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School-Age Child Mortality: The Impact of Women's Autonomy and Household Characteristics

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ABSTRACT

Introduction: Child mortality is a crucial indicator for achieving the Sustainable Development Goals (SDGs) for 2030 and the National Medium-Term Development Plan (RPJMN) 2020-2024 in healthcare. It reflects advancements in health and human capital, with SDG targets aiming for a neonatal mortality rate of 12 per 1,000 live births by 2030, and RPJMN targeting a child mortality rate of 16 per 1,000 live births by 2024. School-age (5-9 years) and adolescent (10-18 years) stages are critical for education and character development, where parental roles, especially women's autonomy in decision-making regarding family and education, are essential for ensuring health and well-being.

Objective: The aim of this study is to examine the impact of women's autonomy, household wealth, residential area, parental occupations, and age at marriage on school-age child mortality.

Method: This study uses a quantitative cross-sectional design with secondary data from the 2017 Indonesian Demographic and Health Survey (IDHS). The sample includes 37,246 mothers of children aged 6 to 18 years. Inclusion criteria were mothers whose last child died between ages 6 and 18, who were married and living with their spouse, and who knew their age at first marriage. Exclusion criteria were women under 15 or over 49 years, deaths outside the specified age range, women unaware of their marriage age, and those who were divorced or widowed. Data were analyzed using bivariate logistic regression and multivariate stepwise regression to evaluate the effects of women's autonomy, household wealth, residential area, parental occupations, and age at marriage on school-age child mortality.

Result: The results indicated significant associations between women's autonomy (P=0.022; OR=0.92), age at first marriage (P=0.0001; OR=1.8), father's occupation (P=0.0001; OR=1.4), and residential area (P=0.0001; OR=1.5) as predictors of school-age child mortality.

Conclusion: The study underscores the importance of empowering women, raising awareness about early marriage, and implementing economic interventions to reduce school-age child mortality. Additionally, it recommends further research on women's autonomy, including supportive and obstructive factors, to deepen understanding in this area. Such research can aid in developing more holistic policies and interventions.

Keywords: School-Age Child Mortality; Women's Autonomy; Household Characteristics; Age at First Marriage; Mother's and Father's Occupation Status

INTRODUCTION

Child mortality serves as a critical indicator in achieving the Sustainable Development Goals (SDGs) for 2030 and the National Medium-Term Development Plan (RPJMN) 2020-2024 in the healthcare domain. It is a sensitive metric reflecting progress in health development and human capital indices. SDG targets aim for a neonatal mortality rate of 12 per 1,000 live births by 2030 globally, while RPJMN targets a child mortality rate of 16 per 1,000 live births by 2024 (1,2).

During the school-age (5-9 years) and adolescent (10-18 years) phases, children undergo intensive educational and character-forming experiences. Parental roles are crucial in providing guidance, emotional support, and making health-related decisions that are vital for their children. Therefore, women's autonomy, encompassing their ability to make decisions concerning family life and children's education, plays a pivotal role (3).

The World Health Organization (WHO) reported that an estimated 869,000 older children and adolescents (ages 5-14 years) died in 2020, with a mortality rate of 7 per 1,000 children. Globally, older children (5-9 years) have seen one of the largest declines in mortality since 1990 (60%), with an annual decline rate of 3.1%. For young adolescents (10-14 years), the mortality rate decreased from 10 to 3 deaths per 1,000 children, with an annual decline rate of 1.9% (4).

Despite positive trends, the risk of child mortality remains a significant issue, especially in contexts where women's autonomy is restricted. Studies have shown that when women lack autonomy in household decision making, particularly in matters of financial expenditures and healthcare, it can result in the inadequate fulfillment of children's needs. Research indicates that mothers generally have a better understanding of their children's developmental needs compared to fathers. When mothers are excluded from decisions about household spending, including healthcare, the essential support for a child's growth and health may be compromised, which can potentially lead to increased child mortality. Additionally, low maternal autonomy can limit a child's access to education and developmental opportunities, as decisions about school enrollment and educational resources may be neglected or improperly managed. These limitations can have serious consequences, contributing to higher rates of child mortality (5).

