

# DIFFERENCES IN PARENTS' READINESS TO ACCEPT CHILDREN'S COVID-19 VACCINATION IN PATI REGENCY

## Perbedaan Kesiapan Orang Tua Terkait Vaksinasi COVID-19 Untuk Anak di Kabupaten Pati

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### Abstract

**Background:** The coverage of COVID-19 vaccination for children in Pati Regency was still low at 37% in February 2022 compared to the 75% target. Some preliminary studies in Kudus showed that parents who received socialization about children's COVID-19 vaccination experienced concerns affecting their responses negatively to the program.

**Aims:** This study aims to analyze differences in parental acceptance of the COVID-19 vaccination for children in Pati Regency.

**Methods:** This study was quantitative research with a cross-sectional approach. The variables consisted of 7Cs components (Confidence, Complacency, Constraints, Calculation, Collective Responsibility, Compliance, Conspiracy) and acceptance of COVID-19 vaccination. The total sample of respondents was 372 parents divided into two independent groups obtained by cluster and proportional sampling. Data were collected using a questionnaire via Google Forms and analyzed using the Mann-Whitney test.

**Results:** The results showed differences in parental acceptance of COVID-19 vaccination (sig = 0.006) regarding constraints (sig = 0.000), collective responsibility (sig = 0.012), compliance (sig = 0.012), confidence (sig = 0.019), complacency (sig = 0.020), calculation (sig = 0.027), and conspiracy (sig = 0.037).

**Conclusion:** Some differences were found between parents whose children received the vaccine and those whose children did not receive the COVID-19 vaccine. Parents whose children received the COVID-19 vaccine were likely to have a good perception of the COVID-19 vaccination. Meanwhile, parents whose children did not get vaccinated were likely to have a bad perception. Educational and consulting services possibly increase vaccination coverage.

**Keywords:** COVID-19 vaccination for children; different acceptance; 7Cs components

### Abstrak

**Latar Belakang:** Cakupan vaksinasi COVID-19 untuk anak di Pati masih tergolong rendah yakni 37% pada Februari 2022 dibandingkan dengan target sebesar 75%. Penelitian terdahulu di Kudus menunjukkan bahwa orang tua yang telah menerima sosialisasi mengenai vaksinasi COVID-19 pada anak mengalami kekhawatiran yang berpengaruh secara negative pada respon mereka terhadap program.

**Tujuan:** Penelitian ini bertujuan untuk menganalisis perbedaan penerimaan orang tua terhadap vaksinasi COVID-19 pada anak di Kabupaten Pati.

**Metode:** Studi ini merupakan penelitian kuantitatif dengan pendekatan potong lintang. Variabel penelitiannya terdiri atas komponen 7Cs (Confidence, Complacency, Constraints, Calculation, Collective Responsibility, Compliance, Conspiracy) dan penerimaan vaksinasi COVID-19. Total sampel berjumlah 372 orang tua yang dibagi menjadi dua kelompok independent dan diperoleh melalui sampling kluster acak dan sampling proporsional. Data dikumpulkan menggunakan kuisioner melalui Google Form dan dianalisis menggunakan uji beda Mann Whitney.

**Hasil:** Hasil dari penelitian menunjukkan terdapat perbedaan penerimaan vaksinasi COVID-19 (sig = 0,006) pada variabel hambatan (sig = 0,001), tanggung jawab kelompok (sig = 0,012), kepatuhan (sig = 0,012), kepercayaan (sig = 0,019), kepuasan (sig = 0,020), perhitungan (sig = 0,027), dan konspirasi (sig = 0,037).

**Kesimpulan:** Beberapa perbedaan ditemukan antara kelompok orang tua yang anaknya telah mendapatkan vaksin dan pada kelompok orang tua yang anaknya belum mendapatkan vaksin COVID-19. Orang tua yang anaknya telah mendapatkan vaksin cenderung memiliki persepsi yang baik terkait vaksinasi COVID-19. Sedangkan, orangtua yang anaknya belum menerima vaksin cenderung memiliki persepsi yang buruk. Upaya edukasi dan optimalisasi layanan konsultasi diperlukan untuk meningkatkan cakupan vaksinasi.

