Mapping Community Potential in Stunting Prevention in Sumberputih Village, Indonesia

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Author’s contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

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Abstract

Purpose: This study aims to map stunting prevention behavior in the Sumberputih Village community, Malang Regency.

Methods: This research was conducted in Sumberputih Village, Wajak District, Malang Regency, East Java, with 3 lecturers and 5 students from the implementation team. With this activity, it is hoped that the community can prevent and increase knowledge about stunting in Sumberputih Village. This study uses cluster analysis for mapping community in preventing stunting.

Results: The number of clusters in the Bringin Village community grouping is divided into two parts, that are people care enough about stunting prevention and people that care less about stunting prevention. The sample in this study was determined using purposive sampling with used is 75 respondents, of which there are 47 people who are members of cluster 1 (people care about stunting prevention) and there are 28 people who are included in cluster 2 (people who don’t care about stunting prevention).

Originality: The novelty of this research is the mapping of stunting prevention behavior in the Sumberputih village community, Malang Regency.

Keywords: Cluster analysis; descriptive analysis; stunting; mapping.

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1 Introduction

Currently, Indonesia occupies the fourth position as the country with the most population in the world. Referring to Statistics Indonesia [1], Indonesia's population in 2020 will reach more than 270 million. The population in Indonesia will also continue to grow, with the birth rate in 2020 still at 2.10 [1]. Unfortunately, the stunting rate of children in Indonesia is still very high. In 2019, the stunting rate in Indonesia was still 27.67%. WHO as the World Health Organization under the auspices of the United Nations (UN) sets a stunting rate of no more than 20.00%, which shows that the stunting rate of children in Indonesia is still much higher than the target set [2]. In addition, World Bank data shows that 54% of the current workforce in Indonesia are stunting survivors. Based on this description, the high stunting rate in Indonesia needs serious attention because it can interfere with the potential of Indonesian human resources in the future. Moreover, with the current era of globalization, Indonesian human resources must be of high quality so that they can compete globally.

Stunting is a growth disorder that is often experienced by children. There are several causes of stunting in toddlers according to the WHO framework published in 2013. The main factors that cause growth disorders are maternal factors and the environment around the house. Based on the United Nations Children's Fund (UNICEF) report, the problem of stunting in Indonesia reaches 7.8 million children. Therefore, UNICEF positions Indonesia in the top five countries with a high number of child stunting sufferers. The Indonesian government has also shown its seriousness by making various efforts to address the stunting problem in Indonesia. To help deal with this problem, contributions from various aspects are needed which require the effective deployment of three resources, namely economic (monetary), physical (material) and human (social) [3]. However, the lack of awareness of parents, especially mothers, is a big obstacle in solving the stunting problem in Indonesia. In this regard, the urgency of this dedication is based on the lack of parental awareness of the stunting problem.

Based on the background that’s been mentioned, the research aims to map the stunting prevention behavior of the Sumberputih village community. Mapping is useful for dividing the community into people who care and do not care about stunting prevention behavior. People who don't care about stunting prevention are expected to get more attention from the local government.

2 Literature Review

There are several factors that cause stunting that the people of Sumberputih Village must have, namely:

2.1 Attitude

Attitude is a person's personality that can influence the choice and action of something. According to Elisa [4], attitudes are actions and behaviors that are determined by one element of the personality towards an object with good or bad feelings. Individual perceptions of the attitude object will be influenced by two factors, namely internal factors or individual factors and external factors or outside factors. Internal factors are physiological and psychological while external factors can be in the form of experience, knowledge, teaching and learning process situations faced by individuals, norms that exist in society, obstacles or drivers in society. The attitude of parents, especially mothers, is very important in fulfilling children's nutrition because children need parental attention and support in facing very rapid growth and development.

