

DETERMINANTS OF HEALTH PROMOTION FACTORS AMONG ADOLESCENT MOTHERS REGARDING THE RISK OF SOCIO-EMOTIONAL DISORDERS IN TODDLERS

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Abstract

Teenage pregnancy is a public health issue that can influence a child's socio-emotional development through biological, psychological, and environmental factors. Health promotion factors during pregnancy are believed to play a role in reducing the risk of socio-emotional disorders; however, evidence regarding mothers with a history of teenage pregnancy remains limited. This study aimed to analyze the determinants of health promotion factors regarding the risk of socio-emotional disorders in children aged 12–59 months. A quantitative approach with a cross-sectional analytic observational design was employed. The sample consisted of 35 mothers who had been pregnant at age ≤ 19 and currently had children aged 12–59 months, selected using total sampling. Data were collected via questionnaire-based interviews and analyzed using the Chi-square test and multiple logistic regression with IBM SPSS Statistics. Bivariate analysis results indicated that attitude ($p=0.048$), access to information ($p=0.036$), and social support ($p=0.028$) were significantly associated with the risk of socio-emotional disorders in children. Multivariate analysis revealed that social support was the most dominant factor ($OR=5.652$; 95% $CI=1.429-22.354$; $p=0.014$), followed by access to information ($OR=4.289$; 95% $CI=1.158-15.887$; $p=0.029$) and attitude ($OR=3.611$; 95% $CI=1.069-12.195$; $p=0.039$). Knowledge and health promotion activities did not show a significant effect. Social support, access to information, and maternal attitude are key determinants of the risk of socio-emotional disorders in children aged 12–59 months and should therefore be the focus of health promotion efforts.

Keywords: *Determinants, socio-emotional disorders in toddlers, adolescent pregnancy, health promotion.*

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1. Introduction

Adolescent pregnancy is an ongoing public health issue due to its association with various negative consequences for both mother and child. According to World Health Organization (WHO) data, an estimated 21 million pregnancies occur annually among adolescents aged 15–19 in low- and middle-income countries, with

approximately 50% being unplanned. This results in roughly 12 million births, which can potentially impact the child's health as well as the family's social and economic stability [1].

In addition to affecting maternal health, a mother's age during pregnancy is also linked to the emotional development of toddlers. Studies in Indonesia indicate that children aged 3–

5 years born to mothers under the age of 20 face a higher risk of emotional development disorders with a likelihood of approximately 80% compared to children born to adult mothers [2]. Emotional development disorders in toddlers can encompass issues such as behavioral problems, hyperactivity, inappropriate emotional expression, and difficulties with social interaction, all of which impact the quality of the child's adjustment to their environment.

Suboptimal psychological readiness among adolescent mothers, unsupportive family socioeconomic conditions, and limited knowledge regarding child growth and development stimulation reinforce the link between adolescent pregnancy and toddler emotional development. Furthermore, the prevalence of emotional and behavioral disorders among preschool-aged children is reported to be quite high approximately 34.10% with maternal age during pregnancy identified as one of the associated factors [3].

The prevalence of emotional development issues among young children varies significantly across different settings and assessment methods. Survey studies in Southeast Asia report that approximately 8.4% of children aged 4–6 years experience emotional and behavioral problems, with an emotional problem prevalence of 6.8% based on the SDQ [4].

Data from the Madiun Regency Religious Court indicates that in 2024, there were 63 applications for marriage dispensation, with approximately 55.6% (35 cases) involving premarital pregnancy [5]. This situation illustrates that teenage pregnancy remains a genuine issue within the community. Adolescent pregnancy is known to be associated with an increased risk of preterm birth, low psychological readiness for parenthood, and limited capacity to provide stimulation for a child's growth and development. These factors can indirectly increase the risk of

socio-emotional developmental disorders in the child [6].

In addition to psychosocial factors, biological aspects dating back to the prenatal period play a role in determining the quality of a child's emotional development. Maternal age at delivery specifically regarding premature birth has been shown to be linked to central nervous system maturation. Infants born prematurely (before 37 weeks of gestation) face a higher risk of neurobehavioral developmental disorders due to the immaturity of brain structures, including areas involved in emotional regulation such as the prefrontal cortex and the limbic system. This immaturity can affect a child's ability to manage stress, control impulses, and establish adaptive social interactions during early childhood.

These prenatal biological factors subsequently interact with postnatal environmental factors, such as parenting styles, socioeconomic status, and the quality of psychosocial stimulation [7]. For instance, a prematurely born child may require a more sensitive and responsive parenting approach to mitigate the risk of emotional regulation difficulties [8]. Thus, maternal gestational age not only influences the infant's physical outcomes but also carries long-term implications for the child's emotional development during the toddler years.