**Kata kunci:** komponen 7C, perbedaan penerimaan, Vaksinasi COVID-19 untuk anak



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## Introduction

Coronavirus Disease 2019 (COVID-19) is a new variant of severe acute respiratory syndrome coronavirus 2 (SARS-Cov-2) (Rothan and Byrareddy, 2020). The rapid transmission results in a fluctuating increase in cases in various countries, including Indonesia. Since COVID-19 was first announced on March 2, 2021, COVID-19 cases have continued to increase and spread rapidly in various regions of Indonesia.

The Indonesian Government responded to the significant increase by issuing Presidential Decree Number 12 of 2020 concerning the Determination of Non-Natural Disasters of the Spread of COVID-19 as a National Disaster. Due to massive COVID-19 cases, the Government followed up by issuing the COVID-19 vaccination policy. The policy aims to prevent and overcome the transmission of COVID-19 through vaccinations. The COVID-19 vaccination policy in Indonesia is carried out in stages for health workers, public service workers, the elderly, the public, and children aged 6-11 years (Sutari *et al.*, 2022). In the school context, schools with teaching staff who received the COVID-19 vaccination could carry out direct face-to-face learning for the 2021/2022 academic year as stated in Joint Decree of the Minister of Education and Culture, Minister of Religion, Minister of Health, and Minister of Home Affairs regarding Guidelines for Organizing Learning during the COVID-19 Pandemic. The implementation of direct learning was determined based on the zonation of COVID-19 vaccination coverage and the vaccination status of teaching staff in each district. The zoning level is based on the implementation of Community Activities Restrictions Enforcement. Direct learning was expected to encourage children's vaccination evenly (Kemendikbud, 2021). The COVID-19 vaccination policy for the 6-11-year-old group began in December 2021 to suppress the spread of COVID-19 in children (Nurhidayah *et al.*, 2021; Nurrizka *et al.*, 2023).

Pati Regency is one of Central Java's regencies conducting a few direct learning

trials during the pandemic with various careful considerations to prevent transmission and clusters of COVID-19 cases at schools. According to the COVID-19 vaccination coverage, Pati Regency was in zone one in January 2022, and thus, it had to apply direct learning. However, after one month running, children's vaccination coverage was still relatively low at 37% compared to the 75% target based on the Pati Regency Health Office in January 2022 (Dinas Kesehatan Kabupaten Pati, 2022). In addition, after two weeks of implementation, direct learning was stopped at some schools because of clusters of COVID-19 cases discovered.

From a preliminary study conducted on 20 mothers who had children aged 6-11 years, 14 mothers (70%) received direct explanations and outreach about children's vaccination programs from teachers and educators. Nine mothers (64.3%) who received the information were highly concerned about the COVID-19 vaccination program for their children. Some parents even indicated no need to vaccinate their children. Some parents even avoided the COVID-19 vaccination by setting off their children's school schedules. This condition shows the reluctance of parents to vaccinate their children against COVID. Possibly, they had doubts about the safety of the COVID-19 vaccine (Horiuchi *et al.*, 2021; Ruggiero *et al.*, 2021) and thus responded negatively to the vaccination program (Wouters *et al.*, 2021; Bell *et al.*, 2020).

The COVID-19 vaccination policy for children has evoked different societal responses, including those from parents. It has been proven that many parents decided not to vaccinate their children (Nurrizka *et al.*, 2023) because their negative perceptions affected their attitudes toward refusing vaccinations (Bono *et al.*, 2022). Differences in vaccination acceptance indicate the need for different interventions in each group to increase child vaccination coverage, especially in groups with low acceptance and without a vaccination status. This study aims to analyze differences in parental readiness for children's COVID-19 vaccination between parents whose

children were vaccinated and those whose children were not vaccinated.

## Method

This study was quantitative and analytical research with a cross-sectional approach. The research method was descriptive comparative to determine the differences in parental acceptance between two independent groups. The study location was in Pati Regency, Central Java Province, a district with low COVID-19 vaccination coverage in 2021. Primary data sources were collected by filling out an online questionnaire (via Google form) because the research was conducted during physical distancing situations. Secondary data were collected from various documents and reports from the Public Health Center and the Regency Health Office.