The United Nations Inter-Agency Group for Child Mortality Estimation (UN IGME) report in 2023 highlights significant declines in mortality rates among Indonesian children aged 5-14 years. The probability of death in this age group decreased from 13 per 1,000 in 1990 to 5 per 1,000 in 2021, with total deaths declining from 59,000 to 22,000. For males, the probability of death dropped from 14 to 3, while for females, it decreased from 13 to 6. Among adolescents aged 15-24 years, the mortality probability declined from 13 per 1,000 in 1990 to 10 per 1,000 in 2021, with total deaths decreasing from 47,000 to 43,000 (6).

Low female autonomy in household decision-making, often dominated by fathers, can negatively impact child and adolescent well-being and safety. This limitation can restrict access to healthcare, hinder proper nutrition and mental health monitoring, increase accident risks due to inadequate preventive measures, and restrict access to quality education and developmental stimulation. Additionally, it can affect children's psychological well-being due to imbalanced family relationships (7).

Given these dynamics, the reduction in child and adolescent mortality rates in Indonesia is encouraging, but ongoing concerns remain regarding the potential factors that could increase these rates in the future. This research focuses on the critical issue of school-age child mortality, examining how family characteristics, particularly the low autonomy of women in decision-making, influence these rates. A mother's involvement in household decision-making is crucial for child welfare, and without sufficient authority, especially in health-related decisions, there is an increased risk of adverse outcomes such as poor health management and even suicide. The inability of mothers to influence these decisions may contribute to an increase in child mortality rates.

METHOD

This study employs a quantitative approach with a cross-sectional design to examine the influence and risks associated with family characteristics and sociodemographic factors, including women's autonomy, household wealth status, age at first marriage, maternal employment status, paternal employment status, and residential type on school-age child mortality.

The population studied comprises all Women of Reproductive Age (WRA) between 15-49 years, sampled from the 2017 Indonesia Demographic and Health Survey (IDHS). The sample used in this study includes mothers with children aged 6 to 18 years (72 to 216 months) who meet the sample criteria. Consequently, the total sample size for this study is 37,246 participants.

