptive	250	22.1
Maladaptive	71	77.9

Factor Structure of PMS-Cope

Exploratory factor analysis on the Indonesian version of PMS-Cope resulted in four main factors reflecting various coping strategies used by Indonesian women in dealing with PMS. The Kaiser-Meyer-Olkin value of .873 and a significant Bartlett test indicate that the data are suitable for analysis using exploratory factor analysis (EFA). Promax rotation was used because it was assumed that the factors were correlated with each other. Based on the results of the Promax rotation of the EFA, the items in the Indonesian version of the PMS-Cope instrument are consistently distributed into four main dimensions, with factor loading values indicating adequate strength of association.

The first factor, interpreted as social support, consists of six items, namely items 8 to 12 and item 13. The loading values for this factor range from .503 to .746. The second factor, reflecting physical and medical strategies, includes six items, namely item 6 and items 13 to 17. The factor loadings for this dimension range from .550 to .774. The third factor, classified as positive engagement and distraction, consists of four items, namely items 1 to 4. The loading values for this factor range from .533 to .712. The fourth factor includes two items, namely item 5 and item 7 which are interpreted as physical activity and sociability. The loading value ranges from .647 to .691 (Table 4).

Construct Validity

The model structure's goodness-of-fit is shown in Figure 1. Chi-square/df has a value of 1.99, comparative fit index of .91, Tucker-Lewis index of .90, and RMSEA of .05. In addition, the goodness of fit index (GFI) has a value of .92 and AGFI of .90.

DISCUSSION

Most of the respondents in this study were young women, who can be assumed to be of productive age and vulnerable to emotional and physical changes due to PMS. The distribution of respondent characteristics reflects the general characteristics of students or young women in areas with limited access to health services or information about PMS. Unmarried and unemployed status also reflects the potential limitations of social support and psychological resources that can affect how they manage PMS symptoms. These results are in line with the study by Direkvand-Moghadam, Sayehmiri, Delpisheh, and Kaikhavandi (2014), which found that the prevalence of PMS was higher in young women, especially students, who had academic stress and a lack of emotional

Table 2. Average Scores of the PMS-Cope

PMS-Cope	Min	Max	Mean	SD	Skewness	Kurtosis
I occupy myself with things I enjoy	1	4	3.12	.64	-1.04	3.05
I distract myself.	1	4	2.51	.84	-.47	-.54
I purposefully induce positive feelings.	1	4	3.03	.69	-.85	1.65
I make time for my hobbies.	1	4	3.06	.68	-.60	.92
I get in motion.	1	4	2.98	.61	-.48	1.26
I have my personal strategies to deal with symptoms (e.g.,hot-water bottle, hot bath, etc.).	1	4	2.72	.84	.56	-.13
I meet friends.	1	4	3.15	.69	-.77	1.18
I talk with friends about my symptoms.	1	4	2.41	.89	-.11	-.83
I purposely look for advice and support from other people.	1	4	2.75	.84	-.56	-.12
I talk to my partner or a close friend about my complaints.	1	4	2.75	.88	-.54	-.31
I seek comfort and understanding from others.	1	4	2.56	.93	-.22	-.82
I exchange views with other women concerned.	1	4	2.73	.86	-.68	-.11
I increasingly look for information about my physical complaints.	1	4	2.80	.78	-.76	.48
I look for new treatment options.	1	4	2.36	.84	-.22	-.78
I try different alternative treatment options (e.g., evening primrose oil, light therapy, homeopathy, etc.)	1	4	1.99	.92	.39	-1.02
I take medication form by physical complaints.	1	4	2.34	.97	-.09	-1.13
I avoid certain foods.	1	4	2.50	.91	-.31	-.79

Table 3. Reliability Analysis and Convergent Validity

PMS-Cope	Scale item	Mean	Standard Deviation	Item-total correlation	Cronbach's alpha if the item is deleted
I occupy myself with things I enjoy	1	3.12	.64	.30	.83
I distract myself.	2	2.51	.84	.30	.83
I purposefully induce positive feelings.	3	3.03	.69	.35	.82
I make time for my hobbies.	4	3.06	.68	.37	.82
I get in motion.	5	2.98	.61	.28	.83
I have my personal strategies to deal with symptoms (e.g.,hot-water bottle, hot bath, etc.).	6	2.72	.84	.39	.82
I meet friends.	7	3.15	.69	.39	.83
I talk with friends about my symptoms.	8	2.41	.89	.44	.82
I purposely look for advice and support from other people.	9	2.75	.84	.54	.81
I talk to my partner or a close friend about my complaints.	10	2.75	.88	.46	.82
I seek comfort and understanding from others.	11	2.56	.93	.57	.81
I exchange views with other women concerned.	12	2.73	.86	.49	.82
I increasingly look for information about my physical complaints.	13	2.80	.78	.57	.81
I look for new treatment options.	14	2.36	.84	.62	.81
I try different alternative treatment options (e.g., evening primrose oil, light therapy, homeopathy, etc.)	15	1.99	.92	.46	.82
I take medication form by physical complaints.	16	2.34	.97	.47	.82
I avoid certain foods.	17	2.50	.91	.42	.82

support. In addition, most respondents reported experiencing dysmenorrhea and experiencing menarche at a normal age. Dysmenorrhea accompanying PMS can worsen the physical and psychological discomfort experienced by women (Alfizah, Rahmawati, & Sriyatun, 2024; Saputra, Kurnia, & Aini, 2021). The presence of these symptoms is relevant because it can influence the choice of coping strategies. Sports are a fairly common activity in these adolescents and, as reported in various studies, sports can reduce the intensity of PMS symptoms (Daley, 2009).

The results of the analysis showed that the most frequently used coping strategies by respondents were social and recreational activities such as meeting friends, keeping themselves busy with things they like, and setting aside time for hobbies. This shows a tendency to use adaptive coping strategies in dealing with PMS symptoms. These strategies support the mechanism of emotional regulation and diversion from discomfort. This approach is according to the coping theory of Folkman, Lazarus, Dunkel-Schetter, DeLongis, and Gruen (1986), which divides coping into problem-focused coping and emotion-focused coping. Fun activities and socialization are forms of emotion-focused coping that are effective in reducing psychological distress. On the other hand, strategies such as trying alternative treatments and using drugs scored low. This indicates limited knowledge or access to medical or alternative treatments for PMS.

Table 4. Correlation Coefficients of The Items of The PMS-Cope Conforming to The Extracted Factors After Promax Rotation

Item	Factor Loading			
	F1	F2	F3	F4
1	.034	.156	.690	.385
2	.138	.344	.602	-.285
3	.302	.177	.712	.131
4	.109	.388	.533	.464
5	.064	.289	.245	.647
6	.243	.550	.181	.210
7	.376	.075	.072	.691
8	.735	.230	.196	.032
9	.746	.343	.139	.279
10	.725	.251	.162	.153
11	.727	.422	.193	.217
12	.685	.360	.264	.012
13	.503	.589	.467	.077
14	.448	.774	.399	.062
15	.262	.761	.266	-.089
16	.317	.656	.150	.233
17	.197	.658	.203	.171

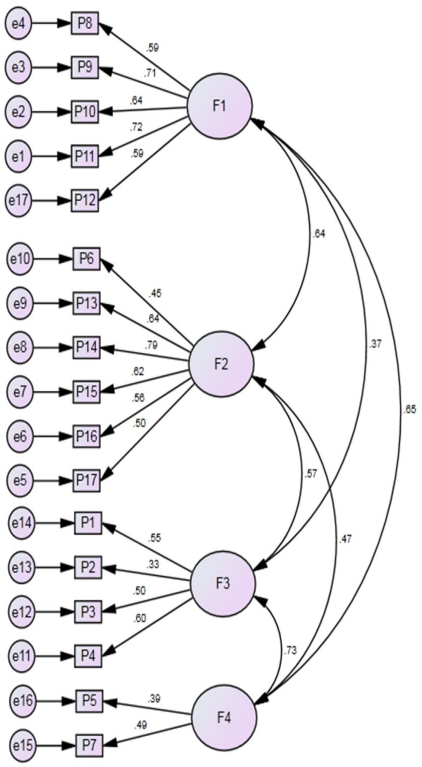

Figure 1. Factor Structure of PMS

According to Freeman (2003), many women are unaware that PMS symptoms can be controlled with non-pharmacological medications or therapies, so they prefer to rely on informal coping strategies.

The internal reliability of the Indonesian version of the PMS-Cope instrument is very good, with a Cronbach's alpha of .90, which is above the general threshold of .70 (Nunnally & Bernstein, 1994). This indicates that the items in the instrument are consistent in measuring the same construct, namely coping strategies for PMS. The item-total correlation values ranged from .28 to .62, indicating that there are different contributions of items to the total score, but still within acceptable limits. The items in the Indonesian version of the PMS-Cope instrument are uniformly distributed into four major dimensions, according to the findings of the EFA. Promax rotation and factor loading values show a sufficient degree of connection. Six factors make up the first factor, which is understood as social support. These behaviors include talking to friends about symptoms (item 8), asking for assistance from others (item 9), and sharing opinions with other women (item 12). They also include sharing experiences and seeking emotional support, where a moderate to strong contribution strength to the construct under measurement is indicated by the loading value range. This pattern is in line with other research that highlights the value of interpersonal interactions as a coping mechanism for PMS (Read et al., 2014). Six components make up the second factor, which represents medical and physical strategies. These items, which include utilizing a hot water bottle (item 6), looking for novel treatments (item 14), and using pharmaceuticals (item 16), represent an individual's attempts to manage PMS symptoms by pharmacological or physical interventions. Factor loadings for this dimension ranged, indicating good factor stability. The third factor, classified as positive engagement and distraction, consisted of four items. This dimension describes strategies to improve mood and distract attention from PMS symptoms, such as engaging in pleasurable activities (item 1) and generating positive feelings (item 3). The loadings for this factor indicated adequate factor strength in explaining variance in emotional coping strategies. The fourth factor included two items, item 5 (I move around/ do physical activity) and item 7 (I meet friends), which were interpreted as physical activity and sociability. These items indicate an active approach to managing premenstrual stress through body movement and direct social engagement. This reflects conceptual coherence within the dimension, although the smaller number of items may be a concern in further validation.

Overall, the former factor structure shows good psychometric stability and interpretability. The loading values obtained in each factor indicate that the items in the Indonesian version of the PMS-Cope contribute significantly to each construct. This finding supports the results of cross-cultural validation of the original version and adaptations in other countries such as China and Turkey, which also showed similar grouping patterns, although with some contextual differences (Çetin & Erbil, 2024; Li, 2017). The confirmatory factor analysis (CFA) model presented in Figure 1 shows the factor structure of the Indonesian version of the PMS-Cope consisting of four latent constructs, each represented by a set of observed items (indicators) that have been previously identified through EFA. This model was used to test the suitability of the obtained factor structure with empirical data on the Indonesian female population. The CFA results indicate that all items have statistically significant standardized factor loadings on their respective factors, indicating the substantial contribution of each item to the composite measure. The indicators have high correspondence with the latent factors because the values of item loading are primarily larger than .40, the minimum figure used most often in confirmatory

analysis (Brown, 2015), and the majority of them even larger than .60. Several indices indicated excellent fit of the model.

The four-factor model for the Indonesian version of the PMS-Cope is a valid measurement of psychological dimensions under investigation, as per this CFA model in general. These results are consistent with earlier cross-cultural translations and conceptual model developed on the original PMS-Cope version, i.e., the Chinese version by Li (2017), which also showed so well how well the model fit the four major dimensions of premenstrual syndrome coping strategies. Although there were some minor variations brought about by the social and cultural conditions of their respective societies, Indonesian PMS-Cope had a structure similar to what was reported in Germany, China, and Turkey in cross-cultural comparison. These results provide further testimony to the observation that the PMS-Cope is a culture-adaptive and flexible instrument with excellent psychometrics.

CONCLUSION

The PMS-Cope scale was successfully culturally translated and tested psychometrically into Indonesian in this present study. The Indonesian adaptation of the PMS-Cope was validated and proven to be a valid measure to measure coping mechanisms for women against PMS symptoms within the context of Indonesian culture using various strict statistical tests, i.e., construct validity, reliability testing, and model fit. Thus, it is reasonable to suggest the Indonesian version of the PMS-Cope as a proper and sensitive measurement instrument to be applied in clinical practice and in research, particularly in the areas of nursing and women's health. The tool can help health workers understand the kind of coping approaches taken by women and make interventions that are nearer to local psychological as well as cultural demands.

Declaration of Interest

None.

Acknowledgment

None.

Funding

None.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

REFERENCES

Aday, L. A. (1998). *Designing and conducting health surveys*. *The Journal for Health Quality, 20*(3), 41-43.

Alfizah, L. N., Rahmawati, N. A., & Sriyatun, L. (2024). Penyuluhan fisioterapi kasus desminore dengan memberikan deep breathing exercise dan yoga pada komunitas remaja di Pondok Pesantren Luhur Kota Malang. *Health Care: Journal of Community Service, 2*(2), 115-121.

Anderson, R. E., Babin, B. J., & Black, W. C. (2010). *Multivariate data analysis: A global perspective* (7th ed.). Pearson.

Baumgartner, H., & Homburg, C. (1996). Applications of structural equation modeling in marketing and consumer research: A review. *International Journal of Research in Marketing, 13*(2), 139-161.

Brown, T. A. (2015). *Confirmatory factor analysis for applied research* (2nd ed.). Guilford Publications.

Coakes, S. J., & Steed, L. G. (1997). *SPSS: Analysis without anguish* (Version 6.1 for IBM & Macintosh users). John Wiley & Sons.

Çetin, H. S., & Erbil, N. (2024). Turkish validity and reliability of the Premenstrual Change Coping Inventory. *Journal of Obstetrics and Gynaecology Research, 50*(6), 1032-1041.

Daley, A. (2009). The role of exercise in the treatment of menstrual disorders: The evidence. *British Journal of General Practice, 59*(241), 241-242.

Direkvand-Moghadam, A., Sayehmiri, K., Delpisheh, A., & Kaikhavandi, S. (2014). Epidemiology of premenstrual syndrome (PMS): A systematic review and meta-analysis study. *Journal of Clinical and Diagnostic Research, 8*(2), 106-109. https://doi.org/10.7860/JCDR/2014/6906.4021

Doll, W. J., Xia, W., & Torkzadeh, G. (1994). A confirmatory factor analysis of the end-user computing satisfaction instrument. *MIS Quarterly, 18*(4), 453-461.

Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology, 50*(5), 992-1003.

Freeman, E. W. (2003). Premenstrual syndrome and premenstrual dysphoric disorder: Definitions and diagnosis. *Psychoneuroendocrinology, 28*(Suppl. 3), 25-37.

Gudipally, P. R., & Sharma, G. K. (2025). *Premenstrual syndrome*. In StatPearls [Internet]. StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK560698/

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2010). *Multivariate data analysis* (7th ed.). Prentice Hall.

Itriyeva, K. (2022). Premenstrual syndrome and premenstrual dysphoric disorder in adolescents. *Current Problems in Pediatric and Adolescent Health Care, 52*(5), Article 101187. https://doi.org/10.1016/j.cppeds.2022.101187

Kaiser, G., Kues, J. N., Kleinstäuber, M., Andersson, G., & Weise, C. (2018). Methods for coping with premenstrual change: Development and validation of the German Premenstrual Change Coping Inventory. *Women & Health, 58*(9), 1062-1079.

Li, Y., Liu, X., & Wang, Y. (2017). Validation of the Chinese version of the PMS-Cope inventory among Chinese female college students. *Journal of Women's Health, 26*(4), 407-414.

Martins, B. G., Silva, W. R. da, Marôco, J., & Campos, J. A. D. B. (2024). Psychometric evaluation in a Brazilian context of three instruments proposed to investigate affective and cognitive aspects of eating. *Current Psychology, 43*(24), 21146-21161.

Mishra, S., Elliott, H., & Marwaha, R. (2025). *Premenstrual dysphoric disorder*. In StatPearls [Internet]. StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK532307/

Noviyanti, N. I., Gusriani, Ruqaiyah, Mappaware, N. A., & Ahmad, M. (2021). The effect of estrogen hormone on premenstrual syndrome (PMS) occurrences in teenage girls at Pesantren Darul Arqam Makassar. *Gaceta Sanitaria, 35*(Suppl. 2), S571-S575. https://doi.org/10.1016/j.gaceta.2021.10.103

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.

Rau, P.-L. P. (Ed.). (2023). *Cross-cultural design: 15th International Conference, CCD 2023* (Lecture Notes in Computer Science, Vol. 14024). Springer Nature. https://doi.org/10.1007/978-3-031-35946-0

Read, J. R., Perz, J., & Ussher, J. M. (2014). Ways of coping with premenstrual change: Development and validation of a premenstrual coping measure. *BMC Women's Health, 14*, Article 1. https://doi.org/10.1186/1472-6874-14-1

Saputra, Y. A., Kurnia, A. D., & Aini, N. (2021). Pengaruh pendidikan kesehatan terhadap upaya remaja untuk menurunkan nyeri saat menstruasi (dismenore primer). *Jurnal Kesehatan Reproduksi, 7*(3), 177-182. https://doi.org/10.22146/jkr.55433

Shrout, P. E., & Fleiss, J. L. (1979). Intraclass correlations: Uses in assessing rater reliability. *Psychological Bulletin, 86*(2), 420-428.

Takeda, T. (2023). Premenstrual disorders: Premenstrual syndrome and premenstrual dysphoric disorder. *Journal of Obstetrics and Gynaecology Research, 49*(2), 510-518. https://doi.org/10.1111/jog.15484

Torkzadeh, G., Koufteros, X., & Pflughoeft, K. (2003). Confirmatory analysis of computer self-efficacy. *Structural Equation Modeling, 10*(2), 263-275. https://doi.org/10.1207/S15328007SEM1002_6

Pediomaternal Nursing Journal

Original Article

The role of religious coping on the psychological distress of women with breast cancer

Supatmi Supatmi[1*], A'im Matun Nadhiroh[1], Reliani Reliani[1], Akhmad Muzamil[2], Rusnani Ab Latif[3,4]

ABSTRACT

Introduction: Breast cancer poses a psychological burden on the patient due to the disease itself or the treatment that must be undergone. The existence of religious coping for women with breast cancer will make them continue to think positively about their situation.

Methods: This study used a descriptive research design based on a quantitative approach with the aim of analyzing religious coping on psychological distress in breast cancer patients. A sample of 88 breast cancer patients was carried out by non-probability convenience sampling with. The instrument in this study uses the RICOP Brief, while the psychological distress instrument is the Kessler Psychological Distress Scale (K10) The collected data were analyzed using the Spearman rho analysis test with a confidence interval of 95% with α = .05.

Results: It was obtained that the effect of positive religious coping on psychological distress was *P*-value = .034 ≤ .05 with r = -.312 for positive religious coping on psychological distress with a *P*-value = .992 with r = -.001. The higher the use of positive religious coping strategies, the lower the level of psychological distress.

Conclusion: Positive religious coping has a significant effect on psychological distress in women with breast cancer with negative values, where high positive religious coping will reduce the psychological distress that occurs, The use of religious coping has no effect on psychological distress in women with breast cancer.

Keywords: breast cancer; psychological distress; religious coping

INTRODUCTION

Women diagnosed with breast cancer, both young and old, have the same psychological problems related to trauma diagnosis, side effects of therapy that can alter body image and sexual behavior, fear of recurrence, and death (Dinapoli et al., 2021). Psychological disorders can be anxiety, sadness, depression, anger, uncertainty about the future, despair, fear of cancer recurrence, decreased self-esteem, decreased body image, unloved and fear of death (Khazi et al., 2023; Soqia et al., 2022). These psychological disorders can be present from the time of diagnosis and continue to persist after the diagnosis (Ośmiałowska et al., 2021). These changes can affect the psychological impact on the quality of life of breast cancer patients (Mathew & Devi, 2016). Psycholocal distress is the emotional suffering associated with stressors and demands that are difficult to cope with on a daily basis (Aitken & Hossan, 2022). Psychological distress can be a predictor of death for patients with cancer. Religiosity is a resource for individuals facing cancer, it is important to recognize the negative impacts that can be psychologically disturbing (Gall & Bilodeau, 2020). Religious coping of women with breast cancer will make them keep positive thoughts about their situation so that they can reduce anxiety, stress, depression, and helplessness (Dinapoli et al., 2021). Overcoming psychological distress in women with breast cancer can be done through an approach strengthening positive religious coping which is integrated into nursing care.

The incidence of cancer in Indonesia reached 396,914 cases, with 234,511 deaths and will continue to increase if cancer control efforts are not carried out. The highest cancers in women are breast cancer with 65,858 cases, cervical cancer with 36,633 cases, lung cancer with 34,783 cases and colorectal cancer with 34,189 cases (Prasetya et al., 2023). The prevalence of cancer in women in East Java, based on basic health research in 2018, is more when compared to men. Females are 3.5 per 1,000 population and males are .8 per 1,000 population. Breast cancer in Surabaya in September 2022 amounted to 1,343 cases, there was an increase in 2023 of 11%, as many as 167. Breast cancer data at Haji Hospital Surabaya in 2022 is 3,042 outpatients and 325 inpatient patients. In 2023, there will be 3,355 outpatient and 223 inpatient patients, 1,747 patients will be outpatients and 63 patients will be hospitalized (Medical Records of Haji Hospital, 2023). The prevalence of cancer-related psychological distress was found to be 85% (n = 286) fear of cancer recurrence (n = 175.61%), anxiety (n = 152.53%), depression (n = 145.51%), fear of death (n = 91, 32%), anxiety about sexuality (n = 87, 34%), fertility (n = 78.27%), and body image disorders (n = 78.27%) (Mattsson et al., 2018). The results showed that half of the total respondents (n = 64%, 47.8%) experienced low levels of spiritual well-being and psychological well-being during the entire illness period (Widyaningsih & Istifaraswati, 2020).

Factors that can affect the level of psychological distress in cancer patients include religiosity or spirituality, resilience, personality, and knowledge of the disease (Dinapoli et al., 2021; Maryanti & Herani, 2020). Women facing breast cancer feel great pressure as they have to face new and challenging problems and choices. Receiving a diagnosis, undergoing

***Correspondence**: Supatmi Supatmi (supatmi-2018@fkp.unair.ac.id)
[1]Faculty of Health Sciences, Universitas Muhammadiyah Malang, Malang, Indonesia
[2]Haji Hospital Surabaya, Surabaya, Indonesia
[3]Medical and Health Sciences Department, Universiti Teknologi MARA, Shah Alam, Malaysia
[4]Nursing and Midwifery Department, Universiti Teknologi MARA, Shah Alam, Malaysia

Volume 11 (2): 106-111
http://dx.doi.org/10.20473/pmnj.v11i2.76062

e-ISSN: 2355-1577 | p-ISSN: 2656-4629

Article History
Received: July 16, 2025 | Revised: August 17, 2025 | Accepted: September 08, 2025| Published : September 15, 2025

treatment, understanding the prognosis, dealing with possible side effects, possible relapses, and facing an uncertain future, are stages of a stressful process that can lead to psychological instability, depression or other mood disorders (Myint et al., 2025). The religious dimension plays an important role in the way breast cancer patients cope with psychological distress. Religion forms a meaning, when individuals are faced with a problem in their life by creating a positive worldview, so that those who are religious are more able to interpret negative life experiences in a meaningful and wise perspective (Fekih-Romdhane et al., 2021).

Individuals who have a high level of religiosity tend to use coping religiosity and have calmness and not be easily anxious in dealing with the sources of stress experienced and can foster optimism and confidence (McMahon & Biggs, 2012). This more positive emotional mood will prevent the individual from gettig caught up in depression and a state of psychological distress. Religious practices and religious experiences make a person able to cultivate positive emotions related to mental health. Positive emotions from religion can also prevent individuals from engaging in negative compensatory behaviors in solving their problems (Koenig, 2020). Positive religious coping is thought to be linked to benefits in psychosocial adjustment such as solving one's problems by collaborating with God. This positive outlook then fosters a sense of hope, which in turn fosters calmer and more hopeful emotions (Zamanian et al., 2015). Research on religious coping in Muslim women with breast cancer in Indonesia is very limited, as most providers focus solely on physical issues. Therefore, identifying religious coping is necessary as an effort to reduce the psychological distress that occurs through a psychoreligious approach. Therefore, this study aims to identify religious coping in women with breast cancer who experience psychological distress.

