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# Exploration of Positive Deviance in Prevention of Underweight in the Under-Five: A Qualitative Study on Low-Income Urban Families

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## Abstract

Children under the age of five (the under-five) from low-income families are more vulnerable to experience underweight. This nutritional vulnerability is evident in the preliminary study, where 35.1% of the under-five experience underweight, and 28.48% are low-income families. This study aimed to explore Positive Deviance (PD) behaviors in preventing underweight among the under-five. The study applied a qualitative approach with a case study design. Data collection took place in July-August 2022, focusing on low-income families in the Gunung Brintik area. Data were collected through two focus group discussions, seven in-depth interviews, and five key informant interviews. Coding, subtheme, and theme development were facilitated using the ATLAS.ti trial package. Triangulation of the study results yielded four major themes influencing the prevention of underweight in the under-five: interventions by health workers and cadres, community awareness and concern, family support, and maternal nutrition literacy. The identified PD behaviors practiced by the community in the study location have been shown to contribute to the prevention of underweight in the under-five. Strengthening these identified PD behaviors and their implementation in other areas is essential to support efforts to combat underweight in the under-five.

**Keywords:** positive deviance, the under-five, underweight

## Introduction

Indonesia is a developing country with rapid economic growth globally. However, Indonesia still faces issues related to poverty and underweight. Research indicates that poverty is the root cause of underweight problems among children.<sup>1</sup> Conversely, being underweight in the early stages of life has been proven to contribute to the low quality of human resources. The low quality of human resources, in turn, becomes a trigger for the increasing poverty.<sup>1-3</sup> Therefore, poverty alleviation and addressing underweight (eliminating hunger) have become targets of the Sustainable Development Goals.<sup>4</sup>

Gradually, Indonesia has been able to reduce the prevalence of underweight in children under the age of five (the under-five). The prevalence of underweight in the under-five was recorded at 19.6% in 2016 and continued to decrease in 2018 to 17.7% and in 2019 to 16.3%. Unfortunately, the prevalence of underweight increased to 17.0% in 2021 and rose again to 17.1% in 2022.<sup>5,6</sup> At the provincial level, the prevalence of underweight in the under-five remains a significant nutritional problem in Central Java Province. The 2022 data indicates that the underweight prevalence is higher than the national average, at 17.6%. In Semarang City, the provincial capital, the prevalence of underweight in the under-five was 13.5%.<sup>6</sup>

The high prevalence of underweight in the under-five is apparently in line with a high percentage of the poor population. The poor population at the national level in 2022 reached 9.57%, and Central Java Province has a higher percentage at 10.98%. Of 35 districts/cities in Central Java Province, it turns out that Semarang City has the highest percentage of poverty, with 84,000 poor people in 2022, or approximately 4.25% of the population.<sup>7</sup> Poverty in urban areas is a complex social problem. The under-five from poor families are more vulnerable to experiencing underweight.<sup>3,8</sup>

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Semarang, as the capital city of Central Java Province, still has several pockets of poverty, one of each is Gunung Brintik area, located in Community Units III and IV of Randusari Subdistrict, Semarang City. This area has a total of 653 families; 28.48% are classified as poor. The prevalence of underweight in the under-five in Gunung Brintik in 2021 was recorded at 35.1%. The nutritional situation analysis conducted in 2021 in the study location indicates that not all of the under-five from poor families in Gunung Brintik were underweight. Of 33 poor families, eight under-fives (24.2%) had normal nutritional status. This means that almost a quarter of poor families in the Gunung Brintik area exhibit Positive Deviance (PD) behavior.

PD is a behavior carried out to overcome problems in challenging conditions.<sup>9</sup> Studies on PD related to nutritional issues have been extensively conducted, demonstrating that some communities possess local wisdom, values, and social capital, which could be utilized to address various nutritional and health problems.<sup>10-16</sup> Therefore, the identification of PD is crucial so that PD can be replicated as a solution to nutritional problems in other locations. Based on this background, this study aimed to explore the PD behavior of urban poor families in the Gunung Brintik area in the prevention of underweight in the under-five.

