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# Lesson Learned From Parents' Willingness to Covid-19 Vaccination in Children Aged 6 – 11 Years (with the Health Belief Model Approach)

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**ABSTRACT**

The WHO has revoked the COVID-19 pandemic status, but the disease remains a global health concern. One of the post-pandemic mitigation strategies is vaccination for children aged 6-11 years. Parents' willingness to vaccinate children aged 6-11 years is important to prevent the recurrence of the COVID-19 pandemic or the like. The working area of the Mlandingan Health Center includes areas with low achievement of COVID-19 vaccination in children. This study aims to determine respondents' willingness to vaccinate as a form of prevention against COVID-19 in children aged 6-11 years. This study used a cross sectional study approach. The results of the study were that there was an effect of the education level and ethnicity of the respondents on the willingness to vaccinate COVID-19 in children (p=0.001), while the generation group, gender, and marital status of the respondents had no effect (p>0.05) on the willingness to vaccinate COVID-19 in children aged 6-11 years. Perceived Susceptibility, Severity, Barrier, Benefits, Self-efficacy, and Cues to Action influence children's willingness to vaccinate against COVID-19 with p-value = 0.001. From the results of this study, can be concluded that the parents' willingness to COVID-19 vaccination in child aged 6-11 years, can be influenced by characteristic and perception of respondens.

**KEYWORDS:** Vaccine COVID-19, Health Belief Model, Child Vaccine, Parents' Accepted

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## INTRODUCTION

WHO has revoked the global emergency status of COVID-19 on 5 May 2023, but this does not mean that COVID-19 has disappeared but remains a global health threat.[1] Post-pandemic mitigation needs to be carried out to recognize risks that can occur after a pandemic, prevention so that these risks do not occur, and post-pandemic handling. One of the important efforts to mitigate a pandemic or endemic disaster is vaccination. Vaccinations obtained need to be updated with booster doses.[2] The vaccination program has become an important part during the COVID-19 pandemic, but not all people accept the program.[3,4]

Various countries are committed to jointly involving governments, biotechnology companies, scientists, and academics to create a COVID-19 vaccine as protection against the Coronavirus.[5] Indonesia to carry out COVID-19 vaccination as a form of protection needs to be done due to the need for more public awareness in implementing health protocols. According to several studies, children are a group that is vulnerable to contracting COVID-19 due to immature immune systems, so children need to get protection as a form of mitigation after the COVID-19 pandemic.[6–9] Based on the degree of the Minister of Health of the Republic of Indonesia in 2021, COVID-19 vaccination was declared safe for children and should be implemented for children aged 6-11 years.[10]

Achievement of COVID-19 vaccination in children in Indonesia until August 2022 was 78.17% for the first dose and 63.19% for the second dose.[11] The vaccination achievement has yet to reach the 90% target, so it is necessary to accelerate it to achieve protection and support face-to-face learning. Achievements of COVID-19 vaccination in children until August 2022 in East Java Province as much as 84.04% for the first dose and 70.37% for the second dose, while in Situbondo until August 2022, around 63.94% for the first dose and 36.53% for the second dose.[11,12] The Situbondo Regency Government hopes that the achievement of vaccination in children can reach approximately 90% to protect children from COVID-19 during face-to-face learning at school. There

are 17 Districts in Situbondo District, with the lowest vaccination achievement in the Mlandingan District. Based on data from the Mlandingan Health Center, the achievement of COVID-19 vaccination in children in the working area of the Mlandingan Health Center until August 2022, the first dose was 36.22%, and the second dose was 16.40%.[13]

The willingness of parents to permit their children to receive vaccines is a form of health behavior. Health behavior is influenced by knowledge and attitude. There are many theories and models regarding behavior change, including the Health Belief Model (HBM).[14–17] The HBM behavior change model encourages people to take positive health actions, in this case, related to their willingness to allow their children to get COVID-19 vaccinated.[16] From this description, the researcher was interested in knowing what whether the characteristics and perceptions of respondents influence the willingness to vaccinate in children aged 6-11 years so that it can become a post-pandemic mitigation strategy.

