

# PARENTS' SATISFACTION WITH MEASLES RUBELLA IMMUNIZATION SERVICES FOR SCHOOLERS DURING THE COVID-19 PANDEMIC

*Kepuasan Orang Tua pada Layanan Imunisasi Measles Rubella Anak Sekolah Selama Pandemi COVID-19*

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## Abstract

**Background:** Measles Rubella (MR) immunization coverage for schoolers in Semarang City decreased to 92.7% in 2020 due to the COVID-19 pandemic. However, in practice, many parents still complain about MR immunization services for schoolers.

**Aims:** This study aimed to determine parental satisfaction with MR immunization services during the COVID-19 pandemic.

**Methods:** This quantitative study used a cross-sectional approach. Purposive and proportional sampling was used to select 102 samples. Data collection was done through questionnaire, and data were analyzed using the chi-square test and importance-performance analysis test.

**Results:** The lowest suitability dimension level was tangibility (81.52%), followed by responsiveness (86.6%). The reliability dimension had the highest average conformity level (92.87%). The priority items for improvement were related to health workers' compliance with the use of complete personal protective equipment (PPE), spacious immunization service rooms, registration officers' responsiveness in giving directions, punctual immunizations distribution, polite and friendly registration services officers, as well as health workers' initiative to remind parents about health protocols. Bivariate analysis showed there was no relationship between respondents' characteristics and their satisfaction level.

**Conclusion:** Parental satisfaction with MR immunization services for schoolers did not match their expectations; therefore, it is necessary to improve future immunization services.

**Keywords:** COVID-19, MR immunization, satisfaction, service quality

## Abstrak

**Latar Belakang:** Cakupan imunisasi Measles Rubella (MR) anak sekolah tahun 2020 di Kota Semarang menurun hingga 92,7% akibat pandemi COVID-19. Namun, dalam pelaksanaannya masih ditemui keluhan orang tua pada pelayanan imunisasi MR anak sekolah.

**Tujuan:** Penelitian ini bertujuan untuk mengetahui kepuasan orang tua terhadap pelayanan imunisasi MR di era pandemi COVID-19.

**Metode:** Penelitian kuantitatif dengan pendekatan cross-sectional. Pengambilan sampel menggunakan teknik purposive and proportional sampling dengan jumlah sampel 102. Pengumpulan data dengan kuesioner dan dianalisis menggunakan chi-square dan uji importance performance analysis.

**Hasil:** Tingkat kesesuaian rata-rata dimensi yang paling rendah adalah tangibles (81,52%), diikuti dimensi responsiveness (86,6%). Dimensi reliability mempunyai tingkat kesesuaian rata-rata paling tinggi (92,87%). Item-item yang menjadi prioritas perbaikan terkait kepatuhan petugas kesehatan menggunakan alat pelindung diri (APD) lengkap, ruang pelayanan imunisasi luas, petugas pendaftaran tanggap dalam memberikan arahan, imunisasi dilakukan tepat waktu, petugas pendaftaran melayani dengan sopan dan ramah, petugas kesehatan mengingatkan orang tua untuk menjaga protokol kesehatan. Analisis bivariat menunjukkan tidak ada hubungan antara karakteristik responden dengan tingkat kepuasan.

**Kesimpulan:** Kepuasan orang tua pada layanan imunisasi MR anak sekolah belum sesuai antara harapan dengan kenyataan, sehingga perlu adanya perbaikan pelayanan imunisasi di masa mendatang.

**Kata kunci:** COVID-19, imunisasi MR, kepuasan, kualitas pelayanan



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## Introduction

Measles Rubella (MR) immunization for schoolers, especially for 1<sup>st</sup> graders in elementary school, is part of a follow-up vaccination program administered through integrated activities between school-health units and the School Children Immunization Month (SCIM) program provided by primary health centers (PHCs). The MR immunization has been deemed inadequate during infancy to protect the body from vaccine preventable diseases (VPDs/ PD3I). It is given again as a booster when children enter school age (Maimunah, 2017).

A preliminary study at the Semarang City Health Office showed that the SCIM coverage decreased to 92.7% in 2020 from 98.8% in 2019 partly due to the COVID-19 pandemic, which was first confirmed in March 2020 in Indonesia. The implementation of immunization for schoolers is carried out by PHCs in accordance with the Indonesian Ministry of Health with a Letter Number SR 02.06/4/9/9760/2020 regarding the Implementation of the School Children Immunization Month during the Corona Virus Disease 2019 (COVID-19) Pandemic. In Point 3, the immunization provision strategies for schoolers must be designed according to the epidemiological situation, regional government policies, education units, as well as regional PD3I epidemiological conditions. The SCIM procedures changed because school was held online.