Efforts to mitigate the impact of teenage pregnancy on a child's emotional development focus not only on addressing issues after they arise but also on preventive and empowering health promotion approaches. According to the Ottawa Charter for Health Promotion, health promotion is the process enabling individuals and communities to increase control over the factors influencing their health through the development of healthy public policy, the creation of supportive environments, the strengthening of community action, the development of personal skills, and the reorientation of

health services [9]. In the context of maternal and child health, health promotion can be realized through adolescent reproductive health education, preconception counseling, enhancing mothers' health literacy regarding parenting and child development stimulation, and strengthening family and community support. This approach is expected to improve the physical, psychological, and social readiness of expectant mothers while fostering a nurturing environment conducive to the child's emotional development from the prenatal period through early childhood [10].

Previous studies have reported associations between adolescent pregnancy and both neonatal outcomes and child development, as well as links between prematurity and neurobehavioral developmental disorders. However, most of these studies have examined these factors in isolation and were conducted primarily in developed nations. Research specifically analyzing the relationship between gestational age and the socio-emotional development of toddlers within the Indonesian population particularly when accounting for family environmental conditions and the local context remains limited. This limitation means that the scientific evidence available to inform the design of promotive and preventive programs at the primary healthcare level is currently insufficient [11].

The phenomenon of rising behavioral problems and emotional disorders among young children in recent decades highlights the importance of focusing on the determinants of emotional development from the prenatal to the postnatal period. Parental unpreparedness in adopting appropriate parenting practices, socioeconomic pressures [12], as well as a lack of adequate psychosocial stimulation, can be an additional risk factor [10] particularly in children with a history of prematurity. If this condition is not managed comprehensively, the impact

can persist into school age and adolescence, manifesting as difficulties with social adaptation or mental health disorders [13].

From a health promotion perspective, identifying the biological and environmental factors that influence children's socio-emotional development is crucial for designing preventive interventions spanning the preconception period, pregnancy, and child-rearing. Health promotion aims not only to enhance mothers' knowledge regarding healthy pregnancy and child development stimulation but also to strengthen family and community support in creating an environment that fosters optimal child development. This approach aligns with WHO strategies that emphasize empowering individuals, families, and communities to improve health across the life course [14].

Based on the foregoing, it is evident that the emotional development of young children is influenced by a complex interplay between prenatal biological factors including maternal gestational age and postnatal psychological and environmental factors. From a health promotion perspective, identifying these factors serves as the foundation for designing promotive and preventive interventions aimed at enhancing the capacity of individuals, families, and communities to support optimal child growth and development. Consequently, a comprehensive scientific study regarding the relationship between gestational age, environmental factors, and children's emotional development is essential to underpin the development of health promotion strategies in the field of maternal and child health.

2. Research Methods

This study employs a quantitative approach with a cross-sectional analytic observational design to systematically and measurably examine the relationship between health promotion factors among adolescent mothers during pregnancy and the risk of socio-

emotional disorders in their children under five years of age [15]. In a cross-sectional design, measurements of the independent and dependent variables are taken simultaneously, thereby providing a snapshot of the relationships between the variables at the time the study is conducted.

An analytical observational approach was selected because this study does not involve administering interventions to the subjects; instead, it simply observes and analyzes the relationship between risk factors and outcomes as they occur naturally. Data regarding health-promoting factors among adolescent mothers during pregnancy and the socio-emotional condition of their toddlers were collected during the same period and subsequently analyzed to determine the existence of any associations and to identify factors contributing to the risk of socio-emotional disorders in the children.

This study employed a quantitative approach with an observational, analytic, cross-sectional design. The study sample consisted of 35 mothers who had experienced pregnancy during adolescence (≤ 19 years of age) and currently had a child of under-five age; participants were selected using a total sampling technique. Inclusion criteria comprised mothers with a history of pregnancy at age ≤ 19 , a child aged 12-59 months, the ability to communicate effectively, and a willingness to participate. Data collection was conducted at a single time point through structured interviews using questionnaires; the researcher was assisted by midwives from Independent Midwifery Practices (PMB) and trained Diploma III Midwifery students. Primary data covered respondent characteristics, health promotion factors, and the child's socio-emotional development, while secondary data such as gestational age at delivery were obtained from Maternal and Child Health (MCH) booklets or medical records. The child's socio-emotional

development was assessed using the Pre-Screening Questionnaire for Child Development (KPSP), whereas health promotion factors were measured using a questionnaire with established validity and reliability. Data analysis was performed using IBM SPSS Statistics, employing univariate, bivariate, and multivariate analyses to determine the relationships and the most influential factors regarding the risk of socio-emotional disorders in children under five.

3. Results and Discussion

The results and findings of the research conducted by the researchers were analyzed using SPSS.

Bivariate Analysis

Table 1. Relationship between the knowledge of pregnant adolescents and the risk of socio-emotional disorders in toddlers.

