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Factors Related to the Parental Decision in Conducting Measles-Rubella Vaccination to the Children in South Sulawesi, Indonesia

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Abstract The Measles and Rubella (MR) vaccination was declared *haram* by the Indonesian Ulema Council. However, it can still be used in an emergency. This makes parents hesitate to vaccinate their children with measles and rubella vaccine. In addition, various effects of Measles and Rubella vaccination like autism, fever, and death are also spread on social media. Vaccination is one of the interventions in the health sector that is expected to reduce mortality from preventable diseases by vaccination, including measles and rubella. This study used a qualitative descriptive research method with a participatory approach, carried out from October to December 2020, in Tompobulu and Tinggimoncong Sub-District, Gowa District South Sulawesi. The research informants were 32 people consisting of parents who had children aged 9-30 months old. The results showed that the parental decision to vaccinate their children with MR depended on the understanding obtained (source of information), attitudes and beliefs of parents, social capital, and lifestyle. An appropriate understanding encouraged parents to do MR vaccination on their children. Negative attitudes might influence parents to refuse MR vaccination. It is expected that health workers will conduct socialization and provide appropriate information regarding vaccinations given to children.

Keywords Vaccination, Parental Decision,

Measles-Rubella

1. Introduction

Indonesia has commitments to handle prevented diseases by vaccination with carrying out a campaign to eradicate the Measles virus and control the Rubella virus in 2020. This campaign was carried out in the first stage in August and September 2017 on Java Island, and the second stage was carried out in 2018 outside Java. After the campaign period ends, the MR Vaccination will be included in the routine vaccination schedule and given to children with the age of 9 months, 18 months, and school children in first class in elementary school or equivalent [1]. However, MR vaccination is not simply accepted by the public, so resulting in low vaccination coverage.

There are many challenges to improving vaccination coverage in Southeast Asia especially Indonesia among others due to vaccine refusal/vaccine doubts. The refusal of vaccines in Indonesia was clearly seen during the implementation of the Measles and Rubella campaign activities in 2018 for outside Java areas [2]. During the vaccination program, news spread that children who received Measles-Rubella (MR) vaccination would receive

negative impacts such as fever, respiratory infection, and death. One study in India described the occurrence of post-immunization events in the 7th days and 21st days with symptoms like fever with upper respiratory tract infection, local swelling at the injection site, and rash on the skin [3]. In addition, they believe that the vaccine can cause autism in children [4,5]. This can affect public acceptance of vaccination. Besides that, the public also hesitated to vaccinate because of the fatwa by the Indonesian Ulema Council which stated that the vaccine contained pig elements. This makes Muslims feel hesitant to make decisions about Measles and Rubella Vaccination.

Measles and rubella outbreaks continue to increase. Researchers worldwide develop vaccinations that provide immunity to prevent the occurrence of Measles and Rubella diseases. Data shows that 562,000 cases died in the world in 2000 due to complications of measles, and decreased cases with measles vaccination to 115,000 cases in 2014. In the case of rubella in 1996, it was estimated that 22,000 children were born with CRS in Africa, the Southeast Asia region was about 46,0000, and the West Pacific region was about 12,634 in the Western Pacific region. CRS incidence has decreased in countries that implement the Rubella vaccination [1].

In Indonesia, the achievement of MR vaccination in 2020 for 9-month-old infants is around 86.2%, and in South Sulawesi is 87.5%. But different with 18-month-old babies which only reached 65.1%. while the achievement of MR vaccination in first class in elementary school is only 46.4% nationally and in South Sulawesi just 1.9% have been vaccinated. Then in 2019 and 2020, the drop-out rate was from 3.1% to 4.2% in 2020. This is because the measles-rubella vaccine is a vaccine that has just entered routine immunization so there are still doubts from parents about giving the measles vaccine rubella to their children [6].

The Indonesian government provides vaccination guarantees as stipulated in the Law on Health which aims to prevent infectious diseases. Vaccination is expected to reduce mortality from diseases that can be prevented by vaccination, including measles and rubella. Measles and Rubella (MR) vaccination was carried out in Java in 2017, with vaccination coverage reaching the target because the community's enthusiasm was very good to vaccinate their children. The implementation of the MR vaccination was continued to phase 2, which was carried out outside Java, including Sumatra, Kalimantan, Sulawesi, Maluku, and Papua. In this case, the MR vaccination campaign involves the government by coordinating with regional heads (Regents) and the ranks of the Health Office (health workers) as the implementers of MR vaccination and the Education Office as part of the target for MR immunization. Various ways are carried out by the government and its staff so that the public can accept the MR vaccination policy as a mandatory vaccination for children aged >9 months to 15 years. One of the ways is socialization

through banners, pamphlets, leaflets, print media, and social media. In addition, collaboration with religious leaders and community leaders who can provide a strong social influence and reliable source of information in the community is carried out. This is done to create positive knowledge about the MR vaccination, which ultimately results in parental acceptance.

