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Research Paper

Parents determination factors influencing incomplete basic immunization for infants in Sorong City, West Papua Province

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ABSTRACT

The implementation of complete Indonesian basic immunization decreased from the year 2012 to 2015. West Papua is one of the provinces with the lowest immunization coverage, which is 57.1%, while the city of Sorong is only 21.9%. The objective of this research is to examine the determinant factors of parents in complete basic immunization of infants' months in Sorong City, West Papua Province. This study was cross-sectional in design. The subjects consisted of a purposive sampling of one hundred and thirty-four (134) parents of children aged 1 to 5 years old that have incomplete basic immunization from immunization records and who visited ten (10) health centers in Sorong City. Data were collected from parents using questionnaires and immunization records. Logistic regressions were used for data analysis. Simultaneously, mother's age, educational level, occupational status, number of children, experience of having children, distance to the place of immunization, knowledge, family support, immunization officers and attitudes did not affect the incompleteness of basic immunization (f count 1.768). Only the number of children (t = 0.017) and immunization staff support (t = 0.044) affected the incomplete immunization. Sequentially, number of children (β = 0.003), immunization support staff (β = 0.004), distance to immunization site (β = 0.035) and attitudes (β = 0.027) contributed most to incomplete immunization, while number of children, immunization officers' support, distance to immunization site and attitudes contributed to incomplete immunization.

Key words: Vaccine, parental attitude, infants.

INTRODUCTION

Reduction of serious infections which are indicators of global public health success can be done by immunization. However, the implementation still found many obstacles which until now have no solution because the scope of its implementation was not comprehensive to all recipient subjects. The World Health Organization (2017) estimates that around 19.4 million infants, children and toddlers throughout the world have not received complete basic immunization. About 60% of them live in low and middle income countries such as Asia, Africa and Ukraine including Indonesia.

According to the Indonesian Ministry of Health's Center for Data and Information, the implementation of complete basic immunization for the 2012 to 2015 period did not reach the target and even decreased by 75% of the 80% target of the National Medium Term Development Plan. West Papua is the province with the lowest immunization coverage (57.1%), while Sorong City has only 21.9% (PUSDATIN, 2016).

The priority of immunization programs in each country including Indonesia varies. Indonesia requires three (3) doses of DPT-HB-Hib, one (1) dose of Hepatitis B, BCG, measles and four (4) doses of polio (PUSDATIN, 2016). Indonesia managed to carry out 95% basic immunizations such as measles and BCG in all city districts, but did not occur in Hepatitis B, DPT, Polio and Tetanus immunizations

in Papua and West Papua which were only under 80% (InfoDATIN, 2016).

Although immunization is the biggest success in the health sector, there are still various obstacles to implementation (Centers for Disease Control and Prevention, 2011). These problems include lack of access to health facilities due to poverty and ignorance (McHale et al., 2015) and controversial ethics such as regulation, development, religion and beliefs, research and testing, informed consent and access gaps) (The College of Physicians of Philadelphia, 2017). Indonesia also has the same problem that is exacerbated by other problems such as differences in recording, validity, completeness and inaccuracies in the results of interviews and data between the center and the regions (PUSDATIN, 2016). These obstacles cause 2 to 3 million infant deaths yearly in Indonesia (World Health Statistics, 2015). Even though the implementation of immunization in Indonesia is protected by law and the government is very active in carrying it out, it still encounters obstacles when implemented. This therefore implies that immediate solution and appropriate strategies is needed in order to ameliorate this condition.

This epidemiological study can help provide advice on selecting vaccines to be included in public health programs, identify target pathogens and disease-causing transmission pathways, disease burden, design disease control, determine appropriate strategies, monitor performance indicators, eradicate, monitor strategies, measure progress and the impact of the vaccination strategy.

MATERIALS AND METHODS

Study design

This was a correlational research with cross-sectional design to analyze the factors influencing incomplete basic immunization for infants in Sorong City, West Papua Province.

Setting

This study was conducted in ten (10) health centers in the city of Sorong, Malawei, Remu, Klasaman, Cape cassowary, doom, Malanu, Sorong West, East Sorong and Malaisimsa, Sorong City from October to November, 2018.

Sample

The subjects consisted of a purposive sampling of one hundred and thirty-four (134) parents of children aged 1 to 5 years old who have incomplete basic immunization from immunization records and visited ten (10) health centers in Sorong City and willing to be respondents.

Instrument

A questionnaire was used to measure the demographic of the participants consisting of mother's age, educational level, occupational status, number of children, experience of having children, distance to the place of immunization, knowledge, family support, immunization officers and attitudes. Instrument for measuring complete basic immunization for infants was immunization record in health centre.