Risk of Social-Emotional Disorders in Toddlers.					
Knowledge	Risk of Social-Emotional Disorders				P Value
	At risk		Not at risk		
	N	%	n	%	
Good	2	18	10	42	0.213
Fair	5	45	10	42	
Poor	4	36	4	17	
Total	11		24		

Based on the results of the bivariate analysis using the Chi-Square test, it was found that there is no significant relationship between maternal knowledge and the risk of socio-emotional disorders in children ($p=0.213$). This indicates that the level of knowledge does not necessarily have a direct effect on the risk of such disorders.

Table 2. Association between the attitudes of adolescent pregnant women and the risk of socio-emotional disorders in toddlers.

Attitude	Risk of Social-Emotional Disorders				P Value
	At risk		Not at risk		
	N	%	n	%	
Positive	4	36	16	67	0.048
Negative	7	64	8	33	
Total	11		24		

The attitude variable showed a significant association with the risk of socio-emotional disorders ($p=0.048$), where mothers with a negative attitude tended to have children at higher risk.

Table 3. Association between Access to Information among Adolescent Pregnant Women and the Risk of Socio-emotional Disorders in Children Under Five

Access to informat ion	Risk of Social- Emotional Disorders				P Value
	At risk		Not at risk		
	N	%	n	%	
Good	3	27	15	63	0.036
Poor	8	73	9	37	
Total	11		24		

Access to information also shows a significant association ($p=0.036$), indicating that limited access to information can increase the risk of socio-emotional disturbances.

Table 4. The Relationship Between Health Promotion for Pregnant Adolescents and the Risk of Socio-Emotional Disorders in Toddlers

Health Promoti on	Risk of Social- Emotional Disorders				P Value
	At risk		Not At risk		
	N	%	n	%	
Good	5	45	17	71	0.091
Poor	6	55	7	29	
Total	11		24		

The health promotion variable did not show a significant association ($p=0.091$), although there was a trend suggesting that respondents who had never received health promotion faced a higher risk.

Table 5. The Relationship Between Social Support for Adolescent Pregnant Women and the Risk of Socio-Emotional Disorders in Toddlers

Social Support	Risk of Social-Emotional Disorders				P Value
	At risk		Not At risk		
	N	%	n	%	
Good	3	27	16	67	0.028
Poor	8	73	8	33	

Total 11 24

Social support showed a significant association ($p=0.028$), where low social support was linked to an increased risk of socio emotional disorders in children. Overall, the variables of attitude, access to information, and social support demonstrated a statistically significant relationship with the risk of socio-emotional disorders in children.

Multivariate Analysis

Table 6. Multiple Logistic Regression Analysis Table

Variable	B	S.E	Wald	P-value	OR (Exp B)	95% CI
Knowledge	-0,512	0,643	0,634	0,426	0,599	0,170–2,105
Attitude	1,284	0,621	4,271	0,039	3,611	1,069–12,195
Access to Information	1,456	0,668	4,746	0,029	4,289	1,158–15,887
Health Promotion	0,873	0,577	2,289	0,130	2,394	0,772–7,417
Social Support	1,732	0,702	6,083	0,014	5,652	1,429–22,354
Constant	-2,145	0,884	5,887	0,015	0,117	

Based on the results of the multiple logistic regression analysis, the variables found to significantly influence the risk of socio-emotional disorders in children are attitude ($p=0.039$), access to information ($p=0.029$), and social support ($p=0.014$).

This aligns with research indicating that parental attitudes regarding child-rearing significantly determine the quality of interactions with the child and the child's emotional development. Mothers with negative attitudes tend to be less responsive to their children's needs, thereby increasing the risk of socio-emotional disorders. A study by Catherine S. Tamis-LeMonda demonstrates that parenting styles and parental responsiveness are closely

linked to the emotional development of young children [16].

The social support variable emerged as the most dominant factor, with an Odds Ratio (OR) of 5.652. This indicates that respondents with low social support had 5.6 times higher odds of having a child at risk for socio-emotional disorders compared to those with high social support. This finding is supported by research stating that easy access to health information can enhance mothers' practical knowledge regarding child-rearing. According to the World Health Organization, adequate access to health information plays a crucial role in promoting healthy parenting practices and preventing child developmental disorders [17].

However, the variables of knowledge ($p=0.426$) and health promotion ($p=0.130$) did not show a significant influence in the multivariate model, even though, theoretically, both variables play a role in supporting child health. This is likely due to the presence of more dominant factors such as social support and attitudes that directly influence caregiving behaviors. These findings align with research indicating that knowledge alone is insufficient without accompanying changes in attitudes and environmental support within daily caregiving practices.

Thus, it can be concluded that social support, access to information, and attitudes are the primary factors influencing the risk of socio-emotional disorders in children in this study.

4. Conclusion

The study concludes that social support, access to information, and attitudes are the primary factors influencing the risk of socio-emotional disorders in children within the scope of this research.

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