METHODS

Study Design

This study used a descriptive research design based on a quantitative approach. Through this method, women with breast cancer undergoing treatment at the Haji Hospital in Surabaya were identified focused on their religious coping and psychological stress.

Sample and Setting

The population in this study is all women with breast cancer who underwent treatment/control at the hematology oncology polyclinic of the Haji Regional General Hospital, East Java Province in Juni – August 2024, a sample of 88 breast cancer patients was carried out by non-probability sampling with convenience sampling.

Variable

The independent variable in the research is religious coping; the dependent variable is psychological distress.

Instruments

In this study, religious coping measurements were carried out using the IRCOPE (Iranian Religious Coping Scale) measuring tool. This measuring tool was developed by Aflakseir and Coleman (2011) in the context of Islam. IRCOPE has two dimensions of religious coping, namely positive religious coping and negative religious coping. Of the two types, religious coping is then further divided into five sub-categories, namely religious practice, negative feeling toward God, benevolent reappraisal, passive, and active. There are 22 items on this measuring device. Items in this scale are all arranged in a favorable form. This is a Likert, type of scale so there are five answer options, namely: (1) Always; (2) Often; (3) Sometimes; (4) Rarely; (5) Never. In this study, the researcher calculated the value of religious coping by separating the calculations between positive and negative religious coping. Items related to religious practice, benevolent reappraisal, and active religious coping are included in positive religious coping, while items related to negative feeling toward God and passive religious coping are included in negative religious coping. Meanwhile, the Kessler Psychological Distress Scale (K10) is one of the simple measuring tools of psychological distress, showing reliability with Cronbach's α greater than .88 . This scale consists of 10 questions that discuss related to the symptoms of anxiety and depression experienced by individuals over the past month (Easton et al., 2017) with answers using the Likert scale :1= Never; 2=Rarely; 3= Sometimes; 4= Often; and 5= Always. The interpretation of this measuring tool is that the higher the score, the higher the psychological distress (Wang et al., 2020). The total score if the K10 is in the range of less than 20 is categorized as "not experiencing stress"; a score of 20-24 is categorized as "mild stress"; a score of 25-29 is categorized as "moderate stress"; and scores of 30 and above 30 are categorized as "severe stress"

Data Collection

Data were collected through face-to-face interviews. The procedure for collecting data was to fill out a questionnaire after the respondent gave consent. The research was carried out for eight weeks (July – August 2024) at the hematology oncology polyclinic hospital in Surabaya city.

Data Analysis

The collected data were analyzed using the Spearman rho analysis test with a confidence interval of 95% with $\alpha = .05$.

Ethical Clearance

This research has obtained ethical approval from the Health Research Ethics Committee of the East Java Provincial Hajj Hospital (445/119/KOM. ETICS/2024).

RESULTS

Based on Table 1, the characteristics of 88 respondents were obtained as the youngest age was 34 years old and the oldest at 83 years old, respondents with a university education (34%), housewives (76%), married (79.5%), with a long time diagnosis of breast cancer 1-12 months (34%), with stage IIIA (27.2%) and undergoing treatment with mastectomy and chemotherapy/radiation (39.8%).

Based on Table 2, positive religious coping was used in the high category (63.6%), and for the use of negative religious coping in the high category (55.6%) with the occurrence of mild psychological distress (26.1%), where there was an influence of positive religious coping on psychological distress with *P*-value < .05.

Table 1. Demographics of Characteristics

Characteristics	n	%
Age Mean ± SD	53.11 ± 9.76	
Min	34	
Max	84	
Education		
Elementary School	16	18.2
Junior High School	14	16.0
Senior High School	28	31.8
Higher Education	30	34.0
Employment		
Housewife	67	76.0
Civil Servant	7	8.0
Private Sector	14	16.0
Income		
< Minimum Wage	61	69.3
Minimum Wage	13	14.7
> Minimum Wage	14	16.0
Marital Status		
Unmarried	5	5.8
Married	70	79.5
Widow	13	14.7
Long Diagnosed		
1-12 months	30	34.1
13-24 months	29	33.0
25-36 months	9	10.2
37-48 months	5	5.7
19-60 months	4	4.5
>5 years	11	12.5
Stadium Ca		
IA	2	2.2
IB	2	2.2
IIA	23	26.1
IIB	18	20.5
IIIA	24	27.5
IIIB	11	12.5
IV	9	10.3
Treatment		
Mastectomy	33	37.5
Mastectomy and Chemo/ Radiation	35	39.8
Mastectomy, Chemo and Radiation	20	22.7

Table 2. Religious Coping on Psychological Distress in Women with Breast Cancer (n=88)

Variable	n	%	Psychological Distress
Positive Religious Coping			
High	56	63.3	*P*-value .034 r = -.312
Medium	32	36.4	
Negative Religious Coping			
High	49	55.6	*P*-value .992 r = -.001
Medium	38	43.2	
Low	1	1.2	
Psychological Distress			
None	61	69.3	
Mild	13	14.7	
Moderate	14	16.0	
Severe	5	5.8	

DISCUSSION

Positive religious coping affects psychological distress, where increasing positive religious coping will reduce psychological distress. Positive religious coping explained by indicators of religious practice, benevolent reappraisal and religious coping activities can provide a variety of adaptive functions for individuals such as understanding and interpreting an event that occurs, providing various avenues to achieve self-control and mastery, and reducing individual worries about living in a world where life-threatening events can happen all the time. Faith and religion helped most participants to overcome problems. Praying with a strong belief that God will heal them helps women to calm down and develop a positive outlook. Previous studies in India reported the use of religious beliefs and practices as coping mechanisms (Daniel et al., 2022).

Individuals who use positive religious coping also show lower depression, anxiety, and distress. This adaptation proved that most respondents were willing to undergo treatment measures of more than one type of treatment (chemotherapy and radiation) even with various side effects occurring. The results of this study are in line with a study that the use of religious coping increases optimism and hope, which in turn inhibits anxiety (Vishkin & Tamir, 2020). Religious coping behaviors, such as praying, are usually done to manage situations can cause psychological stress (Jong, 2020). The respondents in this study were Muslims, with an average of 53 years old, with a breast cancer diagnosis, who came to health services mostly at stage IIIA. Most individuals are over the age of 50 and are in the stage of emotional and spiritual maturity. They tend to have a more mature outlook on life as well as a better acceptance of illnesses, including experiences of facing various difficulties, making them more reliant on religious power as a source of calm and self-strengthening. Another study exploring coping styles among young and old cancer patients showed that older individuals had a resignation strategy (Hernández et al., 2019). Getting closer to God through religious practices such as prayer, giving alms and also assessing that cancer can be an abortion and make it a strength to undergo treatment. Individuals who are sick and use positive religious coping refer to the hadith: "Every Muslim who is affected by illness or something else, surely Allah will remove his fault, like a tree that sheds its leaves (HR. AL Buchori no. 5660 and Muslim no. 2571).

This finding is in line with Al-Natour et al. (2017) who stated that, in Iran, breast cancer patients on average have a high regiliusness; this is attributed to the predominantly Muslim Iranian society and more religiosity when diagnosed with cancer. This research is in line with the research of Effendy et al. (2014) in Indonesia where the majority are Muslims and religion plays an important role in their daily lives, where illness is considered God's will, and death is predestined by God, which makes it easier for them to accept their illness and limited life expectancy. Through religion, individuals can rebuild their cognitive processes regarding the cancer they

experience. These cognitive changes will change the reality of the individual after trauma so that it will form new schemes and possibilities that can occur in the future and will make the individual better than before. The religious approach also increases a person's likelihood of understanding and reconciling with the events of life (Harrison et al., 2001). Many research studies have confirmed the effectiveness of religious coping behaviors in helping people manage their feelings of distress and anxiety, as to overcome guilt they submit completely to God's will, view positive fiction, and control their fears (Rababa et al., 2020). Positive spirituality/religiosity can be used as a positive coping mechanism to adapt to cancer diagnosis and treatment (Khodaveirdyzadeh et al., 2016). Religiosity becomes very important when individuals experience life-threatening situations; therefore, believing in God can overcome problems caused by cancer (Bhatnagar et al., 2017).

In regard to negative religious coping with negative feelings toward God and passive religious coping, aperson does negative religious coping because there is a tendency to think badly about things that happen beyond his will and have an impact on him, Individuals who use passive religious coping tend to wait for God to control the situation, where the individual only expects God to solve his problems Reproductive age, marriage and having a partner (husband), and breast cancer diagnosis will provide a psychological burden. Most respondents were diagnosed with breast cancer for less than 12 months with treatment that had to be undertaken, both mastectomy, chemotherapy and radiation, which would cause fatigue. In this study, all respondents underwent mastectomy so that the likelihood of low self-esteem disorders will occur, despair, as well as self-identity disorders, feeling depressed and also withdrawing (Kuswanto et al., 2023). The treatment carried out does not provide a guarantee of recovery from the illness and they feel that Allah has abandoned them. In line with research conducted by Baldacchinoet et al (2023), it was found that it will express a decrease in the individual's closeness to their God, due to disappointment from unfulfilled expectations so that they consider God far away and not granting their wishes, which is related to reduced acceptance of the current situation. Respondents' income under UMR is also a problem that occurs and faces psychological disorders even though treatment uses health insurance; this is in line with research by Altice et al. (2017) which emphasizes the financial challenges experienced by cancer patients, especially during treatment, which can contribute to further psychological and emotional stress. This coping method is an expression of different religious orientations; which involves a strained relationship with God, as well as the view that the world is an unsafe place (Pargament et al., 1998).

It was found that positive religious coping is more widely used than negative religious copiing. These findings support the results of previous studies in Germany which showed that negative religious coping strategies are generally less used than positive religious coping (Thuné-Boyle et al., 2011; Zwingmann et al., 2006). Negative religious coping is determined by a series of different methods of religious coping, namely spiritual dissatisfaction, blaming God's destiny, interpersonal religious dissatisfaction, judgment of the power of evil, and re-assessment of God's power. Thus, people who use negative religious coping will combine different religious thoughts, feelings, behaviors, and concepts in their efforts to deal with life's major stressors (Pargament et al., 1998). The use of negative religious coping is often carried out by clients who have just been diagnosed with cancer, who are still in the stage of denial of what has happened to them.

CONCLUSION

Positive religious coping explained by religious practice, benevolent reappresial and religious coping has a significant effect on psychological distress in women with breast cancer with negative values, where high positive religious coping will reduce the psychological distress that occurs, The use of religious coping has no effect on psychological distress in women with cancer breast. Women with breast cancer use religious coping as a way to improve their psychological well-being.

Declaration of Interest

The authors declare that there is no conflict of interest.

Acknowledgment

We are grateful to all the study participants, Haji Hospital Surabaya and to Universitas Muhammadiyah Surabaya, Surabaya, Indonesia.

Funding

Haji Hospital Surabaya.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

REFERENCES

Aflakseir, A., & Coleman, P. G. (2011). Initial development of the Iranian religious coping scale. *Journal of Muslim Mental Health, 6*(1), 44–61. https://doi.org/10.3998/jmmh.10381607.0006.104

Aitken, L. A., & Hossan, S. Z. (2022). The psychological distress and quality of life of breast cancer survivors in Sydney, Australia. *Healthcare, 10*(10), Article 2017. https://doi.org/10.3390/healthcare10102017

Al-Natour, A., Al Momani, S. M., & Qandil, A. M. A. (2017). The relationship between spirituality and quality of life of Jordanian women diagnosed with breast cancer. *Journal of Religion and Health, 56*(6), 2096–2108. https://doi.org/10.1007/s10943-017-0370-8

Altice, C. K., Banegas, M. P., Tucker-Seeley, R. D., & Yabroff, K. R. (2017). Financial hardships experienced by cancer survivors: A systematic review. *Journal of the National Cancer Institute, 109*(2), 1–17. https://doi.org/10.1093/jnci/djw205

Baldacchino, D. R., Bonello, L., & Debattista, C. J. (2014). Spiritual coping of older people in Malta and Australia (part 1). *British Journal of Nursing, 23*(14), 792–799. https://doi.org/10.12968/bjon.2014.23.14.792

Bhatnagar, S., Gielen, J., Satija, A., Singh, S. P., Noble, S., & Chaturvedi, S. K. (2017). Signs of spiritual distress and its implications for practice in Indian palliative care. *Indian Journal of Palliative Care, 23*(3), 306–311. https://doi.org/10.4103/IJPC.IJPC_24_17

Daniel, S., Venkateswaran, C., Singh, C., Hutchinson, A., & Johnson, M. J. (2022). "So, when a woman becomes ill, the total structure of the family is affected, they can't do anything…" Voices from the community on women with breast cancer in India: A qualitative focus group study. *Supportive Care in Cancer, 30*(1), 951–963. https://doi.org/10.1007/s00520-021-06475-4

Dinapoli, L., Colloca, G., Di Capua, B., & Valentini, V. (2021). Psychological aspects to consider in breast cancer diagnosis and treatment. *Current Oncology Reports, 23*(3), Article 31. https://doi.org/10.1007/s11912-021-01049-3

Easton, S. D., Safadi, N. S., Wang, Y., & Hasson, R. G. (2017). The Kessler psychological distress scale: Translation and validation of an Arabic version. *Health and Quality of Life Outcomes, 15*(1), Article 215. https://doi.org/10.1186/s12955-017-0783-9

Effendy, C., Vissers, K., Tejawinata, S., Ecu, P., Vernooij-Dassen, M., & Engels, Y. (2014). Dealing with symptoms and issues of hospitalized patients with cancer in Indonesia: The role of families, nurses, and physicians. *Pain Practice, 15*(5), 441–446.

Fekih-Romdhane, F., Hakiri, A., Fendri, S., Balti, M., Labbane, R., & Cheour, M. (2021). Evaluation of religious coping in Tunisian Muslim women with newly diagnosed breast cancer. *Journal of Religion and Health, 60*(3), 1839–1855. https://doi.org/10.1007/s10943-020-01066-9

Gall, T. L., & Bilodeau, C. (2020). The role of positive and negative religious/spiritual coping in women's adjustment to breast cancer: A longitudinal study. *Journal of Psychosocial Oncology, 38*(1), 103–117. https://doi.org/10.1080/07347332.2019.1641581

Harrison, M. O., Koenig, H. G., Hays, J. C., Eme-Akwari, A. G., & Pargament, K. I. (2001). The epidemiology of religious coping: A review of recent literature. *International Review of Psychiatry, 13*(2), 86–93. https://doi.org/10.1080/09540260120037317

Hernández, R., Calderon, C., Carmona-Bayonas, A., Rodríguez Capote, A., Jara, C., Padilla Álvarez, A., Gómez-Camacho, M. de las N., Beato, C., Castelo, B., Majem, M., Muñoz, M. del M., Ivars, A., Mangas-Izquierdo, M., Rogado-Revuelta, J., & Jimenez-Fonseca, P. (2019). Differences in coping strategies among young adults and the elderly with cancer. *Psychogeriatrics, 19*(5), 426–434. https://doi.org/10.1111/psyg.12420

Jong, J. (2020). *The science of religion, spirituality, and existentialism*. Elsevier.

Khazi, F., Angolkar, M., Bhise, R., & Ahmed, I. (2023). Psychosocial impact at diagnosis and coping strategies among women with breast cancer—A qualitative study. *Clinical Epidemiology and Global Health, 22*, Article 101343. https://doi.org/10.1016/j.cegh.2023.101343

Khodaveirdyzadeh, R., Rahimi, R., Rahmani, A., Kodayari, N., & Eivazi, J. (2016). Spiritual-religious coping strategies. *Asian Pacific Journal of Cancer Prevention, 17*(8), 4095–4099.

Koenig, H. G. (2020). Maintaining health and well-being by putting faith into action during the COVID-19 pandemic. *Journal of Religion and Health, 59*(4), 2205–2214. https://doi.org/10.1007/s10943-020-01035-2

Kuswanto, C. N., Sharp, J., Stafford, L., & Schofield, P. (2023). Fear of cancer recurrence as a pathway from fatigue to psychological distress in mothers who are breast cancer survivors. *Stress and Health, 39*(1), 197–208. https://doi.org/10.1002/smi.3180

Maryanti, W., & Herani, I. (2020). Perceived social support, coping, and psychological distress in advanced cancer patients. *Jurnal Psikologi, 16*(1), 91–100.

Mathew, R., & Devi, S. S. (2016). Improve quality of life of patients with cervical cancer: An application of Roy's adaptation model. *International Journal of Recent Scientific Research, 7*(5), 10847–10852.

Mattsson, E., Einhorn, K., Ljungman, L., Sundström-Poromaa, I., Stålberg, K., & Wikman, A. (2018). Women treated for gynaecological cancer during young adulthood – A mixed-methods study of perceived psychological distress and experiences of support from health care following end-of-treatment. *Gynecologic Oncology, 149*(3), 464–469. https://doi.org/10.1016/j.ygyno.2018.03.055

McMahon, B. T., & Biggs, H. C. (2012). Examining spirituality and intrinsic religious orientation as a means of coping with exam anxiety. *Vulnerable Groups & Inclusion, 3*(1), Article 14918. https://doi.org/10.3402/vgi.v3i0.14918

Myint, N. M. M., Martawinarti, R. N., Nasution, R. A., Sari, P. I., Sari, L. A., Oktaria, R., & Mutmainnah, M. (2025). Psychological impact of breast cancer diagnosis and patient coping strategies: A literature review. *Jurnal Ilmiah Ners Indonesia, 6*(1), 62–71. https://doi.org/10.22437/jini.v6i1.43945

Ośmiałowska, E., Misiąg, W., Chabowski, M., & Jankowska-Polańska, B. (2021). Coping strategies, pain, and quality of life in patients with breast cancer. *Journal of Clinical Medicine, 10*(19), Article 4469. https://doi.org/10.3390/jcm10194469

Pargament, K. I., Smith, B. W., Koenig, H. G., & Perez, L. (1998). Patterns of positive and negative religious coping with major life stressors. *Journal for the Scientific Study of Religion, 37*(4), 710–724. https://doi.org/10.2307/1388152

Prasetya, D., Layyinah, A., Maftuchan, A., Putri, S., Rosita, E., & Nurjanah, A. I. (2023). *A case study of cancer patients in the capital city of Jakarta 2023*. Perkumpulan PRAKARSA. https://theprakarsa.org/en/konsekuensi-finansial-pengobatan-kanker-di-indonesia-studi-kasus-penderita-kanker-di-ibu-kota-jakarta/

Rababa, M., Hayajneh, A. A., & Bani-Iss, W. (2021). Association of death anxiety with spiritual well-being and religious coping in older adults during the COVID-19 pandemic. *Journal of Religion and Health, 60*(1), 50–63. https://doi.org/10.1007/s10943-020-01129-x

Soqia, J., Al-Shafie, M., Agha, L. Y., Alameer, M. B., Alhomsi, D., Saadoun, R., & Saifo, M. (2022). Depression, anxiety and related factors among Syrian breast cancer patients: A cross-sectional study. *BMC Psychiatry, 22*(1), Article 791. https://doi.org/10.1186/s12888-022-04469-y

Thuné-Boyle, I. C. V., Stygall, J., Keshtgar, M. R. S., Davidson, T. I., & Newman, S. P. (2011). Religious coping strategies in patients diagnosed with breast cancer in the UK. *Psycho-Oncology, 20*(7), 771–782. https://doi.org/10.1002/pon.1784

Vishkin, A., & Tamir, M. (2020). *Fear not: Religion and emotion regulation in coping with existential concerns.* In K. E. Vail III & C. Routledge (Eds.), The science of religion, spirituality, and existentialism (pp. 179–202). Elsevier.

Wang, H., Xia, Q., Xiong, Z., Li, Z., Xiang, W., Yuan, Y., Liu, Y., & Li, Z. (2020). The psychological distress and coping styles in the early stages of the 2019 coronavirus disease (COVID-19) epidemic in the general mainland Chinese population: A web-based survey. *PLOS ONE, 15*(5), Article e0233410. https://doi.org/10.1371/journal.pone.0233410

Widyaningsih, S., & Istifaraswati, A. (2020). Psychological well-being of patients with breast cancer: A descriptive study. *Sainteks, 16*(2), 93–100. https://doi.org/10.30595/st.v16i2.7125

Zamanian, H., Eftekhar-Ardebili, H., Eftekhar-Ardebili, M., Shojaeizadeh, D., Nedjat, S., Taheri-Kharameh, Z., & Daryaafzoon, M. (2015). Religious coping and quality of life in women with breast cancer. *Asian Pacific Journal of Cancer Prevention, 16*(17), 7721–7725. https://doi.org/10.7314/APJCP.2015.16.17.7721

Zwingmann, C., Wirtz, M., Müller, C., Körber, J., & Murken, S. (2006). Positive and negative religious coping in German breast cancer patients. *Journal of Behavioral Medicine, 29*(6), 533–547. https://doi.org/10.1007/s10865-006-9074-3

Pediomaternal Nursing Journal

Original Article

The low-birth-weight infants' nutritional status related factors based on maternal characteristics in agricultural areas

Ira Rahmawati[1*], Desta Cahya Amartha[1], Nuning Dwi Merina[1], José Luis Llopis[2], Qori Ila Saidah[3]

ABSTRACT

Introduction: Low birth weight (LBW) infants are vulnerable to health problems that impact growth and development. However, mothers as primary caregivers may not be able to provide care optimally. Factors associated with maternal characteristics need to be analyzed to determine pediatric nursing interventions to improve LBW infant care. This study aims to analyze factors associated with the nutritional status of Low-Birth-Weight Infants (1-12 months) based on maternal characteristics in agricultural areas of Jember Regency.

Methods: The cross-sectional design study was conducted among infant and mother pairs by measuring nutritional status (Weight-for-Age) and distributing questionnaires on maternal characteristics such as age, education, parity, occupation, and responsive caregiving. Total sampling was collected in one of the agricultural areas of Jember that had a high LBW birthrate, resulting in 89 infant-mother pairs with a history of low-birth-weight births. Data collection on nutritional status and maternal demographics was obtained from the Maternal and Child Health Book, while responsive caregiving data was collected from questionnaires to mothers. The Spearman's rank test analyzed the relationship between infant nutritional status and maternal characteristics.

Results: The majority of infants had a normal nutritional status (88%). The characteristics of mothers are mostly aged in early adulthood (95.6%), multiparous (62.9%), elementary school educated (37.1%), not working (87.6%), and responsive caregiving as low as almost as high (50.6%; 49.4%). The results of the study showed that mothers' age, education level, and occupation status were not related to LBW infant nutritional status. However, maternal parity and responsive caregiving were related to the nutritional status (*P*-value = < .001).

Conclusion: The pediatric nurse should play a crucial role as an infant care provider to enhance mothers' empowerment in caring for LBW infants. The Responsive caregiving practice education could be an alternative pediatric nursing intervention to reduce LBW infant morbidity and mortality.

Keywords: low birth weight; nutritional status; pediatric nursing

INTRODUCTION

The incidence of Low birth weight (LBW) babies in Indonesia was reported at 3.4% across 25 provinces (Directorate of Community Nutrition, 2019, in Ramadani et al., 2024). In East Java Province, the prevalence of LBW in 2022 reached 20,907 cases, accounting for 26% of the total 535,874 births. Jember ranks as one of the cities in East Java with the highest mortality rates, with 36% of these cases attributed to LBW, and the prevalences in 2023 has reached 2,104 cases (Dinas Kesehatan Provinsi Jawa Timur, 2023). Ajung and Sukowono Districts, as rural regions in Jember engaged in farming activities, significantly contribute to cases of LBW. According to the Jember Regency Health Office data, the number of LBW cases in Ajung District in 2023 was 140, and 75 cases in Sukowono District.