Immunization record can be referred to record of infants condition that showed history of immunization and contains three (3) doses of DPT-HB-Hib, one (1) dose of Hepatitis B, BCG, measles and four (4) doses of polio. Validity and reliability was done by adopting Winarni (Sandra, 2010).

Ethical consideration

This research was approved by the Committee ethics of the Health Polytechnic of Health Ministry Sorong, with number: DM.03.05/6/101/2018. Before the conduct of the field work, the researchers sought permission from each administrator at all levels. Each study participant was asked to participate in the study after explaining the aim of the study and assuring confidentiality of personal information using code numbers instead of names.

Data analysis

The quantitative data were cleaned and entered into the computer using SPSS version 17. Univarate analysis was used to describe the findings. Bivariate and multivariate logistic regression analyses were conducted to analyze the associations that existed among constructs and identify the factors that most influence the incompleteness of basic immunization status for infants.

RESULTS

There was a 100% response rate, of which, the large majority of them 128 (95.5%) were in the less 35 years age group. A total of 127 (94.8%) of the study participants have high educational level, while half of the study participants were unemployed 75 (54.03%). A total of 78 (58.2%) study participants have had only children. Most of them have less than 2 children in their homes 128 (95.5%). Most participants have male children 80 (59.7%) and most of them have high level of knowledge about immunization 92 (68.7%) and supported by families 75 (56%) but not supported by immunization officers to immunize their children 69 (51.5%) even though access to the immunization site is very close 100 (74.6%). Table 1 shows the number of

Table 1: Socio-demographics and economic characteristics of participants for the behavioral determinants survey, 2018, Sorong.

Variable	Number (n-134)	Percentage (%)
Mother's age (years)		
< 35	128	95.5
> 35	6	4.5
Educational levels		
Primary	7	5.2
High	127	94.8
Occupational status		
Unemployed	75	54.03
Employed	63	45.07
Experience of having children		
First	78	58.2
More	56	41.2
Number of children		
<2	128	95.5
>2	6	4.5
Infants gender		
Male	80	59.7
Female	54	40.3
Distance to the place of immunization		
Close	100	74.6
Far	34	25.4
Level of knowledge		
Low	42	31.3
High	92	68.7
Family support		
No support	59	44.0
Support	75	56.0
Immunization officers support		
unsupport	69	51.5
Support	65	48.5
Attitudes		
Negative	100	74.6
Positive	34	25.4

respondents that have a negative attitude towards immunization was 100 (74.6%).

Table 2 shows the factors that most influence the incompleteness of basic immunization status for infants in Sorong City in 2018. In the multivariate analysis, simultaneously mother's age, educational level, occupational status, number of children, experience of having children, distance to the place of immunization,

Table 2: Multivariable logistic regression analysis of factors involved in the incomplete immunization.

Variable	F	t	Beta	P-value
Mother's age (years)	1.768	1.458	0.127	0.147
Educational levels		1.028	0.090	0.306
Occupational status		1.337	0.114	0.184
Number of children		0.017	0.003	0.986
Experience of having children		0.824	0.295	0.412
Distance to the place of immunization		0.264	0.027	0.793
Level of knowledge		1.352	0.129	0.179
Family support		2.085	0.208	0.039
Immunization officers support		0.044	0.004	0.965
Attitudes		0.364	0.035	0.717

knowledge, family support, immunization officers and attitudes did not affect the incompleteness of basic immunization (f count 1.768). Only the number of children (t = 0.017) and immunization staff support (t = 0.044) had effect on incomplete immunization. Sequentially, number of (β = 0.003), immunization support staff (β = 0.004), distance to immunization site (β = 0.035) and attitudes (β = 0.027) contributed to incomplete immunization.

DISCUSSION

According to the Indonesian Ministry of Health's Center for Data and Information, the implementation of complete basic immunization for the 2012 to 2015 period did not reach the target and even decreased by 75% of the 80% target of the National Medium Term Development Plan. West Papua is the province with the lowest immunization coverage (57.1%), while Sorong City had only 21.9% (PUSDATIN, 2016). The main reason for vaccine uptake among HCWs, as supported by other studies is that vaccination protects family members, friends and patients from being infected (Torre et al., 2012; Prematunge et al., 2012; Mir et al., 2012).

The demographics of families are changing, and with that, the philosophical underpinnings of relationships are also changing. We observed that only the number of children and immunization staff support had effect on incomplete immunization. Demo and Acock (1996) note that "the differences in adolescent well-being within family types are greater than the differences across family types, suggesting that family processes are more important than family composition". Indeed, O'Connor et al. (2001) showed that differences in adjustment between children within the same family are as great as, and even slightly greater than differences between children in different families. Demo and Acock (1996) further indicate that measures of family relations explained the largest proportion of variance in adolescent well-being.