However, the MR vaccination phase 2 carried out in 2018 reaped the pros and cons. Many negative issues related to MR vaccination to Gowa District issued a circular to suspend MR vaccination implementation in Gowa District until the MR vaccination is declared Halal permissible by the Majelis Ulama Indonesia (MUI). However, the MR vaccination is still designated as a complete basic immunization given to infants and toddlers. This has garnered various responses from parents. Public acceptance of the use of vaccines received two different reactions. There are groups of people who support this program, and there are also groups who refuse vaccination, both of which have their reasons [7]. Pierre Bourdieu's theory provides insight into how and why we behave in certain ways. Pierre Bourdieu has explained the concept of social learning that influences people's decisions to behave in social capital.

Other factors related to parental decisions to vaccinate include knowledge, attitudes and beliefs, social capital, and side effects [8,9]. Studies conducted on a group of African-American mothers show that most mothers refuse vaccination because of possible adverse reactions to vaccination, such as redness, swelling, or pain at the injection site [10]. People often hear negative opinions about vaccination. Not infrequently encountered parents who hesitate and even refuse vaccination for various reasons. Vaccination fear or refusal may be based on maternal knowledge, certain philosophies, vaccine safety, and efficacy, or the view that the disease does not pose a major health problem.

The Indonesian Ulema Council issued a fatwa, namely the MUI fatwa No. 33 of 2018 concerning the use of MR vaccine products from SII (Serum Institute of India). The ruling stated that the MR vaccine is *haram* because some of the components used in the production process contain elements of pork [11]. However, taking into account several considerations, the MUI finally issued a decision on the use of the MR vaccine. The use of the MR Vaccine product from the Serum Institute of India (SII), is currently allowed (permissible) because there is a condition of compulsion, there has not been a *halal* and holy MR vaccine and there is information from competent and trusted experts about the dangers caused by not vaccination. The permissibility of using the MR vaccine does not apply if a *halal* and holy vaccine has been found. However, in the implementation of MR vaccination, there are pros and cons in the community. The discussion about the MR vaccine in Indonesia got crowded when the government started the MR vaccination program. This is motivated by the fact that

the MR vaccine contains pork, which is clearly forbidden in the Muslim community and the fatwa issued by the government above is still a new fatwa. After the campaign period ends, MR vaccination is included in the routine vaccination schedule and given to children according to schedule (9 months, 18 months, and 1st-grade elementary school children/equivalent). The use of the MR vaccine is legally permitted by the MUI. Thus, knowledge of the MUI Fatwa Number 33 of 2018 regarding the use of MR vaccine products from SII for vaccination can affect the high interest of the public to want to use the MR vaccine for vaccination. This study aimed to analyze the factors associated with the decision of parents in MR vaccination in children.

2. Materials and Methods

This study used a qualitative descriptive research method with a participatory approach. The participatory approach was expected to reveal deep experiences, perceptions, and ideas. This research was carried out from October to December 2020, located in Tompobulu Subdistrict and Tinggi Moncong Subdistrict, Gowa District, South Sulawesi. In obtaining research informants, researchers used purposive sampling, a sampling technique of data sources with certain considerations to ease researchers in exploring the object/social situation under study [12,13]. The research informants were 32 people consisting of parents who had children aged 9 - 30 months old. The main instrument was the researcher as an observer and researcher. The planning, collecting, data analyzing, and writing research reports were carried out by researchers using checklist tools, observation guidelines, interview guidelines, documentation sheets, photo or video cameras, and recording devices.