## Method

A qualitative study with a case study design was conducted to explore PD behavior. The setting was an urban poor area, specifically in the Gunung Brintik area, Community Units III and IV, Randusari Subdistrict, Semarang City, Indonesia. Data collection for the study took place for two months, from July to August 2022. PD, in this study, is defined as a behavior of under-fives' mothers successfully preventing their under-five from experiencing underweight from the poor families. Families are categorized as poor if they have a monthly income of <IDR 2,592,657 (USD 159,961).<sup>7</sup> Underweight is a condition for an imbalance in nutrient intake, characterized by a weight-for-age z-score <-2 SD. Good nutrition is defined if the under-five has a weight-for-age z-score between -2 SD and 2 SD.<sup>17</sup>

PD behavior, in this study, was examined within families categorized as poor but with those under-five in good nutritional status. The selection of subjects from poor families for the study was based on the mothers' activities at Integrated Health Care (IHC), specifically Community Units III and IV IHCs in Randusari Subdistrict, Semarang City. IHC is a social institution established by the community to assist, particularly, the under-five, pregnant women, and the elderly in accessing health services. Each Community Unit area with around 50 under-fives establishes an IHC. Technically, IHC becomes the primary partner for health workers in providing community health services, such as early detection of child development, monitoring the health of pregnant women, nutritional education, distribution of iron supplementation, and others.

Data collection employed three methods: focus group discussion (FGD), in-depth interview (ID), and key informant interview (KII). All data collection activities were recorded using a recorder on a smartphone. FGD was conducted twice, involving the under-five's mothers residing in the study location due to involving more subjects to get more comprehensive data. Each FGD was attended by six mothers selected by health cadres to participate in the FGD activities. FGDs were conducted in the meeting hall where IHC activities took place. The FGD activities were moderated by the researcher and assisted by a research staff to record the proceedings. The duration of each FGD was 40–60 minutes.

In-depth interviews were conducted with seven mothers of the under-fives from poor families residing in the study location; one of them could not come when the data was collected. Subject selection was proposed by health cadres, considering subjects actively participating in the IHC activities and willing to be interviewed. The in-depth interview was carried out through home visits using a pre-prepared interview guide. The implementation of in-depth interviews was adjusted to the respondent's availability, with interview durations within 40–45 minutes. This was done to capture a PD from a poor family in the city with a normal nutritional status of children.

KII involved stakeholders comprising three health cadres and two health workers (one nutrition expert and one midwife). The timing and location of the KII were adjusted to the availability of the informants. KII question guides were prepared to facilitate the interview process. The interview duration was 40–50 minutes for each informant.

After all the FGD, ID, and KII sessions were recorded, each word was transcribed. The transcription process was carried out by independent transcribers. Based on the transcript results, coding was then performed with the assistance of ATLAS.ti free trial package software. The next stage involved systematically identifying code repetitions throughout the data series and grouping them through content analysis, resulting in open codes. Subsequently, these codes were grouped into subthemes. After conducting a comparative analysis among various subthemes, primary themes were derived. Several statements from the subjects were quoted to support the presentation of the findings. Most of the subjects'

statements were delivered in Indonesian language, and some others were in Javanese. For the purpose of presenting the findings, the quotations were translated into English.

## Results

A total of two FGDs, eight IDs, and five KIIs were conducted until data saturation was obtained. Tables 1, 2, and Figure 1 summarize the codes obtained from the study, which were then grouped into subthemes and finally into themes. The eight main subthemes emerging from the FGDs were supplementary feeding for malnutrition, active participation at IHC, grandmother's role, husband's role, the "Blessed Friday," public kitchen, nutritional knowledge, and access to information. Grandmother's role is a form of parent-grandmother's co-parenting relationship that is common in Indonesia. In Indonesian culture, the grandmother's role is often more dominant than the mother's, especially for working mothers.<sup>18</sup> The term "Blessed Friday" refers to the religious activities of the Indonesian Muslim community, in which, on Fridays, Muslims usually provide alms in the form of food to those people in need. A soup kitchen is a local wisdom in the form of food service managed by cadres to be given to underweight in the under-five. This behavior was adopted from good practices when COVID-19 survivors faced a lockdown situation. The eight subthemes were then successfully grouped into four themes: interventions by health workers and cadres, family support, community awareness and concern, and maternal nutrition literacy. A summary of the FGD participants' statements, subthemes, and themes can be seen in Figure 1.