From the analysis carried out, we observed that the variable that greatly influences the incomplete immunization status of infants is the number of children, immunization support staff, distance to immunization site and attitudes. Doubts and anti-immunization movements are always present in every immunization exercise (Larson et al., 2014; Gangarosa et al., 1998) besides religious and lifestyle reasons [Woonink, 2009; Ruijs et al., 2012; Feikin et al., 2000). Concerns that too many infants are simultaneously immunized (Meszaros et al., 1996; Paulussen et al., 2006) and concerns from parents who oppose or only some who accept immunization become one of the concerns about the safety and consequences of long-term unknown vaccines to date (Gust et al., 2004; Bedford et al., 2000; Begg et al., 1994; Bond et al., 1998) because it is related to vaccine safety and perhaps parents are concerned about the development of their children.

Many parents worry about vaccine safety because the controversy regarding the use of mercury in vaccines has been since 1999, but after that, the American Academy of Pediatrics and US Public Health Services recommended that children's immunization vaccines be made without preservatives (CDC, 1999). In addition, it was strengthened by immunization officers providing counseling to parents about vaccine safety.

In a study of 3,924 parents, the most common reason for influencing incomplete immunization was concern about the safety and side effects of vaccines, particularly in varicella immunization and MMR (Gust et al., 2008). Like other health care fields in recent years, decision making is based on more information influencing immunization decision making. This decision is a decision based on relevant knowledge, because it reflects the values of decision makers. Information from health workers and immunization officers can change the minds of parents. Accessing the right sources of information by parents directed by health workers and giving them time to study these resources is very helpful in increasing their knowledge.

Research shows that rarely accessing health services may make parents vulnerable to conflicting information from

neighbors in their environment or media (online) (Paulussen et al., 2006; Harmsen, 2014; Betsch, 2010). Searching for immunization on the Internet, especially through search engines and social media can cause confusion and hesitation among parents. Another explanation that might underlie parents who refuse vaccination is insufficient knowledge and distrust of immunization officers. More research is needed to find out what information parents need and want to make decisions about vaccinating children.

Planning behavior theory is one theory that has been successfully applied to improve immunization implementation decisions because it includes the process of consideration by decision makers; information processing available by thinking of the consequences of decisions and weighing the pros and cons (Baron, 1994; Connor, 1995; Galotti, 1999; Ajzen, 1991).

Vaccination decisions are included in health decisions that require consideration by parents. Deliberations between husband and wife can increase positive attitudes in the implementation of immunization. More research is needed on the reasons for consideration of parents who receive vaccinations as this will result in a more stable attitude towards child immunization.

Availability and access to immunization services tend to be worsened in suburbs or sub-areas that are less densely populated or mountainous areas, where people are rare in West Papua. Although perceptions of the distance between parents and others in accessing immunization facilities in shingles are not clear, this problem seems to be related to immunization status. This finding is in line with several other studies. For example, a study in Bangladesh found out that women who reported having the nearest health facility (<1 km) were more likely to fully immunize their children (Rahman et al., 2010)

Another study, in India, found a positive relationship between the existence of health centers within 2 km of the village, urban slums and immunization status of children (Ghei et al., 2009). Further studies are needed to understand the perceptions of parents in the city of Sorong about the distance to immunization and other health services.

Seasonal migration in homes anchored to and from urban shocks is quite common and affects immunization coverage. Families sailing to become fishermen for better economic opportunities directly affect the use of health services and immunization as this resulted in not having the time for immunization and children being left by caregivers, or parents who forgot immunization records.

An integrated tracking and reporting system must be implemented so that the baby gets complete basic immunization from sites other than the designated site. This system can track these children for the next vaccination. This study has important implications in the development of policies and programs for the implementation of complete basic immunization in infants. Vaccination coverage can be increased in remote areas by increasing access to good transportation facilities and reducing travel time to health facilities and hospitals and health centers that assist in the delivery process can have integrated data with health facilities in the patient's domicile. Hence, health workers can carry out immunizations to the patient's home.

Additional immunization activities can also contribute to increasing measles immunization coverage in infancy and reducing inequality. If necessary, outreach programs and additional immunization activities should be considered so as to increase coverage in remote areas. In addition, a new vaccine strategy is needed for the most difficult to rich children in West Papua and other parts of West Papua.

Conclusion

Affordability to immunization facilities and support from immunization officers greatly influences the attitudes of parents in carrying out immunizations. Motivation in carrying out immunization is very dependent on the right information and the comfort of the subjects receiving immunization services. In addition, integrated information between health facilities from the birth process to the age of 12 months is very helpful in meeting the targets of complete basic immunization.

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