3. Result and Discussion

Vaccination is one of the interventions in the health sector that can prevent disease, disability, and death for children's survival and is efficient in terms of financing [14]. The MR (Measles-Rubella) vaccine provides benefits such as protecting children from disability and death from complications of pneumonia, diarrhea, brain damage, deafness, blindness, and congenital heart disease. Coughing and sneezing can be an entry point for the measles and rubella virus [15]. MR vaccination is carried out to eliminate measles and control congenital rubella syndrome (CRS) in 2020. For this reason, the Indonesian government issued a policy to implement MR vaccination which was carried out simultaneously in 2017 and phase 2 in 2018 and made MR vaccination a part of complete basic immunization. Since 2019, the implementation of the MR vaccination campaign phase 2 has brought pros and cons, so that many parents have doubts about the MR

vaccination. The decision of parents to carry out MR vaccination can be in the form of acceptance, rejection, or delay. Decision-making is the way a person, group of people or organization determines their choice. There are various factors related to parental decisions in MR vaccination, including knowledge, attitudes and beliefs, and social capital.

The results of data analysis in this study were compiled based on in-depth interviews from 32 informants referring to the research objectives that had been set, which found that there were parents who decided to vaccinate their children, some did not want to vaccinate their children and some were hesitant to delay vaccination.

3.1. Characteristics of Informant

Table 1. Characteristics informant

Characteristics informant	Number of people (n)	Percentage (%)
Age		
20-29 years old	10	31.3
30-39 years old	14	43.7
40-49 years old	8	25.0
Education		
Junior high School	6	18.7
Senior high School	10	31.3
Diploma	2	6.3
S1	13	40.6
S2	1	3.1
Work		
civil servant	10	31.3
Employee Private	7	21.9
IRT	15	46.8
Ethnic group		
Makassar	28	87.5
Bugis	4	12.5
Amount Respondent	32	100

Source : Primary Data for 2020

Table 1 above shows informant is at on age productive , partially big is at on a range of 30-39 years old which is as many as 43.7% of informant , some big have level S1 education as many as 40.6% of informant . On characteristics profession informant, some the size of the IRT is as much as 46.8 % and part big the Makassar tribe with percentage 87.5%.

3.2. Knowledge

Knowledge is the result of individual sensing. Knowledge about MR vaccination includes understanding Measles and Rubella disease, symptoms, disease severity, complications, and vaccination in disease prevention [16].

Parental knowledge has an important role in deciding the future health status of children [17,18]. Parental knowledge can directly influence their decisions about vaccination [19].

The results showed that most of them had a lack of knowledge as much as 56.2%. And there are 43.8% who have good knowledge. More details can be seen in Table 2.

Table 2. Knowledge of informant about MR Vaccination

Knowledge	Number of people (n)	Percentage (%)
Good	14	43,8
Less	18	56,2

Source : Primary Data for 2020

This study shows that most of the respondents have less knowledge. Lack of knowledge and perceptions about the benefits of vaccination can influence parents' decisions to not vaccinate their children [20,21]. Knowledge of parents can be obtained by health workers, social media, and close relatives [22]. Many parents feel that they do not have enough information or that the information provided is not clear or correct [23]. Miss information related to vaccination can be obtained from social media and the internet. Previous studies have suggested the negative role that websites have influencing parents' decisions to refuse vaccination of their children. Many studies have highlighted the negative aspects of media misinformation about vaccine reception in Television, newspapers, the internet, and social media [24]. All misconceptions about vaccination are spread through the media and can directly influence parents' decisions. Media plays an important role in conveying information about vaccination and plays a role as a communicator in providing information on public health, disease prevention, and the benefits of vaccination in preventing death and infectious diseases [25].

The results also showed that there were respondents who had good knowledge about MR vaccination. Correct knowledge about measles and measles vaccination is closely related to measles vaccination coverage [16]. Therefore, it is important to increase the knowledge of parents about vaccination. The role of health workers and stakeholders is needed to provide the right information related to MR vaccination so that it can motivate parents in making decisions to carry out MR vaccination for their children.

3.3. Attitude and Belief

Attitude is a follow-up to the desires possessed by individual. Parents' attitudes are based on locality and also have several cultural aspects that directly influence their decisions [26]. Some parents have a positive attitude by deciding to vaccinate their children with MR and some have a negative attitude that tends to reject the MR vaccination.

The results showed that most of the informants had a positive attitude. More details can be seen in Table 3.

