

The Determinant Factors of Child's Immunization Status: A Cross Sectional Study on the *Dayak Pitap* Tribe in the District of Balangan Indonesia

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ABSTRACT

Background: Even if the immunization coverage in a region is high, but the unimmunized child gathered in one location, then the benefit from herd immunity developed will not be gained by the child in that location so the risk for outbreak vaccine preventable diseases is high. So in order to solve this problem, it is important to reach this under vaccinated population and increase the child's immunization status of the population. The aims of this research were to describe the immunization status and its determinant factors that influenced the child's immunization status of *Dayak Pitap* tribe in the district of Balangan Indonesia

Method: A cross sectional study conducted in May to June 2018 which included the interview using a questionnaire with the mother of 12 – 35 month old child in all house hold in *Dayak Pitap* tribe. The independent variables were the mother's education level, the mother knowledge about immunization, the history of mother immunization status during pregnancy and the childbirth attendant and the cultural determinant namely the *aruh* ritual, the *papantang* and the use of the *samban*, whereas dependent variable was the child's basic immunization status. The uni-variable analysis and logistic regression analysis employed as the research analysis method.

Result: The complete child's immunization status coverage was 48%. The determinant factors that significantly influenced on the child's immunization status were the mother immunization knowledge level ($p=0.000$), the history of mother immunization during pregnancy ($p=0.033$), the history of birth attendant ($p=0.000$) and the using of *samban* by the children ($p=0.012$).

Conclusion: In order to gain the better child's immunization status coverage of the *Dayak Pitap* tribe, it is important to develop combination interventions to give better knowledge about immunization to the mother with the tailor made material, promote birth attendant labor and reach the pregnant mother for immunization.

Keywords: Child immunization, indigenous tribe, cultural determinant

Introduction

One of the purposes of immunization is to develop herd immunity in the community that can make all

the children get benefit from the protection, including not immunized children and children who had already immunized but failure in developing antibody that can be caused by the child condition such as virus and bacterial infection⁽¹⁾, the nature and condition of the vaccine itself⁽²⁾ "ISBN": "1873-2518 (Electronic⁽³⁾) and the abnormalities of the immune system such as the *hypogammaglobulinemia*, other genetic factors and other causes that still poorly understood⁽⁴⁾. In order to develop the herd immunity, high uptake of fully immunized children must be obtained. The problem is every country

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has population groups that are not fully immunized that have a consequence in the risk of vaccine-preventable disease outbreak.

Actually, in case there is a child, who is getting an infection of vaccine preventable diseases, but the high uptake of immunization has been obtained and the herd immunity has been developed, the other children will be protected because the spread of the infection had already blocked. However, this only works if unvaccinated child is scattered across geographical areas. If the unvaccinated child is gathered in one location, such as in the *Dayak Pitap* tribe, diseases can cause large outbreaks – even if the region or province or national vaccination coverage is high.

In this purpose, it is important to make sure that the immunization coverage in the remote areas is also high. However, based on the preliminary study that conducted in *Dayak Pitap* on January to March 2017, the fully immunized children coverage of the *Dayak Pitap* tribe was only 34.3% and from the in depth interview conducted with the traditional leaders, the *balian* (the traditional spiritual leader/traditional healers) and other community members, the reason for this low uptake of fully immunized children was probably because of the community belief about the causes of illnesses which are natural causes (heat, cold, rain), spirit of ancestor causes, shamanism causes, breaking taboos causes and other supra natural causes. This belief, therefore has an implication on the initiatives that they use to prevent illness, namely always conducted *aruh* ritual, not violate *papantang* and the use of a *samban* for their children. So besides the factors that have commonly stated as the determinant factors of the immunization coverage, in the *Dayak Pitap* tribe, the cultural factor such as the *aruh* ritual, the *papantang* and the *samban* probably also has a contribution in determining the child immunization coverage.