2.2 Subjective norms

According to Wedayanti & Giantari [5], subjective norms are a person's beliefs about the approval of others for an action. The other person is called a referent, and can be a parent, friend, or someone who is considered important to someone. This is to support the creation of a harmonious, balanced, and harmonious understanding of local values, norms and culture [6]. Subjective norms generally have the following two components:

A) Normative Beliefs

Perceptions or beliefs about other people's expectations of themselves that become a reference for displaying behavior or not. Beliefs related to the opinion of a character or other person who is important and influential for the individual or the role model whether the subject should or should not perform a certain behavior [7].
B) Motivation to comply

Individual motivation to meet these expectations. Subjective norms can be seen as dynamics between the impulses perceived by individuals from the people around them and the motivation to follow their views (motivation to comply) in doing or not doing the behavior.

Overall, subjective norms can describe normative beliefs and individual motivations to comply with them. Subjective norms in parents can be influenced by the presence of social support from peers or health workers. The provision of information by health workers in services can change the subjective norms of pregnant women which in turn can affect intentions.

2.3 Behavior control

Dikria & Mintarti [8], Self-control is a careful and intelligent attitude in managing life, balance and controlled policies, and the goal is to balance emotions, not suppress emotions, because every feeling has value and meaning. According to Calhoun & Acocella [9], there are three aspects of self-control, namely as follows:

A) Behavior Control

It is a person's readiness or ability to modify an unpleasant condition. The ability to control behavior in this case is the ability to determine who is in control of the situation, himself, others, or something outside himself.

B) Cognitive Control

The individual's ability to manage unwanted information by interpreting, assessing, or integrating an event in a cognitive framework as a psychological adaptation or to reduce stress.

C) Decision Making

The ability to choose an action based on something believed or agreed upon. It supports organizational decision making to gather insights [10].

The main problem of stunting, namely the provision of low nutritional intake, can be influenced by parenting patterns from parents, one of which is inappropriate feeding behavior. From this, it can be explained that the behavior of parents, especially mothers, is a determining factor for stunting in children.

2.4 Obedient intentions prevent stunting

Obedience in question is related to preventing stunting. Jamin in Anisa [11] revealed that the level of adherence to preventing stunting together was better than preventing stunting independently. To get the best performance, cooperation is needed [12]. Participation from all layers of the society (government, private, NGO, and elements of society) is absolutely required [13]. The indicators used in this study are:

A) Tendency to Behave Obediently Pay

B) The Decision to Obey Pay

2.5 Obedient behavior prevents stunting

According to Budiono [14] behavior is a reaction or human action caused by an impulse that is seen from values, habits, driving forces, motives, and restraining forces as a person's response or reaction that appears. This is due to the experience of the process of stimulation and learning from the environment. According to Sulistiyono [15] obedience is an attitude that is willing to do whatever it is based on self-awareness or coercion that causes behavior according to what is expected or not. Obedient behavior is the interaction of individual, organizational, and group behavior. Obedient behavior to prevent stunting is defined as a person's action caused by self-awareness and coercion to do so. Community compliance can be measured through:
A) Punctuality.
B) Data accuracy.
C) Sanction.

3 Methodology

The design of this research is explanatory research with survey [16]. This research was conducted in Sumberputih Village. The population in this study is the entire community in Sumberputih village. According to Fernandes & Rinaldo [17] and Fernandes & Taba [18] the sample in this study was determined using purposive sampling. The number of respondents in this study was 75 people who were determined using predetermined criteria [19]. According to Fernandes [20] the primary data in this study were obtained using a questionnaire. Questionnaires were distributed to the public using a Likert scale with a scale of 1 to 5, where 1 indicates a statement strongly disagrees, 2 indicates a statement disagrees, 3 indicates a neutral statement, 4 indicates a statement agrees and 5 indicates a statement strongly agrees [21]. According to Fernandes [22] testing the reliability of the instrument using the Alpha Cronbach Score. In this study the standard Cronbach alpha value used is 0.60.