OPEN ACCESS
***Correspondence**: Ira Rahmawati (irarhmwt@gmail.com)
[1]Departement of Maternity and Pediatric Nursing, Faculty of Nursing, Universitas Jember, Jember, Indonesia
[2] Department of Nursing, Faculty of Nursing, Complutense University of Madrid, Madrid, Spain
[3] Department of Maternity and Pediatric Nursing, Faculty of Nursing, Sekolah Tinggi Ilmu Kesehatan Hang Tuah, Surabaya, Indonesia

Volume 11 (2): 112-119
http://dx.doi.org/10.20473/pmnj.v11i2.73831

e-ISSN: 2355-1577 | p-ISSN: 2656-4629

Article History
Received: June 04, 2025 | Revised: July 30, 2025 | Accepted: August 20, 2025| Published : September 15, 2025

LBW children are still a worldwide health issue, occurring in 15-20% of all births currently, and particularly in developing countries (Thapa et al., 2022). LBW can lead to various issues with health in newborns, including hyperthermia, hypoglycemia, asphyxia, hypocalcemia, and polycythemia, along with long-term issues such as growth and development abnormalities (Nashita & Khayati, 2023; Salsabila et al., 2021). LBW is usually linked with preterm birth and intrauterine constraint, which puts eightfold risk of stunting over babies with normal birth weight (Taha et al., 2020). Thus, the growth and development of low-birth-weight babies require a complete assessment and intervention for their health. The assessment and management of the nutritional health of LBW participants is significant as it affects different aspects in their lives.

The initial six months are important in terms of growth and development at fast pace, and therefore it is necessary that the nutritional requirements of an infant are properly fulfilled (Kerac et al., 2021). Failure to fulfill their food needs will have a serious effect on their survival and well-being in the long term (Aneja et al., 2020). Poor treatment of LBW has many negative consequences. Growth starts during infancy, a crucial stage that can influence the physical, psychological, and behavioral status of the child (Nashita & Khayati, 2023). In addition, preterm infants who are denied proper care and stimulation are prone to coordination disorders, abnormal reflexes, and motor

deficits compromising body function and bearing a high risk of chronic ailments and suboptimal cognitive functions (Rana et al., 2024). Vulnerability of LBW to health complications can be prevented through adequate care by the parents as guardians. However, parents tend to face difficulties in caring for LBW infants due to biological immaturity of the infants, ultimately leading to decreased activity and responsiveness, thereby deterring responsiveness of the mother (Amaliya et al., 2023; Bedwell et al., 2022; Wang et al., 2022).

The failure of parents, particularly mothers, who are the major caregivers of the child, to offer proper care can disrupt infants' adjustment during a sensitive transition time, exposing them to health issues that could slow their development and growth in the future (Astuti et al., 2022). Caregiver inactivity and insensitivity will increase the risk of delayed development in motor, cognitive, and social-emotional areas for infants (Silveira et al., 2024; Rana et al., 2024).

The mother as the primary caregiver is a factor that affects the health of the baby, especially the quality of responsive care (Nurdiantami et al., 2022). Her characteristics influence the parenting styles adopted with children. Factors such as age, education level, employment, and the number of births can affect a mother's caregiving responsiveness (Gaidhane et al., 2022). Mothers with higher educational attainment are often better equipped to comprehend their child's developmental requirements, resulting in more responsive caregiving (Scherer et al., 2019). Employment status is also crucial; full-time working mothers frequently encounter limited time and energy to engage with their infants compared to those who are unemployed or work part-time, who usually exhibit higher responsiveness (Neli et al., 2021). Parity significantly impacts caregiving, as first-time mothers are often in the process of learning caregiving roles, which may lead to lower responsiveness than that observed in mothers who have had more than one child, who possess prior caregiving experience (Islam & Khan, 2023).

Additionally, a child's age influences interaction patterns since the requirements for stimulation and response evolve alongside motor and cognitive advancements. Lastly, the history of a baby's birth weight is vital; infants born with LBW necessitate more careful and responsive attention due to their heightened susceptibility to health and developmental issues (Frontera et al., 2024; Scherer et al., 2019). Therefore, it is crucial to comprehensively understand these elements in creating effective parenting strategies that promote optimal infant growth. This study aims to analyze various factors associated with the nutritional status of Low-Birth-Weight Infants (0-12 months) based on maternal characteristics in the agricultural areas of Jember Regency.

METHODS

Study Design

This study used a cross-sectional design. The population in this study was infants and mothers who cared for LBW infants in the Agricultural Area of Ajung and Sukowono Districts of Jember Regency, conducted in January 2025.

Samples and Sampling

The sample in this study was mothers who had babies with LBW in the age range of 1-12 months in the Agricultural Area of Ajung and Sukowono Subdistricts. Based on the Jember District Health Office, Ajung and Sukowono Health Center, the number of samples in this study was 89 mother-infant pairs, with 43 in Ajung District and 46 in Sukowono District. The participants are infants with a history of low birth weight, aged 1-12 months, whose parents agreed to participate, and excluding those currently hospitalized.

Variables

This study examined infant nutritional status (weight-for-age) as the dependent variable, while the independent variables included maternal characteristics such as age, education level, occupation, parity, and responsive caregiving behaviors. These variables were selected to explore the relationship between maternal factors and infant nutritional outcomes, with responsive caregiving serving as a key behavioral variable that could influence how mothers interact with and care for their infant.

Instruments

The primary instrument used was the Maternal Infant Responsiveness Instrument (MIRI), developed by Linda Amankwaa, PhD, RN and Rita Pickler, PhD, RN, which identifies maternal behaviors related to responsiveness in caring for both full-term and premature infants. The MIRI consists of 22 items measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with total scores ranging from 22 to 110. The instrument covers three main areas: mothers' perceptions of their responsiveness, infants' responses to maternal actions and interaction attempts, and barriers to responsiveness. This questionnaire has been translated and validated, demonstrating good validity with calculated r values exceeding the table value of .339 (df = 33) and reliable internal consistency with a Cronbach's Alpha of .862. Additionally, Maternal and Child Health Books served as secondary instruments for collecting demographic and health-related data.

Data Collection

Data collection utilized a mixed approach combining primary and secondary sources to ensure comprehensive information gathering. Demographic and health information including nutritional status, maternal age, occupation, education level, and parity were obtained from existing Maternal and Child Health Books, providing reliable baseline data. Meanwhile, responsive caregiving data were collected through direct distribution of MIRI questionnaires to mothers during posyandu visits and door-to-door visits, ensuring accessibility and convenience for participants. The questionnaires were completed specifically by mothers who served as primary caregivers for their infants, with this criterion verified through structured interviews to ensure data accuracy and relevance to the study objectives.

Data Analysis

Assessment of the infant's nutritional status was carried out by comparing body weight with age, based on the anthropometric standard category of the Indonesian Ministry of Health 2020. Weight and age measurements are conducted during posyandu by appropriately skilled health workers. Weight measuring devices are calibrated and standardized, and documented in the Maternal and Child Health book. The correlation data of this study between infant nutritional status and maternal characteristics were analyzed by the Spearman Rank Test ($\alpha = .05$).

Table 1. Background Characteristics of Respondent (n=89)

Variables	n	%
Infant's Age		
Young Infant	24	27.0
Older Infant	65	73.0
Gestational Age at Birth		
Aterm	32	36.0
Preterm	57	64.0
Birth Weight		
Low Birth Weight	64	71.9
Very Low Birth Weight	25	28.1
Infant's Nutrition Status		
Normal	79	88.8
Underweight	10	11.2
Mother's Age		
Adolescent	2	2.2
Early Adulthood	85	95.6
Middle Adulthood	2	2.2
Parity		
Primiparous	33	37.1
Multiparous	56	62.9
Education		
Elementary School	33	37.1
Junior High School	18	20.2
Senior High School	28	31.5
Higher Education	10	11.2
Occupation		
Unemployed	78	87.6
Farmer	4	4.5
Private Employee	3	3.4
Self-employed	3	3.4
Others	1	1.1
Responsive Caregiving		
Low	45	50.6
High	44	49.4

Table 2. Spearman Rank Correlation Test Results Between Maternal Characteristics and Low Birth Weight Infants Nutritional Status

Maternal Variables	Correlation Coefficient	*P*-value	Description
Age	-.120	.323	Not Significant
Parity	.250	< .001	Significant, positive correlation
Education	.020	.18	Not Significant
Occupation	.124	.12	Not Significant
Responsive caregiving	.780	< .001	Significant, positive correlation

Ethical Clearance

This study has received ethical approval from the Health Research Ethics Committee of the Faculty of Nursing, University of Jember No.426/UN25.1.14/KEPK/DL/2024.

RESULTS

Data is displayed using a characteristic distribution and Spearman Rank Test result. The results of this study show that most infants have a normal nutritional status. The characteristics of mothers are mostly aged in early adulthood, multiparous, elementary school educated, and not working (Table 1). The results showed that responsive caregiving carried out by mothers in the care of LBW babies was categorized as low almost as much as high (Table 1). The results of this study showed that there was no correlation (*P*-value > .05) between maternal age, education, and occupation to LBW infant nutritional status (Table 2). The results of this study indicate that there is a relationship (*P*-value = < .001) between maternal parity and responsive caregiving to infant nutritional status (Table 2). The responsive caregiving indicated a strong correlation, while maternal parity showed a weak correlation.

DISCUSSION

The Relationship Between Mother's Age and Infant's Nutritional Status

The results of this study show that the majority of the respondents are in early adulthood. This is in line with the Indonesian Ministry of Health (2023), which states that the ideal age for childbirth is between 20 and 35 years, so the respondents' ages are considered appropriate. However, the youngest respondent in this study was 18 years old. According to Putra (2021) in Wulansari et al. (2023), psychological maturity may be affected by age, i.e., individuals who are older tend to be emotionally mature. Young mothers are less stable in their emotions and less capable of caring for babies. Previous research also shows that young mothers are less responsive in interactions with babies and are still in the process of needing training (Anindawati, 2020; Arnita et al., 2020).

The results of the present study indicated that maternal age was not related to the nutritional status of LBW infants. In Labada et al. (2016), it was found that there was no relationship between mothers' age and nutrition status among toddlers. This finding was in agreement with the outcome of research by Yunus (2019), and the outcomes in the bivariate analysis indicated there was no correlation between maternal age and toddlers' nutritional status. Mothers aged at risk on age (<20 years and >35 years) in this analysis indicated they had lower malnutrition than mothers who had an optimal nutritional status. The advanced mother's age doesn't assure that the complete nutrition of a child is appropriately addressed. The applied nutrition knowledge and can offer healthy food to children are much greater than the biological age of the mother (Setiawati et al., 2023). Mother's nutrition knowledge, gained through formal and informal education, contributes even more than age. Overall, while maternal age does offer certain benefits in terms of experience and emotional stability that may aid in providing proper nutrition for children, knowledge, education, and social support are far more influential in meeting children's nutritional needs (Workicho et al., 2020).

The Relationship Between Parity and Infants' Nutritional Status

The results of this study showed that the majority of respondents are multiparous mothers, totaling 56 mothers (62.9%). This is consistent with the study by Khasanah & Rutina (2017), which found that 50% of respondents were multiparous. LBW births can occur in primiparous or multiparous mothers. In addition, the results of this study show that there is a correlation between parity status and the nutritional status of LBW infants. However, the relationship is weak: the more birth experiences, the better the nutritional status of LBW infants.

Primiparous mothers lack understanding of how to interact with their babies, which can hinder the mother's responsiveness (Arnita et al., 2020). This aligns with the findings of Larasati (2019), which revealed a statistical test result of *P*-value = .014, indicating a correlation between maternal parity and the nutritional status of toddlers assessed by their weight and height at a specific age. On the other hand, multiparous mothers have previous experience in caring for babies, which supports better interactions between the mother and baby. Ravn (2013), in Khasanah & Rutina (2017), found a relationship between previous childbirth experience and the mother-baby interaction score in preterm babies. The results of this study show that the majority of mothers have given birth before (multipara), although some are primipara. Multiparous mothers are likely to understand the needs of their baby because they have previous experience in caring for a baby, making them more prepared to respond to the baby's cues compared to primiparous mothers, who may still be adapting to their new role. This aligns with the study by Ravn (2013) in Khasanah & Rutina (2017), which explains that there is a relationship between previous birth experience and the mother-baby interaction score for premature babies.

However, other studies Abdullah & Salfitri (2018), noted that among respondents, 71.8% of multiparous mothers exhibited poor nutritional status, significantly higher than the 31% of primiparous mothers, with a *P*-value of .002 (*P*-value < α = .05), suggesting a connection between parity and toddlers' nutritional status. Toddlers of multiparous mothers face a 3.5 times increased risk of poor or abnormal nutritional status compared to those of primiparous mothers. Families with many children often struggle to meet their balanced dietary needs, leading to insufficient nutritional conditions for the child. As maternal parity rises, mothers are tasked with fulfilling the nutritional requirements of their children (Abdullah & Salfitri, 2018; Harahap et al., 2019; Simelane et al., 2020; Soleha & Tri Zelharsandy, 2023). The results of the research explanation can be a scientific rationale for the correlation of parity status and nutritional status of LBW infants.

The Relationship Between Education and Infants' Nutritional Status

In this study, the majority of mothers had an education level of elementary school or equivalent, accounting for 37.1%, which falls into the category of low education. This study found that higher education is positively associated with higher maternal nutrition knowledge, in line with Egg et al. (2020) stated that higher education will bring better nutrition knowledge, which is crucial in promoting good

nutrition and preventing malnutrition, especially in children. Enhancing the nutrition knowledge of caregivers/mothers is one of the primary keys to nutrition improvement intervention programs. The higher a person's level of education, the easier it is to receive information (Saragih, 2010 in Sarinengsih, 2020). However, the study found that some mothers with basic education had infants with normal nutritional status (body weight/age), and no relationship between maternal education and infant nutritional status. This is because current technological developments make it easier for mothers to access health information from various media, enabling them to increase their knowledge. In addition, baby posyandu activities help mothers increase knowledge related to the growth and development of the child, leading to better nutritional outcomes.

The Relationship Between Occupation and Infants Nutritional Status

The relationship between employment and infant nutritional status was found not to affect. The results of the study indicate that the majority of mothers are not employed or are homemakers, totaling 78 individuals (87.6%). Mothers who do not work tend to have more time to care for, interact with, and play with their babies, which can lead to higher responsiveness and sensitivity, ultimately fostering a stronger bond between the mother and child (Gauthier & DeGusti, 2012 in Indriana, 2022). On the other hand, according to Rahayu et al. (2024) research, working mothers impact their children's nutritional status, as they tend to have less time for childcare compared to stay-at-home mothers. Working mothers often struggle to provide breast milk consistently, and they may not regularly offer breast milk substitutes or additional foods, leading to an unbalanced nutritional intake (Jakaria et al., 2022).

The relationship between working mothers and the nutritional needs of infants and children is intricate, influenced by the trade-off between increased family income and reduced time for direct caregiving. Non-working mothers generally have more free time to focus on their children's necessities, such as providing exclusive breastfeeding, consistently offering complementary foods, and closely monitoring their children's eating habits and growth (Kyanjo et al., 2025; Permatasari & Waluyanti, 2019; Rashad & Sharaf, 2019). Kyanjo et al. (2025) noted that children of non-working mothers tend to receive better care, which enhances their chances of achieving good nutritional status, particularly during the early stages of life. Conversely, while working mothers can contribute to higher household income that helps secure nutritious food and other essentials, they frequently encounter difficulties due to limited caregiving time (Jakaria et al., 2022). Nonetheless, the status of working mothers is not a definitive factor affecting children's nutrition; there are other crucial elements to consider, such as family support and workplace provisions like lactation facilities and maternity leave, which enable mothers to meet their children's nutritional needs effectively. In reality, educated working mothers may find it easier to adjust breastfeeding schedules, pump breast milk, and select healthy complementary foods for their children. Similarly, mothers who do not work but lack nutritional knowledge or face economic constraints could struggle to fulfill their children's nutritional requirements. Therefore, it can be concluded that the status of working mothers relates to nutrition through both income and available caregiving time (Ketema et al., 2022; Oddo et al., 2018; Kyanjo et al., 2025).

While non-working mothers generally have more time for direct childcare, their children's nutritional status isn't guaranteed to be optimal if they lack adequate nutritional knowledge or face economic constraints. Pediatric nurses can play a vital role in providing comprehensive education, facilitating access to resources, and strengthening family support systems. Pediatric Nurses can help connect these families with community resources that offer affordable, nutritious food, nutritional counseling, and support groups, addressing potential economic barriers to optimal nutrition.

Although our study did not find a direct effect, the existing literature acknowledges the complex interplay between maternal employment, income, and caregiving time. For pediatric nurses working with families where mothers are employed, it's essential to advocate for supportive workplace policies, offer practical strategies for time management, and emphasize quality over quantity of time. Pediatric nurses can provide guidance on efficient meal preparation, healthy convenience food options, and effective time management strategies to ensure consistent feeding and care. Educated working mothers may find it easier to adapt to breastfeeding schedules and make healthy food choices. Nurses can emphasize the importance of high-quality, responsive interactions during available caregiving time, regardless of its duration.

The Relationship Between Maternal Responsive Caregiving and Infants Nutritional Status

The results showed that responsive parenting carried out by mothers in the care of LBW babies was categorized as low almost as much as high. Babies with LBW may exhibit weaker signals, making it more difficult for mothers to understand and interpret them (Khasanah & Rutina, 2017). Responsive caregiving is a crucial element in child development, particularly when it comes to nutrition. For the context of feeding, responsive caregiving refers to a parenting style with a caregiver who is sensitively and promptly aware of and reacts to the signals of hunger and fullness in the child, taking into account their developmental needs (Azwar et al., 2023). Infants who are fed with a responsive approach have healthier food consumption, which is related to less obesity and malnutrition. The responsiveness of feeding behaviors, as in the case of feeding, is associated with the nutritional status of the child, whereby both the quantity and quality of food matter in establishing good eating habits and food choices (Mugode et al., 2018; Nendyo et al., 2023). The research evidence indicates that responsive care has something to do with infant nutritional status.

It is affirmed by the report of WHO that responsive caregiving not only contributes to nutritional health but also enhances the child's cognitive and psychosocial development (WHO, 2022). Responsive care-givers also create avenues for children to try out healthy food, become independent, and develop awareness of positive liking of food (Septamarini et al., 2019). Thus, integration of responsivity, nutrition education, and a nurturing family setting is essential to provide optimal nutritional status to the children at times of development and growth (Abebe et al., 2017). The findings in this study indicated that most of the age of infants were 3-6 months, i.e., 36 infants (40.4%), then infants' age between 7-9 months, as many as 34 infants (38.2%).

The social development of infants at 3-6 months is a social stage where infants react to humans and non-humans (Hiddayaturrahmi et al., 2024). That stage is thus the stage

where infants are able to show their responsiveness to the mother. Therefore, providing education to mothers on how to read and respond to the cues of LBW babies and responsive caregiving training or consultation with medical professionals can help mothers communicate better and build a higher quality of interaction, which will ultimately encourage best development for BBLR babies. The responsive caregiving is important in influencing the development and growth of LBW infants, who are at higher risk of illness.

Responsive care involves appropriate interactive feedback between the caregiver and the infant, such as verbal and nonverbal responses, touch, and emotional expressions (Fuertes et al., 2022; Wang et al., 2022). Practice of responsive parenting, such as appropriate nutrition, growth and development stimulation, and a healthy setting, is likely to avoid growth and development issues (Ministry of Health of the Republic of Indonesia, 2023). Studies have established that responsive caregiving is linked with various domains of development in infants, including their physical growth, motor development, communication, problem-solving, and social-emotional development, particularly in the case of LBW infants (Patronick et al., 2023). Childhood nurses are well placed to change parental feeding behaviors by optimal responsive feeding recommendations in both healthcare facilities and community settings. This includes training parents to identify and respond to baby hunger and fullness signals, establishing a supportive feeding context, and facilitating developmentally relevant feeding behavior. Furthermore, pediatric nurses, in collaboration with community health nurses, play a crucial role in empowering families to optimize the care provided to children with a history of LBW. This collaborative approach facilitates sustained family support, enhances parental self-efficacy, and ultimately contributes to improved nutritional outcomes and overall well-being for this vulnerable population.

Research Limitations

Total sampling was used to reach a large number of infants with a history of low birth weight, because more specific criteria would have required extensive resources, including workforce and budget. As a result, the findings, although accurate for the population studied, often cannot be generalized to a broader or similar population because the conclusions may not apply to groups with slightly different characteristics. In our sample of infants with LBW, total sampling inherently cannot control for current age distribution, gestational age, birth weight, and current weight. This is evident in the proportion of older infants who have reached normal weight due to catch-up growth. Therefore, future research is expected to control for these variables, for example, through better sampling techniques, a wider location, and a larger sample size.

CONCLUSION

Nutritional status (weight-for-age) of LBW infants was influenced by various aspects such as the mother's parity and responsive caregiving. The results of the study showed that a mother's age, education level, and occupation status are not related to LBW infant nutritional status. Responsive caregiving is crucial in influencing the nutritional outcomes of LBW infants who are at a higher risk for health issues. Responsive caregiving is a factor that can be modified so that it can be used as an alternative nursing intervention. The research implications for pediatric nursing are that nurses must improve mothers' practices in responsive caregiving, such as ensuring proper nutrition, stimulating growth and development, and providing a healthy environment, to help prevent issues related to growth and development.

Declaration of Interest

There are no conflicts of interest.

Acknowledgment

None.

Funding

None.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

REFERENCES

Abdullah, M., & Salfitri, E. (2018). Determinan status gizi balita di Desa Alue Naga Banda Aceh. *Journal of Healthcare Technology and Medicine, 4*(2), 430. https://doi.org/10.33143/jhtm.v4i2.1001

Abebe, Z., Haki, G. D., & Baye, K. (2017). Child feeding style is associated with food intake and linear growth in rural Ethiopia. *Appetite, 116*, 132–138. https://doi.org/10.1016/j.appet.2017.04.033

Amaliya, S., Kapti, R. E., Astari, A. M., Yuliatun, L., & Azizah, N. (2023). Improving knowledge and self-efficacy in caring at home for parents with low birth weight babies. *Jurnal Aisyah: Jurnal Ilmu Kesehatan, 8*(2), 819–826. https://doi.org/10.30604/jika.v8i2.1952

Aneja, S., Kumar, P., Choudhary, T. S., Srivastava, A., Chowdhury, R., Taneja, S., Bhandari, N., Daniel, A., Menon, P., Chellani, H., Bahl, R., & Bhan, M. K. (2020). Growth faltering in early infancy: Highlights from a two-day scientific consultation. *BMC Proceedings, 14*(Suppl. 12), 1–7. https://doi.org/10.1186/s12919-020-00195-z

Anindawati, Z. (2020). *Sikap pengasuhan pada ibu usia remaja: Literatur review*.

Arnita, Y., Tahlil, T., & Amalia, R. (2020). Faktor-faktor yang berkontribusi dengan interaksi ibu-bayi: Sebuah literature review. *Idea Nursing Journal, 11*(2), 18–28. http://www.jurnal.unsyiah.ac.id/INJ/article/view/19797

Astuti, E. S., Solikhah, F. K., & Ernawati, N. (2022). Peningkatan pengasuhan bayi berat lahir rendah (BBLR) oleh tenaga kesehatan dan kader. *Jurnal Kreativitas Pengabdian Kepada Masyarakat (PKM), 5*(12), 4311–4322. https://doi.org/10.33024/jkpm.v5i12.7950

Azwar, A., Tane, R., & Sartika MS, D. (2023). Responsive feeding dan stunting pada anak: Literature review. *Journal of Nursing Innovation, 2*(3), 73–80. https://doi.org/10.61923/jni.v2i3.19

Bedwell, C., Actis, D., Tate, A., Dwan, K., Portela, A., & Lavender, T. (2022). Interventions to support parents, families and caregivers in caring for preterm or low birth weight infants at home: A systematic review. *medRxiv*. [Preprint] https://doi.org/10.1101/2022.10.25.22281452

Dinas Kesehatan Provinsi Jawa Timur. (2023). *Profil kesehatan Provinsi Jawa Timur tahun 2023*.

