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The Role of Health Workers in Improving Toddler Immunization Coverage during the Covid-19 Pandemic

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ABSTRACT

The COVID-19 pandemic has significantly disrupted essential health services, including routine immunization for toddlers. Declines in measles, polio, and DPT immunization coverage were widely reported throughout Indonesia as parents delayed health-facility visits due to fear of infection. This study aimed to determine the role of health worker support in increasing toddler immunization visits during the COVID-19 pandemic. A quantitative cross-sectional design was employed with 40 respondents selected using cluster sampling. Data were analyzed using chi-square statistical tests. Results indicated that 70% of toddlers had incomplete immunization and 72.5% of respondents reported receiving support from health workers. Chi-square analysis revealed a significant relationship between health worker support and toddler immunization visits ($p = 0.032$). Strengthened support, communication, and outreach by health workers play an essential role in restoring immunization coverage during public health emergencies.

Keywords: COVID-19 pandemic, health worker support, toddler immunization

BACKGROUND

Routine immunization is one of the most effective interventions to prevent infectious diseases among children. Support, defined as motivation, encouragement, and assistance provided by others, influences parental behavior in immunization decision-making (Chaplin, 2006). Social support both verbal and non-verbal can affect parents' willingness to seek health services for their children (Kuntjoro, 2002).

Health workers are professionals with the authority and responsibility to deliver health services, including immunization (Law of the Republic of Indonesia No. 36, 2014). During COVID-19, public health workers remained essential in ensuring continuity of vaccination programs (WHO, 2020). Even amid mobility restrictions, health personnel emphasized the importance of routine vaccination for children (Patriawati, 2020).

The Indonesian Ministry of Health (2020) reported a decline of more than 35% in DPT3 and measles-rubella immunization coverage in early 2020 compared with the previous year. Before COVID-19, most children received vaccinations at community-based services such as posyandu; however, during the pandemic, private clinics and hospitals became primary access points due to temporary closure or reduced operations of public services (Kemenkes RI, 2020).

Studies from several countries show similar patterns: disruptions in immunization coverage during the pandemic were caused by parental fear, transportation limitations, and restricted health services. For example, 33.1% of children in Saudi Arabia missed scheduled vaccinations during

lockdowns (Almoosa, 2021). In Africa, research also reported growing numbers of unimmunized children during the pandemic period (Prambui, 2021).
Given these challenges, health worker support through home visits, reminders, communication, and safe service procedures plays an important role in improving immunization adherence.

METHODS

This study adopted a quantitative research design, which emphasizes the use of structured procedures, numerical data, and statistical analysis to produce objective and measurable results. Quantitative methods were selected because they enable researchers to systematically examine relationships between variables and draw conclusions based on statistical evidence (Siyoto, 2015). This design also supports the use of standardized instruments, ensuring consistency throughout the data collection process.
A cross-sectional approach was applied to gather data at a single point in time. This method allows researchers to observe and analyze existing conditions within the population without conducting long-term follow-up. According to Yunus (2014), cross-sectional studies are particularly useful for assessing prevalence and identifying associations between variables, making this approach suitable for examining health worker support and toddler immunization during the COVID-19 pandemic.
The population in this study consisted of all parents of toddlers aged 1–2 years who lived in the working area of the Serolo Health Center. A total of 68 individuals met these criteria. The population was clearly defined to ensure that the findings could be accurately interpreted and generalized to individuals living in the same service area. This also facilitated the selection of the sampling technique and determination of the sample size.
Cluster sampling was used to select the respondents, with each village contributing participants proportionally. This technique was chosen because the study area consisted of multiple villages, each with different numbers of households. By selecting clusters based on geographic divisions, the researcher ensured that all parts of the community were represented fairly in the sample.
The sample size was determined using the Slovin formula with a margin of error of 0.01. Based on this calculation, a total of 40 respondents were selected to participate in the study. Data were collected through structured questionnaires designed to obtain information about demographic characteristics, toddler immunization status, and the level of perceived support from health workers. The use of closed and structured questions ensured that the data collected were clear, comparable, and suitable for statistical analysis.
Data analysis included the use of descriptive statistics to summarize the characteristics of respondents and chi-square tests to examine the association between health worker support and toddler immunization visits during the COVID-19 pandemic. The chi-square test was particularly appropriate for this study because it is designed to assess relationships between categorical variables. A significance level of $\alpha = 0.05$ was applied, meaning that the results were considered statistically significant if the p-value was less than 0.05.