4 Results and Discussion

4.1 Descriptive analysis

4.1.1 Prosocial behavior

The prosocial behavior variable was measured using three indicators. These indicators include: social responsibility (X1.1), empathy (X1.2), moral understanding (X1.3), helping (X1.4). This study uses a Likert scale with the following information: Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), Strongly Agree (SA). Descriptions of prosocial behavior variables are presented in Table 1.

| Indicators          | Items       | Answer Frequency | Average |
|---------------------|-------------|------------------|---------|
|                     |             | SD | D | N | A | SA | Items | Indicators |
| Social Responsibility| X1.1.1      | 3  | 0 | 0 | 52 | 20 | 4.15 | 4.02       |
|                     | X1.1.2      | 0  | 0 | 3 | 59 | 13 | 4.13 |           |
|                     | X1.1.3      | 0  | 0 | 27| 38 | 10 | 3.77 |           |
| Empathy             | X1.2.1      | 0  | 0 | 7 | 56 | 12 | 4.07 | 4.07       |
|                     | X1.2.2      | 0  | 0 | 9 | 54 | 12 | 4.04 |           |
|                     | X1.2.3      | 0  | 0 | 2 | 63 | 10 | 4.11 |           |
| Moral Understanding | X1.3.1      | 0  | 1 | 6 | 66 | 2  | 3.92 | 3.94       |
|                     | X1.3.2      | 0  | 1 | 5 | 65 | 4  | 3.96 |           |
| Helping             | X1.4.1      | 0  | 0 | 7 | 65 | 3  | 3.95 | 3.97       |
|                     | X1.4.2      | 0  | 1 | 2 | 68 | 4  | 4.00 |           |
| Variable Average X_1|             |     |    |    |    |    | 4.00 |           |

Each Based on Table 1., it can be seen that the Empathy Indicator (X1.2) has an average value of 4.07 which is in the high category, meaning that the people of Sumberputih Village assess that Empathy in the prosocial behavior of the community is good. Empathy indicators (X1.2) include feeling other people's feelings (X1.2.1), feeling anxious (X1.2.2), and taking other people's points of view (X1.2.3). On the item Taking another person's point of view (X1.2.3) has an average item value of 4.11 (high category), the majority of respondents chose the answer Agree (A) as many as 63 respondents and Strongly Agree (SA) as many as 10 respondents.

4.1.2 Subjective norm

Subjective Norm variables were measured using three indicators. These indicators include: The role of family confidence (X2.1), Confidence in an effort to consider important things (X2.2), and Trust in the support of friends (X2.3). The description of the Subjective Norm variable is presented in Table 2.
Table 2. Description of subjective norm variables

| Indicators                        | Items     | Answer Frequency | Average |
|-----------------------------------|-----------|------------------|---------|
|                                   |           | SD | D | N | A | SA |       |
| The role of family confidence     | X2.1.1    | 0  | 0 | 14 | 53 | 8  | 3.92  |
|                                   | X2.1.2    | 0  | 2 | 19 | 54 | 0  | 3.69  |
| Confidence in an effort to consider important things | X2.2.1    | 0  | 2 | 24 | 46 | 3  | 3.67  |
|                                   | X2.2.2    | 0  | 1 | 22 | 48 | 4  | 3.73  |
| Trust in the support of friends   | X2.3.1    | 0  | 0 | 30 | 44 | 1  | 3.61  |
|                                   | X2.3.2    | 0  | 9 | 25 | 40 | 1  | 3.44  |
| Variable average                  |           |    |   |    |    |    | 3.68  |

Based on Table 2, it can be seen that the Family Confidence Role Indicator (X2.1) has an average value of 3.81 in the high category, meaning that the Sumberputih Village community considers that the role of family confidence in the subjective norm of society is good. Role indicators of family confidence (X2.1) include parental trust (X2.1.1) and interaction with family (X2.1.2). On the item Trust parents (X2.1.1) has an average item value of 3.92 (high category), the majority of respondents chose the answer Agree (A) as many as 53 respondents and Strongly Agree (SA) as many as 8 respondents.

4.1.3 Behavior control

Behavioral Control Variables are measured using three indicators. These indicators include: Character or personality traits (X3.1), Role behavior tendencies (X3.2), Behavioral tendencies in Social Relations (X3.3), and Expressive behavior tendencies (X3.4). The description of Behavior Control variables is presented in Table 3.