Egg, S., Wakolbinger, M., Reisser, A., Schätzer, M., Wild, B., & Rust, P. (2020). Relationship between nutrition knowledge, education and other determinants of food intake and lifestyle habits among adolescents from urban and rural secondary schools in Tyrol, Western Austria. *Public Health Nutrition, 23*(17), 3136–3147. https://doi.org/10.1017/S1368980020000488

Frontera, W., Spicer, C. M., & Applegate, A. (2024). *Low birth weight babies and disability*. Washington, DC: The National Academies Press. https://doi.org/10.17226/27375

Fuertes, M., Antunes, S., Martelo, I., & Dionisio, F. (2022). The impact of low birthweight in infant patterns of regulatory behavior, mother-infant quality of interaction, and attachment. *Early Human Development, 172*, Article 105633. https://doi.org/10.1016/j.earlhumdev.2022.105633

Gaidhane, A., Telrandhe, S., Holding, P., Patil, M., Kogade, P., Jadhav, N., Khatib, M. N., & Zahiruddin, Q. S. (2022). Effectiveness of family-centered program for enhancing competencies of responsive parenting among caregivers for early childhood development in rural India. *Acta Psychologica, 229*, Article 103669. https://doi.org/10.1016/j.actpsy.2022.103669

Harahap, E. S., Karjoso, T. K., & Sugianti, R. (2019). Analisis faktor ibu dengan kejadian memiliki anak balita stunting di Kota Pekanbaru. *Health Care: Jurnal Kesehatan, 8*(2), 1–7. https://doi.org/10.36763/healthcare.v8i2.55

Hiddayaturrahmi, Rosmawaty, Nasitoh, S., Handayani, Y., & Lidra Maribeth, A. (2024). Faktor-faktor yang mempengaruhi tumbuh kembang anak usia 0-2 tahun: Tinjauan literatur. *Scientific Journal, 3*(4), 221–231. https://doi.org/10.56260/sciena.v3i4.150

Indriana, N. P. R. K. (2022). Hubungan umur, pekerjaan, pendidikan dan pendapatan terhadap perilaku orang tua dalam pemantauan tumbuh kembang bayi usia 0-1 tahun pada masa pandemi COVID-19. *Malahayati Nursing Journal, 4*(8), 2097–2107. https://doi.org/10.33024/mnj.v4i8.7166

Islam, M. M., & Khan, M. N. (2023). Early childhood development and its association with maternal parity. *Child: Care, Health and Development, 49*(1), 80–89. https://doi.org/10.1111/cch.13011

Jakaria, M., Bakshi, R. K., & Hasan, M. M. (2022). Is maternal employment detrimental to children's nutritional status? Evidence from Bangladesh. *Review of Development Economics, 26*(1), 85–111. https://doi.org/10.1111/rode.12819

Kerac, M., James, P. T., McGrath, M. G., Brennan, E., Opondo, C., & Frison, S. (2021). Infant malnutrition in low- and middle-income countries: assessment and prevalence of small and nutritionally at-risk infants aged under 6 months in 54 Demographic & Health Survey datasets. *medRxiv, 10*(12), 1–30. https://doi.org/10.1101/2021.12.23.21268306

Ketema, B., Bosha, T., & Feleke, F. W. (2022). Effect of maternal employment on child nutritional status in Bale Robe Town, Ethiopia: A comparative cross-sectional analysis. *Journal of Nutritional Science, 11*, Article e26. https://doi.org/10.1017/jns.2022.26

Khasanah, N. N., & Rutina, Y. (2017). Gambaran interaksi ibu-bayi prematur di ruang perawatan bayi risiko tinggi. *Medica Hospitalia: Journal of Clinical Medicine, 4*(3), 186–190. https://doi.org/10.36408/mhjcm.v4i3.335

Kyanjo, J. L., Turinawe, A., Hörnell, A., & Lindvall, K. (2025). Balancing maternal employment and child nutrition and health: A grounded theory study of rural communities in Northeastern Uganda. *BMC Public Health, 25*(1), Article 154. https://doi.org/10.1186/s12889-025-21978-z

Labada, A., Ismanto, Y. A., & Kundre, R. (2016). Hubungan karakteristik ibu dengan status gizi balita yang berkunjung di Puskesmas Bahu Manado. *EJournal Keperawatan (EKp), 4*(1), 38–50. https://ejournal.unsrat.ac.id/index.php/jkp/article/view/11899/11488

Larasati, M. D. (2019). Status gizi balita BGM berdasarkan karakteristik ibu di wilayah kerja Kecamatan Sawah Besar tahun 2018. *Jurnal JKFT: Universitas Muhamadiyah Tangerang, 4*(1), 77–89. http://jurnal.umt.ac.id/index.php/jkft/article/view/2022

Ministry of Health of the Republic of Indonesia. (2023). *Pedoman pelaksanaan stimulasi, deteksi, dan intervensi dini tumbuh kembang anak di tingkat pelayanan kesehatan dasar*.

Mugode, R. H., Puoane, T., Michelo, C., & Steyn, N. P. (2018). "Feeding a child slowly:" A responsive feeding behavior component likely to reduce stunting: Population-based observations from rural Zambia. *Journal of Hunger and Environmental Nutrition, 13*(4), 455–469. https://doi.org/10.1080/19320248.2017.1403409

Nashita, C., & Khayati, Y. N. (2023). Hubungan berat badan lahir dengan pertumbuhan bayi di TPMB Isnaningsih, S.Tr.Keb Kabupaten Semarang. *Journal of Holistics and Health Sciences, 5*(2), 289–295. https://doi.org/10.35473/jhhs.v5i2.307

Neli, W., Latif, F. L. A., Rompas, H., Putri, A. H., & Firman, L. O. M. (2021). Indonesian mothers' perception about the children nutritional status and its related factors. *Public Health of Indonesia, 7*(3), 126–132. https://doi.org/10.36685/phi.v7i3.440

Nendyo Yogiisworo, I., Wahyurianto, Y., & Retna P, T. (2023). Faktor dominan responsive feeding pada ibu dengan anak stunting di Desa Penambangan wilayah kerja Puskesmas Semanding Kabupaten Tuban. *Jurnal Multidisiplin Indonesia, 2*(9), 2621–2631. https://doi.org/10.58344/jmi.v2i9.514

Nurdiantami, Y., Shabriyyah, N. F., Riyanti, F. D., Muhammad, R. F., & Muhayati, D. A. (2022). Hubungan karakteristik ibu dengan sikap responsif anak. *Jurnal Epidemiologi Kesehatan Indonesia, 6*(1), 45–52. https://doi.org/10.7454/epidkes.v6i1.5990

Oddo, V. M., Surkan, P. J., Hurley, K. M., Lowery, C., de Ponce, S., & Jones-Smith, J. C. (2018). Pathways of the association between maternal employment and weight status among women and children: Qualitative findings from Guatemala. *Maternal and Child Nutrition, 14*(1), Article e12455. https://doi.org/10.1111/mcn.12455

Patronick, J., Glazer, S., Sidol, C., Parikh, N. A., & Wade, S. L. (2023). Parenting interventions targeting behavior for children born preterm or low birth weight: A systematic review. *Journal of Pediatric Psychology, 48*(8), 676–687. https://doi.org/10.1093/jpepsy/jsad031

Permatasari, A. D., & Waluyanti, F. T. (2019). The correlation between infant and toddler feeding practices by working mothers and the nutritional status. *Enfermería Clínica, 29*, 65–69. https://doi.org/10.1016/j.enfcli.2019.04.010

Rahayu, E. M., Basrowi, R. W., Sundjaya, T., & Masita, B. (2024). The evolution of breastfeeding for working mothers: A new approach to balancing career and motherhood: A narrative review. *Bali Medical Journal, 13*(2), 1567–1576. https://doi.org/10.15562/bmj.v13i2.5515

Ramadani, A., Sartika, A., Bayang, T., Sinaga, A., Leonita, A., & Nababan, T. (2024). Hubungan gizi dan usia ibu dengan angka kejadian BBLR di Puskesmas Kota Datar. Healthcaring: *Jurnal Ilmiah Kesehatan, 3*(1), 27–33. https://doi.org/10.47709/healthcaring.v3i1.3526

Rana, R., Sirwani, B., Mohandas, S., Kirubakaran, R., Puthussery, S., Lelijveld, N., & Kerac, M. (2024). Effectiveness of postnatal maternal or caregiver interventions on outcomes among infants under six months with growth faltering: A systematic review. *Nutrients, 16*(6), Article 837. https://doi.org/10.3390/nu16060837

Rashad, A. S., & Sharaf, M. F. (2019). Does maternal employment affect child nutrition status? New evidence from Egypt. *Oxford Development Studies, 47*(1), 48–62. https://doi.org/10.1080/13600818.2018.1497589

Salsabila, D., Setyaningsing, & Sulistyowati, A. D. (2021). Hubungan faktor-faktor risiko maternal terhadap kejadian bayi berat lahir rendah. *Conference of Health and Social Humaniora, 1*, 131–139.

Sarinengsih, Y. (2020). Hubungan pemberian ASI eksklusif dengan kejadian stunting pada balita usia 1-5 tahun di Puskesmas Sukahening Kecamatan Sukahening Kabupaten Tasikmalaya. *Jurnal Ilmu Kesehatan Immanuel, 13*(2), 109–117. https://doi.org/10.36051/jiki.v13i2.102

Scherer, E., Hagaman, A., Chung, E., Rahman, A., O'Donnell, K., & Maselko, J. (2019). The relationship between responsive caregiving and child outcomes: Evidence from direct observations of mother-child dyads in Pakistan. *BMC Public Health, 19*(1), Article 252. https://doi.org/10.1186/s12889-019-6571-1

Septamarini, R. G., Widyastuti, N., & Purwanti, R. (2019). Hubungan pengetahuan dan sikap responsive feeding dengan kejadian stunting pada baduta usia 6-24 bulan di wilayah kerja Puskesmas Bandarharjo, Semarang. *Journal of Nutrition College, 8*(1), 9–20. https://doi.org/10.14710/jnc.v8i1.23808

Setiawati, A., Arda, D., Nordianiwati, N., Aris Tyarini, I., & Indryani, I. (2023). Factors associated with nutritional status in children under five. *Jurnal Edukasi Ilmiah Kesehatan, 1*(3), 99–106. https://doi.org/10.61099/junedik.v1i3.24

Silveira, R. C., Valentini, N. C., O'Shea, T. M., Mendes, E. W., Froes, G., Cauduro, L., Panceri, C., Fuentefria, R. N., & Procianoy, R. S. (2024). Parent-guided developmental intervention for infants with very low birth weight: A randomized clinical trial. *JAMA Network Open, 7*(7), Article e2421896. https://doi.org/10.1001/jamanetworkopen.2024.21896

Simelane, M. S., Chemhaka, G. B., & Zwane, E. (2020). A multilevel analysis of individual, household and community level factors on stunting among children aged 6–59 months in Eswatini: A secondary analysis of the Eswatini 2010 and 2014 Multiple Indicator Cluster Surveys. *PLOS ONE, 15*(10), Article e0241548. https://doi.org/10.1371/journal.pone.0241548

Soleha, M., & Tri Zelharsandy, V. (2023). Pengaruh paritas di keluarga terhadap status gizi anak balita: Literature review. *Lentera Perawat, 4*(1), 11–21. https://jurnal.stikesalmaarif.ac.id/index.php/lenteraperawat/article/download/210/209

Taha, Z., Hassan, A. A., Wikkeling-Scott, L., & Papandreou, D. (2020). Factors associated with preterm birth and low birth weight in Abu Dhabi, The United Arab Emirates. *International Journal of Environmental Research and Public Health, 17*(4), Article 1382. https://doi.org/10.3390/ijerph17041382

Thapa, P., Poudyal, A., Poudel, R., Upadhyaya, D. P., Timalsina, A., Bhandari, R., Baral, J., Bhandari, R., Joshi, P. C., Thapa, P., & Adhikari, N. (2022). Prevalence of low birth weight and its associated factors: Hospital based cross sectional study in Nepal. *PLOS Global Public Health, 2*(11), Article e0001220. https://doi.org/10.1371/journal.pgph.0001220

Wang, K., Qi, Y., Wei, Q., Shi, Y., Zhang, Y., & Shi, H. (2022). Responsive caregiving and opportunities for early learning associated with infant development: Results from a prospective birth cohort in China. *Frontiers in Pediatrics, 10*, Article 857107. https://doi.org/10.3389/fped.2022.857107

Workicho, A., Belachew, T., Argaw, A., Roba, A., Ghosh, S., Kershaw, M., Lachat, C., & Kolsteren, P. (2020). Maternal nutritional status mediates the association between maternal age and birth outcomes. *Maternal and Child Nutrition, 16*(4), Article e13015. https://doi.org/10.1111/mcn.13015

World Health Organization. (2022). *Nurturing young children through responsive feeding is key for a child's. Nuturing Care for Early Childhood Development*. https://nurturing-care.org/wp-content/uploads/2023/06/NTCTRF.pdf

Wulansari, E., Wirakhmi, I. N., & Susanti, I. H. (2023). Gambaran tingkat kecemasan ibu dengan bayi berat lahir rendah (BBLR) di ruang NICU. *Jurnal Penelitian Perawat Profesional, 6*(2), 485–492. https://doi.org/10.37287/jppp.v6i2.2179

Yunus, E. M. (2019). Hubungan karakteristik ibu dengan penilaian status gizi balita di Desa Tanjung Gunung Bangka Tengah tahun 2017. *Jurnal Kesehatan Poltekkes Kemenkes RI Pangkalpinang, 6*(1), 28–34. https://doi.org/10.32922/jkp.v6i1.45

Pediomaternal Nursing Journal

Original Article

Knowledge, attitude, and husband's support as predictors of postpartum visit adherence: A cross-sectional study

Yelly Herien[1*], Muthmainnah[1], Melsa Hazharia Qhalida[2]

ABSTRACT

Introduction: Postpartum visits are crucial for postpartum mothers as they play a significant role in ensuring the health and well-being of both the mother and the newborn. Nevertheless, only few postpartum women have attended all of the required postpartum visits. This study aimed to determine the factors associated with postpartum visits in Seberang Padang Village, Padang, Indonesia.

Methods: This study was a descriptive analytical study with a cross-sectional approach. The Total Sampling approach was used to collect data from 43 postpartum women with infants ages 6 to 8 weeks. A questionnaire about respondent characteristics, knowledge, attitude, spouse support, and postpartum visit was utilized to collect data. Chi-square was employed for bivariate analysis, and logistic regression was used for multivariate analysis.

Results: Postpartum visits were associated with knowledge (*P*-value = .038), attitude (*P*-value = .001), and husband's support (*P*-value = .006), according to bivariate analysis. Multivariate analysis revealed that attitude, with *P*-value = .021 and Exp (B) = 15.188, was the most significant variable linked to postpartum visits.

Conclusion: To increase postpartum mothers' understanding of how to conduct postpartum visits, health professionals are anticipated to host communication, information, and education events. This practice is intended to enhance postpartum moms' knowledge, attitudes, and desire to have postpartum checkups.

Keywords: attitude; husband's support; knowledge; pospartum visit

INTRODUCTION

The health and well-being of both the mother and the newborn are greatly enhanced by postpartum visits, which are essential for new mothers. They are essential for the early detection and management of complications such as infections, excessive bleeding, and mental health issues, which are common during this time (Dahab et al., 2024; Giouleka et al., 2024). Missing postpartum checkups can cause mothers to suffer from unidentified medical and psychological issues that worsen over time. The United State has a high maternal mortality rate, with inadequate postpartum care contributing to this issue (Jayangondaperumal, 2022). Attendance at postpartum visits is associated with a 50% increase in the likelihood of using modern contraceptives, reducing the risk of unintended pregnancies (Masho et al., 2016).

Current trends in postpartum maternal mortality rates reveal significant disparities across regions, particularly between high-income and low-income countries. While global maternal mortality has decreased, approximately 287,000 women still die annually from pregnancy-related complications, predominantly in low-income areas, especially sub-Saharan Africa (Kulczycki & Logan, 2024). The average maternal mortality ratio in Africa is alarmingly high at 415 per 100,000 live births, with Central Africa projected to have the highest rates by 2030 (Yaya et al., 2021). Postpartum maternal mortality rates in Asia, particularly in Indonesia, reveal significant challenges. Indonesia's Maternal Mortality Rate has shown an alarming increase, with 4,627 deaths reported in 2020, highlighting the need for targeted interventions (Rahayu et al., 2023). Notably, 61.59% of maternal deaths occur during the postnatal period, emphasizing the critical role of postnatal care (PNC) in reducing mortality rates (Cahyono et al., 2021).

Preexisting medical conditions, such as thyroid disease and hypertension, increase the likelihood of postpartum visits, as these conditions necessitate closer monitoring. The presence of postpartum complications also prompts more frequent visits. A high proportion with preexisting medical and peripartum morbidities was not evaluated within 8 weeks of hospital discharge (Butwick et al., 2022). Postpartum mothers who do not receive regular home visits may experience unaddressed health issues, increased risk of chronic complications, and lower maternal satisfaction (Yonemoto et al., 2017).

The first postpartum visit (KF1), the entire postpartum visit (KF4), and postpartum women who got vitamin A are indicators at health service facilities that can be used to assess maternal or postpartum maternal health. The Ministry of Health of the Republic of Indonesia (2022) recommends that postpartum maternal health treatments include at least four visits. Data from the Padang City Health Office shows that

OPEN ACCESS
***Correspondence**: Yelly Herien (yellyherien@nrs.unand.ac.id)
[1]Department of Pediatric and Maternity Nursing, Faculty of Nursing, Universitas Andalas, Padang, Indonesia
[2]Bachelor of Nursing Study Program, Faculty of Nursing, Universitas Andalas, Padang, Indonesia

Volume 11 (2): 120-125
http://dx.doi.org/10.20473/pmnj.v11i2.66643

e-ISSN: 2355-1577 | p-ISSN: 2656-4629

Article History
Received: December 10, 2024 | Revised: February 21, 2025 | Accepted: May 22, 2025| Published : September 15, 2025

postpartum visits (KF) in Padang City climbed to 80.5% in 2021 from 77.4% in 2020. On the other hand, postpartum visits dropped in 2022 with KF1 79.5% and KF4 76.5%. The lowest attendance rates in Padang City postpartum were KF1 69.1% and KF4 51.1% at the Seberang Padang Health Centre (Padang City Health Office, 2022).

The fulfillment of postpartum visits in Indonesia is influenced by knowledge, attitude, and spousal support. These influences are the ones that create the safe environment for mothers to take care of themselves and visit hospitals for medical treatment. Through the interaction of these influences, it is understood why they are two of the most influential factors (S. Putri et al., 2023; Pratiwi et al., 2024).

The influence of knowledge, husband's attitude, and support of the husband on visit frequency during the postpartum period is significant, as indicated by various studies. All of these play a role in ensuring that women in the postpartum period keep up with planned health check-ups, which are crucial for minimizing maternal mortality. Knowledge of postpartum care is an important determinant of visit frequency. There is a large gap in the knowledge of mothers regarding postpartum complications, as per studies showing that only 23.9% of Southern Ethiopia's women had such knowledge (Yaya et al., 2023). Enhanced awareness of complications, including postpartum hemorrhage, can lead to early healthcare visits, as seen with interventions that enhanced knowledge from 48.2% to 80.6% about uterotonics in Kenya (Muthamia et al., 2024).

In Sidomulyo, Indonesia, a significant relationship was found between mother's knowledge and postpartum visit attendance with *P*-value of .023, indicating that more informed mothers would go for postpartum visits more frequently (S. Putri et al., 2023). The same phenomenon can be found in antenatal care, whereby knowledge rendered visits more frequent and showed a similarity in postpartum cases (Harahap, 2022).

A positive attitude towards PNC will enhance the potential for follow-up visits, which are crucial to maternal and neonatal well-being. Quality and communication of care also play an immense role in attitudes with increased acceptance at the health centers making them more likely to visit (Sètondji et al., 2020). Education plays a critical role; mothers with educated husbands were less likely to have negative attitudes towards PNC (Abdullahi & Usman, 2022).

METHODS

Study Design

The study has a cross-sectional, descriptive-analytic design, meaning that the researcher measures and observes the data for the independent and dependent variables just once.

Samples and Sampling

This study included 43 postpartum moms who lived in Seberang Padang Village, Padang City, between March and May 2024. The sampling strategy employed was total sampling. The study comprised forty-three postpartum moms who had children between the ages of six and eight weeks, had completed the postpartum period, were willing to participate, and were in good health. For this study, participants should exclude mothers with severe postpartum complications, high-risk pregnancies, or neonates requiring prolonged Neonatal Intensive Care Unit care, as these conditions may independently affect postpartum visit adherence. Additionally, mothers facing significant barriers, such as relocation, cognitive impairment, or language limitations, should be excluded to ensure effective participation in the intervention and follow-up.

Variables

Postpartum visits are the dependent variable in this study, whereas knowledge, attitude, and husband's support are the independent variables.

Instruments

Postpartum visit adherence is assessed based on records in the Maternal and Child Health Handbook. A mother is classified as adherent if she has attended four postpartum visits, as recommended. Conversely, if the number of visits is less than four, she is categorized as non-adherent.

To assess mothers' knowledge, Haspindori (2019) created a questionnaire and examined its validity and reliability. The validity test results indicated that every question on the knowledge variable was deemed genuine since either all of the questions had a value > .444 or the estimated r value was higher than the r table. Based on the knowledge variable's reliability test results, its value was higher than the r table value limit of .60. The value for the knowledge variable was .980. Using the Guttman scale, this questionnaire asks twenty questions to gauge respondents' knowledge of postpartum visits. The questions include the option of correct or incorrect responses. Knowledge is categorized into poor, moderate, and good levels. A mother is classified as having good knowledge if she achieves a score of ≥ 75%.

Rahmawati (2015) developed a questionnaire and assessed its validity and reliability before using it to gauge postpartum mothers' attitudes. The questionnaire employed in this study can be considered legitimate as the validity test findings showed that each statement's computed r value was larger than r table = .445. The attitude questionnaire consists of eight questions measured using a four-point Likert scale, ranging from strongly agree to strongly disagree. Attitudes are categorized as positive or negative based on the respondent's total score.

A questionnaire created and checked for validity and reliability by Haspindori (2019) was used to gauge husbands' support for new moms. According to the validity test results, every item on the family support variable was deemed valid because either all of the items had a value > .444 or the calculated r-value was higher than the r-table. The variable's value exceeds the r-table value limit of .60, according to the family support reliability test results. The husband's support variable yielded a value of .932. The questionnaire on husband's support consists of 10 questions covering emotional, informational, and instrumental support, with Yes/No response options. Support is categorized as supportive if the total score ranges from 6 to 10.

Data Collection

After receiving permission to carry out the study, the researcher was referred to the Head of the KIA Program, who oversees the postpartum mother program in Seberang Padang Village, Padang City. In a number of "*posyandu*" that were being held, the researcher and the posyandu cadres looked for respondents who fit the requirements. With the help of two enumerators, research was conducted on respondents who did not visit the posyandu through a house visit. Following their consent to participate in the study, participants will complete a questionnaire that includes demographic information, knowledge tests, attitudes, and husband support.

Table 1. Demographic Characteristics of Respondents (n=43)

Characteristics	n	%
Age		
<20 years	2	4.7
20-35 years	34	79.1
>35 years	7	16.3
Education		
Elementary School	3	7.0
Junior High School	4	9.3
Senior High School	29	67.4
Diploma/ Bachelor Degree	7	16.3
Employment Status		
Unemployed	40	93.0
Employed	3	7.0
Ethnicity		
Minang	40	93.0
Jawa	1	2.3
Batak	2	4.7
Parity		
1	21	48.8
≥2	22	51.2

Table 2. Relationship between knowledge, attitude, husband's support with postpartum visits (n=43)

Variables	Postpartum Visits						*P*-value
	Non-Adherent		Adherent		Total		
	n	%	n	%	n	%	
Knowledge							
Poor	16	100.0	0	.0	16	100.0	
Moderate	10	76.9	3	23.1	13	100.0	.038
Good	9	64.3	5	35.7	14	100.0	
Attitude							
Negative	27	96.4	1	3.6	28	100.0	.001
Positive	8	53.3	7	46.7	15	100.0	
Husband's Support							
Unsupportive	24	96.0	1	4.0	25	100.0	.006
Supportive	11	61.1	7	38.9	18	100.0	

Table 3. Multivariate analysis

		B	S.E	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1	Knowledge	1.240	.895	1.918	1	.166	3.456	.598	19.990
	Attitude	2.263	1.287	3.092	1	.079	9.614	.771	119.829
	Husband's Support	1.036	1.341	.597	1	.440	2.818	.204	39.003
	Constant	-9.671	3.621	7.135	1	.008	.000		
Step 2	Knowledge	1.287	.863	2.223	1	.136	3.622	.667	19.660
	Attitude	2.720	1.177	5.347	1	.021	15.188	1.514	152.382
	Constant	-8.760	3.116	7.903	1	.005	.000		

Data Analysis

Bivariate analysis was performed using the chi square test with a 95% confidence level or *P*-value ≤ .05. Multivariate analysis used in this study was logistic regression with the backward method. The Backward method or backward step elimination method is one method by entering all independent variables into the model and then removing them one by one by testing their parameters and using partial F.

