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Original Research Paper

The Relationship Between Mother's Education Level and Immunization Compliance in Toddlers in Indonesia

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Abstract

The abstract section should be written concisely and clearly in one paragraph with no more than 200 words. The abstract consists of four main components: **background, objectives, methods, results, and conclusions**. Start by briefly explaining the background of the research problem and its urgency. Next, clearly state the research objectives. In the methods section, briefly describe the research design, sample size, data collection techniques, and analysis methods used. The research results should be presented by mentioning the main findings that answer the research questions, including quantitative data if relevant. Conclude with findings that highlight the implications of the results and recommendations that can be made based on the research outcomes. The abstract should be written in a narrative form without subheadings and should avoid the use of references, uncommon abbreviations, or information not included in the article's content.

Keywords: *Immunization; Maternal Compliance; Health Education; Social Factors; Stunting.*

Introduction (consists of 5-6 paragraphs)

Research Topic. The first paragraph should provide a general introduction to the research topic. Offer a brief background that highlights the significance of the issue in the field of medicine or healthcare. If possible, include the latest statistical data or global/national trends that support the relevance of this topic. Ensure that readers understand why this issue is worth further investigation.

Problem Identification. The second paragraph should outline the main problem being addressed and its impact on society or the healthcare field more specifically. Mention previous studies that have explored similar issues and highlight any unresolved aspects or areas that have received little attention. Ensure that readers can identify the scientific gap (research gap) within this topic.

Research Urgency and Novelty. In the third paragraph, emphasize why this research is necessary and what makes it novel compared to previous studies. Describe the specific aspects that make this research unique, whether in terms of approach, methodology, study population, or other elements that have not been widely explored. This paragraph should demonstrate the study's contribution to scientific knowledge or healthcare practices.

Research Questions and Objectives. The fourth paragraph should present the main research question that this study aims to answer. If the study is hypothesis-based, include the research hypothesis here. Then, explicitly state the research objectives to ensure that readers understand the study's direction.

Impact and Implications of the Research. Finally, in the fifth paragraph, briefly describe how the study's findings could provide benefits or implications for academia, healthcare policies, or medical practice. If the research has potential real-world applications, briefly explain its impact. This paragraph helps readers grasp the broader significance of the research.

Materials and Methods

Study Design

This research uses a research design **(specify the type of design: cross-sectional, cohort, experimental, qualitative, etc.)** with the aim of **(explain the purpose of the research according to its design)**. This design was chosen because it is suitable for analyzing **(for example: the relationship between variables, the effectiveness of interventions, participants' perceptions, etc.)** in the context of **(specify the field or population being studied, for example public health, clinical medicine, etc.)**.

Sample

The population in this study is **(explain the target population, for example patients with a certain disease, healthcare workers, or the general public)**. The research sample is selected using the method of **(explain the sampling technique, for example purposive sampling, stratified random sampling, etc.)**, with inclusion criteria **(mention the criteria for participants who can join, such as age, health conditions, etc.)** and exclusion criteria **(for example certain conditions that disqualify someone from being a participant)**. The number of samples is determined based on **(mention the calculation or reference used, such as Slovin's formula, power analysis, etc.)**, resulting in **(the number of samples used in this study)** participants.

Data Collection Technique

Data was collected through (**mention the method, such as questionnaires, in-depth interviews, observations, or laboratory sampling)** which has been tested for validity and reliability if using research instruments. The data collection procedure was conducted at **(mention the location, such as hospitals, community health centers, or specific communities)** within a timeframe of **(mention the research period, such as three months, one year, etc.)**. If using specific tools or devices, specify the type and its specifications..

Data Analysis Technique

The collected data was analyzed using methods **(mention analysis techniques, such as descriptive statistical tests, logistic regression, Structural Equation Modeling (SEM), or thematic analysis for qualitative research)**. The analysis was conducted with the help of software **(mention if specific software was used, such as SPSS, NVivo, R, or Python)** to ensure the accuracy of the results. For quantitative research, a significance level of **(e.g., $p < 0.05$)** was determined. If using a qualitative approach, the analysis process includes **(mention techniques such as coding, triangulation, or data validation with expert judgment)**.