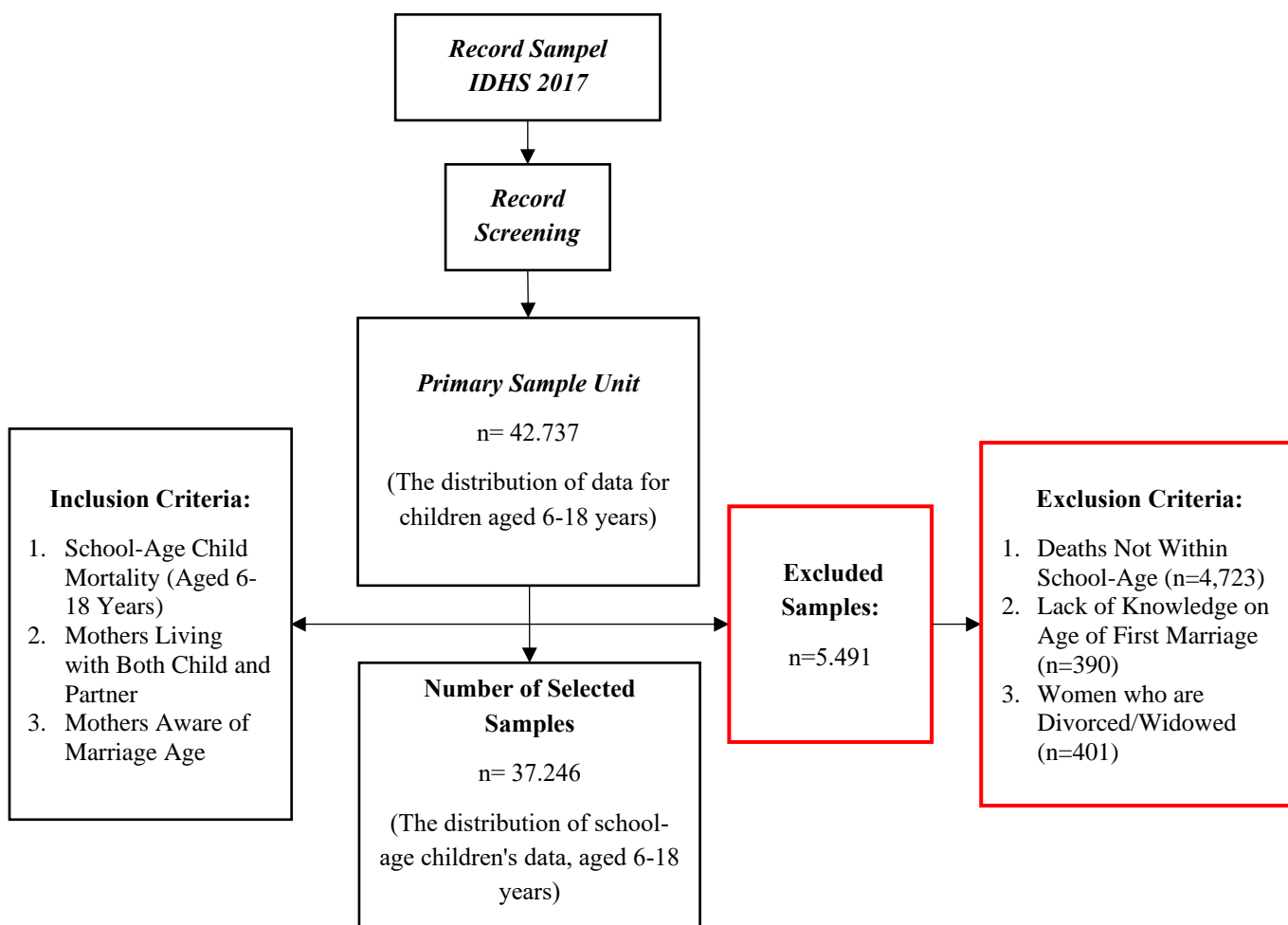


Figure 1. Sample Framework

The initial dataset comprised 42,737 records, representing the distribution of data for children aged 6-18 years. To align with the research objectives, specific inclusion criteria were applied: school-age child mortality (6-18 years), mothers living with both the child and partner, and mothers aware of their age at first marriage. Subsequently, 5,491 records were excluded based on the following criteria: deaths not within the school-age range (4,723 cases), lack of knowledge regarding the age of first marriage (390 cases), and instances where mothers were divorced or widowed (401 cases). After applying these exclusion criteria, the final sample size was refined to 37,246 records, which were used to analyze the factors influencing school-age child mortality in relation to women's autonomy and family characteristics.

During the data analysis phase, the study enters the critical process of addressing research questions and uncovering significant findings. The initial step involves descriptive statistics and univariate analysis, which summarize and depict fundamental characteristics of the observed variables such as means, medians, modes, and standard deviations. This provides a comprehensive overview of the data under scrutiny.

Following this, bivariate analysis explores relationships between pairs of variables, employing methods like Bivariate Logistic Regression for categorical variables or correlation analysis for numeric variables. These analyses elucidate connections and dependencies within the data set.

Finally, multivariate analysis delves deeper by identifying how multiple independent variables collectively influence the dependent variable. In the context of researching school-age child mortality, this approach offers nuanced insights into the combined factors contributing to such outcomes, thereby enriching understanding and informing targeted interventions.

RESULTS

Based on the research conducted using secondary data from the 2017 Indonesia Demographic and Health Survey (IDHS), an analysis was carried out to identify the influence and risks associated with household characteristics and women's autonomy on school-age child mortality. The study used a sample of 37,246 respondents.