The *aruh* ritual is a ritual that conducted regularly by the *Dayak Pitap* tribe across the human life cycle and the rise cultivation cycle. The ritual filled with many kinds of sacred activities and materials, offerings and also rhythm that accompany the spell of the mantra and dance of the *balian* as the traditional spiritual leader. The absence of conducting the *aruh* ritual believed by the community can cause misfortunes and illnesses. The *papantang* or taboo is a form of oral prohibition to do something because it's against the culture and community tradition, although there was no legal or customary sanction for

the violator. The violation of *papantang* also believed by the community can cause misfortunes and illnesses. A *samban* is a kind of amulet that worn as a necklace by the child after conducting a sacred ritual and believed can protect children from illnesses.

This research conducted in the *Dayak Pitap* tribe that settles in the slope of *Meratus* highlands in *Tebing Tinggi* sub districts of *Balangan*, South Kalimantan Province, Indonesia. Although this tribe registered as Hinduism which is called *Hindu Kaharingan*, very little aspect of Hinduism exists in their everyday lives. They still maintain their belief and culture as *animism* and *dynamism* tribe.

Hence, the aim of this paper is to describe the immunization status and its determinant factors that influenced the child's immunization status of *Dayak Pitap* tribe in the district of *Balangan* Indonesia.

Material and Method

This analytic observational quantitative research employed by a cross sectional design. The analysis unit was the household of *Dayak Pitap* tribe that had a 12 – 35 month old child. Data collected from all households that had a 12 – 35 month old child in May to June 2018 using a questionnaire. The respondent was the mother of 12 – 35 month old child.

The independent variables were the mother's education level, the mother knowledge about immunization, the history of mother immunization status during pregnancy and the childbirth attendant and the cultural determinant namely the *aruh* ritual, the *papantang* and the use of *samban*, whereas dependent variable was the child's basic immunization status.

Data analysis using the univariable analysis to describe the distribution of frequency and proportion of independent and dependent variables and logistic regression analysis to analyze the influence of independent variables toward the dependent variable.

Results

- 1. Socio-demographic characteristics of respondent and children of *Dayak Pitap* tribe:** The majority of mother in *Dayak Pitap* were in 20 – 29 years old interval (60%) and had primary educational level (42%) and 90% were farmer. Their immunization

knowledge level mostly was low (68%). Most of the mother had only one child (44%) with higher female distribution (54%). 66% of the mother did

not complete their immunization during pregnancy and 46% assisted by the traditional birth attendant when delivered their babies.

2. Immunization Status of 12 – 35 month old child of Dayak Pitap tribe

Table 1: Immunization Status of 12 – 35 month old child of Dayak Pitap tribe

Village	Number of Child 12 s/d 35 month old age	HB0	BCG	DPT-HiB-HB			Polio				Measles	Fully Immunized Children	
				1	2	3	1	2	3	4			%
Ajung	23	14	19	18	14	11	22	15	13	11	13	8	34,8
Iyam	10	4	8	6	6	4	9	8	6	5	8	2	20,0
Kambiyain	9	9	9	9	8	8	9	9	8	8	9	8	88,9
Langkap	8	7	7	8	7	6	8	7	6	6	7	6	75,0
Total	50	34	43	41	35	29	48	39	33	30	37	24	48,0

3. Logistic Regression Analysis-Backward LR Method

Table 2: Result from Logistic Regression Analysis–Backward LR Method

Model if Term Removed

Variable	Model Log Likelihood	Change in -2 Log Likelihood	df	Sig. of the Change
Step 1 educationlevel	-12,221	,110	1	,741
knowledgelevel	-18,373	12,414	1	,000
historyofmotherimmunization	-13,668	3,005	1	,083
birthattendant	-18,525	12,718	1	,000
aruh	-12,487	,642	1	,423
papantang	-12,174	,016	1	,899
samban	-14,944	5,556	1	,018
Step 2 educationlevel	-12,225	,101	1	,750
knowledgelevel	-18,489	12,630	1	,000
historyofmotherimmunization	-14,204	4,061	1	,044
birthattendant	-19,402	14,457	1	,000
aruh	-12,749	1,149	1	,284
samban	-15,103	5,859	1	,015
Step 3 knowledgelevel	-19,169	13,889	1	,000
historyofmotherimmunization	-14,241	4,033	1	,045
birthattendant	-19,405	14,361	1	,000
aruh	-12,810	1,172	1	,279
samban	-15,306	6,163	1	,013
Step 4 knowledgelevel	-19,340	13,060	1	,000
historyofmotherimmunization	-15,070	4,520	1	,033
birthattendant	-19,405	13,189	1	,000
samban	-16,003	6,386	1	,012

Based on the table above, the dependent variables that significantly influenced the independent variables were the mother immunization knowledge level ($p=0.000$), the history of mother immunization during pregnancy ($p=0.033$), the history of birth attendant ($p=0.00$) and the using of *samban* by the children ($p=0.012$).