Table 3. Attitude of informant about MR Vaccination

Attitude	Number of people (n)	Percentage (%)
Positive	20	62,5
Negative	12	37,5

Source : Primary Data for 2020

Based on table 3, most parents have a positive attitude as much as 62.5%, and there are still as many as 37.5% who have a negative attitude. Parents with a more positive attitude towards vaccination are more likely to receive the MR vaccine [27]. The positive attitude that parents have can come from the great trust in health workers and exposure to information about the benefits of MR vaccination for their children. In some cases, trust in health workers affects parents' attitudes toward vaccination [28]. However, some informants had a negative attitude towards MR vaccination. One study in Sicily that investigated the phenomena of refusal to vaccinate showed attitudes and beliefs were one of the reasons that parents did not want to vaccinate their children [29]. Negative attitudes from parents can be mothers' fear of the side effects of vaccination for their children so they tend to refrain from vaccinating their children [30]. Mothers with negative attitudes did not vaccinate their children, nor did they seek additional information from health workers or other sources. Another thing that increases parents' doubts about vaccination is the parental belief that vaccination can cause autism [31,32].

The results also showed that some respondents did not vaccinate their children because the MR vaccine contains pork. The holy book of the Qur'an in Islam prohibits the use of foods that contain elements of pork [33]. This is sometimes used as an excuse not to vaccinate their children. In the end, it is necessary to understand that religious beliefs influence parents' decision-making to vaccinate their children [34]. Millions of parents across Indonesia chose to avoid vaccines after the Indonesian Ulema Council declared the MR vaccine "haram", or prohibited under Islamic law because it causes pork components to be used in the ingredients and manufacturing processes such as Trypsin, an enzyme that helps separate the cells where the virus vaccine grows and Gelatin derived from pork skins serves as a stabilizer, protecting the dried or frozen vaccine viruses [11]. However, in the process of the Indonesian Ulema Council stating that the vaccine may be given in an emergency, this is stated in the MUI Fatwa Number 33 of 2018. Several studies show that parents' decisions are influenced by the belief that the vaccine may contain prohibited constituents in this case containing elements prohibited by religion [35,36].

3.4. Social Capital

The results showed that most of the parents who had good social capital were 68.8%, while there were still 31.2% who had less social capital.

Table 4. Social Capital of informant about MR Vaccination

Social Capital	Number of people (n)	Percentage (%)
Good	22	68,8
Less	10	31,2

Source : Primary Data for 2020

Social capital includes interpersonal relationships between informants and individuals and groups around them. Social capital shows individual social participation and community support in decision making [37]. Based on the results of in-depth interviews with informants, it was found that most of the informants have good social capital. Several reasons are sometimes used to influence others in the decision to vaccinate their children. These influences can come from family, friends around, and the environment which is often called social capital. Social capital is a bond that is formed and norms that produce the quality and quantity of social relations in society as a social glue that becomes a unity with members together [38]. Based on the degree of homogeneity and relationships within groups, social capital is also classified as ties in highly interwoven homogeneous groups, such as families, on heterogeneous groups, such as people from other communities, and links with systems and people in power hierarchies [39].

In the last two decades, many researchers have studied the relationship between social capital and individual health and health behavior [40]. Social capital comes from friendships, and miscellaneous information obtained from the social relationships of individuals in the community that influences their decisions to carry out MR vaccination. Various studies have been carried out and various types of vaccines continue to be developed, but the ability to disseminate information quickly (including negative issues about vaccines) through the print media and the internet has resulted in an evolution in public understanding of vaccines and the main concerns that cause vaccine doubts today. Dissemination of information can affect public opinion and confidence in vaccines, leading to doubts, delays, and refusal to receive vaccinations [41].

In this study, most of the informants decided to vaccinate their children with MR because they saw the experience of their families and neighbors who carried out MR vaccination for their children. Experience and social interaction are important components in building parental understanding to make a decision [42]. Previous research in Switzerland showed that mothers receive the MR vaccine because of social capital, namely the number of parents they know who have vaccinated their children with MR to prevent measles and rubella [43]. Basically, parents

believe that their decisions only affect their families, but in a broad sense, these individual decisions can affect their community as a whole [35]. Social capital has an important role in parents' decision-making to vaccinate their children.

4. Conclusions

The decision of parents to carry out MR vaccination for their children depends on the understanding obtained (source of information), attitudes and beliefs of parents, social capital, and lifestyle. Correct understanding can encourage parents to vaccinate their children with MR. Negative attitudes tend to encourage parents to refuse MR vaccination. The people around them can influence in making decisions regarding MR vaccination for their children we are hoped that health workers can provide the right information to the community and get public trust to increase people's motivation to vaccinate their children.

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