Further preliminary studies were conducted at two PHCs, Poncol PHC (69.21%) and Halmahera PHC (80.69%) which also experienced decreasing immunization coverage. The results showed that the immunization program was worse due to the COVID-19 pandemic. In the research, ten parents who immunized their children at the PHCs were interviewed. Seven out of ten parents considered the immunization services not optimal during the pandemic. The negative perceptions that arose about services affected parents' assessment of service quality during the COVID-19 pandemic.

Parents who fear of contracting COVID-19 tend to not go to PHCs.

Service quality is one of the most important factors in health services. Hence, conducting quality assessment contributes to service satisfaction. This assessment is not only limited to physical or visual forms but also related to attitudes, knowledge, and skills of health officers, as well as service punctuality, officer's responsiveness, support, and an adequate physical environment (Pohan, 2016). Service quality could be determined through five dimensions, namely tangibles, reliability, responsiveness, assurance, and empathy (Kuntoro dan Istiono, 2017). These five factors will determine parental satisfaction with MR immunization services for schoolers in the COVID-19 pandemic. Satisfaction from service users is the comparison between perceptions and expectations desired by users (Purwaningrum, 2020). Little research focuses on parental satisfaction with MR immunization for their children during the COVID-19 pandemic. Based on the background, this study aimed to determine parental satisfaction with MR immunization services for schoolers in the COVID-19 pandemic.

## Method

A quantitative study was conducted using the descriptive analytic method with a cross-sectional approach. The target population were 1,954 parents who had children at first grade of elementary school and had visited the PHCs before the research took place. These consisted of four health centers, namely Ngesrep PHC, Poncol PHC, Karanganyar PHC, and Rowosari PHC. The PHC samples were determined using the purposive sampling technique based on the criteria. Only PHCs close and far from the city center, as well as the highest and lowest immunization coverage in Semarang City. Based on these criteria, the four PHCs were selected as research locations. The number of samples amounts to 102 respondents who were divided proportionally according to inclusion and exclusion criteria. The selected respondents have to have a child

at 1<sup>st</sup> grade and utilize the MR immunization services at the PHCs, reside in Semarang City, and voluntarily fill in the questionnaires. The exclusion criteria were respondents who did not provide the answers and/or respondents who did not answer the questionnaire completely.

Data were collected through an online questionnaire via Google Form to all parents according to the PHCs' visitor list. The questionnaire consists of closed questions about aspects of expectations and reality of child immunization at PHCs. The independent variables include a) tangible dimensions (health workers' appearance, physical infrastructure, information and communication media, and ease of access to services); b) reliability dimension (the ability to provide services, ease of service, and service suitability); c) responsiveness dimension (service delivery speed, responsiveness in providing services, response time to users' needs, and the ability to provide information); d) assurance dimension (officers' knowledge, skills, courtesy, friendliness, ability to communicate, and service security); and e) empathy dimension (officers' attention, understanding service users' needs, and respondents' characteristics i.e., age, gender, education, occupation, and income. The dependent variable is the parental satisfaction level. Data were analyzed using the importance performance analysis (IPA) test and chi-square test for a bivariate analysis to determine the relationship between

respondents' characteristics and satisfaction. Statistically, there is a relationship if the p-value obtained is less than 0.05 ( $p < 0.05$ ).

## Result and Discussion

### Respondents' Characteristics

As Table 1 shows, the majority of respondents were females (64.7%) and young adults aged 18-40 years old (55.9%). Most of them had completed secondary education (51.9%), and 52.9% had a high income ( $> \text{Rp}2,810,025$ ). The percentage of respondents who had formal work was higher (71.6%) than those who did not work.

### Parental Satisfaction with MR Immunization Services for Schoolers

#### Tangibility Dimension

The tangibility dimension had the lowest average conformity level compared to the other four other dimensions (81.52%), supporting the findings from the preliminary study. Health workers did not use complete personal protective equipment (PPE) such as masks, hazmat suits, hair protection, and latex gloves. It turns out parents were worried about receiving immunization services. Rukmana's study uncovered health workers' reluctance to use PPE. As a result, it may worsen disease transmission from patients to health workers or vice versa (Rukmana, Putri and Novariana, 2020).