In-depth interviews resulted in 10 subthemes consisting of part-time work, utilization of business opportunities, nutritional information from social media, validation of nutritional information, husband's role, grandmother/parent's role, community concern, alms food, supplementary feeding for malnutrition program, and active participation at IHC. The 10 themes could be grouped into five themes: creative supplementary income, maternal nutrition literacy, family support, community awareness and concern, and interventions by health workers and cadres. A summary of the ID results, subthemes, and themes can be seen in Table 1.

**Table 1. Excerpts of Statements, Subthemes, and Themes from In-depth Interview**

Verbatim	Subtheme	Theme
"Our earnings are very low; if I am not tenacious in finding additional pocket money for my children, it is a pity for my children." (Mother 1) "If relying on husband's wages alone, our needs, including buying nutritious food for our children, will not be enough." (Mother 2)	Part-time work	Creative supplementary income
"Mothers in our area are given the opportunity from the cooperative to work on flower arrangements. We get paid for this part-time job." (Mother 3) "I often take advantage of discounts from minimarkets to get daily necessities at low prices, then I will resell them to get the difference in profit." (Mother 1)	Business opportunity utilization	
"With mobile phone, I use the free WiFi from the local government to look for examples of cheap, nutritious menu variations for our children." (Mother 3) "There is a WhatsApp group created by the cadre mothers. I often read nutrition advice often shared through the WhatsApp group." (Mother 4).	Nutritional information from social media	Maternal nutritional literacy
"Sometimes I am skeptical about nutritional information from social media, so I ask the midwife." "I practiced making nutritious but cheap food for my children that I got from social media." (Mother 3)	Validation of nutritional information	
"My husband is willing not to buy food outside when he goes to work; he says it is to save money so that it can be used to buy nutritious food for the child." (Mother 5) "If my husband gets snacks at work, he often brings them home for the children." (Mother 6).	Husband's role	Family support
"My mother-in-law still often comes to visit and brings food for my child." (Mother 5) "We live not far from my parents' house, so my parents still often share food, especially for our child." (Mother 7)	Grandmother/parent's role	
" <i>Alhamdulillah</i> , even though we live poorly in the city, there are still many people who care to help provide food, especially for our children." (Mother 8) "In IHC, there are people who become donors in making additional food for toddlers." (Mother 4)	Community awareness	
"Our neighborhood has many poor people, many people from various places give food as "alms" especially every Friday." (Mother 5) "My first child always brings rice packages from the mosque after Friday prayers; he brings several packages to give to his younger siblings." (Mother 7)	Alms meal	Community awareness and concern
"The midwife said that our child was underweight, so we received one supplementary food package consisting of green beans, sugar, oil, milk powder, biscuits, shredded beef, and anchovies." (Mother 6) "The supplementary food package for underweight children from the PHC is very beneficial for our child." (Mother 7)	Supplementary feeding for underweight children under five	
"We realize that if we are poor, our children may also be underweight, which is why we regularly come to IHC to get check-ups and assistance." (Mother 1) "I feel helped by the IHC; my child is checked for health, given vitamins and food." (Mother 3)	Activeness of IHC visits	Interventions by health workers and cadres