Respondent Characteristics

Table 1. Frequency Distribution of Respondent Characteristics Data

Characteristics	Frequency	Percentage
Mother's Age		
<20 Years	166	0.45
20-35 Years	11.083	29.76
>35 Years	25.997	69.80
Child's Age		
6-10 Years	13.330	35.79
11-14 Years	12.459	33.45
15-18 Years	11.457	30.76

Based on the data of mother's and child's ages, the majority of Women of Reproductive Age (WRA) with school-age children fall into the 20-35 years age group (29.76%), followed by the >35 years age group (69.80%). The <20 years age group constitutes a lower percentage at 0.45%. Conversely, the distribution of school-age children's ages shows that the majority are in the 6-10 years category (35.79%), followed by the 11-14 years group (33.45%), and the 15-18 years group (30.76%).

Univariate Analysis

Table 2. Frequency Distribution of Dependent and Independent Variable Data

Variable	Frequency	Percentage
Child Mortality		
Not Deceased	30.376	81.56
Deceased	6.870	18.44
Women's Autonomy		
High Autonomy	6.799	18.25
Low Autonomy	30.477	81.75
Household Wealth		
Rich	19.861	53.32
Poor	17.385	46.68
Age at First Marriage		
>20 Years	18.033	48.42
<20 Years	19.213	51.58
Mother's Employment Status		
Employed	24.631	66.13
Not Employed	12.615	33.87
Father's Employment Status		
Employed	36.804	98.81
Not Employed	442	1.19
Residential Area		
Urban	17.953	48,20
Rural	19.293	51,80

Regarding child mortality, the majority of children (81.56%) were reported as not deceased, contrasting with 18.44% who were deceased. Women's autonomy showed a notable imbalance, with 81.75% experiencing low autonomy compared to 18.25% with high autonomy. Household wealth distribution indicated that 53.32% of households were classified as rich, while 46.68% were classified as poor. Analysis of age at first marriage revealed that 51.58% of women married before the age of 20, while 48.42% married at or after the age of 20. Furthermore, a majority of mothers (66.13%) were employed, contrasting with 33.87% who were not employed. In terms of father's employment status, 98.81% were employed, while only 1.19% were not. Lastly, the sample was evenly split between urban (48.20%) and rural (51.80%) residential areas, highlighting a balanced representation across different living environments.

Bivariate Analysis

Table 3. Analysis of the Relationship Between Family Characteristics and School-Age Child Mortality

Predictor Variable	Response Variable (School-Age Child Mortality)				Total	OR	CI 95%	P-value	
	Not Deceased		Deceased						
	n	%	n	%					
Women's Autonomy									
High Autonomy	5.494	80.81	1.305	19.19	6.799	100	0.94	0.88-1.00	0.07
Low Autonomy	24.882	81.72	5.565	18.28	30.447	100			
Total					37.246	100			
Household Wealth									
Rich	16.170	81.42	3.691	18.58	19.861	100	0.98	0.93-1.03	0.459
Poor	14.206	81.71	3.179	18.29	17.385	100			
Total					37.246	100			
Age at First Marriage									
>20 Years	15.646	86.76	2.387	13.24	18.033	100	1.9	1.88-2.10	0.001
<20 Years	14.730	76.67	4.483	23.33	19.213	100			
Total					37.246	100			
Mother's Employment Status									
Employed	20.033	81.33	4.598	18.67	24.631	100	0.95	0.90-1.0	0.122
Not Employed	10.343	81.56	2.722	18.01	12.615	100			
Total					37.246	100			
Father's Employment Status									
Employed	30.043	81.63	6.761	18.37	36.804	100	1.4	1.1-1.8	0.001
Not Employed	333	75.34	109	24.66	442	100			
Total					37.246	100			
Residential Area									
Urban	15.396	85.76	2.557	14.24	17.953	100	1.7	1.6-1.8	0.001
Rural	14.980	77.64	4.313	22.36	19.293	100			
Total					37.246	100			

Based on the bivariate analysis, it was found that the proportion of high women's autonomy resulted in a lower rate of children not deceased (80.81%) compared to low autonomy (81.72%). However, the proportion of deceased children was higher in the high autonomy group (19.19%) than in the low autonomy group (18.28%). The statistical test resulted in a p-value of 0.07, indicating no significant relationship between women's autonomy and school-age child mortality. This outcome could imply that other factors, such as access to healthcare, education, or community support, may play a more critical role in influencing child mortality than women's autonomy alone.