Ethical Consideration

This study has received approval from **(mention the ethics institution, such as the Ethics Committee of the Faculty of Medicine at Tadulako University or related**

institution) with the permit number **(mention the number if available)**. All participants were given informed consent before participating in the research, and the data collected is guaranteed to be confidential in accordance with the principles of health research ethics. If this research does not require ethical clearance, the reasons are explained, such as because it uses secondary data or literature studies without directly involving human subjects.

Result

This section presents the main findings of the research that correspond to **the research question** and **the objectives of the study**. The results are presented in descriptive and analytical forms according to the methods used. Data may be displayed in the form of **tables, diagrams, or graphs** to facilitate the reader's understanding.

Karakteristik Responden

The first paragraph contains an overview of the characteristics of the respondents, including demographic variables such **as age, gender, health status, education level, or other factors relevant to the study**. This data is usually presented in the form of frequency distribution tables.

Example

Table 1. Characteristics of Respondents

Variable	Category	Frequency (n)	Percentage (%)
Gender	Men	120	48.0%
	Woman	130	52.0%
Age (year)	< 30	80	32.0%
	30 - 50	140	56.0%
	> 50	30	12.0%
Education	SD - SMP	60	24.0%
	SMA	120	48.0%
	Higher education institution	70	28.0%

Source : *Data Primer 2025*

Descriptive Analysis of Research Variables

The second paragraph explains the descriptive results of the main research variables that correspond to the research objectives. If the research measures a score or scale, then the average, standard deviation, median, or range of values can be displayed.

Example

Table 2. Average Score of Research Variables

Variable	Mean ± SD	Min - Maks
Knowladge Healthy	75.2 ± 10.3	50 - 98
Attitude Towards Immunization	3.8 ± 0.6	1 - 5
Vaccination Compliance	89.5 ± 12.7	60 - 100

Source : *Data Primer 2025*

Hypothesis Testing or Relationships between Variables

The third paragraph presents the results of statistical tests in accordance with the research questions and hypotheses posed. For example, the relationship between **education levels** and **immunization compliance** is analyzed using the **chi-square test**, while the effect of **knowledge on attitudes** is analyzed using **linear regression or Pearson/Spearman correlation**.

Example

Table 3. The Relationship between Education and Immunization Compliance (Chi-Square Test)

Education	low compliance (n/%)	high compliance (n/%)	p-value
SD - SMP	40 (66.7%)	20 (33.3%)	0.001*
SMA	30 (25.0%)	90 (75.0%)	
Higher Education Institution	10 (14.3%)	60 (85.7%)	

Note: p < 0.05 indicates a significant relationship

Data Visualization with Diagrams/Graphs

The fourth paragraph explains the main findings in the form of graphs or diagrams to facilitate interpretation. If there are significant trends or patterns, they can be illustrated with bar charts, line graphs, or pie charts.