The population was parents of children aged 6-11 years old in Pati Regency. Data from the Pati Regency Health Office showed that 112,000 children aged 6-11 years were used for the basis of the COVID-19 vaccination. Two independent groups sampled consisted of 186 people each. One group comprised parents who got their children vaccinated and parents who did not. Sampling was done using cluster and proportional random sampling techniques based on the distance between the district and the city center. For this study, three districts, namely the Pati District, Gembong District, and Gunungwungkal District, were selected. The proportional sampling technique was used to determine the number of respondents representing each district.

The inclusion criteria of the respondents were parents who lived in Pati Regency, had children aged 6-11 years old attending schools, and participated in filling out an online questionnaire. The exclusion criteria were parents who did not complete and return the questionnaire. If the respondents filled out the questionnaire more than once, the questionnaire sent for the first time was used.

Variables in this study adopting Geiger's vaccination readiness model included the 7C components: Confidence, Complacency, Constraints, Calculation, Collective Responsibility, Compliance, and Conspiracy (Geiger *et al.*, 2022). Data was collected using a questionnaire containing 35 items of positive and negative statements adapted from Geiger's model, which had been tested for validity and reliability. Data processing and analysis using computer software started with editing, coding, scoring, data input, data checking, and grouping. Univariate analysis with the frequency distribution of each variable and bivariate analysis was done using a non-parametric difference test (Mann-Whitney test) because the data were not normally distributed.

## Results and Discussion

Table 1 shows the characteristics of the parent group whose children were vaccinated (Group A) and those whose children were not vaccinated (Group B). Most of the parents were  $\geq 30$  years old. In Group A, the majority of the respondents were male, while the majority in Group B were female. It could be seen that male parents were less likely to refuse vaccination than female parents. This study aligns with Zintel *et al.*'s study, stating that men's intention to vaccinate their children was higher than women's (Zintel *et al.*, 2022). It is possibly because mothers were more likely to experience doubts about vaccinations than fathers (Horiuchi *et al.*, 2021).

Table 1. Frequency of respondents' characteristic distribution

Characteristics	Vaccinated		Not Vaccinated	
	f	%	f	%
<b>Parents' Age</b>				
<30 years	67	36	68	36.6
$\geq 30$ years	119	64	118	63.4
<b>Gender</b>				
Men	115	61.8	71	38.2
Woman	71	38.2	115	61.8

Table 2. Variable frequency distribution

Variable	Vaccination Status				p-value
	Vaccinated		Not Vaccinated		
	f	%	f	%	
<b>Confidence</b>					
Low	33	17.7	146	78.5	0.019
High	153	82.3	40	21.5	
<b>Complacency</b>					
High	36	19.4	135	72.6	0.020
Low	150	80.6	51	27.4	
<b>Constraints</b>					
High	16	8.6	120	64.5	0.000
Low	170	91.4	66	35.5	
<b>Calculation</b>					
Low	38	20.4	147	79	0.027
High	148	79.6	39	21	
<b>Collective Responsibility</b>					
Low	44	23.7	116	62.4	0.012
High	142	76.3	70	37.6	
<b>Compliance</b>					
Low	28	15.1	125	67.2	0.012
High	158	84.9	61	32.8	
<b>Conspiracy</b>					
High	86	46.2	96	51.6	0.037
Low	100	53.8	90	48.4	
<b>Children's COVID-19 Vaccination Acceptance</b>					
Low	20	10.8	165	88.7	0.006
High	166	89.2	21	11.3	

Table 2 shows a higher proportion of confidence, calculation, collective responsibility, compliance, perceived obstacles, and acceptance of the COVID-19 vaccination in Group A than in Group B. However, Group B had high aspects of complacency and conspiracy. Statistically, it was also proven that there were significant differences in all indicators of immunization readiness from Geiger's model, which included 7Cs between the two groups because the p-value obtained was less than 0.05 ( $p < 0.05$ ).

