

Relationship Between Mother's Knowledge of Rubella with Measles Rubella (MR) Immunization Status in Children Age 9-59 Months at MR Campaign, Java Island - Indonesia 2017

Irma Gusmi Ratih¹, TriYunisMiko Wahyono²

¹Master of Epidemiology, Faculty of Public Health, University of Indonesia, ²Departemen of Epidemiology, Faculty of Public Health, University of Indonesia

Abstract

Background: MR (Measles Rubella) campaign is one of Indonesia's efforts to achieve the world target without measles, rubella, and Congenital Rubella Syndrome (CRS) in 2020. However, the results show that MR campaign immunization coverage is not optimal. This study aims to determine whether the knowledge of mothers about rubella is related to MR immunization status in MR campaign at Java Island.

Method: This cross-sectional study used secondary data from the survey of Independent Evaluation of MR Immunization in 6 provinces at Java Island in 2017. There were 5,971 samples of mothers who had children aged 9-59 months were obtained based on cluster sampling technique. Bivariate and multivariate analysis were used to see the relationship between mother's knowledge of rubella and MR immunization status.

Result: Mother's knowledge about rubella interacted with belief (POR 1,899 95% CI 1,267-2,848) and interacted with education (POR 1,675 95% CI 1,086-2,583) to form a statistically significant relationship with MR immunization status.

Conclusion: Mother's knowledge of rubella is very important in increasing MR immunization coverage. Therefore, the government is expected to cooperate with active stakeholders to provide information on MR immunization.

Keywords: *Mother's knowledge, MR campaign.*

Introduction

Immunization is one of the best efforts in global health and has an important role in achieving 14 out of 17 SDGs⁽¹⁾. In the Global Vaccine Action Plan (GVAP), endorsed by the 194 Member States of the World Health Assembly in May 2012⁽²⁾, measles and rubella are targeted to be eliminated in 5 WHO regions by 2020.

In line with GVAP, the 2012-2020 Global Measles & Rubella Strategic Plan maps out the strategies needed to reach the world target without measles, rubella, and Congenital Rubella Syndrome (CRS). One of the efforts made by Indonesia to achieve this target is to carry out the MR campaign in children aged 9 months to less than 15 years in 2 phases; phase 1 in August-September 2017 in 6 provinces on Java Island and phase 2 in August-September 2018 in 28 other provinces outside Java Island. The MR campaign is the first step to introduce MR vaccines, replacing the measles vaccine, into the immunization program⁽³⁾⁽⁴⁾.

Corresponding Author:

Tri YunisMikoWahyono

Master of Epidemiology, Faculty of Public Health,
University of Indonesia.

e-mail: yunis@yahoo.com

The MR campaign is informed massively through all media (newspapers, flyer, booklet, banner, television ads, and social media) which aims to increase public

knowledge, especially mothers, about the importance of MR immunization. But the results of the MR campaign immunization coverage is not optimal, which is below the target of 95% coverage⁽⁵⁾. This unoptimal coverage can be influenced by several factors, the lack of the knowledge of the mother⁽⁶⁾⁽⁷⁾ especially the knowledge of rubella, negative beliefs about immunization (the implementation of the MR campaign is enlivened by polemic on haram MR vaccine)⁽⁸⁾, and lack of support from health workers. This study aims to determine whether the knowledge of mothers about rubella is related to the MR immunization status in the MR Campaign at Java Island.

Material and Method

This study uses secondary data from a survey of Independent Evaluation of MR Immunization (MR Campaign) in 6 provinces at Java Island in 2017. There were 5.971 mother who had children aged 9 - 59 months who were willing to fill out the questionnaire in the survey, which was obtained based on cluster techniques sampling⁽⁹⁾. The dependent variable is the status of MR immunization based on a yes / no answer to the question of whether the child received MR immunization in the MR campaign. The independent variable is the mother’s knowledge of rubella based on the answer to the question of whether the mother knows that rubella disease can be prevented by immunization. The covariate variable is the education of mothers who were categorized as low if the last education is junior high school, and high if the last education is high school and above; attitude measured by questions related to comfort when immunizing; belief measured by questions related to vaccine issues and believe that children are entitled and obliged to receive immunizations; information access measured by asking where did the mother get information about

the MR campaign; and the support of health workers as measured by the opinions of mothers about the support of health workers to carry out MR immunization in the MR campaign. The answers to these questions are scored and measured mean values to see the cut-off-point to determine for good or less good criteria.

This study used a cross sectional study design with risk measures using prevalence odds ratio (POR). Data were analyzed by logistic regression test with 95% confidence interval through several stages; (1) Bivariate analysis, to see POR crude, (2) Interaction test to see whether there was an interaction between mother’s knowledge about rubella and MR immunization status, (3) Confounding test was carried out by comparing POR crude with adjusted POR, if the difference between the two PORs is more than 10% then the variable is considered as a confounder and included into multivariate analysis, and (4) Multivariate analysis.

Results

The proportion of children whosenot immunized in the MR campaign at Java Island is 11.8%. The proportion of MR immunized children is 88.2% or still below the target of immunization coverage, which is 95%. Table 1 shows that mothers who have lack of knowledge about rubella have a higher proportion (81.1%) compared to those with good knowledge. The children who were not immunized had a higher proportion in mothers’ negative beliefs about immunization (68%) and the lack of support from health workers (82.1%). Bivariate analysis shows that variables which have significant relationship with MR immunization status are mother’s knowledge of rubella, attitude, informationaccess, and support of health workers.

