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Relationship between knowledge and parity with parental participation in child developmental screening

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ABSTRACT

Introduction: Child development is a fundamental aspect determining their future quality of life. Stunting, as a long-term nutritional disorder, remains a significant health issue in Indonesia, with a prevalence of 30.8%, according to Riskesdas 2018. Developmental check-ups play a key role in detecting developmental deviations. Yet, parental involvement remains low and is closely related to the level of understanding and number of children they have.

Method: his research employed a cross-sectional approach using a questionnaire on parental knowledge and participation in child development screening, involving 47 respondents.

Results: Chi-square test results showed a significant correlation between knowledge level and parental participation (p=0.01), while parity was not significantly associated with parental involvement (p=0.60).

Conclusion: The analysis results indicate a significant relationship between knowledge and parental participation in child developmental screening, whereas parity does not show a statistically significant relationship with parental involvement.

Keywords: Child Development; Knowledge; Parental Participation; Parity; Screening.

INTRODUCTION

Child development is a crucial element that significantly influences a child's future. Children's well-being is a vital indicator of Indonesia's progress in achieving the Sustainable Development Goals (SDGs) by 2030 (Saracho, 2023). Stunting is a chronic nutritional problem that is still a public health challenge in Indonesia. Riskesdas (2018) data show that stunting prevalence reached 30.8%, meaning nearly 1 in 3 toddlers are affected. Despite a declining trend, the rate still exceeds the WHO threshold of 20%. Early developmental screening is a strategic effort to detect delays or developmental issues early. Parental involvement is essential for timely and appropriate intervention. However, participation levels vary. Developmental screening and stimulation are continuous activities to monitor child growth and identify deviations. Parents, in addition to health workers, can be involved using a modified SDIDTK checklist from the Maternal and Child Health Book (KIA), allowing them to perform screenings independently according to the child's age (García-Guzmán *et al.*, 2025).

One of the key strategies to reduce stunting and promote optimal development is early detection through regular developmental screening. Developmental screening is observing and identifying potential delays or abnormalities in a child's development so that early interventions can be initiated (Suprapto, 2022). The effectiveness of this approach, however, depends heavily on the active participation of parents, particularly mothers, who are often the primary caregivers. Unfortunately, parental involvement in child development monitoring remains inconsistent (Kalberg *et al.*, 2023). Many parents focus only on physical growth indicators such as weight and height without adequate attention to developmental milestones such as language, motor skills, and social interaction (Arda, Lalla and Suprapto, 2023).

The limited participation of parents is often linked to low knowledge about child development (Asmalinda and Rahayu, 2024). Parents who lack understanding may not recognise the importance of developmental screening or know how to use tools like the KIA (Maternal and Child Health) book or the SDIDTK checklist (Stimulation, Detection, and Early Intervention of Child Development). Moreover, parity in the number of children a mother has may also influence involvement (Chavda and Nisarga, 2023). Mothers with more children (multiparous) might feel more experienced and thus less attentive to developmental monitoring. In contrast, first-time mothers (primiparous) might be more alert but lack confidence or practical knowledge (Idris *et al.*, 2024).

This misperception and a lack of education hinder early detection efforts at the community level (Nansel *et al.*, 2025). Given this background, the present study analyzes the relationship between parental knowledge and parity with parental participation in child developmental screening (Wriedt *et al.*, 2024). Understanding these associations can help health workers, especially midwives, design more targeted interventions to empower parents and ensure that children receive the developmental support they need from an early age. Parental knowledge significantly influences their participation in screening. Those with better knowledge tend to be more proactive. Parity also influences confidence and experience in monitoring development. Multiparous mothers may feel more experienced and be less active in screening, while primiparous mothers may be more vigilant but lack practical experience.

Interviews in Tegallingah Village revealed that many mothers think growth and development are the same, focusing only on weighing and measuring height. Based on this, the research aims to analyze the relationship between knowledge and parity with

parental participation in developmental screening in Tegallingah Village, Sukasada District.

RESEARCH METHODOLOGY

This study employed an observational analytic design with a cross-sectional approach, which allows for the simultaneous assessment of independent and dependent variables at a single point in time. This method aims to identify relationships between parental knowledge and parity with parental participation in developmental screening. The research was conducted in Tegallingah Village, located in the Sukasada Subdistrict, from July to August 2024. The target population consisted of mothers with children aged 3 to 72 months (3 months to 6 years). The study involved a total sample of 57 respondents, selected through purposive sampling. This technique ensured that participants met specific inclusion and exclusion criteria relevant to the study's objectives.

The inclusion criteria for participants were Mothers residing in Tegallingah Village. Mothers who have children aged between 3 to 72 months. Willingness to participate in the study and complete the questionnaire. The exclusion criteria included Mothers who were unavailable during the data collection period. Mothers with children diagnosed with congenital abnormalities or chronic illnesses affecting development. Data was collected using a structured questionnaire comprising three main components: Knowledge Assessment questions designed to evaluate the mother's understanding of the child's developmental milestones and screening procedures. Parity Data is the number of children the respondent has categorized into primiparous (1 child), multiparous (2 children), and grand multiparous (>2 children). Parental Participation questions assessed the extent to which mothers engage in developmental screening activities for their children, such as completing checklists, attending health services, or initiating discussions with health workers.