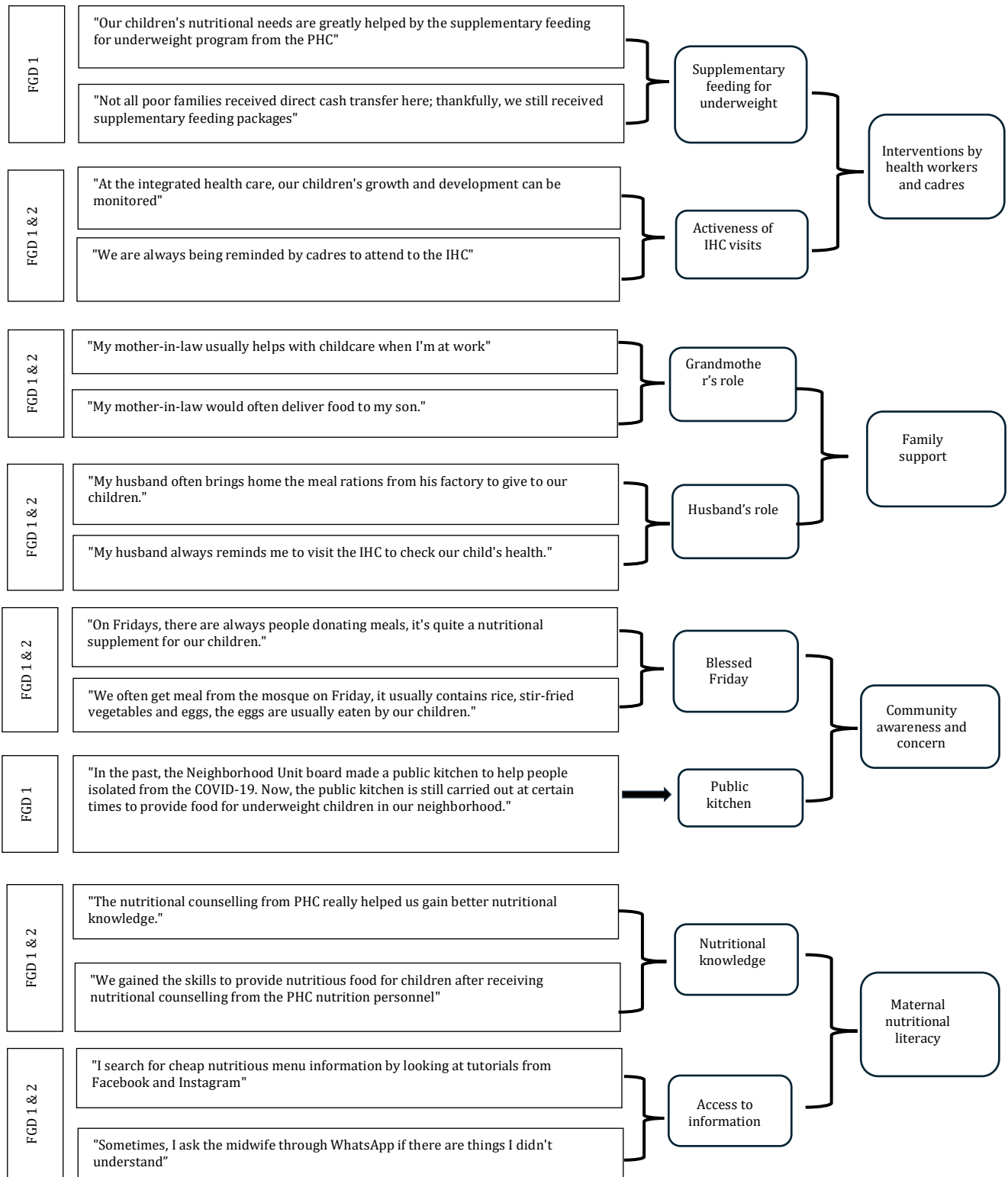


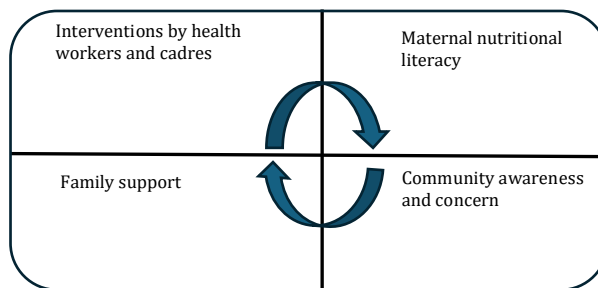
Figure 1. Excerpts of Statements, Subthemes, and Themes from Focus Group Discussion

Interviews with key informants who are the stakeholders related to tackling underweight resulted in 5 important themes: 1) intervention by health workers and cadres, 2) community awareness and concern, 3) family support, 4) maternal nutrition literacy, and 5) sanitation and clean water. The summarized results of the key informant interviews can be seen in Table 2.