Table 1: MR Immunization Status Based on Independent and Covariate Variables

Variables	MR Immunization Status				POR (95% CI)	p-value
	No		Yes			
	n=703	%	n=5.268	%		
Independent Variable						
Mother’s Knowledge of Rubella						
Less Good	570	81,1	3410	64,7	2,335 (1,918-2,844)	0,000
Good	133	18,9	1858	35,3		
Covariate Variables						
Mother’s Education						
Low	311	44,2	2220	42,1	1,089 (0,930-1,276)	0,290
High	392	55,8	3048	57,9		

Variables	MR Immunization Status				POR (95% CI)	p-value
	No		Yes			
	n=703	%	n=5.268	%		
Attitude Towards Immunization						
Less Good	243	34,6	830	15,8	2,825 (2,378-3,355)	0,000
Good	460	65,4	4438	84,2		
Belief						
Negative	478	68	3499	66,4	1,074 (0,908-1,271)	0,406
Positive	225	32	1769	33,6		
Information Access						
No	139	19,8	60	1,1	21,392 (15,612-29,312)	0,000
Yes	564	80,2	5208	98,9		
Support of Health Workers						
No	577	82,1	3477	66	2,359 (1,929-2,884)	0,000
Yes	126	17,9	1791	34		

After analyzing the interaction test and confounding test, the final model of multivariate analysis was obtained (Table 2). The final model shows that mother's

knowledge of rubella interacts with mother's education and belief in order to form a significant relationship with MR immunization status and there is no confounder.

Table 2: Final Model on The Relationship Between Mother's Knowledge of Rubella With MR Immunization Status

Variables	B	p-value	POR	95% CI	
				Lower	Upper
Mother's Knowledge of Rubella	0,270	0,111	1,310	0,940	1,827
Mother's Education	-0,409	0,043	0,664	0,448	0,986
Belief	-0,456	0,012	0,634	0,444	0,903
Mother's Knowledge of Rubella by Mother's Education	0,516	0,020	1,675	1,086	2,583
Mother's Knowledge of Rubella by Belief	0,642	0,002	1,899	1,267	2,848

Discussion

This study shows that the relationship between mother's knowledge about rubella interacts with education and belief. Regarding belief, Indonesia is the country with the largest Muslim population, so the issue related to haram vaccine was greatly influences the low coverage during the MR campaign. Although The Council of Indonesian Ulama(MUI) has issued a fatwa which states that MR vaccine is permissible (mubah) because there is an emergency and compulsion condition and has not found a halal vaccine⁽¹⁰⁾, but this still keeps people, especially mothers, from moving and does not immunize their children⁽¹¹⁾.

One of the factors that influence a mother's knowledge, in this case knowledge of rubella, is the

level of education.⁽¹²⁾ However, even though mother's education is low, knowledge can be obtained by seeking information through various media regarding rubella disease and MR immunization itself. In this era of high connectivity, it is hoped that a mother will be able to gather information about MR immunization from trusted sources, for example from official government websites or social media of a community leader who has the knowledge about immunization.

The limitations in this study is because this study uses a cross sectional study design, so it cannot see the temporal relationship and also cannot be ascertained the causality relationship between them. Another limitation in this study is not examining the potential confounders that may have potential relation to immunization status

such as mother's occupation, family economic status (because the MR campaign is free of charge), family and community support, and the quality of immunization services. In this study, selection bias can be minimized by using a total sampling of mothers who have children aged 9-59 months. Information bias regarding outcome variables on the survey is very minimal because immunization status although it was being asked directly to respondents, it is also compared with immunization status lists in Primary Health Center (Puskesmas) (9), while for knowledge of rubella, attitudes, and beliefs may have the potential to cause non-differential information bias. The results of this study have a narrow 95% confidence interval, so the role of chance is quite small. And this study is also consistent with other studies which state that mother's knowledge is related to immunization, in this case knowledge of rubella, related to immunization status of children⁽¹³⁾⁽¹⁴⁾⁽¹⁵⁾.

Conclusion and Recommendation

A positive relationship between mother's knowledge about immunization, in this case the knowledge of rubella, with the the status of immunization of children in the MR Campaign at Java Island shows that knowledge is needed to provide an understanding of the importance of immunization. Belief that interacts with knowledge (POR 1,899 95% CI 1,267-2,848) proves that the mother's behavior to bring their children immunized is strongly influenced by beliefs (in this case because the MR vaccine has not been declared halal and most of the population is Muslim). Education that interacts with knowledge (POR 1.675 95% CI 1,086-2,583) proves that education and knowledge have a very close relationship, although knowledge can still be obtained from reliable sources of information, but an understanding of immunization in a mother with higher education will have an impact on the high coverage of immunization. Therefore the government is expected to cooperate with relevant stakeholders to actively provide socialization through various media and dialogue with religious / community leaders about the importance of MR immunization in order to achieve high MR immunization coverage, so that the chain of transmission of measles and rubella diseases can be stopped.

Ethical Considerations| This study uses data from the survey of Independent Evaluation of MR Immunization (MR Campaign) in 6 provinces at Java Island in 2017 which have received permission from the principal researcher of the survey and the Ethics

Committee of the University. The confidentiality of the data collected in the survey and used in this study is very well maintained.

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Conflict of Interest: Both author declared that no conflict of interest

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