## METHOD

This research is observational analytic research with a cross-sectional study approach. This research was conducted in the work area of the Mlandingan Health Center, Situbondo Regency. The time of research was carried out in September-November 2022. This study's population was parents with children aged 6-11 years in the Mlandingan Health Center working area, with as many as 1695 people.[13,18] The number of samples in this study was 332 respondents selected using a purposive sampling technique.[19,20] The research data consisted of primary data about parents' perceptions based on indicators of the Health Belief Model and secondary data comprised of the number of parents with children aged 6-11 years and the achievements of COVID-19 vaccination in children aged 6-11 years. The data collection instrument was a Health Belief Model questionnaire. Data analysis was performed using the SPSS 16.0 application using the Spearman Rank correlation.

## RESULTS

Description of Characteristics, Vaccination Willingness, and Respondents' Perceptions

Based on the characteristics of the respondent's generation, most respondents were in the Y generation group, 77.4%. The gender of the respondents was primarily female, 93.1%. The education level of most of the respondents who graduated from elementary school was 31.6%. Most of the respondent's marital status was married, 97.6%, and most of the respondents were Madurese, 89.8% (Table 1).

**Table 1. Distribution of Respondent Characteristics in the Work Area of the Mlandingan Health Center**

| Characteristics of Respondents | n | % | Sig. (p-value≤0,005) |
|---|---|---|---|
| **Generation** | | | |
| X Generation | 52 | 15,7 | 0,812 |
| Y Generation | 257 | 77,4 | |
| Z Generation | 23 | 6,9 | |
| Total | 332 | 100 | |
| **Gender** | | | |
| Man | 23 | 6,9 | 0,050 |
| Woman | 309 | 93,1 | |
| Total | 332 | 100 | |
| **Education** | | | |
| No School | 7 | 2,1 | 0,001 |
| Elementary School | 105 | 31,6 | |
| Middle School | 103 | 31 | |
| Senior High School | 81 | 23,8 | |
| Diploma | 23 | 7,1 | |
| Bachelor | 13 | 4 | |
| Total | 332 | 100 | |
| **Marital Status** | | | |
| Married | 324 | 97,6 | 0,226 |
| Divorced (Dead/Alive) | 8 | 2,4 | |
| Total | 332 | 100 | |
| **Ethnic** | | | |
| Java | 34 | 10,2 | 0,001 |
| Madura | 298 | 89,8 | |
| Total | 332 | 100 | |

The willingness of respondents to vaccinate COVID-19 in children aged 6-11 years is 40%. Respondents who were unwilling to the COVID-19 vaccination in children, 41% (Table 2).

**Table 2. Distribution of Respondents' Willingness to Covid 19 Vaccine in the Mlandingan Health Center Working Area**

| Characteristics of Respondents | Willing | | Doubtful | | Not Willing | | Total | |
|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % |
| **Generation** | | | | | | | | |
| X Generation | 21 | 40 | 7 | 13 | 24 | 46 | 52 | 100 |
| Y Generation | 103 | 40 | 53 | 21 | 101 | 39 | 257 | 100 |
| Z Generation | 9 | 39 | 4 | 17 | 10 | 43 | 23 | 100 |
| Total | 133 | 40 | 64 | 19 | 135 | 41 | 332 | 100 |
| **Gender** | | | | | | | | |
| Man | 13 | 57 | 5 | 22 | 5 | 22 | 23 | 100 |
| Woman | 120 | 39 | 59 | 19 | 130 | 42 | 309 | 100 |
| Total | 133 | 40 | 64 | 19 | 135 | 41 | 332 | 100 |
| **Education** | | | | | | | | |
| No School | 0 | 0 | 1 | 14 | 6 | 86 | 7 | 100 |
| Elementary School | 43 | 41 | 17 | 16 | 44 | 42 | 104 | 100 |
| Middle School | 46 | 44 | 23 | 22 | 35 | 34 | 104 | 100 |
| Senior High School | 31 | 38 | 15 | 18 | 36 | 44 | 82 | 100 |
| Diploma | 6 | 27 | 5 | 23 | 11 | 50 | 22 | 100 |
| Bachelor | 7 | 54 | 3 | 23 | 3 | 23 | 13 | 100 |
| Total | 133 | 40 | 64 | 19 | 135 | 41 | 332 | 100 |
| **Marital Status** | | | | | | | | |
| Married | 132 | 41 | 58 | 18 | 134 | 41 | 324 | 100 |
| Divorced (Dead/Alive) | 1 | 13 | 6 | 75 | 1 | 13 | 8 | 100 |
| Total | 133 | 40 | 64 | 19 | 135 | 41 | 332 | 100 |
| **Ethnic** | | | | | | | | |
| Java | 32 | 94 | 2 | 6 | 0 | 0 | 34 | 100 |
| Madura | 101 | 34 | 62 | 21 | 135 | 45 | 298 | 100 |
| Total | 133 | 40 | 64 | 19 | 135 | 41 | 332 | 100 |