Table 1. Respondents' Characteristics

Characteristics	Variable	n	%
Gender	Male	36	35.2%
	Female	66	64.7%
Age	Young adults (18-40 years old)	57	55.9%
	Adults ( $\geq 41$ years old)	45	44.1%
Education	Basic education (SD-SMP/MTS)	28	27.4%
	Secondary education (SMA/SMK)	53	51.9%
	Higher education (Diploma/Bachelor)	21	20.5%
Occupation	Unemployed (or housewife)	29	28.4%
	Work in formal sectors	73	71.6%
Income	Low income ( $\leq \text{Rp. } 2,810,025$ )	48	47.1%
	High income ( $>\text{Rp. } 2,810,025$ )	54	52.9%

Table 2. Parental Satisfaction Levels in the Quality Dimensions of Measles Rubella (MR) Immunization Services for Schoolers in the COVID-19 Pandemic

Dimensions	Expectation Scores (y)	Reality scores (x)	Suitability level (%)
Tangibility	488.0	397.8	81.52
Reliability	501.7	466.1	92.89
Responsiveness	486.8	421.7	84.66
Assurance	481.8	431.1	89.48
Empathy	484.0	433.0	89.46
Total	2,442.3	2,149.7	88.01

Prior to the pandemic, health workers usually only used masks and latex gloves when carrying out medical procedures. However, currently all health workers are required to use complete PPE to avoid exposure to COVID-19. Health workers are a high-risk group for contracting COVID-19 (Alta, Baju and Wahyuni, 2020).

Previous studies show health workers who did not comply with immunization protocols could feel uncomfortable about the use of PPE. Hot and uncomfortable ambience of PPE makes officers reluctant to use PPE (Rifqi, 2020). Supporting this finding, Neraz's research (2021) shows lack of supervision from managers or leaders causes health workers to neglect the PPE protocols. Meanwhile, the World Health Organization (WHO) (2020) considers the use of PPE as the easiest way to prevent infection besides the need for administrative and mechanical controls.

The use of PPE affects respondents' satisfaction. Saleh and Satriani (2018) explain that health workers' attire has an effect on patient satisfaction. In addition to the use of PPE, immunization room's items, ventilation, and lighting conditions are still considered unsatisfying (Saleh and Satriani, 2018). PHC buildings, especially the immunization service room, are limited in space. In accordance with immunization technical instructions during the pandemic, PHCs must ensure that immunization services have to be performed in large and spacious room with 1-2 meters away from parents. The waiting rooms must also have seats spaced 1-2 meters away from each other (Indonesian Ministry of Health, 2020).

Most respondents complained about the limited immunization room. They were worried about service safety as the immunization users were overcrowding. Although immunization services were carried out after the PHCs' service hours, they still cannot accommodate crowds and long queues. Therefore, PHCs need to advocate to health offices for MR immunization out-services. Ulandari and Yudawati's research (2019) proves infrastructure, especially the services room in PHCs, significantly influenced patient satisfaction.

Moreover, the tangibility aspect could influence consumer expectations as the service users experience the services directly. It will be assessed for the first time through physical condition of the services (Pangerapan, Palandeng and A. Joy M. Rattu, 2018). Widya Astari, Noviantani and Simanjuntak (2021) discover the tangible aspect was the most influential aspect on the perceived service quality, which leads to customer satisfaction.

### Reliability Dimension

The average conformity level of reliability dimension on MR immunization service was the highest average conformity level (92.87%). The analysis results showed that there were two items included in the A category of the Cartesian diagram for improvement (the main priority) with the average reliability score below the standard. The respondents perceived the services were lacking, untidy, and orderly (90.85%), and no COVID-19 screening was performed before immunization to detect fever symptoms, history of contact

with patients or suspects, and travel history checking (87.89%). Meanwhile, officers must perform immunization screening to ensure child health according to the immunization procedures during the COVID-19 pandemic (Indonesian Ministry of Health, 2020). The COVID-19 screenings are an effective way for COVID-19 case tracking fast to facilitate follow-up care.