For data analysis, the study used the Chi-Square Test to determine the presence and significance of relationships between independent variables (knowledge and parity) and the dependent variable (parental participation). The significance level was set at $p < 0.05$, indicating statistical relevance. The results were presented in frequency distribution tables and analyzed to identify trends and correlations. Ethical considerations were also observed, including obtaining informed consent from participants, ensuring confidentiality of the data, and using the information strictly for academic and public health purposes. This methodological framework was designed to provide a comprehensive understanding of how maternal knowledge and parity influence active participation in early childhood developmental screening, an essential step toward enhancing child health outcomes at the community level.

RESULT

Table 1. Frequency distribution of respondent knowledge and distribution of parity

Knowledge	**n**	**Percentage (%)**
Aware	4	7%
Less Aware	44	77.2%
Not Aware	9	15.8%
Parity		
>2 Children	11	19.3%
2 Children	27	47.4%
1 Child	19	33.3%

The data show that most respondents (77.2%) fall into the "Less Aware" category regarding child developmental screening. This indicates a substantial lack of adequate

knowledge among mothers in the study area. A further 15.8% of respondents are categorized as "Not Aware," meaning they do not understand the screening process. Only a small proportion, 7%, are in the "Aware" category, suggesting that very few mothers properly grasp the importance and procedures of developmental screening. This distribution highlights a significant knowledge gap among parents, which could contribute to low levels of participation in child development monitoring. These findings underscore the need for targeted health education programs and community outreach led by healthcare professionals, especially midwives, to improve parental awareness and engagement in developmental screening activities.

The data indicate that most respondents (47.4%) have two children, suggesting that having a moderate number of children is common among mothers in the study area. Additionally, 33.3% of respondents have only one child, which may reflect younger mothers or those still in the early stages of childbearing. A smaller proportion, 19.3%, have more than two children, indicating fewer high-parity mothers in the sample. This distribution implies that most respondents are either in the early or middle stages of parenting experience, which could influence their confidence and involvement in child developmental activities. While higher parity may be associated with more parenting experience, it does not necessarily equate to better participation in developmental screening, especially if knowledge levels are low. This reinforces the importance of providing equal access to information and support across all parity levels, not just to new mothers.

Table 2. Relationship between knowledge and parental participation

Knowledge	Participated	Not Participated	p-value
Not Aware	1	8	
Less Aware	21	23	0.01
Aware	4	0	
Parity			
1 Child	11	8	
2 Children	10	17	0.60
>2 Children	5	6	

The results demonstrate a significant association between parental knowledge and their participation in child developmental screening. Among mothers who participated, most had limited knowledge (21 respondents), while 4 respondents were categorized as knowledgeable. None of the "aware" mothers fell into the non-participating group. Conversely, in the non-participating group, the majority were also in the "less aware" (23 respondents) and "not aware" (8 respondents) categories. The chi-square test yielded a p-value of 0.01 ($p < 0.05$), confirming a statistically significant relationship. This suggests that the higher the level of knowledge, the more likely parents are to engage in developmental screening for their children. These findings highlight the crucial role of parental education and awareness in promoting proactive involvement in early detection and intervention efforts.

Shows no statistically significant relationship between the number of children a mother has (parity) and her participation in developmental screening. The p-value is 0.60 ($p > 0.05$), indicating that parity does not significantly influence parental involvement. Although mothers with only one child had the highest participation rate (11 respondents), followed by mothers with two children (10 respondents) and those with more than two children (5 respondents), the variation in participation is not significant enough to be statistically meaningful. These findings imply that experience from having more children

does not necessarily lead to greater involvement in developmental monitoring. Instead, other factors, such as knowledge, play a more decisive role in determining whether parents participate.

DISCUSSION

This study explored the relationship between parental knowledge and parity with the participation of parents in child developmental screening. The results revealed a statistically significant association between knowledge and participation ($p = 0.01$), whereas no significant relationship was found between parity and participation ($p = 0.60$). These findings carry important implications for public health interventions, particularly in improving early detection of developmental delays through greater community and parental involvement. Parental understanding of child development helps them grasp physical, cognitive, emotional, and social aspects. Knowledge empowers them to seek medical help when signs of developmental delays appear. According to the Health Belief Model, individuals are more likely to take health actions, such as screening, when they perceive the risk as serious and believe the action will mitigate it. Supports that informed parents are likelier to bring their children for regular developmental checks. Correlation between maternal knowledge and toddler motor development, with limited knowledge linked to abnormal development (Yuan, Halabicky and Liu, 2024).