Table 3. Description of behavioral control variables

| Indicators                             | Items     | Answer Frequency | Average |
|----------------------------------------|-----------|------------------|---------|
|                                        |           | SD | D | N | A | SA |       |
| Character or personality traits        | X3.1.1    | 0  | 0 | 18 | 57 | 0  | 3.76  |
|                                        | X3.1.2    | 1  | 5 | 35 | 34 | 0  | 3.36  |
| Role behavior tendencies               | X3.2.1    | 0  | 0 | 10 | 62 | 3  | 3.91  |
|                                        | X3.2.2    | 1  | 0 | 16 | 55 | 3  | 3.79  |
| Behavioral tendencies in social relations | X3.3.1   | 1  | 4 | 7  | 59 | 4  | 3.81  |
|                                        | X3.3.2    | 0  | 0 | 5  | 66 | 3  | 3.93  |
|                                        | X3.3.3    | 0  | 2 | 2  | 69 | 4  | 4.03  |
| Expressive behavior tendencies         | X3.4.1    | 0  | 4 | 21 | 47 | 3  | 3.65  |
|                                        | X3.4.2    | 0  | 3 | 22 | 49 | 1  | 3.64  |
|                                        | X3.4.3    | 3  | 12| 29 | 29 | 2  | 3.20  |
| Average                                |           |    |   |    |    |    | 3.71  |

Based on Table 3, it can be seen that the Indicator of Behavioral Tendency in Social Relations (X3.3) has an average value of 3.92 in the high category, meaning that the people of Sumberputih Village assess that the Behavioral Tendency in Social Relations in controlling community behavior is good. Indicators of Behavioral Tendency in Social Relations (X3.3) include being accepted or rejected by others (X3.3.1), Sociable and not sociable (X3.3.2) and Sympathetic and unsympathetic (X3.3.3). Sympathetic and unsympathetic items (X3.3.3) have an average item value of 4.03 (high category), the majority of respondents chose the answer Agree (A) as many as 69 respondents and Strongly Agree (SA) as many as 4 respondents.

4.1.4 Convience

The convenience variable is measured using three indicators. These indicators include: Easyyness (X4.1), Easy to Learn (X4.2), and Overall Easiness (X4.3). The description of the Subjective Norm variable is presented in Table 4.
Table 4. Description of Convenience Variables

| Indicators    | Items  | Answer Frequency | Average |
|---------------|--------|------------------|---------|
|               |        | SD   D   N   A   SA |         |
| Easyness      | X4.1.1 | 0    1   12  60  2   | 3.84    |
|               | X4.1.2 | 0    0   7   63  5   | 3.97    |
|               | X4.1.3 | 0    0   11  57  7   | 3.95    |
| Easy to Learn | X4.2.1 | 0    3   20  47  5   | 3.72    |
|               | X4.2.2 | 0    3   18  54  0   | 3.68    |
|               | X4.2.3 | 0    3   18  50  4   | 3.73    |
| Overall Easiness | X4.3.1 | 0    0   11  56  8   | 3.96    |
|               | X4.3.2 | 0    0   17  57  1   | 3.79    |
| Average       |        |      |      |      |      | 3.83    |

Based on Table 4., it can be seen that the Easyness Indicator (X4.1) has an average value of 3.92 which is in the high category, meaning that the people of Sumberputih Village consider that Easyness in the community's convenience is good. The Easyness indicator (X4.1) includes the ease of processing (X4.1.1), the ease of carrying out activities (X4.1.2), and the ease of information on activities (X4.1.3). On the item the ease of carrying out activities (X4.1.2) has an average item value of 3.97 (high category), the majority of respondents chose the answer Agree (A) as many as 63 respondents and Neutral (N) as many as 7 respondents.

4.1.5 Usefulness

The usefulness variable is measured using three indicators. These indicators include: Effectiveness (X5.1), Accomplish Faster (X5.2), and Useful (X5.3). The description of the usefulness variable is presented in Table 5.