Lack of discipline in COVID-19 screening is influenced by some factors such as heavier workload, limited personnel, lack of awareness about COVID-19 monitoring function, and the minimal use of online health-check applications during the pandemic. The results of online screenings e.g., COVID-19 symptoms could be obtained by making an appointment in advance with health workers. Online-based technology makes screening easier. Zidni's research in Lubis (2021) proved that providing online services such as telemedicine reduces physical contact between health workers and patients. With the telemedicine method, patients could also directly report the symptoms more easily and fast (Lubis, 2021).

The respondents perceived the implementation of immunization was not well-organized. A new policy about the MR immunization services for schoolers in PHCs was enacted before the pandemic. Immunization service procedures affect parental satisfaction (Selviani, 2019). The reliability dimension consists of service quality which may increase the likelihood of attracting people to come back or revisit. Therefore, service reliability assessments should be carried out to gather customer satisfaction (Purwaningrum, 2020).

### Responsiveness Dimension

Responsiveness dimension is a service quality aspect related to health workers' ability to respond to and assist service users. The average conformity level of responsiveness dimension was 86.6% below the standard. In this dimension, the respondents thought registration officers were responsive in providing directions to immunization registration services (79.3%) according to

the schedule (81.94%). On the other hand, some parents stated that registration officers did not provide clear directions to registration process. As a result, waiting time for service became longer, and it may cause confusion. Meanwhile, patient satisfaction is related to health workers' responsiveness (Nababan, Listiawaty and Berliana, 2020). Lack of communication skills in responding to what patients need or a lack of coordination with schools regarding immunization registration might lead to unresponsiveness. Hence, communication between health officers and patients is very important and affects satisfaction (Pandoh, T and Rumayar, 2018).

Some respondents mentioned that the immunization services were not performed according to the schedule. It consequently may interfere with their working hours. Datuan's research (2018) asserts that service speed is associated with work effectiveness. Research by Chasanah and Amanah in Sriaatmi, Patriajati and Fatmasari (2018) shows that the service speed, discipline, and timeliness are determinants of patient dissatisfaction with PHC services.

In the immunization program, MR vaccine had to be administered immediately. It does not contain preservatives and can only be used a maximum of 6 hours after opening (Neraz, 2021). Prior to the pandemic, school vaccination was administered to students per class when the number of recipients reached the target.

### Assurance Dimension

Assurance dimension is a quality dimension related to health officers' knowledge, skills, courtesy, friendliness, and ability to communicate in providing services. Good officers' attitude may increase users' satisfaction. Assurance dimension has an average conformity level of 89.48%. The respondents perceived registration officers provided understable directions to services politely and friendly (85.9%). Medical and non-medical officers have to exhibit friendliness and courtesy in providing services (Sari, 2017). It is considered polite to perform "3S : *Senyum*,

*Salam, Sapa*" (smile, say '*salam*', and greet) when health workers communicate with service users.

Lack of friendliness may be due to relatively heavy workload which affects mood and psyche. This is in line with previous research which shows that officers' positive attitude supported by concrete actions could increase user satisfaction and becomes a manifestation of health service quality (Anasril and Husaini, 2019).

On the other hand, lack of friendliness towards patients could also be caused by ignorance of health protocols. The use of mask may interfere with articulation, intonation and actual expression. As a result, it affects how people perceive their attitudes.

### Empathy Dimension

Empathy dimension is related to how serious one gives attention to service users (Astari, Noviantani and Simanjuntak, 2021). Empathy dimension has an average conformity level of 89.46%. The respondents noticed that health workers reminded them to maintain health protocols after immunization (86.26%). For example, they had to keep distance, avoid crowds, reduce mobility, wash hands, and wear masks. Health protocols during the COVID-19 pandemic are obligations. Attitudes and behavior have a positive impact on health services in building good relationships with service users. Patient, considerate, and reassuring health workers positively affect the service users' satisfaction (Hastuti *et al.*, 2017). Thus, empathy dimension and users' satisfaction level are related (Hasim, Induniasih and Asmarani, 2018).

Good personal relationships develop from trust and credibility i.e., attention, respect, and appreciation. This implies attending to patients's needs in appropriate ways may help achieve patient satisfaction.