Ethical Clearance

Research ethical issues including informed consent, anonymity, and confidentiality, were addressed carefully during the study process. The research ethical clearance approval letter was obtained from the Research Ethics Committee at Faculty of Nursing, Universitas Andalas, Padang, Indonesia, No. 283/KEPKFKEP UNAND/2O24, on April 19, 2024.

RESULTS

Characteristics of respondents based on demographic data reveal that 79.1% of mothers aged 20-35 years. Table 1 further illustrates that the majority of respondents—29, or 67.4%—have a high school diploma. Nearly all of the respondents—40, or 93.0%—are unemployed. Forty of the respondents, or 93.0%, are Minang. The majority of responders (51.2%) had parity ≥ 2.

Table 2 reveals that all respondents with less knowledge, 96% of respondents who did not have spousal support, 96.4% of respondents who had unfavorable attitudes, did not follow the postpartum visit schedule. A substantial correlation between postpartum moms' compliance with mandated postpartum visits and their knowledge (*P*-value = .038), attitude (*P*-value = .001), and husband support (*P*-value = .006) is demonstrated by the statistical test findings.

With a *P*-value of .021 < .05, attitude emerged as the most dominant variable in the multivariate analysis (Table 3) utilizing logistic regression of three independent variables. This indicates that the attitude variable was significantly associated with postpartum visits, and it had the highest OR value of 15.188, indicating that the higher the exp(B) value, the stronger the association between the variable and postpartum visits.

DISCUSSION

Postpartum period involves a complex interplay of physical recovery, emotional adjustment, and lifestyle adaptation, which can impact both the mother and the infant. Postpartum mothers experience various physical changes, including recovery from childbirth, which may involve wound healing, pelvic floor health, and management of conditions like gestational diabetes and hypertension (Hussain, 2022). Not attending postpartum visits can lead to missed opportunities for improving women's health, including counseling on contraception, screening for postpartum depression, and addressing chronic health conditions, potentially impacting subsequent pregnancies and overall maternal well-being (Morgan et al., 2018).

One of research found that one-third of all women who attended a prenatal visit at Montefiore Hospital did not return for a postpartum visit. Socioeconomic disadvantage groups like younger mothers and publicly covered patients are less likely to attend postpartum visits, exacerbating health inequities (Wilcox et al., 2016). Low postnatal consultation rates might lead to occult maternal and newborn pathologies and pose a greater threat to health. Early diagnosis and management of potential complications among postpartum mothers and their infants rely on frequent visits (Sètondji et al., 2020).

In the current study, maternal knowledge and postpartum visits were strongly associated (*P*-value=.038). Greater maternal knowledge can lead to improved health-seeking behaviors, ultimately reducing maternal and neonatal mortality. Socioeconomic status and access to healthcare facilities are critical predictors of knowledge. Women with better socioeconomic status are expected to have higher knowledge that predicts their ability to get healthcare services (Moyo et al., 2023). Postpartum danger signs information significantly influences health-seeking behavior because empowered mothers are in a better position to recognize complications and receive timely treatment. Such information prevents delay in decision-making, thus leading to improved maternal health status and decreased maternal mortality rates (Dangura, 2020). This research identified that the care provided to postpartum women with Orem's self-care model prevented postpartum complications and enhanced the self-care agency of postpartum women (Nazik & Eryilmaz, 2013).

About 85.7% of mothers who were highly educated were non-compliant with postpartum visits in this study. Irrespective of higher education, postpartum visit behavior is influenced by family support, cultural beliefs, and health facility distance, pointing out that education cannot ensure adherence to required health visits (Mayangsari et al., 2022). Facilitating factors such as housing instability, transportation difficulties, and issues of communication with providers are key in influencing compliance with postpartum visits, suggesting that highly educated mothers can be faced with non-medical barriers to postpartum care adherence (Bryant et al., 2006).

The study also showed that postpartum visits had a strong correlation with instrumental, informational, and emotional support from the husband. Husbands' emotional support reduces anxiety and depression in postpartum women, encouraging them to seek healthcare services (Pratiwi et al., 2024). Overload stressors and insufficient support resources play a significant role in mental well-being, whereas self-care coping mechanisms improve psychological well-being (Walker et al., 2024). Increased awareness of the necessity of postpartum care among husbands is also associated positively with increased levels of support, which indirectly influences mothers' compliance with healthcare visits (Yasin et al., 2024).

Postpartum visits are most strongly associated with the attitude variable, according to the findings of a logistic regression study of three independent factors. Compared to postpartum visits, maternal knowledge in this study falls into the lower group since an individual's understanding is shaped by their own attitude. Attitude significantly influences women's behaviour across various contexts. Feedback loop suggests that changing attitudes can lead to significant behavioral changes, emphasizing the importance of addressing underlying beliefs (Eilers, 2024). Attitude significantly influences postpartum visits to healthcare facilities, as evidenced by various studies highlighting the correlation between women's perceptions and their healthcare-seeking behaviours. A study in Nigeria found that 87.4% of postpartum women perceived PNC as beneficial, with 69.5% willing to attend multiple visits (Sanusi et al., 2023). In Northern Nigeria, 93.7% of urban mothers had a good attitude towards PNC, yet only 15.7% utilized the services, indicating a gap between attitude and actual behaviour (Abdullahi & Usman, 2022).

Attitude also significantly influences women's behaviour by shaping their intentions towards using Long-Acting Reversible Contraceptives (LARC). Positive attitudes, formed through knowledge and support, lead to higher intentions to adopt LARC, as demonstrated in the study's findings on postpartum women (T. E. Putri et al., 2021), while knowledge and support are vital, barriers such as socioeconomic status and healthcare accessibility also play significant roles in determining postpartum visit attendance, indicating a multifaceted issue that requires comprehensive solutions (Tierny et al., 2024).

Generally, mothers have a negative opinion toward postpartum visits. Most moms are in the ideal age range of 20 to 30 years, during which time problems are uncommon. Their views about not doing postpartum visits may be impacted by this condition. As per the health behavior hypothesis, those who believe they are well or not at high risk are more likely to view preventative interventions as superfluous (Glanz et al., 2015). Because they do not perceive any threat to their health, mothers at this ideal age may believe that postpartum checkups are unnecessary. Furthermore, local beliefs and cultural influences could also have an impact on this negative attitide. The majority of postpartum mothers in Seberang Padang Village are Minang ethnicity, who might have a stronger belief in alternative or traditional medicine.

CONCLUSION

Postpartum visits are essential for safeguarding maternal and neonatal health, particularly in the early stages of recovery. This study highlights the critical role of knowledge, attitude, and husband's support in influencing postpartum visit adherence among mothers in Seberang Padang Village, Padang, Indonesia. The findings indicate that a positive attitude is the most significant predictor of adherence, with a strong association evidenced by multivariate analysis. Knowledge and husband's support also play vital roles, underscoring the importance of comprehensive education and spousal involvement during the postpartum period. These results emphasize the need for targeted interventions to address barriers to postpartum care. Health professionals should focus on improving maternal knowledge and fostering supportive attitudes through communication, information, and educational programs. By addressing these determinants, healthcare systems can improve postpartum care outcomes, reducing the risks of undetected complications and contributing to maternal and neonatal health equity. Building on the findings of this study, future research should focus on developing and evaluating targeted educational interventions aimed at improving postpartum visit adherence. Furthermore, longitudinal research is needed to examine the long-term effects of postpartum visit adherence on maternal and neonatal health outcomes.

Declaration of Interest

The authors report no actual or potential conflicts of interests.

Acknowledgment

This research was supported by Faculty of Nursing Universitas Andalas. We are grateful to the students, Faculty leaders, and the Maternity and Child Nursing Department team.

Funding

None.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

REFERENCES

Abdullahi, H. M., & Usman, N. O. (2022). Attitude and utilization of postnatal care services among women of reproductive age in the rural and urban communities in Northern Nigeria. *Calabar Journal of Health Sciences, 6*, 72–79. https://doi.org/10.25259/CJHS_13_2022

Bryant, A. S., Haas, J. S., McElrath, T. F., & McCormick, M. C. (2006). Predictors of compliance with the postpartum visit among women living in healthy start project areas. *Maternal and Child Health Journal, 10*(6), 511–516. https://doi.org/10.1007/s10995-006-0128-5

Butwick, A. J., Bentley, J., Daw, J., Sultan, P., Girsen, A., Gibbs, R. S., & Guo, N. (2022). Postpartum care visits among commercially insured women in the United States. *AJOG Global Reports, 2*(4), Article 100106. https://doi.org/10.1016/j.xagr.2022.100106

Cahyono, M. N., Efendi, F., Harmayetty, H., Adnani, Q. E. S., & Hung, H. Y. (2021). Regional disparities in postnatal care among mothers aged 15-49 years old in Indonesia. *F1000Research, 10*, Article 153. https://doi.org/10.12688/f1000research.50938.1

Dahab, A. A., Miski, S. S., Hajjaj, A. M., Alnughmush, M. S., Buradhah, F. E., Basakran, G. G., Bashwan, A. A., Aseeri, K. I., Alshahrani, A. R., & Almoagal, H. S. (2024). A review on the role of postpartum homecare program in identification, managing and preventing common complications. *International Journal of Community Medicine and Public Health, 11*(11), 4480–4485. https://doi.org/10.18203/2394-6040.ijcmph20242992

Dangura, A. D. (2020). Knowledge about child birth and postpartum obstetric danger signs and associated factors among mothers in Dale district, Southern Ethiopia. *BMC Pregnancy and Childbirth, 20*(1), Article 340. https://doi.org/10.1186/s12884-020-02989-7

Eilers, M. A. (2024). Attitudes and behavior feedback loops for young women's premarital sex. *Socius, 10*. https://doi.org/10.1177/23780231241277690

Giouleka, S., Tsakiridis, I., Kostakis, N., Boureka, E., Mamopoulos, A., & Kalogiannidis, I. (2024). Postnatal care: A comparative review of guidelines. *Obstetrical & Gynecological Survey, 79*(2), 105–121. https://doi.org/10.1097/OGX.0000000000001224

Glanz, K., Rimer, B. K., & Viswanath, K. (2015). *Health behavior: Theory, research, and practice* (5th ed.). Jossey-Bass.

Harahap, N. A. (2022). *Hubungan pengetahuan, sikap ibu hamil dan dukungan suami terhadap kunjungan K4*. Universitas Jambi

Haspindori. (2019). *Faktor yang berhubungan dengan kepatuhan kunjungan masa nifas pada ibu di wilayah kerja puskesmas Aek Batu Kabupaten Labuhan Batu Selatan* [Unpublished thesis]. Universitas Helvetia. https://repository.helvetia.ac.id/id/eprint/2730/1/Haspindori%20(1702022124).pdf

Hussain, S. (2022). Pospartum maternal wellbeing. *InnovAiT, 15*(1), 48–50. https://doi.org/10.1177/17557380221096494

Jayangondaperumal, R. (2022). *Preventing postpartum complications using a home visitation model of care* [Doctoral dissertation, Dominican University of California].

Kulczycki, A., & Logan, A. M. (2024). *Maternal mortality and morbidity*. In Encyclopedia of reproductive health (pp. 123–134). Elsevier.

Pratiwi, L., Mahmud, U. H., Astuti, H. P., Nawangsari, H., Puspitasari, M. T., & Winancy, W. (2024). Associations of husband support with the incidence of post partum blues in the working area of Development Health Center and Tarogong Health Center Garut district. *International Journal of Health and Social Behavior, 1*(3), 1–7. https://doi.org/10.62951/ijhsb.v1i3.41

Masho, S. W., Cha, S., Charles, R., McGee, E., Karjane, N., Hines, L., & Kornstein, S. G. (2016). Postpartum visit attendance increases the use of modern contraceptives. *Journal of Pregnancy, 2016*, Article 2058127. https://doi.org/10.1155/2016/2058127

Mayangsari, D., Gunarmi, G., Mendrofa, F. A. M., & Hikmah, N. (2022). Analysis of determinants related to public health visits for post-partum mother during the COVID-19 pandemic. *Jurnal SMART Kebidanan, 9*(2), 114–122. https://doi.org/10.34310/sjkb.v9i2.693

Morgan, I., Hughes, M. E., Belcher, H., & Holmes, L. (2018). Maternal sociodemographic characteristics, experiences and health behaviors associated with postpartum care utilization: Evidence from Maryland PRAMS dataset, 2012-2013. *Maternal and Child Health Journal, 22*(4), 589–598. https://doi.org/10.1007/s10995-017-2417-6

Moyo, E., Moyo, P., Dzinamarira, T., Murewanhema, G., & Ross, A. (2023). Mapping evidence on the determinants of postnatal care knowledge among postpartum women in sub-Saharan Africa: A literature review. *Global Journal of Health Science, 15*(12), 16–31. https://doi.org/10.5539/gjhs.v15n12p16

Muthamia, M., Nyaga, F., Kiio, M., Nyawira, E., Muia, C., & Ruto, D. (2024). Postpartum women's knowledge on pregnancy related danger signs, uterotonics and their perceptions on respectful maternity care in 10 selected counties, Kenya. *Research Square*. [Preprint] https://doi.org/10.21203/rs.3.rs-3823253/v1

Nazik, E., & Eryilmaz, G. (2013). The prevention and reduction of postpartum complications: Orem's model. *Nursing Science Quarterly, 26*(4), 360–364. https://doi.org/10.1177/0894318413500402

Padang City Health Office. (2022). *Annual report of Padang City Health Office*.

Putri, S., Yulyana, N., & Dewi, R. (2023). Hubungan pengetahuan dan dukungan suami dengan kepatuhan kunjungan nifas di Puskesmas Sidomulyo. *Midwifery Care Journal, 4*(4), 142–150. https://doi.org/10.31983/micajo.v4i4.9678

Putri, T. E., Pradanie, R., & Kusumaningrum, T. (2021). Analysis factors of the intention of postpartum women using long-acting reversible contraceptive based on the theory of planned behavior. *Pediomaternal Nursing Journal, 7*(1), 16–25. https://doi.org/10.20473/pmnj.v7i1.21498

Rahayu, L., Ulfa, E. M., Sasmita, N. R., Sofyan, H., Kruba, R., Mardalena, S., & Saputra, A. (2023). Unraveling geospatial determinants: Robust geographically weighted regression analysis of maternal mortality in Indonesia. *Infolitika Journal of Data Science, 1*(2), 73–81. https://doi.org/10.60084/ijds.v1i2.133

Rahmawati, L. (2015). *Faktor yang berhubungan dengan kunjungan ibu nifas di wilayah kerja Puskesmas Jelbuk Kabupaten Jember*. Universitas Jember

Sanusi, T. A., Abdus-Salam, R. A., & Oladokun, A. (2023). Attitude of postpartum women towards multiple postnatal clinic schedule in south-west Nigeria. *European Journal of Obstetrics & Gynecology and Reproductive Biology: X, 18*, Article 100197. https://doi.org/10.1016/j.eurox.2023.100197

Sètondji, G. R. P., Badirou, A., Tognissè, M. V., Georgia, D., & Paul, A. (2020). Poor use of postnatal care service at health facilities in rural Southern Benin: What factors should we target? *The Journal of Community Health Management, 7*(3), 147–153. https://doi.org/10.18231/2394-2738.2020.0033

The Ministry of Health of the Republic of Indonesia. (2022). *Buku Kesehatan Ibu dan Anak*.

Tierney, K., Pearce, N., Miller, E., Steiner, A., Tighe, K., Presberry, J., & Kothari, C. (2024). Barriers to Postpartum Care: A Mixed Methods Study of Midwestern Postpartum Women. *Maternal Child Health Journal, 28*(2), 93–103. https://doi.org/10.1007/s10995-023-03800-7

Walker, L. O., Murry, N., Becker, H., & Li, Y. (2020). Leading stressors and coping strategies associated with maternal physical and mental health during the extended postpartum period. *Journal of Midwifery & Women's Health, 65*(5), 581–589. https://doi.org/10.1111/jmwh.13641

Wilcox, A., Levi, E., & Garrett, J. M. (2016). Predictors of non-attendance to the postpartum follow-up visit. *Maternal and Child Health Journal, 20*(Suppl. 1), 22–27. https://doi.org/10.1007/s10995-016-2184-9

Yasin, A. M., Tekle, M. H., Asegid, D. T., Beshir, A. B., Amera, T. G., & Tefera, Y. M. (2024). Predictors of husbands in supporting wives to use obstetrics care services by health professionals, Dire Dawa administration, Ethiopia: A community based cross sectional study. I*nternational Journal of Scientific Reports, 10*(5), 156–164. https://doi.org/10.18203/issn.2454-2156.IntJSciRep20240979

Yaya, S., Anjorin, S. S., & Adedini, S. A. (2021). Disparities in pregnancy-related deaths: Spatial and Bayesian network analyses of maternal mortality ratio in 54 African countries. *BMJ Global Health, 6*(2), Article e004233. https://doi.org/10.1136/bmjgh-2020-004233

Tessema, G. Y., Ayele, G., Tessema, K. F., Ukke, G. G., & Boynito, W. G. (2023). Knowledge of postpartum complications and associated factors among women who gave birth in the last 12 months in Arba Minch Town, Southern Ethiopia, 2019: A community-based cross-sectional study. *PLOS ONE, 18*(2), Article e0281242. https://doi.org/10.1371/journal.pone.0281242

Yonemoto, N., Dowswell, T., Nagai, S., & Mori, R. (2017). Schedules for home visits in the early postpartum period. *Cochrane Database of Systematic Reviews, 2017*(7), Article CD009326. https://doi.org/10.1002/14651858.CD009326.pub3

Pediomaternal Nursing Journal

Case Study

Evaluating the autonomy of mother in infant feeding decision: A case study

Hermalinda Herman[1*], Mei-Chih Huang[2,3]

ABSTRACT

Introduction: Exclusive breastfeeding is widely recognized as the optimal method to feed infant up to six months of age. However, mothers often encountered social barriers that challenge the ability to provide exclusive breastfeeding. A significant obstacle was the tendency of grandmothers to be decision-makers in infant care, including feeding. Only a few studies explored maternal autonomy in making the decision about feeding infant based on individual cases.
Objective: This case study aimed to describe the ethical dimension in breastfeeding, focusing on maternal autonomy in infant feeding decision and how this was influenced by family and cultural beliefs.
Case: A 22-year-old mother with a four-month-old infant followed her grandmother's advice to provide homemade porridge mixed with soup stock. The practice was considered safe because it had been passed down through generations. For decisions regarding infant care, the mother consistently relied on her grandmother's knowledge and experience.
Conclusion: Exclusive breastfeeding was not achieved because the grandmother advised early introduction of complementary feeding, showing that family influence strongly determined feeding practices. Guidance from nurses was essential to counteract misinformation and support informed breastfeeding decisions. Strengthened post-natal counselling, delivery of intensive information through the media, and participation in monthly growth monitoring were strategies that improved infant feeding practices in line with health recommendations.

Keywords: case study; exclusive breastfeeding; decision-making; infant feeding; maternal autonomy

INTRODUCTION

Exclusive breastfeeding is the optimal method to feed the infant. In general, the World Health Organization (WHO) and United Nations International Children's Emergency Fund (UNICEF) recommends exclusive breastfeeding until the infant is six months old, followed by complementary feeding while continuing breastfeeding for two years or more (WHO & UNICEF, 2021). The period from birth to 24 months is considered the golden period for the growth and development of infant and toddler in terms of physical, intellectual, and behavioural aspects. Therefore, ensuring proper complementary feeding during infancy is important for preventing malnutrition and safeguarding the health and development of infant (WHO, 2009). The global prevalence of exclusive breastfeeding in the first six months of life has increased by 10% over the past few decades, reaching 48% in 2023, getting closer to the World Health Assembly target of 50% by 2025 (WHO & UNICEF, 2023).

In Indonesia, the percentage of infants aged 0–5 months receiving exclusive breastfeeding has shown a positive trend in recent years. In 2023, the rate reached 73.97%, increasing from 71.58% in both 2021 and 2022 (Direktorat Statistik Kesejahteraan Rakyat, 2023). The percentage has also exceeded the 2022 target of 45% for exclusive breastfeeding (Indonesia Ministry of Health, 2022). The rate of exclusive breastfeeding in urban areas is lower (73.42%) compared to rural areas (74.61 %). Although the prevalence of exclusive breastfeeding shows fluctuations based on economic status, there is a general trend of declining rates as economic status increases.

A study conducted in the United States found that lack of knowledge and access to laws and policies, along with harmful cultural norms or stigmas about breastfeeding, were significant barriers to exclusive breastfeeding among black women (Tran et al., 2023). Another study in Vietnam identified three main factors contributing to the failure of exclusive breastfeeding, namely maternal, infant, and social factors. The most frequently reported barriers included feelings of shame, insufficient milk supply, infant illness, maternal mood swings, limited knowledge of breastfeeding techniques, and inadequate family support (Nguyen et al., 2021).

Nurses play a significant role in promoting, protecting, and supporting exclusive breastfeeding while helping mothers navigate these barriers (Neifert & Bunik, 2013). The success of breastfeeding is deeply connected to maternal autonomy. However, in clinical practice, maternal autonomy often conflicts with healthcare professionals' recommendations for infant well-being (Hirani & Olson, 2016). Another factor that further complicates maternal autonomy is family influence.

More than half of mothers' feeding choices are influenced by grandmothers (Doğan et al., 2019). Previous studies examining autonomy and infant feeding decision among African adolescent mothers showed that adolescent mothers were often excluded from decision-making. Older female family members often assumed primary responsibility for decisions about infant feeding. Maternal age and financial

OPEN ACCESS
***Correspondence**: Hermalinda Herman (hermalinda@nrs.unand.ac.id)
[1]Department of Maternity and Pediatric Nursing, Faculty of Nursing Universitas Andalas, Padang, Indonesia
[2]National Tainan Junior College of Nursing, Tainan, Taiwan
[3]Department of Nursing, College of Medicine, National Cheng Kung University, Taiwan

Volume 11 (2): 126-130
http://dx.doi.org/10.20473/pmnj.v11i2.66007

e-ISSN: 2355-1577 | p-ISSN: 2656-4629

Article History
Received: November 27, 2024 | Revised: February 28, 2025 | Accepted: July 24, 2025| Published : September 15, 2025

dependency further reduced autonomy, limiting the ability to influence practices or resist inappropriate recommendations. Much of the advice provided by family members was unsuitable, contributing to poor feeding practices among teenage mothers (Jama et al., 2018).

Nurses should respect maternal autonomy while ensuring the well-being of the patients. Since an infant cannot make feeding choices, nurses must consider whether the mother's decision regarding feeding can cause harm (Hirani & Olson, 2016). Previous studies on maternal autonomy in infant feeding have primarily used quantitative methods to explore factors related to feeding decision (Saaka, 2020). Qualitative methods were used to understand autonomy and barriers (Duran et al., 2021; Jama et al., 2018). However, only a few studies have explored maternal autonomy in infant feeding decision through individual cases. The most basic form of descriptive studies focuses on individuals, contributing to health knowledge, offering educational value, and pointing to the need for changes in clinical practice or prognosis (El-Gilany, 2018; Nissen & Wynn, 2014; Sayre et al., 2017).

An understanding of maternal autonomy in infant feeding decisions is essential for advancing knowledge, shaping maternal–child nursing practices, and designing strategic interventions to strengthen autonomy in breastfeeding. Autonomy refers to an individual's capacity to make decisions about personal well-being. Within the context of maternal and infant health, maternal autonomy directly influences the well-being of the infant (Hirani & Olson, 2016). Therefore, this case study aimed to explore an ethical issue in breastfeeding, focusing on mothers' autonomy in infant feeding decision and how this autonomy is influenced by family and cultural beliefs.