Regarding the relationship between household characteristics and school-age child mortality, for household wealth status, it was found that affluent households had a lower rate of children not deceased (81.42%) compared to poor households (81.71%). Conversely, the proportion of deceased children was higher in affluent households (18.58%) than in poor households (18.29%). The statistical test resulted in a p-value of 0.459, indicating no significant relationship between household wealth and school-age child mortality. This could imply that other dimensions of socioeconomic status, such as parental education or access to resources, might have a more direct impact on child survival than wealth status alone. It may also suggest that within the studied population, disparities in wealth are not as pronounced or that there are mitigating factors, such as public health interventions, that reduce the impact of wealth on child mortality.

For age at first marriage, it was found that women who married at >20 years had a higher rate of children not deceased (86.76%) compared to those who married at <20 years (76.67%). The proportion of deceased children was higher among those who married at <20 years (23.33%) compared to those who married at >20 years (13.24%). The statistical test resulted in an OR of 1.9 (CI 1.88-2.10) and a p-value of 0.0001, indicating a significant relationship between age at first marriage and school-age child mortality, with a higher risk for mothers who married at <20 years.

For mother's employment status, it was found that employed mothers had a slightly lower rate of children not deceased (81.33%) compared to non-employed mothers (81.56%). However, the proportion of deceased children was higher among employed mothers (18.67%) compared to non-employed mothers (18.01%). The statistical test resulted in a p-value of 0.122, indicating no significant relationship between mother's employment status and school-

age child mortality. This could be interpreted in several ways: perhaps employment status alone does not capture the full spectrum of economic and social conditions that affect child health, or that the benefits of maternal employment, such as increased income, might be offset by the potential decrease in time available for child care.

For father's employment status, children not deceased were higher among employed fathers (81.63%) compared to non-employed fathers (75.34%). Conversely, the proportion of deceased children was higher among non-employed fathers (24.66%) compared to employed fathers (18.37%). The statistical test resulted in an OR of 1.4 (CI 1.1-1.8) and a p-value of 0.001, indicating a significant relationship between father's employment status and school-age child mortality, with a higher risk for children of non-employed fathers.

Lastly, for residential area, children not deceased were lower in rural areas (77.64%) compared to urban areas (85.76%). The proportion of deceased children was higher in rural areas (22.36%) compared to urban areas (14.24%). The statistical test resulted in an OR of 1.7 (CI 1.6-1.8) and a p-value of 0.0001, indicating a significant relationship between residential area and school-age child mortality, with a higher risk for children living in rural areas.

Multivariate Analysis

Table 4. Multivariate Analysis of Factors Influencing School-Age Child Mortality

School-Age Child Mortality	OR	CI (95%) Lower - Upper	P-value
Women's Autonomy (Low Autonomy)	0.92	0.86 - 0.98	0.021
Age at First Marriage (<20 Years)	1.8	1.73 - 1.93	0.0001
Father's Employment Status (Not Employed)	1.4	1.15 - 1.80	0.001
Residential Area (Rural)	1.5	1.47 - 1.64	0.0001

In the results of the logistic regression analysis using the stepwise method, two variables, "Household Wealth Status" and "Mother's Employment," were removed from the model based on the p-value criterion set at 0.05 in the Wald test. The removal of these variables was based on their statistical significance concerning the dependent variable "Child Mortality." The Wald test results indicated that the removal of these two variables had p-values greater than 0.05. Therefore, the variables that remained in the model were "Women's Autonomy," "Age at First Marriage," "Residential Area," and "Father's Employment."

The logistic regression results showed that the variables remaining in the model had strong statistical significance, with p-values less than 0.05. The odds ratios for each variable can be interpreted as the relative change in the odds of child mortality resulting from a one-unit change in the independent variable.

The interpretation of the odds ratios from the final logistic regression model indicates that the first age of marriage, father's employment status, and residential area had a significant risk factor for school-age child mortality. For the variable "Women's Autonomy," an odds ratio of 0.92 with a p-value of 0.021 was obtained. This implies that higher women's autonomy is associated with a lower risk of school-age child mortality.