Discussion

The complete child immunization coverage in the *Dayak Pitap* tribe was 48%, still far from the Indonesian Health Ministry target i.e. 92.5%. The highest coverage was in Kambiyain village i.e. 88.9% and the lowest was in Iyam village i.e. 20%. The highest immunization dose coverage was Polio1 i.e. 48% and the lowest dose coverage was DPT-HiB-HB3 i.e. 29%.

Based on the data analysis conducted, the independent variables that significantly had influenced on the child immunization status of *Dayak Pitap* tribe were the mother immunization knowledge level, the history of mother immunization during pregnancy, the history of birth attendant and the cultural determinant namely the use of *samban*. Whereas the mother education level and the cultural determinant namely the *aruh* ritual and the *papantang* were not significantly influenced the child immunization status.

Many research have shown that the mother immunization knowledge correlated with the child immunization status ⁽⁵⁾⁽⁶⁾⁽⁷⁾ and influenced the child immunization ⁽⁸⁾⁽⁹⁾. Other research also shown that the mother with good immunization knowledge has 2.21 probability to fully immunized their children compare with the mother with poor immunization knowledge ⁽¹⁰⁾.

In this case, develop an intervention to increase the mother immunization knowledge with the combination with the other interventions still promising in order to increase the fully immunized child coverage.

The other determinant factor that significantly influenced the child immunization status in the *Dayak Pitap* tribe was the use of *samban*. Using some kind of amulet both for protection and curing not only known in *Dayak Pitap* tribe but also widely known in many traditional cultures such as in Narsinghdi district in Bangladesh ⁽¹¹⁾, in Bedouin tribes of the Negev Southern Israel, Middle East ⁽¹²⁾, in Gaddis of Bharmour Himachal

Pradesh, India ⁽¹³⁾ and most of tribal communities worldwide especially for the children⁽¹⁴⁾.

Even if the using of *samban* significantly influenced the child's immunization status, the intervention of this cultural variable is not easily formulated and need further research. Intervention with poor knowledge about the culture itself can result in negative consequences and can lead to worse health outcome. However, based on this research, health professional known that the using of *samban* was significantly influenced the child's immunization status of the *Dayak Pitap* tribe.

The history of mother immunization during pregnancy and birth attendant also significantly influenced the child's immunization status. These two variables actually correlated with the present of the care for pregnant women and labor that usually provided by the midwife.

As states by the WHO and other references, immunization is one of the most successful and cost effective health intervention achievement, has saved countless of children's lives and increased health status in the world ⁽¹⁵⁾⁽¹⁶⁾⁽¹⁷⁾⁽¹⁸⁾⁽¹⁹⁾⁽²⁰⁾⁽²¹⁾. However, virus and bacteria do not respect border, if the disease still circulate in any part of the world the risk of outbreak still remained. In order to give all protection to all children the high uptake of fully immunized children must be obtained all over the world and to reach the under vaccinated, immunization programs need to develop tailored intervention to overcome the existing barriers.

Conclusions

The child immunization coverage of the *Dayak Pitap* tribe was 48%, lower than the Indonesian health ministry target i.e. 92.5%. The determinant factor that significantly influenced the child's immunization status of the *Dayak Pitap* tribe were the mother immunization knowledge level, the history of mother immunization during pregnancy, the history of birth attendant and the cultural determinant namely the use of *samban*.

Hence, in order to gain the better child's immunization status coverage of the *Dayak Pitap* tribe, it is important to develop combination interventions to give better knowledge about immunization to the mother with the tailor made material, promote birth attendant labor and reach the pregnant mother for immunization.

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