CASE PRESENTATION

A 22-year-old mother with a four-month-old infant participated to show the influence of family advice's on infant feeding practices. This patient was a housewife from a lower-income family, living in a rural area. The mother had completed secondary education when she was 18 years old and currently lives with the grandmother. Feeding practices were assessed using indicators of infant and young child feeding through structured interviews (WHO & UNICEF, 2021). Additionally, all information related to maternal autonomy in making feeding decision, breastfeeding practices, and family influence was collected through in-depth interviews.

Regarding infant feeding, the mother reported continued breastfeeding. However, complementary feeding was also provided to meet nutritional needs. Homemade porridge mixed with soup stock was introduced. The mother observed that the infant stopped crying after being fed, appeared to sleep better, and gained weight. Breastfeeding was limited to morning and evening because the infant was considered full after the additional feeding.

During pregnancy, regular antenatal visits were completed more than four times. After giving birth, there were infrequent visits to the *Posyandu* (Integrated Health Service Post), a community center providing pre- and post-natal health care for women and children under five years old. Visits to the Community Health Centre occurred only when the infant was ill. During these consultations, healthcare professionals advised exclusive breastfeeding and delaying the introduction of solid food until six months of age. The mother admitted that she felt her breast milk was insufficient and continued giving complementary foods to the infant. Feeding decisions were not made independently, as family members, particularly the grandmother, exerted strong influence. The grandmother often recommended giving foods other than breast milk, such as soft meals or formula, in larger amounts to keep the infant full. Her guidance was consistently followed, with reliance placed on her experience and knowledge of infant care. As a result, family advice was prioritized over healthcare recommendations, and feeding practices were largely determined by elderly family members.

RESULTS

Exclusive breastfeeding was not achieved because the grandmother advised early complementary feeding to promote health and growth, as reflected in the mother's statement, "*Grandma told me to give liquid food to my baby so that my baby would be healthy and grow quickly*."

The mother's decision to breastfeed tends to be influenced by the grandmother and the family, relying on the knowledge and experience in infant care of the elderly rather than health professionals. This perspective was expressed in the following statement: "*My grandmother decides what the baby should eat, and I dare not oppose her. My grandmother has better knowledge and experience in child care. Therefore, I always consult my grandmother about my baby's care*."

The infant did not receive exclusive breastfeeding, as complementary foods were introduced at four months of age. The mother fed the infant porridge twice a day. In addition, formula milk was also given to meet the nutritional needs, and the infant was breastfed in the morning and evening. The infant could lie on the stomach and hold the head up. The infant's weight was 7.4 kg, exceeding the standard deviation according to age and suggesting a potential risk of being overweight. Based on the case, several ethical issues were identified, including:

Nutritional needs of the infant (Infant rights)

The infant in this case study was introduced to complementary foods earlier than recommended, contrary to established guidelines. According to the WHO and UNICEF's global recommendation, there were two strategies for optimal infant feeding, namely exclusive breastfeeding for six months and complementary feeding alongside breast milk from six months up to two years (WHO, 2009). Indonesia Health Law No. 36/2009 stated that every infant had a right to get exclusive breastfeeding from birth to six months of age, except in cases where medical indications prevent it.

Mother's Autonomy in Infant Feeding Decision

Autonomy referred to an individual's ability to regulate behaviour as part of developing independence and self-guided action (Collins et al., 1997). Maternal autonomy was typically categorized into four dimensions, namely healthcare, decision-making within the household, movement, and financial autonomy. Healthcare autonomy was defined as a woman's autonomy regarding the infant and healthcare (Saaka, 2020). The results of this case study showed that the mother did not have autonomy to manage her infant's health, particularly in terms of making breastfeeding decision according to the guidelines.

The Influence of Family and Cultural Belief on Maternal Autonomy

Family was the most influential factor in the decision to breastfeed. The influence of family influence was defined as knowledge, opinions, and experiences related to infant

feeding shared by people related by blood or marriage (Street & Lewallen, 2013). In this case, the mother was not yet able to decide independently about feeding the infant. The decision to introduce complementary foods earlier was influenced by the grandmother's advice. Additionally, cultural traditions passed down through generations within the family further reduced maternal autonomy in making a decision about feeding the infant. The mother believed that early complementary feeding would promote the baby's health and growth. This condition contradicts the mandate of the health law no. 35 paragraph 2 that family members, community, and government should support mothers in exclusive breastfeeding by providing adequate time and facilities.

DISCUSSION

This case study explores ethical issues related to breastfeeding, focusing on maternal autonomy in infant feeding decision and the influence of family or cultural beliefs. A previous scoping review identified several ethical issues related to breastfeeding and lactation interventions. These issues included the normative assumptions of motherhood, maternal autonomy and informed choice, information disclosure, balancing risks and benefits, counselling practices, stigma and social context, the ethics of health communication in breastfeeding campaigns, and the ethical acceptability of financial incentives (Subramani et al., 2023). The results of this study were consistent with these issues, particularly regarding maternal autonomy, familial, and cultural impacts on decision-making process.

Maternal autonomy in infant feeding decision

This study found that the mother prioritizes family advice, particularly from the grandmother, over healthcare recommendations when making infant feeding decision. For example, the mother chose early complementary feeding for the infant based on familial guidance, potentially risking malnutrition and undermining exclusive breastfeeding.

Similar results were reported among adolescent mothers in KwaZulu-Natal, South Africa, where mothers did not have autonomy in caring for the babies, including feeding (Jama et al., 2018). However, a Kenyan study showed that mothers had autonomy in feeding the babies without asking others (Schneider et al., 2017). This difference was potentially the result of variations in study timing, design, and cultural characteristics. Maternal autonomy is shaped by factors such as support availability, decision-making competence, and feeding alternatives (Hirani & Olson, 2016). Teenage mothers often face limited autonomy due to financial dependence, lack of knowledge, and insufficient support (Jama et al., 2018). Meanwhile, older mothers tended to search for more information and exercise greater autonomy in infant feeding (Ihudiebube-Splendor et al., 2019).

A qualitative study in Kenya showed that mothers of reproductive and advanced maternal age had considerable autonomy in infant feeding, both breastfeeding and complementary feeding. The mothers felt competent due to the education received from health professionals. Although advice was obtained from mothers and mothers-in-law, autonomy in deciding how to feed the babies was still retained (Schneider et al., 2017).

Every pregnant woman has the right to get accurate information to assist the mother in making informed decision about the most appropriate feeding method. Some choices, such as exclusive breastfeeding, partial breastfeeding, or not breastfeeding at all, may contradict other opinions. The mother could decide what is best for herself and the baby, which could change over time (Sigman-Grant, 2019).

Empowering mothers requires: 1) providing accessible information, 2) offering emotional and practical support, 3) providing a supportive environment through peer counselling, home visit programs, and clinic appointments, and 4) advocating workplace policies that support breastfeeding. Health professionals play a key role in facilitating an informed decision by addressing barriers, such as pain, lifestyle change, and public breastfeeding discomfort, during antenatal care. This strategy also offers alternative support from family and friends to promote breastfeeding (Nelson, 2012). Respecting maternal choices in feeding decision is essential for everyone without condemning, judging, or criticizing mothers. Infant feeding decision is about choices and include the mother's entire social, cultural, and economic structure (Sigman-Grant, 2019).

Family and cultural influences on maternal autonomy

Family and cultural beliefs significantly influence maternal autonomy. Grandmothers are often considered authoritative figures in infant care, and these individuals play a crucial role in shaping feeding practices. Mothers in the study did not oppose advice from grandmothers, as the experience of the elderly was considered more valuable than professional guidance (Jama et al., 2018).

Several factors impact decision-making, including maternal competence, support systems, environmental settings, and the availability of feeding alternatives (Hirani & Olson, 2016). Previous breastfeeding experience and maternal education greatly determine the decision to breastfeed (Ballesta-Castillejos et al., 2020). According to a previous study, family support and maternal knowledge about the benefits of exclusive breastfeeding are solid factors motivating mothers to breastfeed the babies exclusively (Joseph & Earland, 2019). This decision is further shaped by social contexts including husbands, grandmothers, traditional birth attendants, and healthcare professionals. However, the level and the quality of these influences vary depending on an individual's exposure to health promotion regarding breastfeeding, the position in the social hierarchy, and time with the mother (Joseph & Earland, 2019). In cultural contexts, grandmothers play an essential role in helping to establish cultural roles and supporting practices (Jama et al., 2018). The beliefs about feeding babies are passed down through generations, including giving complementary foods early or traditional foods to babies to prevent disease, some of which may be harmful (Buser et al., 2020; Jama et al., 2018).

The early introduction of food or fluids may increase the risk of diarrhoea and malnutrition in an infant. A qualitative study conducted in Padang City, Indonesia, explored the experiences of ten mothers who introduced solid food before the infant reached six months of age. Mashed bananas and commercial infant porridge were the most commonly introduced first foods. The primary reason for early complementary feeding was adherence to hereditary cultural practices (Yeni et al., 2023).

A previous study suggested that health professionals must identify early complementary feeding practices and infant food restrictions influenced by sociocultural influences, as these may contribute to nutritional problems in children later in life (Herman et al., 2024). Consequently, promoting exclusive breastfeeding requires multifaceted strategies,

including health education, counseling, and social support from family, relatives, and friends.

Incorporating cultural perspectives into infant feeding recommendations is crucial for improving practices. Considering the significant role of family and cultural beliefs in mothers' decision-making, healthcare professionals should adopt culturally sensitive methods when providing health education regarding infant feeding. This includes understanding family members' beliefs and opinions about infant feeding before offering recommendations. Furthermore, the participation of family members in nutritional counseling interventions and infant feeding education can strengthen support systems for mothers. According to a previous study, integrating maternal and child health programs within a cultural context can enhance family commitment to infant welfare (Aubel et al., 2004).

Implication for Practice

Maternal autonomy is positively associated with appropriate feeding practices and protecting children from stunting (Saaka, 2020). Previous studies have shown that high maternal autonomy positively impacts the mean height-for-age Z-score (Shroff et al., 2011). Increasing this variable in making decision can positively affect child feeding and child growth (Carlson et al., 2015; Saaka, 2020; Schneider et al., 2017; Shroff et al., 2011).

This study recommends that mothers continue breastfeeding the babies and delay the introduction of complementary feeding until six months. Nurses need to enhance mothers' knowledge about the importance of exclusive breastfeeding, including its impact on infant growth, brain development, immune system enhancement, and health in general. Additionally, exclusive breastfeeding helps prevent various infectious diseases, such as diarrhea and respiratory tract infections. This study also recommends that nurses educate mothers during health facility visits, with the participation of family members, such as grandmothers, husbands, and relatives, to integrate support into the public health system. WHO (2018) showed ten steps for successful breastfeeding, which included 1) establishing health service facility policies, 2) ensuring staff competence, 3) discussing breastfeeding and its management for pregnant women and families, making early contact and breastfeeding of newborns, 5) supporting mothers to initiate, maintain and overcome breastfeeding difficulties, 6) ensuring newborns receive only breast milk without prelacteal feeds, 7) enabling the mother and the infant to remain together and to practise rooming-in 24 hours a day, 8) supporting mothers to recognize and respond to infant's signals to breastfeed, 9) avoiding the provision of pacifiers or artificial teats, and 10) coordinating hospital discharge to ensure continued breastfeeding support.

Strengths and limitations

This study allows for the exploration of maternal autonomy in infant feeding and the influence of family factors on decision-making in greater depth. The rich information and detailed insight contribute to a broader understanding of the context of maternal autonomy in infant feeding. However, there are several limitations associated with this study. As a single case study, the results may not apply widely, limiting external validity and potentially reducing applicability to other settings or populations. Furthermore, the subjective nature of a case study increases the risk of bias, where personal viewpoints or preconceived notions may influence data collection and interpretation.

CONCLUSION

In conclusion, exclusive breastfeeding is essential for an infant, as it fulfills the nutritional needs for optimal growth and development. Breast milk should be provided exclusively until the infant reaches six months of age. Healthcare professionals play a significant role in increasing the achievement of exclusive breastfeeding, with maternal autonomy being a key factor influencing this practice. However, mothers' decision about infant feeding are often affected by social and cultural beliefs. Healthcare professionals should consider including families in exclusive breastfeeding promotion to empower mothers in making independent breastfeeding choices. Mothers also require accurate information and knowledge about infant feeding to make informed decision. In general, the decision of the mother regarding infant feeding deserves respect, as it reflects individual circumstances, cultural influences, and knowledge available at the time.

Declaration of Interest

There is no known conflict of interest to disclose.

Acknowledgment

The authors are grateful to the mother who participated in this study and expressed her experience regarding autonomy in breastfeeding.

Funding

None.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

REFERENCES

Aubel, J., Touré, I., & Diagne, M. (2004). Senegalese grandmothers promote improved maternal and child nutrition practices: The guardians of tradition are not averse to change. *Social Science & Medicine, 59*(5), 945–959. https://doi.org/10.1016/j.socscimed.2003.11.044

Ballesta-Castillejos, A., Gómez-Salgado, J., Rodríguez-Almagro, J., Ortiz-Esquinas, I., & Hernández-Martínez, A. (2020). Factors that influence mothers' prenatal decision to breastfeed in Spain. *International Breastfeeding Journal, 15*(1), Article 97. https://doi.org/10.1186/s13006-020-00341-5

Buser, J. M., Moyer, C. A., Boyd, C. J., Zulu, D., Ngoma-Hazemba, A., Mtenje, J. T., Jones, A. D., & Lori, J. R. (2020). Cultural beliefs and health-seeking practices: Rural Zambians' views on maternal-newborn care. *Midwifery, 85*, Article 102686. https://doi.org/10.1016/j.midw.2020.102686

Carlson, G. J., Kordas, K., & Murray-Kolb, L. E. (2015). Associations between women's autonomy and child nutritional status: A review of the literature. *Maternal & Child Nutrition, 11*(4), 452–482. https://doi.org/10.1111/mcn.12113

Collins, W. A., Gleason, T., & Sesma, A., Jr. (1997). Internalization, autonomy, and relationships: Development during adolescence. In Parenting and children's internalization of values: A handbook of contemporary theory (pp. 78–99). *John Wiley & Sons*.

Direktorat Statistik Kesejahteraan Rakyat. (2023). *Profil statistik kesehatan 2023*. Badan Pusat Statistik.

Doğan, S., Sert, Z. E., & Topçu, S. (2019). Practices, beliefs and attitudes about complementary feeding among Turkish mothers: A qualitative study. *Progress in Nutrition, 21*(4), 769–775. https://doi.org/10.23751/pn.v21i4.7791

Duran, M. C., Bosire, R., Beima-Sofie, K. M., Igonya, E. K., Aluisio, A. R., Gatuguta, A., Mbori-Ngacha, D., Farquhar, C., Stewart, G. J., & Roxby, A. C. (2021). Women's autonomy in infant feeding decision-making: A qualitative study in Nairobi, Kenya. *Maternal & Child Health Journal, 25*(5), 724–730. https://doi.org/10.1007/s10995-021-03119-1

El-Gilany, A.-H. (2018). What is case report? *Asploro Journal of Biomedical and Clinical Case Reports, 1*, 7–9.

Herman, H., Yeni, F., C, D., & Susianty, S. (2024). The relationship between maternal factors and the timely initiation of complementary feeding for infants, in West Sumatera Province, Indonesia. *Central European Journal of Paediatrics, 20*(1). https://doi.org/10.5457/p2005-114.365

Hirani, S. A., & Olson, J. (2016). Concept analysis of maternal autonomy in the context of breastfeeding. *Journal of Nursing Scholarship, 48*(3), 276–284. https://doi.org/10.1111/jnu.12211

Ihudiebube-Splendor, C. N., Okafor, C. B., Anarado, A. N., Jisieike-Onuigbo, N. N., Chinweuba, A. U., Nwaneri, A. C., Arinze, J. C., & Chikeme, P. C. (2019). Exclusive breastfeeding knowledge, intention to practice and predictors among primiparous women in Enugu South-East, Nigeria. *Journal of Pregnancy, 2019*, Article 9832075. https://doi.org/10.1155/2019/9832075

Jama, N. A., Wilford, A., Haskins, L., Coutsoudis, A., Spies, L., & Horwood, C. (2018). Autonomy and infant feeding decision-making among teenage mothers in a rural and urban setting in KwaZulu-Natal, South Africa. *BMC Pregnancy and Childbirth, 18*(1), Article 52. https://doi.org/10.1186/s12884-018-1675-7

Joseph, F. I., & Earland, J. (2019). A qualitative exploration of the sociocultural determinants of exclusive breastfeeding practices among rural mothers, North West Nigeria. *International Breastfeeding Journal, 14*, Article 38. https://doi.org/10.1186/s13006-019-0231-z

Kementrian Kesehatan Republik Indonesia. (2022). *Profil kesehatan Indonesia tahun 2022*. Kementerian Kesehatan RI.

Neifert, M., & Bunik, M. (2013). Overcoming clinical barriers to exclusive breastfeeding. *Pediatric Clinics of North America, 60*(1), 115–145. https://doi.org/10.1016/j.pcl.2012.10.001

Nelson, A. M. (2012). A meta-synthesis related to infant feeding decision making. *The Academy of Breastfeeding Medicine, 7*(3), 247–252.

Nguyen, N. T., Do, H. T., & Pham, N. T. V. (2021). Barriers to exclusive breastfeeding: A cross-sectional study among mothers in Ho Chi Minh City, Vietnam. *Belitung Nursing Journal, 7*(3), 171–178. https://doi.org/10.33546/bnj.1382

Nissen, T., & Wynn, R. (2014). The clinical case report: A review of its merits and limitations. *BMC Research Notes, 7*, Article 264. https://doi.org/10.1186/1756-0500-7-264

Saaka, M. (2020). Women's decision-making autonomy and its relationship with child feeding practices and postnatal growth. *Journal of Nutritional Science, 9*, Article e38. https://doi.org/10.1017/jns.2020.30

Sayre, J. W., Toklu, H. Z., Ye, F., Mazza, J., & Yale, S. (2017). Case reports, case series - from clinical practice to evidence-based medicine in graduate medical education. *Cureus, 9*(8), Article e1546. https://doi.org/10.7759/cureus.1546

Schneider, L., Ollila, S., Kimiywe, J., Lubeka, C., & Mutanen, M. (2017). Is competence enough to enable Kenyan mothers to make good infant and young child feeding decisions? *Maternal & Child Nutrition, 13*(4), Article e12422. https://doi.org/10.1111/mcn.12422

Shroff, M. R., Griffiths, P. L., Suchindran, C., Nagalla, B., Vazir, S., & Bentley, M. E. (2011). Does maternal autonomy influence feeding practices and infant growth in rural India? *Social Science & Medicine, 73*(3), 447–455. https://doi.org/10.1016/j.socscimed.2011.05.040

Sigman-Grant, M. (2019). Infant feeding decisions—"What's right for me and my baby?" *Nutrition Today, 54*(3), 101–106. https://doi.org/10.1097/nt.0000000000000339

Street, D. J., & Lewallen, L. P. (2013). The influence of culture on breast-feeding decisions by African American and white women. *The Journal of perinatal & neonatal nursing, 27*(1), 43–51. https://doi.org/10.1097/JPN.0b013e31827e57e7

Subramani, S., Vinay, R., März, J. W., Hefti, M., & Biller-Andorno, N. (2024). Ethical issues in breastfeeding and lactation interventions: A scoping review. *Journal of Human Lactation, 40*(1), 150–163. https://doi.org/10.1177/08903344231215073

Tran, V., Reese Masterson, A., Frieson, T., Douglass, F., Pérez-Escamilla, R., & O'Connor Duffany, K. (2023). Barriers and facilitators to exclusive breastfeeding among Black mothers: A qualitative study utilizing a modified barrier analysis approach. *Maternal & Child Nutrition, 19*(1), Article e13428. https://doi.org/10.1111/mcn.13428

World Health Organization. (2009). *Infant and young child feeding: Model chapter for textbooks for medical students and allied health professionals*. WHO.

World Health Organization. (2018). *Ten steps to successful breastfeeding*. WHO. https://www.who.int/teams/nutrition-and-food-safety/food-and-nutrition-actions-in-health-systems/ten-steps-to-successful-breastfeeding

World Health Organization & United Nations Children's Fund. (2021). *Indicators for assessing infant and young child feeding practices: Definitions and measurement methods*. https://creativecommons.org/licenses/by-nc-sa/3.0/igo

World Health Organization & United Nations Children's Fund. (2023). *Global breastfeeding scorecard 2023: Rates of breastfeeding increase around the world through improved protection and support*. https://www.unicef.org/media/150586

Yeni, F., Herman, H., & Deswita, D. (2023). Preliminary reports on the experiences of mothers in the early introduction of complementary feeding to their infants: A phenomenological study. *Central European Journal of Paediatrics, 19*, Article 24. https://doi.org/10.5457/p2005-114.333

Pediomaternal Nursing Journal

Review Article

Mapping the conceptual framework of psychological well-being among pregnant adolescents and influential factors: A scoping review

Yanti Puspita Sari[1*], Yeltra Armi[2], Chung-Ying Lin[3,45]

ABSTRACT

Introduction: Pregnancy in adolescents has the potential risk of disrupting psychological well-being. Understanding how psychological well-being is conceptualized and assessed among adolescents, as well as identifying influential factors, is essential for developing appropriate and effective interventions. This review aims to map the conceptual approaches and assessment methods used to evaluate psychological well-being among pregnant adolescents and to identify influential factors associated with psychological well-being during pregnancy.

Methods: The study procedures were carried out using a scoping review that followed the Joanna Briggs Institute approach. Literature searches included terms from Emtree, MeSH, and CINAHL headings across 5 databases, including Embase, Medline (Ovid), CINAHL, Cochrane, and ScienceDirect until April 2024. After the search, a total of 8 studies were included, which met the needed criteria.

Results: This review identified 5 conceptual approaches used to understand and assess psychological well-being in pregnant adolescents, namely (i) self-esteem, (ii) measures on anxiety, depression, emotional bonding, general positive affect, and the absence of psychological distress, (iii) discrimination experiences, self-perceptions, and social barriers experienced, (iv) positive and negative mood concepts, and (v) positive psychological functioning. The results showed that several factors were associated with psychological well-being of pregnant adolescents, including educational level, neighborhood support, financial constraints, rejection from close people, trust, and attachment with caregiver.

Conclusion: This review shows the need for a more comprehensive and multidimensional approach to conceptualizing and assessing psychological well-being in pregnant adolescents. The complexity of this issue demands a thorough and inclusive approach that focuses on individual and social factors.

Keywords: adolescent pregnancy; psychological well-being; adolescent growth and development

INTRODUCTION

According to World Health Organization (WHO), the rate of pregnancy among adolescents exceeds 21 million annually, particularly in low middle-income countries (LMICs). In addition, girls aged 15 to 19 account for 50% of unintended pregnancy (WHO, 2019). The UNICEF (United Nations International Children's Emergency Fund) (2022) also estimated that 13% of girls and young women gave birth before age 18.

Pregnant adolescents often bear a distinct hardship due to the need to assume adult tasks and responsibilities before reaching the appropriate developmental stage. In several countries around the world, premarital pregnancy is considered a careless choice and immoral behavior, exposing pregnant adolescents to criticism and marginalization (Govender et al., 2020; Manhica et al., 2021; Osok et al., 2018). These societal demands, as well as the physical and psychological changes of pregnancy, pose significant social, economic, and cultural barriers (Recto & Champion, 2018).

Several studies have shown that pregnancy causes adolescents to experience socially unpleasant situations and has the potential to disrupt the development of good social-emotional relationships with people (Bermea et al., 2016; Chambers & Toller Erausquin, 2015; Moseson et al., 2019). Pregnant adolescents often report feelings of regret, guilt, loneliness, alienated, failure, and frustration due to emotional and psychosocial pressure (Govender et al., 2020; Olajubu et al., 2021). Affected individuals also drop out of school due to embarrassment and a lack of empathy from parents, teachers, and peers (Bermea et al., 2016).