Description of parents' perceptions of COVID-19 vaccination in children, there are perceived susceptibility is good (53.9%), Perceived severity is good (41%), Perceived barrier is not sound (54.2%), Perceived benefits are good (35.8%), good self-efficacy (33.1%), and sound cues to action (42.8%) can be seen in (Table 3).

**Table 3. Distribution of Perceived Respondent Against COVID-19 Vaccines in the Work Area of the Mlandingan Health Center**

| Characteristics of Respondents | n | % | Sig. (p-value<0,005) |
|---|---|---|---|
| **Perceived Susceptibility** | | | |
| Not Good | 31 | 9,3 | 0,001 |
| Poorly | 114 | 34,3 | |
| Good | 179 | 53,9 | |
| Very Good | 8 | 2,4 | |
| Total | 332 | 100 | |
| **Perceived Severity** | | | |
| Not Good | 24 | 7,2 | 0,001 |
| Poorly | 98 | 29,5 | |
| Good | 136 | 41,0 | |
| Very Good | 74 | 22,3 | |
| Total | 332 | 100 | |
| **Perceived Benefits** | | | |
| Not Good | 30 | 9,0 | 0,001 |
| Poorly | 110 | 33,1 | |
| Good | 119 | 35,8 | |
| Very Good | 73 | 22,0 | |
| Total | 332 | 100 | |
| **Perceived Barrier** | | | |

| | | | |
|---|---|---|---|
| Not Good | 18 | 5,4 | 0,001 |
| Poorly | 180 | 54,2 | |
| Good | 85 | 25,6 | |
| Very Good | 49 | 14,8 | |
| Total | 332 | 100 | |
| **Self-Efficacy** | | | |
| Not Good | 43 | 13,0 | 0,001 |
| Poorly | 97 | 29,2 | |
| Good | 110 | 33,1 | |
| Very Good | 82 | 24,7 | |
| Total | 332 | 100 | |
| **Cues To Action** | | | |
| Not Good | 20 | 6,0 | 0,001 |
| Poorly | 75 | 22,6 | |
| Good | 142 | 42,8 | |
| Very Good | 95 | 28,6 | |
| Total | 332 | 100 | |

The Effect of Respondents' Characteristics and Perception on Willingness to Covid 19 Vaccinate

Respondent characteristics that influence willingness to vaccinate against COVID-19 are education level and ethnicity of respondents with a p-value = 0.001. In contrast, characteristics based on generation and marital status do not affect willingness to vaccinate against COVID-19 in children aged 6-11 years (Table 1). The influence of respondents' perceptions of willingness to vaccinate against COVID-19 in children aged 6-11 years, namely the values obtained for Perceived Susceptibility, Perceived Severity, Perceived Barrier, Perceived Benefits, Self Efficacy, and Cues to Action of 0.001 (p-value <0.005). This case shows the influence of respondents' perceptions of the willingness to vaccinate against COVID-19 in children aged 6-11 years (Table 3).