Table 5. Description of Usefullness Variables

| Indicators    | Items  | Answer Frequency | Average |
|---------------|--------|------------------|---------|
|               |        | SD   D   N   A   SA |         |
| Effectiveness | X5.1.1 | 0    0   1   69  5   | 4.05    |
|               | X5.1.2 | 0    0   5   58  12  | 4.09    |
|               | X5.1.3 | 0    0   7   66  2   | 3.93    |
| Accomplish Faster | X5.2.1 | 0    0   11  55  9   | 3.97    |
|               | X5.2.2 | 0    0   2   64  9   | 4.09    |
| Useful        | X5.3.1 | 0    0   2   63  10  | 4.11    |
|               | X5.3.2 | 0    0   0   66  9   | 4.12    |
| Average       |        |      |      |      |      | 4.05    |

Based on Table 5., it can be seen that the Useful Indicator (X5.3) has an average value of 4.11 which is in the high category, meaning that the people of Sumberputih Village assess that Useful community benefit is good. Useful indicators (X5.3) include ease of information on stunting prevention (X5.3.1) and simplicity of work (X5.3.2). Item the simplicity of work (X5.3.2) has an average item value of 4.12 (high category), the majority of respondents chose the answer Agree (A) as many as 66 respondents and Strongly Agree (SA) as many as 9 respondents.

4.1.6 Intention

Variable Intention is measured by using three indicators. These indicators include: Loyalty (X6.1), Willingness to use more (X6.2), and Response to problems (X6.3). The description of the Intention variable is presented in Table 6.
### Table 6. Description of Intention Variables

| Indicators            | Items      | Answer Frequency | Average |
|-----------------------|------------|------------------|---------|
|                       |            | SD   | D   | N   | A   | SA |                |
| Loyalty               | X6.1.1     | 0    | 1   | 13  | 56  | 5  | 3.87            |
|                       | X6.1.2     | 0    | 1   | 13  | 59  | 2  | 3.83            |
|                       | X6.1.3     | 0    | 1   | 19  | 54  | 1  | 3.73            |
| Willingness to use    | X6.2.1     | 0    | 5   | 18  | 52  | 0  | 3.63            |
| more                  | X6.2.2     | 0    | 1   | 22  | 49  | 3  | 3.72            |
|                       | X6.2.3     | 0    | 3   | 8   | 61  | 3  | 3.85            |
| Response to problem   | X6.3.1     | 0    | 0   | 21  | 51  | 3  | 3.76            |
|                       | X6.3.2     | 0    | 0   | 23  | 49  | 3  | 3.73            |
|                       | X6.3.3     | 0    | 0   | 7   | 62  | 6  | 3.99            |

Average: 3.79

Based on Table 6., it can be seen that the Response to problem indicator (X6.3) has an average value of 3.83 in the high category, meaning that the people of Sumberputih Village assess that Response to problem in the community's intentions is good. Response to problem indicators (X6.3) include being able to discuss system problems (X6.3.1), being able to find a way out if there are system problems (X6.3.2), and being able to repair problematic systems (X6.3.3). The item Able to improve the problematic system (X6.3.3) has an average item value of 3.99 (high category), the majority of respondents chose the answer Agree (A) as many as 62 respondents and Strongly Agree (SA) as many as 6 respondents.

### 4.1.7 Stunting Prevention Behavior

The Stunting Prevention Behavior variable was measured using seven indicators. These indicators include: personal experience (X7.1), influence of other people who are considered important (X7.2), cultural influence (X7.3), mass media (X7.4), influence of emotional factors (X7.5), educational institutions (X7.6), and religious institutions (X7.7). The description of the Stunting Prevention Behavior variable is presented in Table 7.