Thus, the logistic regression model before the stepwise approach indicated that factors such as women's autonomy, first age of marriage, father's employment status, and residential area had a significant influence on school-age child mortality. The "Women's Autonomy" variable showed a significant negative relationship, indicating that higher levels of women's autonomy are associated with a lower risk of child mortality. However, after the stepwise selection method, the variables "Household Wealth Status" and "Mother's Employment" were removed from the model due to their lack of significant contribution. The final model, involving the variables "Women's Autonomy," "Age at First Marriage," "Father's Employment Status," and "Residential Area," retained a significant relationship with school-age child mortality.

DISCUSSION

The Influence of Women's Autonomy on School-Age Child Mortality

A multivariate analysis was conducted using logistic regression to examine the influence in-depth and assess the odds ratio (OR) as a measure of risk from independent variables on the dependent variable. After analysis using the stepwise approach, the variable of women's autonomy remained in the model with an OR of 0.92 and a p-value of 0.021, indicating that the level of women's autonomy has a significant impact on the risk of school-age child mortality. The OR value less than 1 (0.92) suggests an inverse relationship between the independent variable and the dependent variable, meaning that as the value of the independent variable increases, the value of the dependent variable decreases. This indicates that higher women's autonomy is associated with a lower risk of school-age child mortality.

The importance of these findings can be found in related literature stating that women's autonomy plays a crucial role in various aspects of daily life, including child well-being. Research by Taukobong et al. (2016) shows that higher women's autonomy correlates with increased access to child health services and fulfillment of their basic needs. Another study by Saaka (2020) highlights that in households with low women's autonomy, strategic decisions related to child well-being tend to be suboptimal (8,9).

In the context of an odds ratio (OR) less than 1.00, it indicates that higher women's autonomy is associated with a lower risk of school-age child mortality. This finding is consistent with previous studies showing that women's empowerment can be key in reducing school-age child mortality rates (10).

To further reduce child mortality, programs and policies should focus on enhancing women's autonomy through education, economic empowerment, and community support initiatives. Interventions that encourage shared decision-making within households and increase women's access to resources could have a substantial impact on child survival rates. Furthermore, promoting legal and policy frameworks that support women's rights and autonomy could lead to broader improvements in child health.

One potential limitation of this study is the reliance on secondary data, which may not capture all relevant aspects of women's autonomy, such as nuanced household dynamics or cultural factors. Additionally, the cross-sectional design limits the ability to establish causality between women's autonomy and child mortality. Future research should consider longitudinal studies to better understand the causal pathways and long-term effects of women's autonomy on child outcomes.

The Influence of Age at First Marriage on School-Age Child Mortality

A multivariate analysis using logistic regression was conducted to delve into the impact of age at first marriage on school-age child mortality. After analysis with the stepwise approach, the variable of age at first marriage remained in the model with an OR of 1.18 and a p-value of 0.0001. This interpretation suggests that the age at first marriage significantly impacts the risk of school-age child mortality. The OR value greater than 1 (1.18) indicates a positive relationship between the independent variable (age at first marriage) and the dependent variable (school-age child mortality). In other words, marrying below the age of 20 is associated with a higher risk of school-age child mortality.

This result strengthens the literature that suggests a lower age at first marriage can increase the risk of school-age child mortality. Previous research highlights that a lower age at first marriage correlates with limited knowledge and experience in child-rearing, contributing to higher mortality rates at school age (11).

Through the significant OR findings, this study provides strong support for the argument that increasing the age at first marriage can be considered an effective strategy to reduce the risk of school-age child mortality. The implications of this study provide a basis for policymakers and health practitioners to raise awareness about the importance of promoting an optimal age for marriage to support child well-being in Indonesia.

