

## Selection of Priority Indicators of Maternal and Child Health Using Difficulty-Usefulness Pyramid (DUP) in Health Promotion

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### Abstract

Maternal and child health program in Indonesia consists of 5 indicators, namely family participation in family planning, childbirth in health care facilities, complete basic immunization for infants, exclusive breastfeeding for infants and monitoring of growth and development of toddlers. This study aimed to select maternal and child health indicators based on priority using the difficulty-usefulness pyramid, involving 329 families selected using snowball sampling. The difficulty and usefulness of all indicators were measured using an online questionnaire and then analyzed using the difficulty-usefulness pyramid method. The results showed that the range based on the total difficulty-usefulness for each indicator was family participation in family planning = 16.96, childbirth in health care facilities = 18.29, complete basic immunization for infants = 18.22, exclusive breastfeeding for infants = 17.50 and monitoring of growth and development of toddlers = 17.72. The largest range was at the base of the pyramid. It could be concluded that the indicator of maternal and child health that was prioritized in the Healthy Indonesia Program with a Family Approach was childbirth in healthcare facilities.

**Keywords:** Difficulty-Usefulness Pyramid, Indicators, Maternal and Child Health, Priority.

### Introduction

The Healthy Indonesia Program with a Family Approach is one of the public health development programs that has been running for the past few years. This program covers maternal and child health, public health and environmental health [1-3]. The spearhead of this program is the health centre, which in this case uses a family approach to increase public access to health services, by visiting families as a form of public health service [4]. The smallest community is the family, so building public health should start at the family level [5-7].

There are five indicators used to measure maternal and child health, namely: 1) family participation in family planning, 2) childbirth in health care facilities, 3) complete basic immunization for infants, 4) exclusive breastfeeding for infants and 5) monitoring of growth and development of toddlers. Furthermore, the maternal health healthy family index can be calculated based on these five indicators. The health conditions of mothers and children in families in the work area of the relevant health centre can be calculated based on the achievement of each indicator.

Recently, the heavy budget burden has forced the government to refocus the budget, and this has become one of the obstacles in efforts to increase the achievement of all indicators together, meaning that some indicators must be prioritized. So far, efforts to increase the achievement of each healthy family indicator have only been based on the level of achievement, meaning that indicators with low achievement are prioritized to improve their achievement. It is not uncommon for the cause of the low achievement of indicators to be unclear so that efforts to increase the achievement of indicators are less focused.

Managers or researchers should first understand the family's perception of each maternal and child health indicator, to increase the achievement of indicators [2]. In this case, two specific beliefs can be identified from family perceptions, which can then be used as a basis for efforts to improve indicator achievement, namely perceived usefulness and perceived difficulty [8-10]. Both types of perceptions can be used as a basis for selecting priority maternal and child health indicators. In this regard, the Difficulty-Usefulness Pyramid is a method that can be used easily and accurately. This method can be used as a comparative method, while also facilitating the selection of a solution strategy based on family perceptions so that problem-solving becomes more focused [11-13].

Based on the background, this research aimed to select the main priority indicators of maternal and child health using the Difficulty-Usefulness Pyramid method.

## **Materials and Methods**

This study was a public health survey conducted online. The target population in this study was all families in Indonesia who have access to the Internet. The sample size involved in this study was 329 families, and they were selected through the snowball sampling method. The researcher applied a quantitative

approach to select the maternal and child health indicators that are the main priority.

The approach used to rank the five indicators from the first to the last priority is the difficulty-usefulness pyramid (DUP) [8-13]. The five indicators to be ranked based on priority are: 1) family participation in family planning, 2) childbirth in health care facilities, 3) complete basic immunization for infants, 4) exclusive breastfeeding for infants and 5) monitoring the growth and development of toddlers.

To rank the indicators based on priority, 2 attributes were used as the basis, namely the level of difficulty in achieving the indicators by the family and the usefulness of the indicators perceived by the family. Both attributes were measured by filling out a questionnaire about 5 maternal and child health indicators, which were distributed online to respondents in the form of a Google form compiled by the researcher himself.

The collected data was then tabulated and continued with descriptive analysis. The results of the analysis were presented in the form of a Difficulty-Usefulness Pyramid. Difficulty was placed at the negative pole (left), while usefulness was placed at the positive pole (right). Referring to the rules for using the pyramid, the indicators at the base were the priority, and the indicators at the top were the last priority.

This research was carried out by always upholding the principles of health research ethics and had been equipped with ethical approval from the Health Research Ethics Committee of the Ministry of Health Polytechnic of Surabaya, Indonesia, EA/2198/KEPK-Poltekkes\_Sby/V/2024.

## **Results**

The usefulness scores of each indicator tend to be homogeneous, with a mean score of 9.49 (all indicators were perceived as very useful by families). The difficulty score also tends to be homogeneous with a mean score of 8.25 (all indicators were perceived as still very difficult

to be realized). The indicator with the largest range became the base and the smallest range became the top of the pyramid. The order of indicators based on priority was: 1) childbirth in health care facilities = 18.29; 2) complete basic immunization for infants = 18.22; 3) monitoring of growth and development of toddlers = 17.72; 4) exclusive breastfeeding for

infants = 17.50; and 5) family participation in family planning = 16.96 (Table 1). The Difficulty-Usefulness Pyramid was built based on the range of each indicator, starting from the difficulty score to the usefulness. Thus, it could be interpreted that the maternal and child health indicator that was the main priority was childbirth in healthcare facilities.