Various studies on pregnant adolescents have primarily focused on the mental or psychological disorders caused by the transition to motherhood. Existing literature also focuses on and emphasizes that pregnant adolescents tend to experience a high incidence of psychosocial disorders, such as low self-esteem, self-isolation, self-destructive behavior, and suicide (Muso Fubam et al., 2019; Webb et

***Correspondence**: Yanti Puspita Sari (yantipsari@nrs.unand.ac.id)
[1]Maternal and Child Health Nursing Departement, Faculty of Nursing, Universitas Andalas, Padang, Indonesia
[2]Faculty of Midwifery, Universitas Prima Nusantara Bukittinggi, Bukittinggi, Indonesia
[3]Institute of Allied Health Sciences, College of Medicine, National Cheng Kung University, Tainan, Taiwan
[4]Biostatistics Consulting Center, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan
[5]School of Nursing, College of Nursing, Kaohsiung Medical University, Kaohsiung, Taiwan

Volume 11 (1): 131-137
http://dx.doi.org/10.20473/pmnj.v11i2.66872

e-ISSN: 2355-1577 | p-ISSN: 2656-4629

Article History
Received: December 14, 2024 | Revised: March 08, 2025 | Accepted: July 24, 2025| Published : September 15, 2025

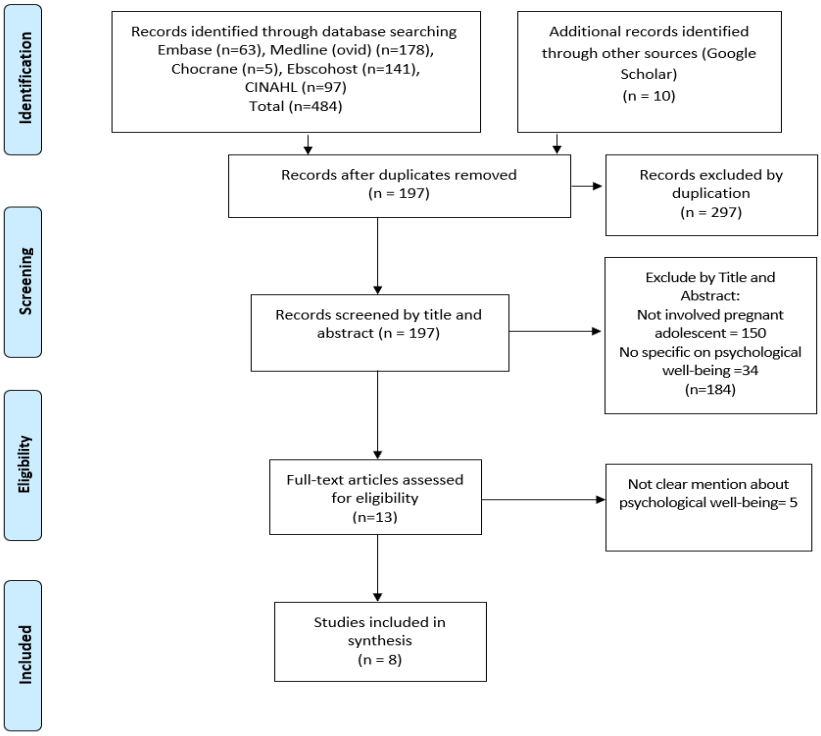

Figure 1. PRISMA Flow Diagram

al., 2023). These individuals are more likely to experience postpartum depression, which is frequently associated with their challenges in adjusting to new roles as mothers (Ladores & Corcoran, 2019; Lucas et al., 2019). Consequently, interventions are often directed toward reducing mental and psychological health issues.

As defined by WHO, health is not solely the absence of physical and mental disorders but also comprises psychological well-being. Over the years, there have been extensive studies on psychological well-being in a variety of vulnerable populations, including those living with HIV (Human Immunodeficiency Virus) (Rzeszutek et al., 2021), people with mental disorders (Browne et al., 2017), cancer survivors (Abu-Helalah et al., 2014; Yousefi Afrashteh & Masoumi, 2021), and caregivers of mental illness patients (Gupta et al., 2015). Despite the existing literature, a conceptual approach to assess psychological well-being, an abstract term that describes and defines multiple aspects of mental health, has not been well defined or investigated in pregnant adolescents population. Therefore, this review aims to map the existing body of studies by identifying and describing the conceptual approaches and assessment methods/tools used to examine psychological well-being among pregnant adolescents, and exploring influential factors. The results are expected to bridge knowledge gaps in the field and lay the groundwork for creating evidence-based policies that can enhance well-being.

The current review was guided by the question “What does the literature reveal about the concept of psychological well-being among pregnant adolescents, and what factors are associated with their psychological well-being during pregnancy?”

METHODS

Study Design

This Scoping Review used a framework by The Joanna Briggs Institute Approach, which consisted of 9 stages, namely 1) Identifying, defining, and aligning the objective/s and question/s, 2) Developing and aligning the inclusion criteria with the objective/s and question/s, 3) Describing the planned approach to evidence searching, selection, data extraction, and presentation of the evidence, 4) Searching for the evidence, 5) Selecting the evidence, 6) Extracting the evidence, 7) Analysis of the evidence, 8) Presentation of the results, 9) Summarizing the evidence concerning the purpose of the review, making conclusions and noting any implications of findings.

Search Strategy

The databases used to conduct the literature search were selected based on the topic of adolescent pregnancy. This included Embase, Medline (Ovid), CINAHL Ebscohost, Cochrane, and ScienceDirect. A literature search using keywords and vocabulary control in Emtree, MeSH, and CINAHL subject headings, inception up to April 2024. The search terms included "adolescent OR teenage pregnancy" OR "pregnancy in adolescent"; "psychosocial OR maternal support" OR "psychosocial healthcare" and "psychological well-being" OR "mental well-being" OR "mental health” OR “welfare.”

Eligibility Criteria

The relevant literature included in the review must meet the inclusion criteria, as follows: (1) Participants in the study were pregnant adolescents aged 15 to 19 years. (2)

Studies were addressed by either (a) the conceptualization of psychological well-being (such as how psychological well-being was defined, described, or measured in the study), or (b) the factors associated with psychological well-being among pregnant adolescents, or both. (3) The study design used could be quantitative (cross-sectional, case-control, cohort, randomized controlled trial [RCT]) or qualitative. (4) Available in full text.

All articles underwent 2 screening stages, namely title and abstract screening, followed by full-text screening, and 2 authors were involved in this screening process.

Study Selection

The EndNote X9, as bibliographic management software, was used to organize bibliographies and references and check for duplicates. In this study, 2 independent authors hand-checked the reference lists. First, title and abstract screening were conducted to identify the potentially eligible studies. Second, full-text screening was carried out to assess eligibility based on the inclusion and exclusion criteria. A necessary consultation with the third author was performed to resolve any disagreement through discussion.

Data Extraction

Independently, first author extracted the data, while second author verified its accuracy. Experts author had to be involved to resolve disagreements through debate. The writers discussed any problems with ambiguity in this study. Furthermore, the authors' names, study location, participant count, screening instrument, findings, comparison of intervention and control therapy, duration of follow-up, and conclusions were among the details extracted from the study.

RESULTS

Characteristic of the Included Study

The initial database search identified 484 references, with 10 additional studies identified through manual reference list searches. After deleting 297 duplicated articles, 197 studies remained. The titles and abstracts for the articles were screened, and 13 studies were pulled for full-text retrieval. A total of 8 studies were finally included in the review (Figure 1), indicating a diverse range of studies. A total of 5 of the studies were cross-sectional, 2 were qualitative, and 1 was quasi-experimental. Approximately 703 pregnant adolescents were included in the 8 studies. Most studies were conducted in Asia (n=4), consisting of some studies implemented in the United States (n=3), Malaysia (n=2), Indonesia (n=1), Turkey (n=1), and Africa (n=1).

Descriptions of the Concepts of Psychological Well-Being were used in Pregnant Adolescents

This review identified 5 conceptual approaches used in the primary studies, which were included in this scoping review to explain and assess psychological well-being among pregnant adolescents. One conceptual approach, used by Stevenson (1990) and Akgör et al. (2022), emphasized self-esteem as a key dimension of psychological well-being. These studies used Rosenberg Self-Esteem Scale (RSES) as the assessment tool. Self-esteem was defined as individuals' overall sense of self-worth and believed to shape behaviors, emotions, and attitudes.

A second approach was applied by Nordin and Wan Yunus (2012) in a study conducted in a Malaysian shelter for pregnant adolescents, adopting a broader mental health framework. This comprised both psychological well-being and psychological distress. Mental Health Inventory (MHI) developed by Heubeck and Neill (2000) was used to assess components such as anxiety, depression, positive affect, emotional bonding, and psychological distress. Psychological well-being was categorized into high, moderate, and low levels based on mental health stability and social functioning (Nordin and Wan Yunus, 2012).

A third study by Nnodim and Albert (2016), conducted in Malaysia, did not explicitly present a defined conceptual framework for psychological well-being. However, the study focused on aspects such as self-esteem, fear of the unknown, and feelings of inadequacy, which were indicators of psychological well-being challenges in pregnant adolescents.

The fourth approach was based on the widely recognized Ryff and Keyes' (1995) model of psychological well-being, which was used in studies by Kheswa and Pitso (2014) and Lena et al. (2021). This model assessed well-being through 6 key dimensions, namely self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth.

Lastly, Tung et al. (2021) used a more simplified conceptual approach by focusing on 2 emotional indicators of psychological well-being during pregnancy, namely positive and depressive mood. These indicators reflected the emotional state of pregnant adolescents and were used to evaluate their overall psychological well-being.

Factors Associated with Psychological Well-being among Pregnant Adolescents

This review revealed several significant factors that influenced psychological well-being of pregnant adolescents. Adolescents with higher levels of education were observed to have better psychological well-being. Social support was favorably associated with psychological well-being, particularly from family and partners. Support and trust from carers were also found to positively impact adolescents' psychological well-being. However, it was consistently observed that financial constraints had a negative impact, leading to increased stress and lower overall well-being.

DISCUSSION

Studies on psychological well-being among pregnant adolescents remained limited, as evidenced by the small number of studies included in this review. Even more interestingly, there was considerable variability in the conceptual approaches used to define and assess psychological well-being in this population. The 5 conceptual approaches were (i) using self-esteem; (ii) using measures on anxiety, depression, emotional bonding, general positive affect, and the absence of psychological distress; (iii) using discrimination experiences, self-esteem perceptions, and social barriers experienced; (iv) using positive and negative mood concepts; (v) using positive psychological functioning as outlined in Ryff's multidimensional model. This result provided a complex understanding that the conceptual approaches of psychological well-being in studies of pregnant adolescents were very diverse and significantly different in scope and focus. Therefore, an analysis was needed regarding the limitations of using these conceptual approaches.

Table 1. Summary of Include Study

No	Author (Year), Location	Methodology and Population	Aims	Conceptual Approach of Psychological Well-being	Measurement Tools Used	Factors Associated with Psychological Well-being
1	Nordin et al. (2012), Malaysia	Descriptive analytic, 50 pregnant adolescents	To identify the level of psychological wellbeing To examine whether there are significant differences between psychological well-being and demographic variables, namely, age, hometown and educational level among the pregnant unwed mothers.	Based on general mental health and well-being; balance of distress and positive affect	MHI	Social support from the health worker.
2	Pitso et al. (2014), Africa	Cross sectional study, 106 pregnant adolescents	To determine the psycho-social wellbeing of pregnant teenagers.	Ryff's psychological well-being model (6 domains)	Ryff's Psychological Questionnaire	Educational level, support financial and emotional from partner, self-confident and communication with caregivers
3	Nnodim & Albert (2016), Malaysia	Cross sectional study, 120 pregnant adolescents	To determine the effect of teenage pregnancy on the academic advancement and socio-psychological wellbeing of women	Not clearly stated; focused on self-esteem, fear of unknown, inadequacy	Not specified	Emotional instability, self-perception
4	Stevenson (1999), USA	Cross sectional study, 110 single pregnant teens	To examined the role of social support and relationship quality on the well-being of pregnant adolescents	Psychological well-being conceptualized as self-esteem	Rosenberg Self-Esteem Scale	Support from parent, partner
5	Tung et al. (2021), USA	Longitudinal study, 135 adolescent mothers	To investigate family and neighborhood factors linked to social connectedness that predict psychological wellbeing during adolescent pregnancy and offspring outcomes.	Psychological well-being described via mood states (positive/depressive mood)	PANAS	Attachment with caregiver during pregnancy
6	Lena et al. (2021), Indonesia	Qualitative Research, 3 single adolescent mothers	To determine the psychological well-being of single mother adolescents	Ryff's psychological well-being model (6 domains)	Ryff's Psychological Questionnaire	Not reported
7	Akgör et al. (2022), Turkey	Cross-sectional study, 100 pregnant adolescents	To compare psychiatric profiles and self-concept between Turkish and refugee pregnant adolescents	Psychological well-being conceptualized as self-esteem	Rosenberg Self-Esteem tools	Not reported
8	Griffin (1994), USA	Quasi-experimental study, 79 healthy pregnant adolescents	To evaluate the effects of participation in a 6-week aerobic exercise program on pregnant adolescents' depression, self-esteem, and physical discomforts of pregnancy.	Psychological well-being conceptualized as self-esteem	CSEI	Not reported

Note: USA: United States of America; MHI: Mental Health Inventory; PANAS: Positive and Negative Affect Schedule; CSEI: Coopersmith's Self-Esteem Inventory

The first conceptual approach used to understand psychological well-being among pregnant adolescents was through self-esteem concept, as measured by instruments such as RSES and Coopersmith's Self-Esteem Inventory (CSEI). RSES was used by Stevenson (1990), and the Coopersmith Self-Esteem Inventory was used by Griffin (1994). 29 RSES assessments consisted of 10 items, including self-esteem, the stability of self-concept, faith in people, sensitivity to criticism, depressive affect, daydreaming, psychosomatic symptoms, interpersonal threat, participation in discussions, parental interest, relationship with father, and psychic isolation. This conceptual approach assumed that having a high score of self-esteem leads to psychological well-being. Meanwhile, CSEI consisted of 4 domains, including: General Self-Esteem, Social Self-Peer Relationships, Home and Family Relationships, and Academic and School Performance. Although both approaches use the term "self-esteem", they differ in the domains used to measure self-esteem itself. Rosenberg self-esteem emphasized a broader domain, while Coopersmith's Self-Esteem was a more specific domain.

Self-esteem refered to how individuals evaluated their worth and was often used in assessing psychological well-

being. However, this approach was not very appropriate as it only covered 1 dimension and had a narrow meaning. The conceptual approach of self-esteem, as used by both RSEM and CSEI, was a general one. This suggested that when it was related to assessing psychological well-being of pregnant adolescents, it was not capturing their complete challenges. Furthermore, this could have a significant impact on the provision of interventions, leading to those that were not appropriate, effective, or comprehensive.

A study by Nordin et al. (2012) in Malaysia adopted a broader conceptual approach based on Heubeck and Neill's (2000) framework, which was significantly different from Griffin (1994) and Stevenson (1990). This defined psychological well-being primarily in terms of self-esteem. The approach conceptualized psychological well-being as the absence of anxiety, depression, and psychological distress, along with the presence of emotional bonding and general positive affect. Accordingly, psychological well-being in their study was assessed using MHI, which focused on a wide enough scope of the assessment to provide meaning to psychological well-being. Although quite comprehensive, this concept still had some limitations, which were related to the social dimensions of psychological well-being. The Heubeck and Neill paradigm, as applied in this context, could not capture the other important factors, such as social support, community involvement, and interpersonal relationships, which were crucial components of pregnant adolescents' psychological well-being and overall mental health.

The study by Nnodim and Albert (2016) took a unique approach to understanding psychological well-being of pregnant adolescents. In a field where the definition of psychological well-being was not always clear, this study focused on measuring experiences of discrimination, perceptions of self-esteem, and social barriers faced by adolescent mothers. The study observed that experiences of discrimination could lead to increased psychological distress and decreased self-esteem, which were crucial components of well-being. Similarly, self-esteem, a predictor of psychological health, influenced how individuals were perceived and their abilities. While these aspects could not fully capture psychological well-being, in terms of personal growth and autonomy, in addition to discrimination, self-esteem, and social barriers, the study's results were significant in understanding psychological well-being of pregnant adolescents.

Tung et al. (2021) observed that positive and negative moods were used to measure psychological well-being. This approach emphasized the subjective perception of the individual's "mood." The measuring instrument used was the Positive and Negative Affect Schedule (PANAS), a tool used to capture a person's affective state through 2 dimensions, namely Positive Affect (PA) and Negative Affect (NA) simultaneously. Using this tool to measure a person's psychological well-being had several weaknesses, particularly in the context of pregnant adolescents. Rapid environmental changes and stimuli from the surrounding environment could quickly change mood. The use of this approach to measure well-being of pregnant adolescents had been observed to have many weaknesses, where PANAS could not capture long-term changes in psychological well-being of pregnant adolescents, which was influenced by several factors, such as internal factors, their closest relationships, and relationships with the broader environment.

In comparison to other previous conceptual approaches, psychological well-being proposed by Ryff was the most complete and clear, describing and assessing pregnant adolescents' psychological well-being (Ryff, 1989; Ryff, 2014). According to Ryff, psychological well-being was centered around achieving happiness and life satisfaction through positive psychological functioning. Ryff defined psychological well-being as a condition in which individuals exhibit positive attitudes towards others, could regulate their attitudes and behavior without any pressure from others, were independent, and had the opportunity to improve their lives for the better in the future. Psychological well-being was assessed across 6 domains, namely self-acceptance, positive relationships with others, autonomy, environmental mastery, personal growth, and purpose in life (Keyes, 1995; Ryff, 1989). These were very important for pregnant adolescents' transitioning to motherhood (Pitso, 2014).

Ryff's psychological well-being offered a holistic understanding of what it suggested to be psychologically healthy among this population. Furthermore, the comprehensive approach not only emphasized the absence of mental distress but also indicated positive functioning and fulfillment across multiple aspects of life (Ryff, 2014). A psychologically well-off individual experienced autonomy and could make independent decisions without external influence. These individuals also had a sense of purpose in life, resulting in a clear direction and meaning in their existence. Such an individual was free to make decisions without pressure from others, could use all available resources in their environment for self-development, maintained positive relationships, and accepted all aspects of themselves.

The use of this conceptual approach in the population of adolescent mothers and understanding these dimensions was particularly relevant, could help nurses and healthcare providers anticipate potential health risks for pregnant adolescents when these domains were disrupted. For instance, those lacking a sense of purpose in life could be more susceptible to depression, mood disorders, and even suicidal risk. Adolescents who lacked autonomy experienced frustration and stress under the influence of others. Furthermore, pregnant adolescents with poor social relationships struggled to receive the positive support essential during this transition. Recognizing these dimensions allowed healthcare providers to address specific areas of well-being, providing targeted support to reduce these risks.

In this review study, psychological well-being of pregnant adolescents was found to vary and influenced by educational, social support received from close people such as parents and husbands/partners, trust and attachment with health workers, and financial conditions. Pitso et al (2014) reported that the higher the level of education, the better psychological well-being of adolescents. Pregnant adolescents with a higher academic level were assumed to exhibit better problem-solving and critical-thinking skills, which influenced the development of an adaptive mindset. The school allowed individuals to interact with a broader social environment, various personalities, and could encounter more problems (Verhoeven et al., 2018). Furthermore, formal and non-formal education increased cognitive function, life satisfaction, and self-confidence, which indicated the educational contribution to improving individual well-being (Noble et al., 2020).

Social support received from close people was also positively correlated with adolescents' psychological well-being. Tung et al. (2021) reported that pregnant adolescents who received positive emotional support from their social environment tended to experience positive mood during pregnancy, which affected their capability in stress regulation and improved sense of control over challenges. According to Pitso et al. (2014), pregnant adolescents who received adequate financial support from partners had higher psychological well-being. Adequate financial support was assumed to reduce

financial stress and create a sense of security and stability among pregnant adolescents. Furthermore, it was important to note that the role of the father or partner in providing emotional and financial support significantly influenced the well-being of pregnant adolescents.

A study by Nordin et al (2012) emphasized the importance of support from health workers. Pregnant adolescents living in shelters reported that comprehensive support from health workers and social practitioners at the shelter made adolescents feel happier and relatively emotionally stable. Through this finding, it was observed that social support was a crucial factor in building resilience among pregnant adolescents during the transition process to motherhood.

Another factor that also played a significant role in psychological well-being of pregnant adolescents was financial constraints (Pisto et al, 2014; Lena et al., 2021). One of the main obstacles and issues when adolescents were pregnant was their joblessness, having a husband who is also unemployed, or being manual laborers. This had implications for their ability to meet their daily needs. Financial tension had an impact on increasing psychological stress.

Study Gaps and Implications for Further Study

This review identified 3 key gaps. First, the conceptual approaches to defining and measuring psychological well-being among pregnant adolescents remained fragmented. Therefore, a conceptual approach for determining psychological well-being of adolescent mothers through an analysis of their unique demands and life obstacles must be developed. Second, there was no comprehensive framework that integrated educational factors, social support, and financial conditions into the assessment of psychological well-being of pregnant adolescents. These factors were fragmented from several studies using different approaches, thereby limiting the understanding of how these factors interacted with each other in the socio-ecological context of adolescents comprehensively. Third, the previous studies primarily focused on cross-sectional assessments of pregnant adolescents' psychological well-being, which could not fully capture the potential change over time of psychological well-being across different stages of the perinatal period.

Future studies must explore unique aspects of psychological well-being that were relevant to pregnant adolescents' age, developmental, and social context. This study guided the modification of psychological well-being concepts by providing insights into the specific needs and challenges of pregnant adolescents, making it more context-sensitive. Developmental self-report measures of psychological well-being specific to pregnant adolescents were essential to ensure accurate capture of psychological well-being among this population. Intervention study developments were also based on adapted dimensions of psychological well-being, such as programs focusing on strengthening autonomy and self-acceptance.

CONCLUSION

In conclusion, the results of this review emphasize the importance of understanding psychological well-being of pregnant adolescents as a complex conceptual approach influenced by several factors. Psychological well-being is assessed using different conceptual approaches, such as self-esteem, emotional state, experiences of discrimination, and positive psychological functioning. This study also reveals that educational attainment, social support, financial constraints, and relationships with caregivers and healthcare providers significantly impact well-being. Future studies must focus on developing comprehensive models and assessment tools that consider the complex socio-ecological factors affecting pregnant adolescents, addressing both internal psychological factors and external social and economic conditions. This approach enables the design of more effective interventions to improve psychological well-being of these individuals. Furthermore, it is required to adopt longitudinal methodologies, studying how well-being grows during pregnancy, childbirth, and early parenthood among pregnant adolescents.

Declaration of Interest

The authors declare no conflicts of interest.

Acknowledgment

The authors are grateful to the Kun-Yen Medical Library, National Cheng Kung University, Tainan, Taiwan, for literature search advice.

Funding

This study did not receive any specific grant from funding agencies in the commercial, public, or not-for-profit sectors.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

REFERENCES

Abu-Helalah, M., Al-Hanaqta, M., Alshraideh, H., Abdulbaqi, N., & Hijazeen, J. (2014). Quality of life and psychological well-being of breast cancer survivors in Jordan. *Asian Pacific Journal of Cancer Prevention, 15*(14), 5927-5936. https://doi.org/10.7314/apjcp.2014.15.14.5927

Akgör, U., Ekinci, Ö., Soyak, B., & Kuru, O. (2022). Psychological Well-being among Refugee Pregnant Adolescents: A Controlled Study from Turkey. *Eastern Journal Of Medicine, 27*(1), 119-125. https://doi.org/10.5505/ejm.2022.98975

Bermea, A. M., Toews, M. L., & Wood, L. G. (2018). "Students getting pregnant are not gonna go nowhere": Manifestations of stigma in adolescent mothers' educational environment. *Youth & Society, 50*(3), 423-436. https://doi.org/10.1177/0044118x16661734

Browne, J., Penn, D. L., Meyer-Kalos, P. S., Mueser, K. T., Estroff, S. E., Brunette, M. F., Correll, C. U., Robinson, J., Rosenheck, R. A., Schooler, N., Robinson, D. G., Addington, J., Marcy, P., & Kane, J. M. (2017). Psychological well-being and mental health recovery in the NIMH RAISE early treatment program. *Schizophrenia Research, 185*, 167-172. https://doi.org/10.1016/j.schres.2016.11.032

Chambers, B. D., & Toller Erausquin, J. (2015). The promise of intersectional stigma to understand the complexities of adolescent pregnancy and motherhood. J*ournal of Child and Adolescent Behaviour, 3*(5), Article 249. https://doi.org/10.4172/2375-4494.1000249

Govender, D., Naidoo, S., & Taylor, M. (2020). "I have to provide for another life emotionally, physically and financially": Understanding pregnancy, motherhood and the future aspirations of adolescent mothers in KwaZulu-Natal South, Africa. *BMC Pregnancy and Childbirth, 20*(1), Article 620. https://doi.org/10.1186/s12884-020-03319-7

Griffin, D. K. (1994). Aerobic exercise, psychological well-being, and physical discomforts during adolescent pregnancy. *Research in Nursing & Health, 17*(4), 253-263.

