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Effectiveness of Inactive Polio Vaccine (IPV) in Preventing Outbreak from Aceh Besar Cultural Perspective

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Abstract

The low coverge of IPV immunization is inseparable from the behavior of mothers in bringing their babies to be immunized. The results of an initial survey conducted by the author of 10 mothers who have babies aged 4-12 months in the working area of the Aceh Besar district health office do not know what is meant by IPV immunization, do not want to give IPV immunization to their babies because of the side effects caused bye the immunization, such as fever. The purpose of the study wa to determine the relationship between culture and the provision of IPV immunization in the working area of the Aceh Besar District Health office. This research is an analytic research with crossectional study design. The population in this study were all mothers who had babies aged 4-12 months in the working area of the Aceh Besar District Health Office totaling 255 people, and in this study the entire population wa sampled (total sampling). The results showed that there was an influence of culture on IPV immunization (p-value=0.001), which means that it can be concluded that there is a cultural influence with the provision of IPV immunization, then it is hoped that the mother's closest family such as husband, mother, mother-in-law, sister and other nuclear family can provide full support to the mother to bring her baby to be immunized with IPV to prevent folio disease in the future.

Keywords

immunization; culture; polio

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Introduction

Based on Permenkes No.12 of 2017, the government implemented 4 doses of Oral Polio Vaccine (OPV) and 1 dose of inactivated Polio Vaccine (IPV) into the routine infant immunization schedule [1]. The average coverage of OPV4 in the last three years has reached more than 90% but has not me the national target (at least 95% and evenly distributed). As for IPV coverage, it has shown an increase in each year since its introduction in 2016, but nationally the trend of IPV coverage is still less than 80% [2] [3]. The Strategic plan requires a global commitment that every country needs to implement the stages of National Immunization Week (NID) Polio, replacement from *trivalent oral polio vaccine* (tOPV) to *bivalent oral polio* (bOPV), introduction of Inactivated Polio Vaccine (IPV), and withdrawal of all oral polio vaccines (OPV) [4].

The number of polio cases officially recorded wordwide is 350,000 cases per year [5]. This immunization is a mandatory program enforced by the Indonesian government. Indonesia has successfully achieved polio-free certification with other Southeast Asian (SEARO) countries in 2016, namely Banglandhes, Bhutan, South Korea, India, Maldives, Nephal, Myanmar, Srilanka, Thailand, and Timor Leste [6] [7] *Oral Polio Vaccine* (OPV) is a replacement of *trivalent oral polio vaccine* (tOPV) containing polio virus antigens types 1, 2, and 3, to *bivalent oral polio* (bOPV) containing only polio virus 1 and 3 [8]. Whereas *Inactivated Polio Vaccine* (IPV) is produced from wild type polio virus strains of each serotype that have been in*activated* with formalin [9].

The basic of changing the use of OPV to IPV, namely, OPV is a virus that is weakened by oral means while IPV is a virus that is killed bye injection [10]. Why sould OPV immunization be replaced, because it must be done when population immunity is high enough and has high sensitivity [11]. The latest data from the Ministry of Health noted that in 2021 the percentage of IPV immunization coverage was 9.2 percent, this figure increased slightly from 2020, which was 8.5 percent of IPV immunization coverage, while the previous year, 2019, reached 61.5 percent [12]. Based on data from the Aceh Provincial Health Office, it is known that in 2020 only 49%, meanwhile data from the Aceh Besar District Health Office states that the coverage of complete IPV immunization in infants in the last 3 years has increased, namely in 2017 reaching 57.1%, in 2019 (68.6%) and in 2020 (73.5%) [13].

Meanwhile, based on data from the Aceh Besar district health office, the IPV immunization coverage in January 2021 was only 1.1% [14]. The low coverage of IPV immunization is inseparable from the mother's behavior in bringing her baby to be immunized [15]. According to Notoatmodjo, a person's behavior is influenced by 3 main factors, namely *predisposing* factors, *enabling* factors, and *reinforcing* factors [2]. Predisposing factors are manifested in knowledge, attitudes, beliefs, values beliefs and so on, supporting factors are manifested in the physical environment, the availability or unavailability of health facilities or facilities and encouraging factors are manifested in the attitudes and behavior of health workers or other workers who are the reference group of community behavior (6).

Data from Aceh Besar District shows that immunization achievements from Jan-Dec 2021 Hb-0 100%, BCG 71%, Polio 1 100%, DPT 1 47%, Polio 2 86%, DPT 2 38%, Polio 3 as much as 57%, DPT 3 20%, Polio 4 47%, MR 28% and IDL 18% of the total 202 babies who received IPV immunization were only 5.44%. In 2019, 9.5% of 146 infants received IPV immunization, while in 2020 those who received IPV immunization were 2.7% of 148 infants. Based on the monitoring of UCI villages in the Aceh Besar District Health Office Region in 2023, it is known that only 3 Puskesmas have UCI status, namely Lhoknga Puskesmas, Ingin Jaya Puskesmas and Blang Bintang Puskesmas [13].

