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MOTHERS' SENSITIVITY TO THEIR INFANTS' NEEDS: AN EXPLORATION OF INFLUENCING FACTORS IN THE FIRST SIX MONTHS

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Abstract

Background: The first six months of life are a critical period in human development. Maternal sensitivity defined as a mother's ability to respond promptly and appropriately to her infant's needs with warmth and attention plays a key role in establishing a secure mother child bond, which is essential for the child's future social and emotional development. **Objective:** This study aimed to identify factors influencing maternal sensitivity in mothers with infants aged 0–6 months. **Methods**: A descriptive quantitative design was employed with 113 respondents selected through non-probability sampling. Inclusion criteria were mothers with infants aged 0–6 months. Maternal sensitivity was measured using the Nursing Child Assessment Teaching Scale (NCAST) questionnaire. Statistical analysis was conducted to determine the association between demographic factors and maternal sensitivity. **Results**: The number of children and family income were found to have a significant association with maternal sensitivity ($p < 0.05$). Other factors examined did not show significant relationships. **Conclusion**: The study concludes that the number of children and family income are the most influential factors affecting maternal sensitivity among mothers of infants aged 0–6 months. Interventions to enhance maternal sensitivity should consider these determinants.

Keywords: maternal sensitivity, infants, number of children, family income, NCAST

Introduction

The first six months of life are considered a critical period in human growth and development, as progress during this stage can serve as an indicator of future developmental success. A child's life begins within the family environment, where parents particularly mothers

play a pivotal role in shaping the child's future. Optimal growth and development contribute to the quality of a child's future, and parental education can provide valuable knowledge about childcare (Wilujeng, 2020). The family's role, especially the mother's, is vital in stimulating a child's growth and development. Mothers, who typically spend the most time with their children, can conduct regular observations to detect developmental progress. Maternal involvement is therefore fundamental, making maternal knowledge essential (Susanti, 2020). Children who experience low maternal sensitivity are more likely to face social and emotional challenges, including difficulty forming healthy relationships and reduced self-confidence (Shai, 2018). Inadequate stimulation during early life may result in delays in achieving developmental milestones, which can have lasting effects on the child's ability to reach their full potential in later stages of growth. So that parents can provide stimulation by stimulating stimulation according to (Haryanti, 2018). Mother's knowledge about stimulation plays a role in children's development because it will affect the stimulation that will be carried out on the child. Mothers who are active in sharing stimulation will cause good things for children's growth and development, and vice versa (RI Kemenkes, 2016).

According to WHO (2019), approximately 5–10% of children experience developmental impairments, with around 1–3% showing such impairments in Indonesia. These issues are particularly prevalent among children under the age of five and include delays in motor, language, socio-emotional, and cognitive development. The Indonesian Ministry of Health conducted a development check in 30 (thirty) provinces in Indonesia and reported that 45.12% of babies had developmental disorders. In addition, around children in Java Kada experience developmental delays and around 80% of them are caused by lack of stimulation and based on data from West Java Province it is stated that 92% of toddlers carry out growth and development stimulation or commonly called (SDIDTK) in health services. WHO data (2018) indicate that growth problems in children are not limited to malnutrition but also include stunting and overnutrition. The global prevalence of malnutrition is 7.3%, overweight is 5.9%, and stunting (short stature) in toddlers is 21.9%. In Indonesia, the national prevalence of nutritional status among toddlers consists of 3.9% severe malnutrition, 13.8% moderate malnutrition, 79.2% good nutrition, and 3.1% overnutrition. In 2021, the total number of babies in Bandung City was 4,081, while in West Bandung Regency there were 8,412 babies (Open Data Jabar, 2019). Data on general developmental delays show that 2 out of every 1,000 babies have motor development disorders, 3 to 6 out of every 1,000 babies experience hearing loss, and 1 out of every 100 toddlers has low intelligence or speech delays. In addition, almost 30% of toddlers in West Java experience developmental delays (Sugeng, 2019). Data on developmental delays in West Java in 2024 show that around 30% of children in West Java experience developmental delays, with around 80% due to lack of stimulation. Stunting, which is a form of development delay, is also targeted to decrease significantly in West Java, from 21.7% to 14-15% in 2024 (Pemerintah Provinsi Jawa Barat, 2024).

Gross motor development irregularities do not get quick action and are incompetent, the worst possibility leads to disability. Checking children's motor development can be checked at public health service centers such as posyandu, the Toddler Family Development Program (BKB) and the family environment, so that the family figure, especially the mother, is very fundamental, because with a good check, it can detect early child developmental disorders. The interaction between children and parents, particularly the role of mothers, plays a crucial part in the overall process of child development. This close interaction enables parents to promptly recognize any abnormalities in their child's developmental process and to provide early stimulation to support optimal growth and development. Given the significant influence of mothers, their knowledge of child development is essential. Knowledge is the result of the cognitive process that occurs after

perceiving certain stimuli, with most human knowledge acquired through sight and hearing. The areas of knowledge that mothers should possess regarding child development include an understanding of developmental stages, developmental tasks, maternal skills or stimulation techniques, developmental characteristics, and developmental monitoring. Such knowledge can be obtained through formal education, personal experiences, the experiences of others, media exposure, and the surrounding environment (Susanti, 2020).