Group A was likely to have high confidence in COVID-19 vaccination, while Group B was not. Likewise, perceived constraint factors are also different between the groups. High barriers were experienced by 64.5% of Group B. Barriers were measured based on aspects of structural and psychological barriers. Higher differences in barriers between groups can be seen in Group A than in

Group B. This shows that barriers to accessing COVID-19 vaccination in children can lead to vaccination refusal (Kwok *et al.*, 2021).

Group B had structural barriers when receiving information due to the low exposure and access to information, especially on social media, while they just relied on health workers to get information (Skjefte *et al.*, 2021). However, the health worker-assisted broadcast was not optimal since schools were identified as the ones that broadcast information on WhatsApp. Meanwhile, increasing online consultation for parents from schools and health workers is necessary. In addition to structural barriers, Group B also experienced psychological barriers in readiness and willingness to pay. Low income causes a budget shortage for parents to pay for vaccination services (Ginting *et al.*, 2021). Thus, door-to-door services are recommended to minimize

cost barriers in COVID-19 vaccination services for children.

The results showed a p-value of 0.012 in the collective responsibility variable, indicating significant differences between groups. In this case, 62.4% of Group B had lower responsibility for their children's vaccination than Group A. Collective responsibility is measured through people's intention to protect others. Vaccinated groups have a high desire and awareness to protect others (Giuseppe *et al.*, 2022). Group responsibility is a form of individual awareness affecting an individual's perception and motivation to act. The low collective awareness in Group B could be due to a lack of knowledge about COVID-19 vaccination, including its positive impact on oneself, family, and the surrounding environment (Liu *et al.*, 2022). Thus, it is necessary to provide information to family welfare empowerment groups and female health cadres to spread the information more rapidly.

This study showed that Group B had lower compliance (67.2%) than Group A. Compliance was measured through the aspect of self-regulatory. Compliance is community support for a policy. Low adherence in an unvaccinated group may be caused by low trust in policy-making authorities (Lazarus *et al.*, 2020). Policy regarding COVID-19 mitigation is considered insufficient and thus requires a lengthy response from policymakers and the public (Wiranti *et al.*, 2020). Therefore, various approaches related to the implementation of regulation are needed, for example, by collaborating with various parties such as media and community leaders.

This study obtained a p-value of 0.019 in the confidence variable, suggesting a difference in confidence between Group A and Group B. Group B (78.5%) had lower confidence in vaccine safety and effectiveness, policy-making authority, and competence of health workers than Group A. In other words, Group A's trust was higher than Group B's. Trust becomes a motivation or encouragement for individuals in determining a preventive action (Guidry *et al.*, 2020). Low confidence, on the other

hand, may be caused by low knowledge, especially of the manufacture and development of COVID-19 vaccines (Paul *et al.*, 2020). In addition, society might put low trust in the approach and lack of transparency of the relevant policy-making authorities and government (Lazarus *et al.*, 2020). Besides, low trust may related to health workers' competence due to unsatisfactory health service experience and lack of information delivery regarding the service mechanism (Lasmita *et al.*, 2021). Hence, education and training are needed, especially to improve the communication skills of health workers for disseminating information about vaccination programs.

Differences in the complacency variable between groups were found with a p-value of 0.020. This study showed that 72.6% of Group B had higher self-satisfaction about health status and immunity than Group A. Differences in self-satisfaction are associated with low perceptions of pain, causing a low acceptance of preventive services. Every individual has different concepts of health and illness, thus affecting their perception of pain. Parents tend to take precautionary measures when they believe the steps can reduce the risk of disease transmission (Dewi *et al.*, 2021; Laili and Tanoto, 2021). In addition to the low perception of pain, the lack of cues to action because of limited information exposure on mass media, from the surrounding environment, or past service experience leads to individual reluctance to take preventive action (Gerretsen *et al.*, 2021). In tackling the issues, intense exposure to information on social media or direct advocacy may improve group responsibility and trust.