The results of an initial survey conducted by the author of 10 mothers who have babies in the Aceh Besar District Health Office area found that all respondents (100%) did not know what was meant by IPV immunization, and they on average did not want to give IPV immunization to their babies because they were afraid of the side effects caused by the immunization, and the culture of our society which still perceives that immunization is haram and other things such as fever.

Method

This study is an analytic study with a crossectional study design [16]. Data collection was carried out in the Work Area of the Aceh Besar District Health Office and the research was carried out on September 1 to 25, 2024 in the Aceh Besar District Health Office area.

The population of this study were all mothers who had babies aged 4-12 months in the working area of the Aceh Besar District Health Office, totaling 255 people. The sample is part of the number and characteristics possessed by the population. In this study, researchers chose all populations to be sampled or total sampling, which is a sampling technique where all members of the population are used as research samples [17].

The variables studied in this study were independent variables, namely culture and the dependent variable, namely IPV immunization [18]. Data analysis used includes univariate analysis and bivariate analysis using the Chi Square test with a 95% confidence level.

Result and Discussion

The characteristics of respondents in this study can be seen in table 1.

Table 1. Respondent Characteristics

Characteristics	Total	
	n	%
Mother's Age		
< 20 years	10	4 %
21-35 years old	195	76 %
> 35 years	50	20 %
Education		
Basic	17	7 %
Medium	213	83 %
High	25	10 %
Employment Status		
Work	40	16 %
Not Working	215	84 %
TOTAL	255	100%

Table 2. The Frequency Distribution of the variablesstudied is contained in table 2 as follows:

Table 2. Frequency Distribution

No.	Variables	n	%
1	IPV Immunization		
	Doing	57	22 %
	Not Doing	198	78 %
2	Culture		
	Positive	78	31%
	Negative	177	69%
	TOTAL	255	100%

Source: Primary Data (2024)

The relationship between the independent and dependent variables can be seen as a meaningful relationship contained in table 3 below:

Table 3. Influence of culture on IPV immunization administration

Culture	IPV Immunization			p-value
	Doing	Not Doing	Total	
Positive	28 (35,8%)	50 (64,2%)	78 (100%)	
Negative	38 (21,4%)	139 (78,6%)	177 (100%)	0.001

Source: Primary Data (processed in 2024)

The results showed that of the 177 respondents who had a negative culture, 139 (78.6%) did not do IPV immunization, from the results of the *chi quare test* obtained a *p value* = 0.011 <0.05, so it can be concluded that there is an influence of culture on IPV Immunization in the Aceh Besar District Health Office Region.

The results of this study are in line with research conducted by Nugrawati which explains that there is a relationship between knowledge and attitudes with complete immunization.[19] In line with Elbert's research on the relationship between knowledge, attitudes and behavior of mothers in Medan City regarding basic immu-

nization with the completeness of basic immunization of children during the Covid-19 pandemic, the results showed that of the 196 research samples analyzed, 45.4% had a lack of knowledge, 53.6% had a positive attitude, 79.6% had positive behavior, and 62.8% completed basic immunization of children according to schedule. Analysis of the relationship using chi- square of the level of knowledge (p-value = 0.057), attitude (p-value = 0.000) and behavior (p- value = 0.000) of mothers in Medan City with the completeness of basic immunization of children during the COVID-19 pandemic. Multiple correlation analysis between the level of knowledge, attitude, and behavior with the completeness of basic immunization shows the Sig. F Change value of 0.000 and an R value of 0.612.

Based on the concept of culture, the thing that plays an important role in culture is the environment that will affect a person's health status. Allport in Notoatmodjo, explains that culture has 3 main components, one of which is the tendency to act, these three components together form a complete culture. In determining this attitude, knowledge, thinking, beliefs, and emotions play an important role. For example in this research, respondents who know about immunization (benefits, types of basic immunization, basic immunization schedule) will lead respondents to think and try so that their children's basic immunization is complete. In this thinking, the components of emotion and belief work so that the respondent has the intention to immunize his child. The results of this study are in line with this theory, namely the respondent's attitude about immunization affects the completeness of his child's basic immunization.

According to researchers, mothers with a positive negative culture tend not to immunize their children and mothers with a positive culture also do not complete immunization for their children. This is due to the culture of our society in understanding the content of the immunization and the various negative issues received by the community regarding the content in the immunization that makes mothers do not want to immunize their children on the grounds of fever and so on.

Conclusion

Based on the results of research in several health centers under the auspices of the Aceh Besar District Health Office related to the influence of culture on IPV immunization, the *p- value = 0*.001 means that there is a cultural influence with low IPV immunization coverage in the Aceh Besar District Health Office area based on the wrong understanding or concept of the content of IPV immunization in the community so that people do not want to immunize their children with IPV. This can trigger the incidence of polio which became an extraordinary case (KLB) in Aceh.

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