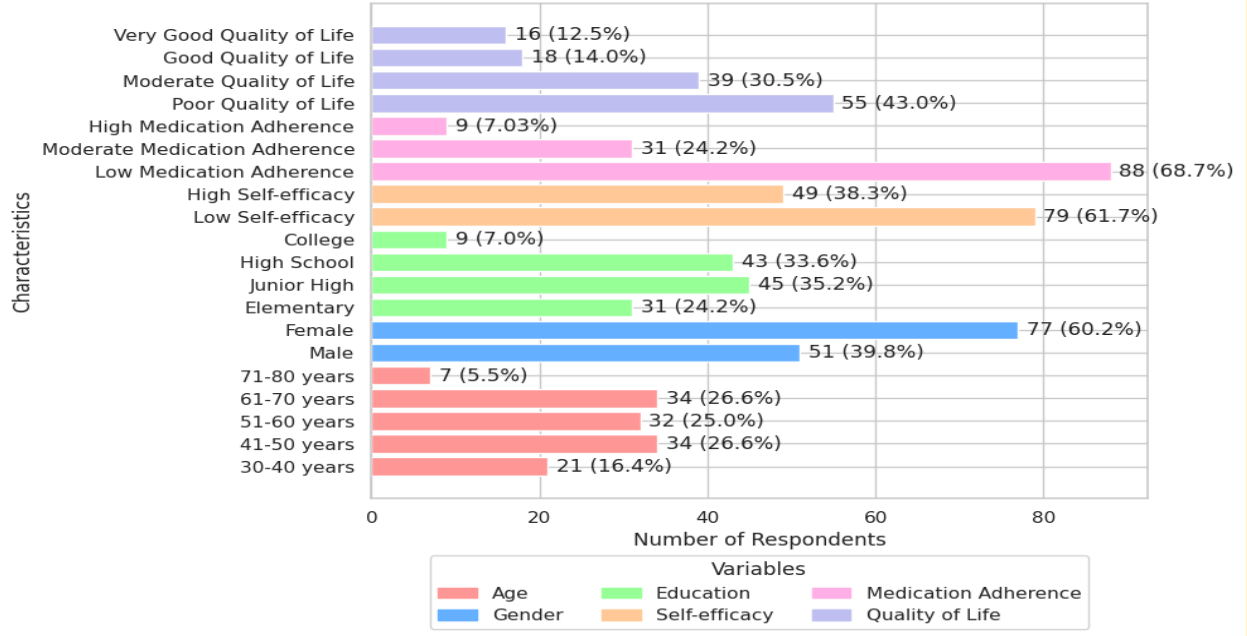


Figure 1. Respondent characteristics and univariate analysis

Summary of Key Findings

The last paragraph summarizes the research findings by answering the research questions. If a significant relationship is found, conclude clearly, for example: "The research results indicate that the level of education is significantly related to immunization compliance in mothers of toddlers ($p < 0.001$). Furthermore, the higher the level of knowledge about immunization, the more positive the mothers' attitude towards the vaccination program ($r = 0.45$, $p < 0.01$)."

Discussion

The discussion section aims to interpret the research results by linking them to theory, previous research, and their implications in the field of health and medicine. The structure of the discussion can be divided into several paragraphs as follows:

Interpretation of Key Findings. The first paragraph contains a summary of the main results obtained as well as an interpretation of those findings. Explain how the results of this research answer the research question and whether they align with the proposed hypothesis. If there are results that do not meet expectations, provide possible underlying reasons.

Example: "This research shows that the level of education is significantly related to immunization compliance among mothers of toddlers ($p < 0.001$). These results are in line with previous research by X et al. (2020) which states that mothers with higher education tend to have a better understanding of the importance of immunization."

Comparison with Previous Studies. The second paragraph compares the findings of this research with previous studies. Explain the similarities or differences found and provide arguments for why the results may be

similar or different. The factors influencing the differences in results may come from differences in **populations, research methods, or social and cultural contexts**.
Example: "These findings are consistent with the study by Y et al. (2019) in developing countries, where education levels play a role in increasing vaccination coverage. However, different results were found in the study by Z et al. (2021) in developed countries, which showed that economic factors have more influence than education."

Clinical and Public Health Implications. The third paragraph discusses the impact of research findings on medical practices, health policies, or interventions in the community. If this research has findings that can be used to improve health services, education, or intervention strategies, explain how these results can be applied.
Example: "These results indicate that immunization education programs should be focused on mothers with lower levels of education, in order to enhance their understanding of the benefits of vaccination. Community-based interventions or door-to-door approaches could be effective strategies in increasing immunization coverage in areas with limited access to information."

Advantages and Limitations of the Research. The fourth paragraph outlines the strengths and limitations of the research. Advantages may include **a strong research design, a representative sample size, or comprehensive analysis methods**. Limitations may include **potential biases, limitations in generalizing findings, or external factors that are difficult to control**.
Example: "The strength of this research is the use of a sufficiently large sample and appropriate statistical analysis techniques. However, this research has limitations in terms of a cross-sectional design that cannot determine causal relationships. Additionally, the social and cultural factors that may influence immunization decisions have not been fully explored in this study."