### Table 7. Description of Stunting Prevention Behavior Variables

| Indicators                          | Items      | Answer Frequency | Average |
|-------------------------------------|------------|------------------|---------|
|                                     |            | SD   | D   | N   | A   | SA |                |
| Personal experience                 | X7.1.1     | 0    | 0   | 0   | 51  | 24 | 4.32            |
|                                     | X7.1.2     | 0    | 0   | 0   | 60  | 14 | 4.17            |
| Influence of other people who are   | X7.2.1     | 4    | 0   | 7   | 47  | 17 | 3.97            |
| considered important                | X7.2.2     | 0    | 0   | 3   | 66  | 6  | 4.04            |
| Cultural influence                  | X7.3.1     | 0    | 1   | 14  | 57  | 3  | 3.83            |
|                                     | X7.3.2     | 0    | 0   | 11  | 62  | 2  | 3.88            |
| Mass media                          | X7.4.1     | 11   | 25  | 29  | 9   | 1  | 2.52            |
|                                     | X7.4.2     | 0    | 1   | 8   | 60  | 6  | 3.95            |
| Influence of emotional factors      | X7.5.1     | 0    | 1   | 11  | 52  | 11 | 3.97            |
|                                     | X7.5.2     | 0    | 2   | 15  | 56  | 2  | 3.77            |
| Educational institutions            | X7.6.1     | 0    | 1   | 30  | 42  | 2  | 3.60            |
|                                     | X7.6.2     | 0    | 1   | 25  | 46  | 3  | 3.68            |
| Religious institutions              | X7.7.1     | 1    | 9   | 27  | 37  | 1  | 3.37            |
|                                     | X7.7.2     | 1    | 0   | 32  | 38  | 4  | 3.59            |

Average: 3.76

Based on Table 7., it can be seen that the Personal Experience Indicator (X7.1) has an average value of 4.25 which is in the high category, meaning that the people of Sumberputih Village consider that their personal experience in stunting prevention behavior is good. Indicators of personal experience (X7.1) include cleaning the house (X7.1.1) and eating nutritious food (X7.1.2). The item Cleaning the house (X7.1.1) has an average item value of 4.32 (high category), the majority of respondents chose the answer Agree (A) as many as 51 respondents and Strongly Agree (SA) as many as 24 respondents.
4.2 Cluster classification

Cluster analysis serves to group and classify a diverse set of objects into relatively homogeneous groups based on a certain set of variables or characteristics [23]. In this study using the Kmeans cluster. The number of clusters is determined to be 2 groups, so that the grouping is obtained as presented in Fig. 1.

![Cluster plot](image)

**Fig. 1. Cluster field results**

Based on Fig. 1, it can be seen that the dendogram cluster is divided into two colors, namely red and green. This indicates that the number of clusters in grouping the Bringin Village community is divided into two parts, namely the community that is quite concerned about stunting prevention and less concerned about stunting prevention. The number of members in each cluster can be seen in Table 8.

| Cluster | Number of Cluster Members |
|---------|--------------------------|
| 1       | 47                       |
| 2       | 28                       |

The table shows that cluster 1 is red more than cluster 2 is green. The number of members of cluster 1 is 47 members, while cluster 2 is 28 members. So, it can be concluded that from 75 respondents, there are 47 people belonging to cluster 1 (people care about stunting prevention) and 28 people belonging to cluster 2 (people who don't care about stunting prevention).

In general, there are still around 37% of the people of Sumberputih Village who feel they are still less concerned with stunting prevention. This is supported by information that in Sumberputih village stunting is still found. In accordance with the research conducted by Satriawan [24], that if there is still a sense of lack of care from the community regarding the factors that can cause stunting, it can make the incidence of stunting in an area increase. Therefore, community empowerment programs and activities still need to be improved and developed, particularly related to stunting prevention socialization.

5. Conclusion

In general, there are still around 37% of the people of Sumberputih Village who feel they are still less concerned with stunting prevention. This is supported by information that in Sumberputih village stunting is still found. Therefore, community empowerment programs and activities still need to be improved and developed, particularly related to stunting prevention socialization.
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Consent

As per international standard or university standard, respondents’ written consent has been collected and preserved by the author(s).

Ethical Approval

Author hereby declare that “all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.”

Competing Interests

Author has declared that no competing interests exist.

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