According to the researchers' assumptions, marrying below the age of 20 can lead to various complications related to health, mental readiness, and emotional maturity. The impact is particularly significant on the growth and development of children raised by very young mothers who may not be fully prepared to face parental responsibilities. Marrying at this age can increase the risk of maternal health issues during pregnancy and childbirth and affect the child's well-being due to limited optimal care. Moreover, the readiness to face the role of a parent and partner may be lower at a young age, and limited life experience can lead to issues such as baby blues and difficulties in managing dual roles as a teenager and a parent. Young women who marry early may face psychosocial challenges, including emotional instability and social pressure, which can affect their overall well-being and increase the risk of various problems, including unplanned pregnancies or even a rise in abandoned children.

Therefore, the researchers' assumption emphasizes the importance of reaching an optimal age before deciding to marry and start a family. Reaching an optimal age allows for physical, mental, and emotional readiness development and provides a stronger foundation for facing the challenges of married life.

The Influence of Mother's Employment Status on School-Age Child Mortality

A multivariate analysis using logistic regression was conducted with a stepwise approach to examine the impact of mother's employment status on school-age child mortality. The analysis revealed that mother's employment status did not remain statistically significant in the logistic regression model, with an Odds Ratio (OR) of 0.95 and a p-value of 0.122, which is higher than the significance threshold of 0.05.

Therefore, despite the bivariate analysis indicating differences in proportions between employed and non-employed mothers concerning school-age child mortality, the multivariate analysis suggests that the mother's employment status cannot significantly predict school-age child mortality in the context of this study. Further research and deeper exploration of other factors that may influence this relationship are needed.

This finding underscores the complexity of factors influencing school-age child mortality, where mother's employment status alone may not sufficiently explain variations in mortality rates. Future studies could benefit from exploring additional variables or considering more nuanced aspects of employment that could impact child welfare and mortality outcomes.

Further research should explore additional variables, such as the quality of employment, working conditions, and support systems available to working mothers, which may play a more critical role in child mortality. Policies that support working mothers, such as access to affordable childcare and flexible working hours, could potentially mitigate any negative effects of employment on child health.

The Influence of Father's Employment Status on School-Age Child Mortality

A multivariate analysis using logistic regression was conducted to explore the impact of father's employment status on school-age child mortality. After employing a stepwise approach, father's employment status remained significant in the model with an Odds Ratio (OR) of 1.4 and a p-value of 0.001. This indicates a significant positive relationship between the independent variable (father's employment status) and the dependent variable (school-age child mortality). Specifically, fathers who are not employed have a one times higher risk of causing school-age child mortality.

Research by Balaj et al. (2021) supports the findings of this study, exploring the impact of father's employment status on the well-being of school-age children. Their research notes that children with unemployed fathers tend to face a higher risk of school-age mortality, consistent with the bivariate and multivariate test results in this study (12).

This finding can be further explained with additional insights and assumptions that economically active fathers provide financial stability to the family. This stability can contribute to better access to healthcare services, education, and basic needs for children. Adequate economic resources availability can act as a protective factor against the risk of school-age child mortality.

Efforts should be made to enhance employment opportunities for fathers, particularly in vulnerable communities, to improve child welfare. Employment support programs, job training, and economic incentives could help increase family stability and reduce child mortality risks.

This analysis does not account for the nature of employment or job security, which could influence the findings. Future research should consider these factors to provide a more comprehensive understanding of how employment impacts child outcomes.

The Influence of Household Wealth Status on School-Age Child Mortality

A multivariate analysis using logistic regression was conducted to delve into the impact of household wealth status on school-age child mortality. After employing a stepwise approach, the variable of household economic status did not remain significant in the model based on the Wald test (p-value greater than the significance level of 0.05/alpha). The obtained Odds Ratio (OR) was 0.97 with a p-value of 0.430. This suggests that higher household economic status is associated with a slightly lower risk of school-age child mortality.

These findings indicate that, within the context of this study, household wealth status does not have a significant impact on the risk of school-age child mortality. Other factors may play a more influential role in this outcome, warranting further investigation to comprehensively understand the determinants of school-age child mortality.

The researcher's assumptions suggest a belief that families with better economic capabilities have the means to more easily meet the needs and desires of their children. This includes facilities, infrastructure, and transportation that can provide comfort and convenience for children. The assumption also implies that economically stable families may have more flexibility in providing children access to advanced technological devices, such as communication tools or learning devices. In this context, security and supervision over the use of these advanced tools by children may be considered less significant or a secondary factor in the considerations of economically affluent families.