RESULTS

The demographic results of the study showed that most parents of toddlers fell within the age range of 26–35 years, accounting for 60% of the respondents. This age group is generally considered to be in the productive stage of adulthood, where individuals often balance work, family responsibilities, and decision-making related to their children’s health. The predominance of parents in this age category suggests that many respondents were relatively young and likely

familiar with modern health information sources, which may influence their attitudes and behaviors regarding toddler immunization.

In terms of educational background, the majority of parents had completed senior high school, representing 35% of the sample. Education plays a crucial role in shaping health awareness and understanding of immunization benefits. Parents with higher educational attainment are often more receptive to public health messages and possess greater ability to evaluate credible information. The dominance of senior high–school graduates indicates a moderate level of educational exposure among respondents, which may affect how they interpret guidance from health workers.

Employment status also revealed notable patterns, with 70% of parents reported as working. Employment can influence immunization behaviors in both positive and negative ways. On one hand, employed parents may have better access to financial resources and healthcare services; on the other hand, busy schedules and limited time availability may hinder their ability to attend scheduled immunization visits. The high percentage of working parents highlights the importance of accessible and flexible immunization services, especially during a pandemic.

Regarding toddler age distribution, 55% of the children were under 12 months old. This is a critical age group because the national immunization schedule requires infants to receive several essential vaccines before reaching one year of age. The high proportion of toddlers under 12 months underscores the urgency of timely immunization, as younger children are more vulnerable to vaccine-preventable diseases. This also means that parental decision-making during this period significantly influences immunization completeness.

Immunization data showed that only 30% of toddlers had complete immunization, while 70% had incomplete status. This finding indicates a substantial gap in immunization coverage, which may increase the risk of outbreaks, particularly during the COVID-19 pandemic when access to health services was disrupted. Health worker support also varied, with 72.5% of parents perceiving adequate support, while 27.5% reported insufficient support. The level of support from health workers including reminders, education, and follow-up plays a vital role in ensuring that parents stay informed and motivated to complete their child's immunization schedule.

The chi-square analysis demonstrated a statistically significant relationship between health worker support and toddler immunization visits, with a p-value of 0.032. This indicates that the likelihood of toddlers receiving complete immunization is strongly associated with the extent of support provided by health workers. When health workers actively guide, educate, and assist parents, immunization participation tends to increase. These results emphasize the crucial role of effective communication and engagement strategies in improving immunization rates, particularly in challenging periods such as the COVID-19 pandemic.

Table 1. Demographic and Immunization Characteristics of Respondents

Variable	Category	Percentage (%)
Parent Age	26–35 years	60%
Education Level	Senior High School	35%
Employment Status	Working	70%
Toddler Age	< 12 months	55%
Immunization Status	Complete	30%
	Incomplete	70%
Health Worker Support	Supportive	72.5%
	Not Supportive	27.5%
Chi-square Result	p-value	0.032
	Interpretation	Significant

DISCUSSION

Findings show that incomplete immunization coverage was still high during the pandemic. Similar to previous studies, disruptions in immunization programs were associated with limited access, parental fear, and changes in service procedures. Parents who reported receiving health worker support were more likely to complete their children's immunization visits.

Supportive behaviors such as reminders, counseling, and provision of safe service environments are essential in overcoming parental hesitation. Younger parents (26–35 years) tended to show inconsistent adherence, possibly due to limited knowledge or competing responsibilities. Education level alone did not fully determine immunization compliance; instead, awareness and information access were more influential.

Consistent with WHO guidelines (2020), continuity of routine immunization must be prioritized even during public health emergencies. Strengthening community-based outreach and engaging parents through active communication can significantly increase immunization visits.

CONCLUSION

The findings indicate that most respondents were parents aged 26–35 years, with a high-school education and active employment, reflecting a relatively young and productive demographic. The majority of toddlers were under 12 months, a crucial period in which complete basic immunization is essential to prevent infectious diseases. However, immunization completeness remained low during the pandemic, with 70% of toddlers not receiving all required vaccines. The results also show that strong health worker support significantly increased toddler immunization visits, highlighting the importance of effective guidance, reminders, and follow-up. To address ongoing immunization gaps, strengthened communication strategies and adaptive service delivery such as flexible schedules or outreach services—are urgently needed. Overall, health worker support plays a central role in restoring and maintaining immunization coverage both during and after the pandemic, ensuring that children remain protected despite health system disruptions.

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