Method

This study employed a quantitative approach with a cross-sectional design, in which data on both the dependent and independent variables were collected simultaneously. Respondents were selected using a convenience sampling technique. The sample size was calculated using G*Power software version 3.1.9.7, applying an *f*-test for linear multiple regression (fixed model, R^2 deviation from zero) with an effect size of 0.15, $\alpha = 0.05$, and power = 0.80, resulting in a minimum sample requirement of 113 participants. The inclusion criteria were: mothers with children aged 0–6 months, mothers who were able to read and write, and mothers who owned a mobile phone. Exclusion criteria included mothers with twins and mothers whose children had congenital defects.

Data were collected using a structured questionnaire. Maternal sensitivity was assessed using the Nursing Child Assessment Teaching Scale (NCATS), which comprises 50 binary items (observed/not observed) to evaluate maternal behaviors, particularly empathy. The content validity index (CVI) of the maternal sensitivity scale ranged from 0.80 to 1.00. Following an item review (N = 36), the scale-level CVI (S-CVI) was 0.87 for clarity and 0.93 for relevance.

Univariate analysis was conducted to describe the frequency distribution of respondent characteristics, including age, education, and socio-economic status, as well as each independent variable. Bivariate analysis examined the relationships between maternal sensitivity and independent variables such as age, education level, socio-economic status, access to information, family support, and number of children, in order to test the study hypotheses. Multivariate analysis using linear regression was then performed to identify factors associated with maternal sensitivity in stimulating the growth and development of children aged 0–6 months.

Results

Table 1. Demographic Characteristics of the Responden (N=113)

Variable	Frequency	Pecentage
Educational Level		
Elementary School	12	10,6
Junior High School	16	14,2
Senior High School	45	39,8
Bachelor/University	40	35,4
Work Status		
Employed	48	42,5

Unemployed	65	57,5
Family Income		
Under Rp.1.000.000,-	13	11,5
Rp.1.000.000 - Rp.3.000.000	33	29,2
Rp.3.000.000 - Rp.5.000.000	34	30,1
Above Rp.5.000.000	33	29,2
Information Access		
Yes	62	54,4
No	51	44,7

Table 2. Age of the Responden (N=113)

Variable	Mean	Range
Age	29.25	19 - 42

Table 1 and 2 shows that the majority of respondents had a senior high school education background (39.8%). The average age of respondents was 29.25 years, ranging from 19 to 42 years. In terms of employment status, most respondents were unemployed (57.5%). Regarding family income, 30.1% reported earning between Rp 3,000,000 and Rp 5,000,000 per month. More than half of the respondents (54.4%) reported having access to information related to maternal sensitivity.

Table 3. Overview of Maternal Sensitivity

Maternal Sensitivity	**Mean (±SD)**	**Min-Max**
Maternal Sensitivity	39.78 (±10.17)	7 - 49
Sensitivitas to Signals	7.58 (±2.738)	1-10
Response to Children's Distress	12.0 (±0.000)	12-12
Fostering Socio-Economic Growth	10.54 (±0.846)	8-11
Cognitive Crowth Coaching	16.03 (±1.366)	11-17

Based on the data in the table 3 in the domain of sensitivity to signals, the average score obtained is 7.58 with a standard deviation of 2.738 and the lowest to highest values

range from 1 to 10. For the response to children's distress, all respondents received the same score of 12, showing full consistency in this aspect. In the domain of socio-economic growth coaching, the mean score was 10.54 (SD = 0.864) with a score range of 8 to 11. For the cognitive growth coaching domain, the mean score was 16.03 (SD = 1.366), ranging from 11 to 17. Overall, the total mean score was 39.78 (SD = 10.17), with a minimum score of 7 and a maximum score of 49.

Tabel 4. The Relationship of Each Independent Variable to Maternal Sensitivity

Variable	Maternal Sensitivity	*p*-Value
	T	
Age	-0.252*	0.007
Respondent's Last Education	0.075	0.432
Number of Children	-.257*	0.006
Respondent Occupation	0.118	0.213
Family Income	0.437*	0.000
Access information	1.673	0.054

Based on the results of the analysis, several important relationships between the independent variables and maternal sensitivity were identified. Respondents' age demonstrated a significant negative correlation with maternal sensitivity ($p = 0.007$). Similarly, the number of children showed a significant negative association with maternal sensitivity ($p = 0.006$). In contrast, family income exhibited a highly significant positive relationship with maternal sensitivity ($p < 0.001$).