### The Relationship between Gender and Parental Satisfaction Level

The analysis results showed no relationship between gender and parental satisfaction ( $p = 0.341$ ). These results are in line with research by Isakh and Suryatma (2021), which finds no significant

relationship between gender and satisfaction with vaccination services at PHCs. Gender has no correlation with satisfaction level likely because the majority of respondents in this study are male (58.3%). However, gender is considered not affecting the service assessment as women evaluate services more thoroughly than men (Matondang, Madjid and Chotimah, 2019)

Table 3. Results of Bivariate Analysis of Parents' Characteristics with Satisfaction Level

Parental Characteristics	p-value	Notes
Gender	0.341	Not related
Age	0.879	Not related
Education	0.107	Not related
Occupation	0.682	Not related
Income	0.414	Not related

Source: Primary data (processed)

If a p-value is  $< 0.05$ , there is no significant relationship, and vice versa.

### The Relationship between Age and Parental Satisfaction Level

The analysis results showed that there was no relationship between age and parental satisfaction ( $p = 0.879$ ). Age and satisfaction level are not correlated with vaccination services at health centers (Isakh and Suryatma, 2021). The majority of respondents were 37 years old, and they were more satisfied with the MR immunization services for their children (52.6%). However, previous research confirms one's age will affect how one evaluates service aspects. Older individuals might have higher maturity level for decision-making (Kuntoro and Istiono, 2017).

### The Relationship between Education and Parental Satisfaction Level

The analysis results showed that there was no relationship between education level and parental satisfaction ( $p = 0.107$ ). Previous research discovers no relationship between education and satisfaction with vaccination in PHCs (Isakh and Suryatama, 2021; Rizal and Jalpi, 2018). The majority of respondents who completed secondary education felt

more satisfied (60.4%) than those with higher education (66.7%). In similar ways, previous research shows individuals with higher education feel less satisfied than those with lower education levels (Eninurkhayatun, Suryoputro and Fatmasari, 2017). It is assumed that knowledge may influence one's evaluation towards services.

### **The Relationship between Occupation and Parental Satisfaction Level**

The analysis results showed that there was no relationship between occupation and parental satisfaction ( $p = 0.682$ ). Previous research has confirmed the same finding. Unemployed individuals tend to feel more satisfied than those who have a permanent job. Individuals who work in formal sectors likely have higher expectations about services they receive than unemployed ones (Eninurkhayatun, Suryoputro and Fatmasari, 2017). Working individuals are considered better able to assess services in greater detail.

### **The Relationship between Income and Parental Satisfaction Level**

The analysis results show no relationship between income and parental satisfaction ( $p = 0.414$ ). Service users' income level has no effect on satisfaction (Subait *et al.*, 2016; Eninurkhayatun, Suryoputro and Fatmasari, 2017). Parents with low and high incomes both want the best MR immunization services for their children in the COVID-19 pandemic. Therefore, highly qualified services need to be provided to boost patient satisfaction.

### **Conclusion**

Parental satisfaction with MR immunization services for their children during the COVID-19 pandemic has not met their expectations. In the quality service, tangible and responsiveness dimensions had conformity level scores below the average. PHCs need to carry out intensive coordination with the Semarang City Health Office to prepare for the implementation of MR immunization for school children during the COVID-19 pandemic. Besides, parents' complaints

about immunization services need to be addressed and corrected immediately. Health centers also need to give health workers immunizations service permits in wider areas, especially those with limited access to PHCs. In addition, communication training is necessary for health workers to practice good and effective communication skills. Additionally, supervisory actions should be taken to monitor compliance with PPE. Further socialization on the use of online applications for registration and COVID-19 screenings should be performed to educate parents about the importance of MR immunization services for their children.

### **Abbreviations**

MR: Measles Rubella, PD3I: Penyakit yang Dapat Dicegah Dengan Imunisasi (Vaccine Preventable Diseases/ VPDs) PHCs: Primary Health Centers, SCIM: School Children Immunization Month.

### **Declarations**

### **Ethical Approval and Informed Consent**

All respondents involved in this study were given explanations about the research objectives and a statement of consent form with free withdrawal of participation at any time. The Health Research Ethics Commission, Faculty of Public Health, Universitas Diponegoro has granted an Ethic Permission Letter No: 81/EA/KEPK-FKM/2021.

### **Conflict of Interest**

The authors state that no personal interest influences this study.

### **The Data and Materials Availability**

Not applicable

### **Authors' Contribution**

LIP, AS, and EFY conceptualized this study; AS developed the methodology; LIP and EFY wrote and edited the manuscript; AS and EFY reviewed and edited the manuscript; LIP wrote the original draft.

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