The results showed a p-value of 0.027, indicating differences in the calculation of perceived benefits between groups. Group B (79%) had a lower calculation of perceived benefits than Group A. Individuals' perceived benefits and risks positively influenced individual interest in the COVID-19 vaccination (Erawan *et al.*, 2021). Taking no advantage of COVID-19 vaccination services for children may occur due to the low calculation of perceived benefits (Guidry *et*

*al.*, 2020; Reiter *et al.*, 2021). The information dissemination, which will improve group responsibility, trust, and self-satisfaction, is a way to intervene in the parental calculation of perceived benefits.

Besides, the conspiracy belief variable differed between groups with a p-value of 0.037. This study found that 51.6% of Group B had higher conspiracy trust than Group A. Hoax news and government conspiracies are aspects measured in the conspiracy beliefs. Group B possibly thought that hoax news was aimed at setting up propaganda for certain groups, resulting in the rejection of vaccinations. Hoax news about COVID-19 vaccination without selective attitudes creates public anxiety and responses to vaccination programs (Winter *et al.*, 2022). Some people who agree with vaccination understand that vaccination prevents infectious diseases. However, people who are reluctant to receive vaccinations assert that vaccination is a mass weakening effort conspired by the government together with pharmaceutical companies (Ripp and Röer, 2022). Thus, the public trust issue could be overcome through direct and indirect communicative approaches.

Significant differences in acceptance of vaccination were also found between groups with a p-value of 0.006. Group B (88.7%) had lower acceptance than Group A, likely because of the low perception and desire for vaccinations (Karlsson *et al.*, 2021). In addition to these factors, low acceptance is caused by low support for the program implementation (Navin *et al.*, 2022) and insufficient knowledge of the benefits and constraints of the vaccination (Freitas *et al.*, 2021; Ripp and Röer, 2022). More studies have also shown that parental acceptance is the key to success in the COVID-19 vaccination program for children. Otherwise, low parental acceptance may lead to low vaccination coverage and high COVID-19 transmission rates among children. Previous research also shows differences in acceptance between people who had received the COVID-19 vaccine and those who did not (Lasmita *et al.*, 2021). Supporting the current findings, other research mentions parents whose children had received the

HPV vaccine and those whose children did not show different acceptance (Dethan and Suariyani, 2017).

## Conclusion

This study reveals some differences in terms of confidence, complacency, constraints, calculation of benefits and risks, collective responsibility, compliance, and conspiracy against receipt of COVID-19 vaccination in children. As different perceptions cause these differences, parents with good perceptions of vaccination programs had children vaccinated. While this study addressed different aspects affecting parental readiness for children's vaccination, it had limited data, focusing only on online data. In addition, this study used a theory that is not commonly cited in previous research, thereby making it difficult to verify the results with the previous findings.

In responding to the findings, this study suggests optimizing online consultation services, conducting health competency and communication skill training for health workers, capacity building for health cadres, and monitoring and evaluating the implementation of COVID-19 vaccinations in children regularly. At the first-level health facilities, schools and health cadres should be empowered to provide education about COVID-19 vaccination to parents directly or indirectly. Access to information from health workers and official government social media is required for all members of society to understand the vaccination programs better. Future researchers are expected to conduct further research on factors or variables that influence differences in parental acceptance.

## Abbreviations

7Cs: Confidence, Complacency, Constraints, Calculation, Collective Responsibility, Compliance, Conspiracy; COVID-19: Coronavirus Disease 2019; SARS-Cov-2: Severe Acute Respiratory Syndrome Coronavirus 2; HPV: Human Papilloma Virus.

## Declarations

### Ethics Approval and Consent Participant

This study has passed the ethical clearance and is feasible according to the seven ethical values set by the World Health Organization's 2011 standards with the ethics review number 139/EA/KEPK-FKM/2022 published by the Health Research Ethics Commission of the Faculty of Public Health, Diponegoro University on April 26, 2022.

### Conflict of Interest

The authors declare that they have no competing interests.

### Availability of Data and Materials

Data and materials are available upon request.

### Author's Contribution

MIV and AS conceptualized the study and created the methodology; MIV, AS, and NN wrote, reviewed, and edited the manuscript; MIV and NN wrote the original draft.

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