Tabel 5. Factors Affecting *Maternal Sensitivity*

Variabel	B	*p*-Value	Confidence Interval for B	
			Lower	Upper
Number of children	- 3.003	0.032	- 5.804	- 0.262
Family income	- 4.247	0.000	2.468	6.026

Based on the multivariate analysis, two variables were found to significantly influence maternal sensitivity: the number of children and family income. The number of children had a negative regression coefficient of −3.003 ($p = 0.032$), indicating that as the number of children increases, maternal sensitivity tends to decrease. This finding is supported by the 95%

confidence interval (CI) for the coefficient, ranging from −5.804 to −0.262, which does not cross zero, confirming statistical significance. Conversely, family income demonstrated a positive regression coefficient of 4.247 ($p < 0.001$), suggesting that higher family income is associated with greater maternal sensitivity. The 95% CI for the family income coefficient (2.468 to 6.026) also supports a statistically significant positive relationship.

Discussion

Sensitivity to cues refers to a mother's ability to recognize and understand various signs or signals given by the child. It can be in the form of facial expressions, crying, body movements, or other behaviours that show the child's needs or feelings. Based on the data obtained that there is a significant variation among mothers in terms of their ability to read and interpret the cues given by the child, thus showing that the level of sensitivity to the child's cues varies from person to individual. In line with the findings of Mangkuayu (2024), there is significant variation in the mother's ability to read and interpret children's cues, so sensitivity to cues varies from time-to-time individu.

Response to child distress describes a mother's ability to respond quickly and appropriately when the child experiences difficulties or shows signs of discomfort, and based on the data obtained, all respondents obtained the same score of 12, which shows full consistency among mothers in terms of their responsiveness to the needs and distress of the child, thus reflecting a high level of awareness and attention in caring for the child situation. Research by Misniarti and Haryani (2022) shows that the mother's ability to respond to children's needs, including providing appropriate stimulation when the child is experiencing difficulties or showing signs of discomfort, is greatly influenced by factors such as knowledge, awareness, and maternal attention to child development.

The development of socio-economic growth reflects the various efforts made by mothers in supporting the social and economic development of children, which include providing social stimulation, introducing children to the surrounding environment, and fulfilling the basic needs obtained. Most mothers provide quite consistent support in this aspect. Fostering the socio-economic growth of children by working mothers includes various efforts such as providing social stimulation, introducing children to the surrounding environment, and meeting the basic needs of children. Some mothers provide quite consistent support in this aspect according to research

Ballarotto’s (2023) research on parental sensitivity to the need for balanced autonomy in mother–child and father–child interactions during eating and play activities aligns with the present findings on the role of mothers in fostering children’s cognitive growth. Mothers play a crucial role in stimulating and supporting the development of children’s thinking and learning abilities through meaningful interactions, the provision of educational games, and involvement in activities that enhance cognitive functioning. In this study, the average score in the cognitive growth domain was 16.0 (SD = 1.366) with a range of 11–17, indicating that most mothers provide optimal and consistent support for their children’s cognitive development.

Bivariate analysis showed that age, number of children, and family income were significantly associated with maternal sensitivity. The average age of the respondents was 29

years. Parents over the age of 20 tend to apply a positive parenting style, because at that age they usually already have good emotional stability. In addition, the study also revealed that children under five who were cared for by parents aged 20 generally showed relatively good growth and development and were in accordance with the stages of development of children of their age. The number of children owned by a mother shows a significant negative relationship with the level of maternal sensitivity, which is shown by the intention. The attention and response given to each child may be less optimal than a family with fewer children. In line with the results (Ulfa, 2020). Families with fewer children tend to be able to provide more intensive and personalized attention and stimulation to each child and families with a large number of children face challenges in dividing time and attention, so the role of parents in supporting children's development needs special strategies to maintain sensitivity. Respondent's occupation

The findings of Qiong Wu (2021) are consistent with the results of this study, which revealed a highly significant positive relationship between family income and maternal sensitivity. Higher family income is associated with greater maternal sensitivity in caring for and responding to the individual needs of children. Families with better economic conditions tend to be able to provide more optimal attention, stimulation, and emotional support for their children. Adequate environmental conditions and family resources can strengthen the role of maternal sensitivity in supporting children's emotional development and self-regulation from an early age.

The number of children has a negative regression which shows that the more children, the more maternal sensitivity the level tends to decrease. A research by Ulfa (2020) on the role of the family concept of early childhood developmental psychology, which states that families with a greater number of children face challenges in providing optimal attention and stimulation to each child, so that parenting sensitivity tends to decrease. Family income demonstrated a positive regression coefficient, indicating that higher family income is associated with increased levels of maternal sensitivity. This finding is in line with Qiong Wu (2021) who emphasizes the importance of maternal sensitivity in the regulation of infants' emotions, where better family socioeconomic conditions allow mothers to provide more optimal attention and response to children's emotional needs. Thus higher parental income provides adequate resources for mothers to increase their sensitivity to childcare, which contributes positively to emotional development and fear regulation in babies.

Conclusion

Overall, economic factors and access to information are important determinants in improving the quality of care, while the number of children is a challenge in maintaining the sensitivity of mothers to the needs of each child. Good parental sensitivity has been shown to positively influence a child's social, emotional, and cognitive development, and to have long-term benefits for their overall well-being.

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