## DISCUSSION

Post-pandemic mitigation is needed to reduce post-pandemic risks, manage the transition from post-pandemic to endemic, and prevent a recurrence of a pandemic. One strategy that can be done to reduce this risk is vaccination. Vaccination programs during a pandemic can be used as lessons or guidelines to increase the success rate of subsequent vaccination programs. One of the efforts to deal with post-pandemic COVID-19 problems is to identify the risk of transmission, prevent transmission of COVID-19, handle and rehabilitate what can be done. This can be influenced by people's characteristics and perceptions of vaccination. The COVID-19 vaccine can help protect against the risk of transmission of COVID-19, prevent more serious complications, and can protect the people around him. Vaccines will stimulate the formation of immunity against diseases that attack a person's body. High and even vaccination coverage will form herd immunity. Vaccination does not only break the chain of transmission of COVID-19 and stop the outbreak, but in the long term to eliminate and even eradicate (eliminate/eliminate) the disease itself.[21] The results of this study indicate a characteristic that influences willingness to vaccinate against COVID-19, namely the level of education. Respondents' perceptions also influence willingness to vaccinate against COVID-19, where a good perception will result in good behavior.

Based on the characteristics of the level of education, the results showed an effect of education level on the willingness to vaccinate against COVID-19 in children aged 6-11 years. The results of this study follow the results of previous studies, which stated that there was a relationship between education level and willingness to vaccinate against COVID-19.[22,23] The education level of most of the research respondents only graduated from elementary school, and the majority were not willing for their children to receive the COVID-19 vaccination. The low education of respondents will affect their ability to understand some information. Respondents in this study received information regarding the COVID-19 vaccination from health workers and the Regional Coordinator for Education in Mlandingan District. Negative information about the COVID-19 vaccination is circulating in the environment, so respondents believe more in the negative news (hoaxes) circulating in the community. Based on ethnic characteristics, the respondent's ethnicity influences the willingness to vaccinate against COVID-19 in children aged 6-11 years. Previous studies' results stated significant differences in groups with ethnic/racial identities in their desire to receive the COVID-19 vaccination. The research results are the same as previous research.[22,24]

The generation of respondents does not affect willingness to vaccinate against COVID-19. Generation Y, or the millennial generation, uses many instant communication technologies such as e-mail and social media such as Facebook, Twitter, Instagram, and others. This generation grew up in the booming internet era.[25] Generation X may also start accessing the internet, such as social media. The circulation of messages or news on social media that is easy to access affects respondents' perceptions in analyzing the information received. The result will also affect the willingness of respondents to receive COVID-19 vaccinations

for children. Someone with increasing age will tend to have a positive perception of the COVID-19 vaccination so they can more readily accept the necessity.

Based on gender characteristics, there is no effect of gender on willingness to vaccinate against COVID-19 in children aged 6-11 years. The results of this study are the same as those conducted by Fortuna (2022). The results of research conducted in the working area of the Mlandingan Health Center, the respondents who received exposure to COVID-19 vaccination information were mostly mothers who then conveyed this information to their families to get support for vaccination. Based on marital status, there was no effect of the respondent's marital status on the willingness to vaccinate against COVID-19 in children aged 6-11 years. This study's results differ from the research conducted by Ichsan et al. (2021), which stated that marital status affected the willingness to receive the COVID-19 vaccine. Community culture in the Mlandingan Health Center's working area, namely decisions regarding immunization and vaccination, still follows the advice or opinion of the oldest person in the family.

Perceived susceptibility is an individual's perception of the possibility of contracting a disease. In this case, the vulnerability referred to is acquiring COVID-19. The results of this study are the same as those of a survey conducted by Rizqillah (2021) which stated that there was a positive effect on the COVID-19 vaccination. In contrast to the results of previous studies conducted by Fortuna (2022), they show no relationship between Perceived Susceptibility and willingness to vaccinate against COVID-19. In the opinion of the researchers, the greater the perceived vulnerability about the perceived disease risk, the more likely a person is to engage in behaviors to reduce his risk. The results of interviews with respondents in the working area of the Mlandingan Health Center stated that they were willing to vaccinate their children against COVID-19 so that their children would be healthy and avoid COVID-19 disease. This case shows respondents know the COVID-19 virus is dangerous and children are vulnerable to infection. Several respondents stated that their willingness to vaccinate was due to face-to-face learning requirements, so they reluctantly allowed their children to get vaccinated against COVID-19.