Recommendations for Future Research. The final paragraph provides suggestions for future research based on the findings and limitations that have been identified. Explain which aspects need to be improved or further developed in the next study. Example: "Future research is recommended to use a longitudinal design to evaluate changes in immunization behavior over time. Additionally, a qualitative approach could be used to gain deeper insights into the social and cultural factors influencing immunization compliance."

Note: The discussion section must be **consistent with the research results and remain focused on the research questions and study objectives**, so that readers gain a broader understanding of the implications of the conducted research.

Conclusion

The conclusion section should summarize the main findings of the research concisely and clearly, remaining consistent with the objectives and research questions. The conclusion should not repeat the results in detail, but rather highlight the key points obtained from this research. Additionally, this section should include the implications of the findings, both in the academic context and in practice within the field of health and medicine. If relevant, the conclusion may also include recommendations for further action or further research.

Example: "The results of this study show that the mother's level of education is significantly related to vaccination compliance in toddlers, emphasizing the importance of health education in increasing vaccination coverage. These findings

support the need for more inclusive community-based interventions to raise mothers' awareness of the importance of immunization. Although this study has limitations in its cross-sectional design, its results can serve as a basis for future longitudinal studies to examine causal relationships in more depth."

Acknowledgment

Authors may use this section to express their gratitude to individuals or institutions that have provided support for the research, including funding sponsors, host institutions, or those who offered technical and intellectual assistance. Please include full names and affiliations where appropriate. For example:

'This research was supported by the Basic Research Grant from the Ministry of Research and Technology/National Research and Innovation Agency (Kemenristek/BRIN) in 2024 (No. 123/BRIN/2024). The author also thanks Dr. Andi Sulaiman from XYZ University for his statistical advice.'

References

The bibliography in **American Medical Association (AMA)** format must be arranged according to the order of appearance in the text, using superscript numbers ([1],[2],[3]) as references in the article. Each source is written in the following order: **Author's Name, Title, Source (Journal/Book/Website), Edition/Volume, Year, Page, DOI/URL (if available)**. Only the first letter of the title and the journal name are capitalized according to AMA rules.

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Format: **Last name of the author, Initials of the first name.** Title of the article. Name of the journal. Year; Volume(Number): Page. doi:xxxx

Example:

1. Smith AB, Johnson CD. The impact of vaccination programs on child health. *J Pediatr Health*. 2022;45(3):123-130. doi:10.1016/j.jph.2022.03.001

Book

Format:
Author's Last Name, First Name Initial. Title of Book. Edition. City of Publisher: Publisher's Name; Year.

Example:

2. Brown J, White K. *Public Health Strategies*. 2nd ed. New York, NY: Oxford University Press; 2019.

Chapter in the Book

Format:
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3. Miller R. Childhood nutrition. Dalam: Thomas H, ed. *Nutrition and Health*. 3rd ed. Boston, MA: Academic Press; 2020:45-60.

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Author Name (if any). Title of the page or article. Website Name. Published [Date]; Accessed [Date]. URL

Example:

4. World Health Organization. Global vaccine action plan 2021–2030. WHO. Published Januari 2021; Accessed 12

Agustus 2023. https://www.who.int/vaccine-strategy

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5. Anderson P. The effects of maternal education on child health outcomes [disertasi]. Harvard University; 2021.

Conference Proceedings

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Example:

6. Garcia M. New trends in pediatric immunization. Dalam: Jones R, ed. *Proceedings of the International Pediatric Conference*; Mei 10-12, 2023; London, UK. New York, NY: Springer; 2023:89-95.

Ensure that the bibliography is consistent with the AMA format and uses superscript numbers for citations in the text.

Conflict of Interest Statement
The author(s) declare no commercial, financial, or personal conflicts of interest related to this research. All authors approved the final manuscript and consented to its publication in *Healthy Tadulako Journal*.

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