**Table 1.** The Results of the Analysis of Selection of Priority Indicators of Maternal and Child Health Using Difficulty-Usefulness Pyramid

No	Indicators	Difficulty	Usefulness	Range	Difficulty-Usefulness Pyramid
1	Family participation in family planning	7.96	9.00	16.96	
2	Childbirth in healthcare facilities	8.71	9.58	18.29	
3	Complete basic immunization for infants	8.66	9.56	18.22	
4	Exclusive breastfeeding for infants	7.80	9.71	17.50	
5	Monitoring of growth and development of toddlers	8.13	9.58	17.72	
	Average	8.25	9.49		

## Discussion

Family perceptions of each indicator of maternal and child health are important because they can be used as a basis for mapping out better management strategies to improve the achievement of indicators. Difficulty and usefulness are family beliefs that can be used as a basis for measuring family perceptions of each indicator of maternal and child health. Difficulty is a condition that shows how much effort must be made by the family to be able to realize maternal and child health indicators; while usefulness is a condition that shows the extent to which maternal and child health

indicators are felt to be beneficial by the family [2].

In using the Difficulty-Usefulness Pyramid method, difficulty and usefulness are attributes for ordering indicators or elements of a system based on priority. Of course, this can be used to select priority indicators of maternal and child health which are part of the Healthy Indonesia Program with a Family Approach. Referring to the level of difficulty, the most difficult indicator to achieve is positioned as the priority and conversely, the easiest indicator to achieve is positioned as the last priority. Referring to the level of usefulness, the indicator with the highest usefulness is the priority and conversely, the indicator with the lowest

usefulness is the last priority. By combining two attributes, the priority is the indicator that has the highest level of difficulty and usefulness. The inventor of this method measures the level of difficulty and the level of usefulness with a numerical scale. Furthermore, the priority order of the indicators is determined based on the total score of the level of difficulty and usefulness of each maternal and child health indicator [2].

The results of this research show that the five maternal and child health indicators have a very high usefulness score, meaning that all maternal and child health indicators are felt to be very useful for families. This fact is certainly very encouraging because it proves that families have positive beliefs about all indicators of the maternal and child health program initiated by the Indonesian government. Meanwhile, the five maternal and child health indicators have a lower difficulty score compared to their usefulness but are still relatively high. Thus, empirically it appears that all maternal and child health indicators are still felt to be difficult to realize by families. This condition must certainly be considered as important homework for the government, because with the still high level of difficulty, this will be one of the obstacles that must be anticipated in achieving the success of the Healthy Indonesia Program with a Family Approach, especially regarding maternal and child health.

The maternal and child health indicator that was the priority was childbirth in healthcare facilities. Currently, in Indonesia there are still many obstacles to the implementation of childbirth in health care facilities [14], including 1) accessibility problems, namely many remote and rural areas that are difficult to reach, so pregnant women have difficulty reaching health facilities, one of which is related to poor road conditions and lack of transportation facilities [15]; 2) cost problems, because even though there is a health insurance program by the government, transportation costs and other indirect costs are still a burden

for some families [16]; 3) knowledge and awareness problems, because not all pregnant women have sufficient knowledge about the importance of childbirth in health facilities, some of them also still choose to give birth at home due to lack of information or because of traditional factors [17]; 4) family support problems because the decision to give birth is often influenced by support from the husband or family. If the family does not support them, pregnant women may choose to give birth at home [18]; 5) the problem of availability of facilities and health workers, because not all areas have adequate health facilities and health workers, making pregnant women hesitate to go to health facilities [19]; 6) social and cultural issues, namely the existence of cultural beliefs and practices that prevent pregnant women from giving birth in health facilities, for example, the belief that giving birth at home is safer or more comfortable [20].

To overcome these obstacles, a comprehensive approach is needed, including improving infrastructure, educating the public, and increasing support from families and communities. In any case, this issue must be a serious concern, considering that childbirth in health care facilities contains beneficial values in many aspects, which can be described as follows: 1) the safety of mothers and babies, because health care facilities are equipped with adequate medical equipment and trained medical personnel to handle various complications that may occur during childbirth, including emergency care in the event of bleeding, preeclampsia, or other problems that can endanger the mother and baby [21]; 2) prevention of infection, because health care facilities have high standards of cleanliness to prevent infection, which is very important to reduce the risk of infection in mothers and newborns [22]; 3) access to follow-up care, because if a baby is born with a medical condition that requires special care, health care facilities can immediately provide the necessary care or refer to a specialist [23]; 4)

provision of immunization, because health care facilities usually immediately provide basic immunization to babies to protect them from various diseases [21]; 5) support and education, because mothers who give birth in health facilities receive support and education on newborn care, breastfeeding, and postpartum health [22]; 6) recording and documentation, because giving birth in a health facility ensures that the birth is officially recorded, which is important for future administration and access to health services [21, 22]. By choosing to give birth in a health facility, mothers and babies receive the best protection and care that can reduce the risk of complications and improve long-term health [24].

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## Conclusion

Based on the results of the research, it can be concluded that the indicator of maternal and child health as the priority is childbirth in healthcare facilities.

## Conflict of Interest

There is no conflict of interest related to this study.

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