While wealth may not directly impact child mortality, it remains important to consider other aspects of socioeconomic status that could influence child health, such as parental education and access to healthcare. Policymakers should continue to address broader social determinants of health to support child well-being.

Therefore, the researcher argues that economic factors play a crucial role in providing a better quality of life for children, although this may not always correlate with aspects of safety and control over children's use of technology.

The study's reliance on broad measures of wealth without considering detailed household spending or resource allocation limits the ability to fully understand the wealth-child mortality relationship. Future studies should include more granular data on household economic conditions.

The Influence of Residential Area on School-Age Child Mortality

A multivariate analysis using logistic regression was conducted to explore the impact of residential area on school-age child mortality. After applying a stepwise approach, the variable of residential area remained significant in the model with an Odds Ratio (OR) of 1.7 and a p-value of 0.0001. This indicates that residential area has a significant impact on the risk of school-age child mortality. The justification for an OR greater than 1 (1.7) suggests a positive relationship between the independent variable (residential area) and the dependent variable (school-age child mortality). In other words, families living in rural areas have a one-times higher risk of school-age child mortality.

Research (Moradhvaj et al., 2023) investigating factors influencing school-age child mortality found that families residing in rural areas tend to have a one-times higher risk of school-age child mortality compared to those living in urban areas. The findings underscore significant differences in the risk of school-age child mortality between these two types of areas, providing deeper insights into the dynamics of child health in rural environments. Specific factors such as limited access to healthcare services or disparities in fulfilling basic needs may contribute significantly to these differences in risk (13).

These statements reflect a well-founded understanding that residential area can significantly impact child survival and development. Differences between urban and rural areas, particularly in terms of culture, lifestyle, and healthcare facilities, play a crucial role in shaping child growth and the risk of child mortality.

Factors such as modern lifestyles and developments in urban areas often accompany better adherence to health regulations, greater access to adequate healthcare facilities, and attention to critical aspects of child development. On the other hand, rural areas may face challenges related to traditionalism, inadequate facilities, and limitations in meeting children's needs.

Targeted interventions are needed to address disparities between rural and urban areas, including improving access to healthcare, education, and essential services in rural communities. Strengthening infrastructure and increasing investment in rural health initiatives could help reduce the mortality gap.

CONCLUSION

In conclusion, this study provides valuable insights into the factors influencing school-age child mortality in Indonesia. It finds that women's autonomy is a significant protective factor, with higher levels of autonomy associated with a reduced risk of child mortality. The study also highlights the crucial roles of early marriage, paternal employment status, and the rural-urban divide, emphasizing their substantial impact on child welfare outcomes. These findings underscore the need to address socio-economic disparities and enhance women's empowerment as effective strategies to reduce the risk of school-age child mortality.

To effectively reduce school-age child mortality, it is essential for policymakers and practitioners to implement strategies that promote women's empowerment and autonomy, such as educational programs that enhance women's decision-making power and access to resources. Additionally, addressing socio-economic disparities by improving healthcare and educational opportunities in rural areas, promoting later marriage, and supporting economic stability for fathers are important steps.

Further research should focus on exploring additional variables and their interactions through longitudinal studies to understand the causal relationships and long-term effects on child mortality, and evaluate the effectiveness of specific interventions.

SUGGESTION

Based on the findings and conclusions of this study, several recommendations are proposed for addressing identified issues and guiding future research and government programs. First, enhancing women's empowerment is crucial, as increasing women's autonomy can positively impact family well-being and reduce school-age child mortality. Strengthening training, education, and advocacy programs is recommended. Second, addressing early marriage through education and counseling about its negative effects on child and maternal health is essential. Third, encouraging fathers' active involvement in children's health and education can significantly reduce child mortality, with policies supporting work-life balance being beneficial. Lastly, focusing on rural areas by improving access to healthcare and education services and investing in infrastructure and community empowerment can help mitigate the risks associated with child mortality.

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