Gupta, A., Solanki, R., Koolwal, G., & Gehlot, S. (2015). Psychological well-being and burden in caregivers of patients with schizophrenia. *International Journal of Medical Science and Public Health, 4*(1), 53-59. https://doi.org/10.5455/ijmsph.2015.0817201416

Heubeck, B. G., & Neill, J. T. (2000). Confirmatory Factor Analysis and Reliability of the Mental Health Inventory for Australian Adolescents. *Psychological Reports, 87*, 431-440. https://doi.org/10.2466/pr0.2000.87.2.431

Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology, 69*(4), 719-727.

Kheswa, J. G., & Pitso, T. J. (2014). Psychological well-being and sexual behaviour of South African teenage mothers: An overview. *Mediterranean Journal of Social Sciences, 5*(10), 563-571. https://doi.org/10.5901/mjss.2014.v5n10p563

Ladores, S., & Corcoran, J. (2019). Investigating postpartum depression in the adolescent mother using 3 potential qualitative approaches. *Clinical Medicine Insights: Psychiatry, 13*, 1-6. https://doi.org/10.1177/1179556519884042

Lena, A. T., Damayanti, Y., & Benu, J. M. Y. (2021). Our stories: A woman, a teenager, a single mother psychological well-being of a single mother adolescents. *Annals of Epidemiology, 3*(3), 360-380. https://doi.org/10.1016/j.annepidem.2008.03.006

Lucas, G., Olander, E. K., Ayers, S., & Salmon, D. (2019). No straight lines - young women's perceptions of their mental health and wellbeing during and after pregnancy: A systematic review and meta-ethnography. *BMC Women's Health, 19*(1), Article 152. https://doi.org/10.1186/s12905-019-0848-5

Manhica, H., Kidayi, P., Carelli, I., Gränsmark, A., Nsubuga, J., George-Svahn, L., Mattson, J., & Björling, G. (2021). Promoting sustainable health and wellbeing for pregnant adolescents in Uganda – A qualitative case study among health workers. *International Journal of Africa Nursing Sciences, 14*, Article 100306. https://doi.org/10.1016/j.ijans.2021.100306

Moseson, H., Mahanaimy, M., Dehlendorf, C., & Gerdts, C. (2019). "...Society is, at the end of the day, still going to stigmatize you no matter which way": A qualitative study of the impact of stigma on social support during unintended pregnancy in early adulthood. *PLoS One, 14*(5), Article e0217308. https://doi.org/10.1371/journal.pone.0217308

Muso Fubam, R., Ademola Odukogbe, A.-T., & David Dairo, M. (2019). Psychological and social effects of pregnancy in unmarried young women in Bui, Northwest, Cameroon. *American Journal of Biomedical and Life Sciences, 7*(6), 123-130. https://doi.org/10.11648/j.ajbls.20190706.21

Nnodim, A., & Albert, C. (2016). Effects of teenage pregnancy on the academic and socio-psychological well being of rural women in Etche ethnic nationality, Rivers State. *International Journal of Asian Social Science, 6*(7), 406-411. https://doi.org/10.18488/journal.1/2016.6.7/1.7.406.411

Noble, C., Medin, D., Quail, Z., Young, C., & Carter, M. (2021). How does participation in formal education or learning for older people affect wellbeing and cognition? A systematic literature review and meta-analysis. *Gerontology & Geriatric Medicine, 7*, 1-15. https://doi.org/10.1177/2333721420979306

Nordin, N., Wahab, R. A., & Yunus, F. W. (2012). Psychological well-being of young unwed pregnant women: Implications for extension education and programs. *Procedia - Social and Behavioral Sciences, 68*, 700-709. https://doi.org/10.1016/j.sbspro.2012.12.260

Olajubu, A. O., Omoloye, G. O., Olajubu, T. O., & Olowokere, A. E. (2021). Stress and resilience among pregnant teenagers in Ile-Ife, Nigeria. *European Journal of Midwifery, 5*, Article 9. https://doi.org/10.18332/ejm/134181

Osok, J., Kigamwa, P., Huang, K. Y., Grote, N., & Kumar, M. (2018). Adversities and mental health needs of pregnant adolescents in Kenya: Identifying interpersonal, practical, and cultural barriers to care. *BMC Women's Health, 18*(1), Article 96. https://doi.org/10.1186/s12905-018-0581-5

Pitso, T., Kheswa, J., Nekhwevha, F., & Sibanda, M. (2014). The Psycho-Social Wellbeing of the Teenage Mothers. Mediterranean *Journal of Social Sciences*, *5*(10), 610-619 https://doi.org/10.5901/mjss.2014.v5n10p610

Recto, P., & Champion, J. D. (2018). "We don't want to be judged": Perceptions about professional help and attitudes towards help-seeking among pregnant and postpartum Mexican-American adolescents. *Journal of Pediatric Nursing, 42*, 111-117. https://doi.org/10.1016/j.pedn.2018.04.010

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology, 57*(6), 1069-1081.

Ryff, C. D. (2014). Psychological well-being revisited: Advances in the science and practice of eudaimonia. *Psychotherapy and Psychosomatics, 83*(1), 10-28. https://doi.org/10.1159/000353263

Rzeszutek, M., Gruszczynska, E., Pieta, M., & Malinowska, P. (2021). HIV/AIDS stigma and psychological well-being after 40 years of HIV/AIDS: A systematic review and meta-analysis. *European Journal of Psychotraumatology, 12*(1), Article 1990527. https://doi.org/10.1080/20008198.2021.1990527

Stevenson, W., Maton, K. I., & Teti, D., M (1999). Social support, relationship quality, and well-being among pregnant adolescents. *Journal of Adolescence, 22*, 109-121. https://doi.org/10.1006/jado.1998.0204

Tung, I., Keenan, K., & Hipwell, A. E. (2022). Adolescent mothers' psychological wellbeing during pregnancy and infant emotional health. *Journal of Clinical Child & Adolescent Psychology, 51*(2), 210-226. https://doi.org/10.1080/15374416.2021.1981339

UNICEF. (2022). *UNICEF Annual Report 2022*.

Verhoeven, M., Poorthuis, A. M. G., & Volman, M. (2019). The role of school in adolescents' identity development: A literature review. *Educational Psychology Review, 31*(1), 35-63. https://doi.org/10.1007/s10648-018-9457-3

Webb, L., Kyaddondo, D., Ford, T., Bergqvist, A., & Cox, N. (2023). Psychosocial health in adolescent unmarried motherhood in rural Uganda: Implications for community-based collaborative mental health education, and empowerment strategies in the prevention of depression and suicide. *Transcultural Psychiatry, 60*(3), 537-551. https://doi.org/10.1177/13634615221147361

WHO. (2019). *World Health Statistics 2019*.

Yousefi Afrashteh, M., & Masoumi, S. (2021). Psychological well-being and death anxiety among breast cancer survivors during the COVID-19 pandemic: The mediating role of self-compassion. *BMC Women's Health, 21*(1), Article 387. https://doi.org/10.1186/s12905-021-01533-9

Guideline for Author: Pediomaternal Nursing Journal

DESCRIPTION

Pediomaternal Nursing Journal is a scientific media periodically published twice a year that contains scientific articles on health and nursing specifically related to the topic of child maternity nursing. This journal as a medium for writers from students, lecturers, and researchers to be able to publish scientific work and the result of the latest research to support progress in the field of maternity nursing and children. This journal, which was first published in 2012, is managed by the Maternity and Pediatric Nursing Department under the Faculty of Nursing and published by Universitas Airlangga. Pediomaternal Nursing Journal has been obtained (p-ISSN:2355-1577; e-ISSN:2656- 4629). The Pediomaternal Nursing Journal began to switch to the online journal system starting in 2019.

FOCUS AND SCOPE

The focus of this journal is Pediatric and Maternity Nursing. The scope of this journal is:

- Pediatric Nursing (neonatal, child, and adolescent)
- Child Growth and Development
- Child Nutrition
- Child Health and Illness
- Maternity Nursing (pregnancy, obstetrics, and gynecology)
- Women's Health and wellbeing
- Women and Sexual Health
- Women Reproduction

PEER REVIEW PROCESS

This journal uses a **double-blind review**, which means that both the reviewer and authoridentities are concealed from the reviewers, and vice versa, throughout the review process.

Authors need to make sure that their manuscripts are prepared in a way that does not revealtheir identity by separating the title page and the manuscript body.

The article review process usually takes an average of **10 weeks**. This review period dependson the editors and the time taken to review the manuscript.

PUBLICATION FREQUENCY

Pediomaternal is published twice a year in March and September.

OPEN ACCESS POLICY

LICENSE TERM

We use Attribution 4.0 International (CC BY 4.0)

You are free to:

Share — copy and redistribute the material in any medium or format.
Adapt — remix, transform, and build upon the material for any purpose, even commercially.

Under the following terms:

Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.
No additional restrictions — You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.

COPYRIGHT NOTICE

1. The journal allows the author to hold the copyright of the article without restrictions.
2. The journal allows the author(s) to retain publishing rights without restrictions.
3. The legal formal aspect of journal publication accessibility refers to Creative Commons Attribution (CC BY).

PLAGIARISM SCREENING

This journal follows the Committee of Publication Ethics (COPE) guidelines and requests authors to familarise themselves with these guidelines at: http://publicationethics.org/resources/guidelines

A few issues that authors need to pay particular attention to are set out below.

Plagiarism is not acceptable in Pediomaternal Nursing Journal submissions. All the submitted manuscripts are checked for plagiarism before starting the review process.

MANUSCRIPT SUBMISSION AND PUBLISHING

The manuscript should be written in MS Word format. Figures, illustrations, and pictures are included in manuscript file. Submit manuscript directly to https://e-journal.unair.ac.id/PMNJ. Pediomaternal Nursing Journal will automatically reject any manuscript submitted via email or hardcopy.
The Editorial Board determines feasible manuscript after obtaining recommendations from peer reviewers. Manuscript revision is the author's responsibility, and manuscripts that are not feasible will be returned to the author.
Already have a Username/Password for Pediomaternal Nursing Journal?GO TO LOGIN

Need a Username/Password?GO TO REGISTRATION

Registration and login are required to submit items online and to check the status of current submissions.

SUBMISSION PREPARATION CHECKLIST

As part of the submission process, authors are required to check off their submission's compliance with all the following items, and submissions may be returned to authors that do not adhere to these guidelines.

1. As part of the submission process, authors are required to check their submission's compliance with all the following items. Submissions may be returned to authors that do not adhere to these guidelines.
2. The author(s) haven't suggested any personal information that may make the identity of the patient recognizable in any form of description, photograph, or pedigree. When the photographs of the patient are essential and indispensable for scientific information, the author(s) must have received the consent in written form and clearly stated such.
3. In case of experimenting on humans, the author(s) have certified that the process of the research is in accordance with the ethical standards of the Helsinki declaration, as well asany domestic and foreign committees that preside over the experiment. If any doubts areraised as to whether the research was proceeded in accordance with the Helsinki declaration, then author(s) are required to explain it. In the case of experimenting on animals, the author(s) have certified that the author(s) had followed the necessary domestic and foreign guidelines related to experimenting on animals in a laboratory.
4. The author(s) have received consent from the author or editor of any pictures or tables quoted from other journals or books. A portion or the entirety of the article must not havebeen published in other journals, nor must it have contributed to other journals or still beunder review.
5. Author(s) of the journal have clarified everything that may arise such as work, research expenses, consultant expenses, and intellectual property on the document in relation to the ICMJE form disclosure of conflicts of interest.

REPORTING GUIDELINE

Reporting guidelines endorsed by the journal are listed below:

- Observational cohort, case control, and cross-sectional studies - STROBE - Strengthening the Reporting of Observational Studies in Epidemiology, http://www.equator-network.org/reporting-guidelines/strobe/

- Qualitative studies - COREQ - Consolidated criteria for reporting qualitative research, http://www.equator-network.org/reporting-guidelines/coreq

- Quasi-experimental/non-randomized evaluations - TREND - Transparent Reporting of Evaluations with Non-randomized Designs, http://www.cdc.gov/trendstatement/

- Randomized (and quasi-randomized) controlled trial - CONSORT - Consolidated Standards of Reporting Trials, http://www.equator-network.org/reporting-guidelines/consort/

- Study of Diagnostic accuracy/assessment scale - STARD - Standards for the Reporting of Diagnostic Accuracy Studies, http://www.equator-network.org/reporting-guidelines/stard/

- Systematic Review of Controlled Trials - PRISMA - Preferred Reporting Items for Systematic Reviews and Meta-Analyses, http://www.equator-network.org/reporting-guidelines/prisma/Systematic Review of Observational Studies - MOOSE - Meta-analysis of ObservationalStudies in Epidemiology, http://www.ncbi.nlm.nih.gov/pubmed/10789670

TYPE OF MANUSCRIPT

Original Articles
Original articles should report on original clinical studies or research not previously published or under consideration for publication elsewhere. The text should not exceed 7000 words and should include a list of authors and their affiliations, corresponding author, acknowledgementsand figure legends, with an abstract of a maximum of 250 words, a list of a minimum of 25 references primarily from international journals indexed by Scopus or Web of Science, and a maximum five figures/tables (see below for more details on the layout).

Systematic Reviews
Systematic reviews are exhaustive, critical assessments of evidence from different data sourcesin relation to a given subject in the area of nursing. A systematic search of the relevant data sources should be carried out and the items collected should be carefully evaluated for inclusion based on apriori defined inclusion/exclusion criteria. A description and an analytical graphic representation of the process should be provided. The specific features of the participants' or patients' populations of the studies included in the review should be described as well as the measures of exposure and the outcome with indication towards the corresponding data sources.A structured abstract is required (the same as for short reviews). The text must not exceed 7,000 words including the acknowledgments, with no more than four tables and/or figures anda minimum of 40 references.

Meta-analyses
Meta-analyses should follow the same guidelines for systematic reviews. They are expected to provide exhaustive information and statistical assessment of the pooled estimates of pre- defined outcomes, study heterogeneity and quality, possible publication bias, meta-regression,and subgroup analyses when and where appropriate. Depending on the type of study, the authors are invited to submit PRISMA flow diagrams or MOOSE checklists. Both systematic reviews and meta-analyses will be dealt with as original articles are, as far as the editorial process is concerned.

PREPARING YOUR MANUSCRIPT

Title Page
The title should describe the summary of the research (concise, informative, no abbreviations,and a maximum of 15 words).
The authorship of articles should be limited to those who have contributed sufficiently to take on a level of public responsibility for the content. Provided should be the full names of authors(without academic title); author's affiliation (name[s] of department[s] and institution[s]); thecorresponding author's name, mailing address, telephone, and fax numbers, and e-mail address. The corresponding author is the person responsible for any correspondence during thepublication process and post-publication.
Please upload the title page separately from the main document.

Abstract
A concise and factual abstract is required. The structure of the abstract is limited to 250 wordsand should state briefly the purpose of the research, the principal result, and major conclusionsor major headings: introduction, method, results and conclusion.

a. Introduction: One or two sentences on the background and purpose of the study.
b. Method: Describe the research design, settings (please do not mention the actual location but use geographic type or number if necessary), and participants (details of how the study population was selected, inclusion and exclusion criteria, numbers entering and leaving the study, and any relevant clinical and demographic characteristics).
c. Results: Report the main outcome(s)/findings including (where relevant) levels of statistical significance and confidence intervals.
d. Conclusions*:* Should relate to the study aims and hypotheses.

Keywords: Immediately after the abstract, provide minimum three and maximum five keywords and avoid general and plural terms and multiple concepts. The keywords should refer to https://meshb.nlm.nih.gov/search

Word Processing Formats

Preferred formats for the text and tables of your manuscript are Word DOC. The text should be double-spaced throughout with standard one inch margin (2.54 cm). Text should be standard font (i.e., Times New Roman) at 12-point.

Text

The body text should be blinding. Do not include any author identifying information in your manuscript, including the author's own citations. The text should be structured as follows: **introduction:** The problems of study, scale, chronology, and state of the arts of the study should be explained. Please note that the last paragraph of introduction should state the aims or purpose of study. **Methods:** The design, sample, variables, instruments, procedures, analysis, and ethical consideration should be explained. **Results:** Report the main outcome(s)/findings including, where relevant, levels of statistical significance and confidence intervals. **Discussion:** Should explain the findings related to fact, theory, and opinion. **Conclusion:** Should relate to the study aims, hypotheses, finding, and suggestion for further research. Footnotes are not advisable; their contents should be incorporated into the text. Use only standard abbreviations; the use of nonstandard abbreviations can be confusing to readers. Avoid abbreviations in the title of the manuscript. The spelled-out abbreviation followed by the abbreviation in parenthesis should be used on the first mention unless the abbreviation is a standard unit of measurement. If a sentence begins with a number, it should be spelled out.

Acknowledgment (Optional)

Acknowledgments should be limited to the appropriate professionals who contributed to the paper, including technical help and financial or material support, as well as any general support by a department chairperson.

Declaration of conflicting interests

It is the policy of Pediomaternal Nursing Journal to require a declaration of conflicting interests from all authors enabling a statement to be carried within the paginated pages of all published articles.

Please ensure that a 'Declaration of Conflicting Interests' statement is included at the end of your manuscript, after any acknowledgements and prior to the references. If no conflict exists, please state that 'The Author(s) declare(s) that there is no conflict of interest'. For guidance on conflict of interest statements, please see the ICMJE recommendations here.

Tables And Figures

Tables should be numbered in Arabic numerals; any captions should be brief, clearly indicating the purpose or content of each table. Manuscripts with over five tables in total, or very large tables, can be submitted as Supplementary Data and will be included in the online version of your article

Please do not:

1. Supply files optimized for screen use (e.g., GIF, BMP, PITC, WPG); these typically have a low number of pixels and limited set of colors.
2. Supply files that are too low in resolution.
3. Use tables with pictures.

Reference

The author-year notation system is required and completed. All references mentioned should be written down in reference using **APA (American Psychological Association) format 6th and 7th Edition** with a DOI assigned acceptable for citation and references. Articles have a minimum of 20 recent references (last 10 years) and 80% should be journal or main references. References from journal publications should be provided by DOI. All cited references must be mentioned in the in-text citations and should use a reference manager such as Mendeley or EndNote.

Journal Article

A journal article without doi

Aungsuroch, Y., & Gunawan, J. (2019). Nurses preparation in the era of the fourth industrial revolution. *Belitung Nursing Journal*, *5*(1), 1-2.

Two authors (a journal article with doi)

Risal, A., & Gunawan, J. (2018). Men, masculinities and HIV/AIDS in Indonesia. *Belitung Nursing Journal*, *4*(1), 24-25. https://doi.org/10.33546/bnj.403

Three authors

Gunawan, J., Wahab, N. A., & Elmiati, E. (2016). Health tourism in Belitung Indonesia: A SWOT analysis. *Belitung Nursing Journal*, *2*(2), 27-30. https://doi.org/10.33546/bnj.12

Four to seven authors

Gunawan, J., Aungsuroch, Y., Fisher, M. L., & McDaniel, A. M. (2020). Comparison of managerial competence of Indonesian first-line nurse managers: a two-generational analysis. *Journal of Research in Nursing*, *25*(1), 5-19. https://doi.org/10.1177/1744987119880237

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

Non-English journal article

Bussières, E.-L., St-Germain, A., Dubé, M., & Richard, M.-C. (2017). Efficacité et efficience des programmes de transition à la vie adulte: Une revue systématique [Effectiveness and efficiency of adult transition programs: A systematic review]. *Canadian Psychology/Psychologie canadienne, 58,* 354–365. https://doi.org/10.1037/cap0000104

No author

Vitamin K for newborns. (2016). *Journal of Midwifery & Women's Health*, *61*(5), 675-676. https://doi.org/10.1111/jmwh.12550

Book

Book with one author

Jones, R. (2007). Nursing leadership and management: Theories, process and practice. Philadelphia, PA: F. A. Davis.

One author (a book chapter)

Easton, B. (2008). Does poverty affect health? In K. Dew & A. Matheson (Eds.), *Understanding health inequalities in Aotearoa New Zealand* (pp. 97–106). Dunedin, New Zealand: Otago University Press.

One author, multiple works published in the same year

Rush, E., McLennan, S., Obolonkin, V., Cooper, R., & Hamlin, M. (2015a). Beyond the randomised controlled trial and BMI--evaluation of effectiveness of through-school nutrition and physical activity programmes. *Public Health Nutrition*, *18*(9), 1578–1581. https://doi.org/10.1017/S1368980014003322

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.

Non-English book

Setyoadi, K. (2011). *Terapi modalitas keperawatan pada klien psikogeriatrik [Nursing modality therapy for psychogeriatric clients]*. Jakarta: Salemba Medika.

No author

The CCH Macquarie dictionary of business. (1993). North Ryde, Australia: CCH Australia.

Webpage

Webpage - with author

Atherton, J. (2005). Behaviour modification. Retrievedfrom http://www.learningandteaching.info/learning/behaviour_mod.htm

Webpage - no author

Behaviour modification. (2007). Retrieved from http://www.educational-psychologist.org.uk/behaviour.html

Webpage - no date

Society of Clinical Psychology. (n.d.). About clinical psychology. Retrievedfrom http://www.apa.org/about/division/div12.aspx

Conference Paper

Published conference paper

Scheinin, P. (2009). Using student assessment to improve teaching and educational policy. In M. O'Keefe, E. Webb, & K. Hoad (Eds.), *Assessment and student learning: Collecting, interpreting and using data to inform teaching* (pp. 12-14). Melbourne, Australia: Australian Council for Educational Research.

Unpublished conference paper

Bowden, F.J., & Fairley, C.K. (1996, June). *Endemic STDs in the Northern Territory: Estimations of effective rates of partner change.* Paper presented at the Scientific Meeting of the Royal Australian College of Physicians, Darwin.

Report

Government report - print

Productivity Commission. (1999). *Australia's gambling industries : inquiry report* (No. 10). Melbourne, Australia: Productivity Commission.

Government report - online

Australian Communications and Media Authority. (2011). *Enduring concepts: communications and media in Australia.* Retrieved from

http://www.acma.gov.au/-/media/Networks/Information/pdf/Enduring-Concepts-Communications-and-media-in- Australia.pdf

Thesis or Dissertation
Unpublished thesis
Rahman, M. (2013). *Using authentic materials in the writing classes: Tertiary level scenario*. (Unpublished master's thesis). BRAC University, Mohakhali, Dhaka, Bangladesh.

Thesis retrieved from website
Axford, J.C. (2007). *What constitutes success in Pacific Island community conserved areas?* (Doctoral dissertation, University of Queensland, Brisbane, Australia). Retrieved from http://espace.library.uq.edu.au/view/UQ:158747

Thesis retrieved from database
Sheehan, L. R. (2007). *Destination management organizations: A stakeholder perspective* (Doctoral dissertation). Retrieved from Proquest Digital Dissertations. (AAT NR25719).

ARTICLE PROCESSING CHARGE (APC)

ARTICLE SUBMISSION & ARTICLE PROCESSING CHARGE: No fee

Authors are not obligated to pay any charges for submitting and processing an article.

FURTHER INFORMATION

Any correspondence, queries, or additional requests for information on the manuscript submission process should be sent to the Pediomaternal Nursing Journal editorial office as follows:

Dr. Ilya Krisnana, EIC
Email: secretariat_pmnj@fkp.unair.ac.id

AUTHORS INDEX

VOLUME 11 NO 2 September 2025

SUBJECT INDEX

VOLUME 11 NO 2 SEPTEMBER 2025