Parental knowledge plays a central role in shaping child health and development behaviours. The data showed that 77.2% of respondents had limited knowledge, and only 7% were categorized as knowledgeable about developmental screening. Despite this, the chi-square analysis indicated a strong relationship between knowledge and participation, with most participating mothers having at least some awareness of developmental milestones. This finding aligns with the Health Belief Model (HBM), a psychological model that seeks to explain and predict health behaviours by focusing on the attitudes and beliefs of individuals. According to HBM, individuals are more likely to take preventive health actions such as participating in developmental screenings if they Perceive the condition as serious, Believe they are susceptible to it, Believe that the benefits of the action outweigh the barriers, and have sufficient cues to trigger the action. Mothers with greater knowledge about developmental milestones and the potential consequences of delays are more likely to perceive the risk as real and take action (Patel *et al.*, 2024). In this study, mothers who understood the importance of screening were more inclined to engage in the process proactively, attend health visits, and complete developmental checklists using the KIA (Maternal and Child Health) book.

Several other studies support this conclusion. Research by Imran *et al.*, (2023) emphasized the pivotal role of parental education in early detection and intervention. Similarly, a survey by Alhwoaimel *et al.*, (2023) found a significant correlation between maternal knowledge and the quality of motor development in toddlers. In both cases, children of well-informed mothers were more likely to show normal developmental progress, whereas those of less-informed mothers were at greater risk of delays (Harvey *et al.*, 2023). Lack of knowledge limits the ability to recognise delays and hinders timely access to health services. In rural or underserved areas like Tegallingah Village, where this study was conducted, health services may be underutilized not due to access issues but because of a lack of awareness (Shaefer *et al.*, 2024). Therefore, empowering mothers with accurate, actionable information is a cost-effective strategy to improve child health outcomes (Rettew and Biel, 2024).

Parity and Its Limited Impact on Participation. In contrast to knowledge, parity did not significantly correlate with parental participation. While descriptive data showed that mothers with one child were slightly more active in screening, the difference was insignificant. This result challenges the assumption that mothers with more children (multiparous) automatically have more parenting competence or engagement. It is often presumed that experience leads to confidence and better practices. However, in this study, it appears that experience alone is not a strong determinant of behaviour, mainly when not supported by formal knowledge or structured guidance from health professionals. A plausible explanation is that multiparous mothers may develop a sense of complacency, believing they already know what to expect in child development. As a result, they may become less vigilant in actively monitoring each child's progress, especially if previous children developed without noticeable issues (Braddon *et al.*, 2023). On the other hand, primiparous mothers may have higher motivation to learn and participate, although they might lack the confidence or knowledge base to do so effectively.

These findings are consistent with Albanese *et al.*, (2024), who found that parity alone does not significantly influence maternal participation in child-weighing activities in health posts (Posyandu). This reinforces the notion that while experience can be beneficial, it cannot substitute for structured health education and reinforcement by healthcare professionals.

The Role of Health Workers and Community Support. Given the findings above, the role of healthcare providers, especially midwives and community health workers, becomes crucial in bridging the knowledge gap. The study suggests a need for more proactive communication and engagement strategies targeted at parents regardless of their parity status (Buczyłowska *et al.*, 2023). Midwives, as frontline workers in maternal and child health, are uniquely positioned to educate parents through regular check-ups, home visits, or Posyandu activities. Educational interventions could include Demonstrating how to use the SDIDTK checklist from the KIA book. Clarifying the difference between growth and development. Offering visual tools, videos, or practical simulations to help parents understand developmental milestones (Chau, Dryer and Brunton, 2023). Providing personalized feedback during each child health visit. Moreover, integrating peer support groups within villages where experienced mothers are encouraged to share best practices under the guidance of health staff can also enhance participation and learning among less skilled parents (Cambonie *et al.*, 2024).

Sociocultural Considerations. It is important to note that cultural beliefs and misconceptions also influence parental behaviour (Herman, Mansur and Chang, 2023). As revealed in the preliminary interviews in this study, many mothers perceived "growth" and "development" as identical, focusing only on physical parameters such as height and weight (Li *et al.*, 2023). This misunderstanding leads to neglect of developmental monitoring, even when tools are available. Addressing these misconceptions requires more than just information. It requires cultural sensitivity, community involvement, and the use of local wisdom to communicate health messages effectively. Health promotion campaigns that are participatory, consistent, and aligned with community values will likely have a greater impact.

Implications for Policy and Practice

The findings of this study carry several implications for maternal and child health policy: Knowledge-focused interventions should be prioritized in rural health programs. Routine developmental screening should be emphasized in Posyandu services, not just

anthropometric measurements. The KIA book should be enhanced with more user-friendly visuals and guidance on development. Health worker training should include communication skills to educate and empower parents effectively. In the long term, increasing parental knowledge and engagement will contribute to achieving Indonesia's national targets in reducing stunting and promoting early childhood development, in line with the Sustainable Development Goals (SDGs), particularly Goal 3 (Good Health and Well-being) and Goal 4 (Quality Education).

CONCLUSION

The analysis results indicate a relationship between knowledge and parental participation in child developmental screening, whereas parity does not have a statistically significant relationship with parental involvement. It is recommended that healthcare workers, especially midwives, be more proactive in providing information related to child developmental screening and actively involve parents in screening activities so that parents can independently conduct basic screenings for their children.

Conflict of Interest

There are no potential conflicts of interest relevant to this article.

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