Perceived Severity or perceived seriousness refers to the negative consequences associated with an event, in this case, being diagnosed with COVID-19.[23] The results of this study are the same as research conducted by Rizqillah (2021) which shows that Perceived Severity affects respondents' willingness to vaccinate against COVID-19 in children aged 6-11 years. Based on the results of the research that has been done, it is known that some respondents understand that the transmission of the COVID-19 virus is high-speed and can cause death. This case was supported by an increase in the death rate (CFR) from 7.5% in 2020 to 13.7% in 2021. The increase in deaths due to COVID-19 is causing parents to start to feel that COVID-19 is a serious matter so that parents can receive vaccinations.

The perceived barrier is the respondent's feelings about something that is an obstacle or hinders them from carrying out the recommended health action. Based on the results of research that have been conducted in the working area of the Mlandingan Health Center, it is the same as the previous research conducted by Rizqillah (2021) dan Fortuna (2022). The inhibiting factor described from the results of this study is the lack of support from the family to give permission or be willing to vaccinate. The oldest person still influences permission to vaccinate or immunize children in the family because they fear vaccine safety. Previous research showed concern or uncertainty about vaccine safety led to their vaccine hesitation.[26]

Perceived benefit refers to a belief that being willing to be vaccinated against COVID-19 will reduce the risk of contracting the disease. The results of the research in the working area of the Mlandingan Health Center are the same as the previous research.[24,27] Parents are willing to vaccinate the benefits of the vaccine to prevent the transmission of the COVID-19 virus. The other half of the respondents who were interviewed stated that the benefits of vaccination were not good because they feared their children would get sick after being vaccinated. This research was the same as the previous research finding that most participants expressed some hesitancy concerning COVID-19 vaccines, possibly due to perceived side effects.[28] The participants thought COVID-19 did not exist and would not be transmitted to children. Another reason is that respondents feel that vaccination only benefits the government and harms the community.

Self-efficacy positive is the belief in being able to do better. People will not try to perform a behavior without certain, highly situational assumptions. The study showed an effect of Self-Efficacy on the willingness to vaccinate against COVID-19 in children aged 6-11 years. The results of this study are the same as previous studies by Fortuna (2022). Self-efficacy consists of several factors, including information, people, and events that lead a person to be vaccinated. The effect of Self-Efficacy can be seen from the research results, which show that parents are ready to take their children to receive the COVID-19 vaccination, are prepared to care for sick children after vaccination, and are ready to accept directions from health workers. This case is what supports the willingness of parents to be willing to have their children vaccinated.

Cues to action are the stimulus needed to trigger a decision to accept the recommended health action, in this case regarding the COVID-19 vaccination. The results showed the effect of cues to act on the willingness to vaccinate against COVID-19 in children aged 6-11. The results of this study are the same as those of previous studies, which stated that there was a significant relationship between cues to action and willingness to vaccinate against COVID-19. The existence of

counseling or education from health workers regarding COVID-19 vaccination influences the influence of parental cues to action on COVID-19 vaccination. Some of the respondents in the working area of the Mlandingan Health Center stated that the willingness to vaccinate children was due to socialization from health workers, school guidance, and support from spouses and family. In contrast to respondents who refuse to give vaccines to children, family support is still an essential factor for the success of COVID-19 vaccination in children aged 6-11 years. The previous studies indicated that cues to action are a necessary element of HBM, and they were found to be a significant driving force of vaccine acceptance. The recommendation from the government is the most important cue, far more potent than others, such as those from doctors and family members.[29]

## CONCLUSION

Based on the results and discussion, it can be concluded that one of the post-pandemic COVID-19 mitigation strategies can be carried out by vaccination up to a complete dose to increase the body's immunity and form herd immunity. Willingness to vaccinate is influenced by the characteristics of the respondents and the positive perception of the respondents towards COVID-19 vaccination in children. The pandemic can be said to be over, but COVID-19 is still a global health problem that needs to be watched out for, especially in children aged 6-11 years by forming immunity with vaccinations up to a complete dose.

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