**Table 2. Summary of Key Informant Interviews**

Theme	Statement	Subject
Interventions by health workers and cadres	“PHC is very focused on the malnutrition prevention program. We have implemented various activities such as early detection of growth and development, supplementary feeding, nutritional education, and community empowerment.”	PHC nutritionist
	“PHC has received funding from both the Provincial Budget and Budget Allocation Assistance for the supplementary feeding program for malnourished children. We also conduct monitoring so that the assistance is right on target.”	PHC midwife
Community awareness and concern	“Although most of our residents live in poverty, the concern and participation of some residents in becoming health cadres is very important to prevent underweight in the under-five.”	Health cadre 1
	“Our health cadres work sincerely; at every IHC activity, we always make reminder calls to mothers so that those with the under-five may come to have their children examined.”	Health cadre 2
	“The COVID-19 pandemic taught us the necessity of community awareness; to this day, the public kitchen activities are still often carried out to provide nutritious food for children living in our neighborhood.”	Health cadre 3
Family support	“Our community’s sense of kinship is still quite strong, with grandmothers/mothers-in-law/parents still taking a role in the care of under-fives.”	Health cadre 1
	“The husband’s support in meeting the nutritional needs of the family is crucial. As cadres, we continue to campaign for husbands to stop smoking and prioritize their money to provide nutritious meals.”	Health cadre 2
Maternal nutritional literacy	“Mothers with good nutritional literacy can minimize the risk of their child experiencing underweight. Therefore, we continuously carry out nutritional education efforts within the community.”	PHC nutritionist
Sanitation and clean water	Efforts to overcome stunting problems need to be supported by sensitive programs such as environmental sanitation and clean water.	PHC midwife

Note: PHC = primary health care



**Figure 2. Triangulation of Themes**

The triangulation of concepts (from FGD, ID, and KII) resulted in the following four themes: intervention by health workers and cadres, community awareness and concern, family support, and maternal nutritional literacy, as shown in Figure 2. These four themes are forms of PD behavior that can be identified and validated from ID, FGD, and KII data sources. Themes 1 and 2 (intervention by health workers and cadres and community awareness and concern) are forms of PD behavior accepted by all the under-fives at the study location. Themes 3 and 4 (family support and nutritional literacy) are forms of PD behavior the poor families have, but are successful in caring for their under-fives, so they avoid the problem of underweight. Themes 1 and 2 are external factors, while Themes 3 and 4 are internal factors of the family. These four themes work together and are related to forming PD behavior that can prevent underweight problems, especially in urban poor families.

**Discussion**

This qualitative study utilized a PD approach to investigate factors contributing to the prevention of underweight in the under-five, despite economic hardship. Generally, those under-five from low-income families residing in urban areas are at a high risk of being underweight. However, it has been found that certain behaviors can prevent underweight.<sup>12,19</sup> Several examples of PD behavior are creative supplementary income, willingness to improve nutritional literacy, and family support. Encouraging positive deviant behavior is crucial in addressing the underweight. These PD behaviors can be replicated to tackle the underweight more widely.

### *Intervention by Health Workers and Cadres*

The identification of PD in this study found that intervention by health workers and cadres is an important factor in preventing underweight. In this study, intervention by health workers and cadres refers to services provided by health workers and cadres in the IHC activities. Health cadres were volunteers assisting health workers in providing community health services. IHC provided five-table services: registration, the under-five's height and weight measures, records of maternal and child health books, nutritional counseling, and health services by health workers. In addition to these five activities, IHC also organized supplementary feeding activities. The menu used in the supplementary feeding activity was not only to meet the nutritional needs of the under-fives, but also used as a medium for nutritional education for their mothers.

Health workers provided food parcels to all the malnourished under-fives. Each malnourished young child received a three-stage (three-month) food parcel containing local foods, such as green beans, sugar, oil, powdered milk, biscuits, beef floss, and anchovies. The food parcels were delivered to the homes of families with malnourished children by health workers accompanied by health cadres. During the visits, health workers and health cadres also provided nutritional education to the mother of her young child and family, in particular, the husband and grandmother.

The success of poor families in terms of preventing underweight in their children in the study location depends on their compliance with health workers and cadres.<sup>20</sup> Active participation in every IHC activity is one form of behavior that can prevent underweight in the under-fives from poor families. A previous study suggested that the success of malnutrition prevention programs depends on two factors: innovative health worker interventions and community compliance with officer recommendations.<sup>20</sup>

### *Community Awareness and Concern*

Community awareness and concern can positively contribute to problem-solving for difficulties faced by residents in their neighborhood. One example of PD behavior demonstrating community awareness and concern is the high dedication of health cadres.<sup>21</sup> The health cadres in this study were fully committed to supporting the implementation of IHC. They worked before, during, and after IHC activities. The day before the IHC activity, they made reminder calls to all mothers of the under-five. After the IHC activities, the cadres still actively visited the malnourished under-fives at their respective homes to ensure that the food aid provided by the health workers was actually used for the under-fives' consumption.

The commitment of health cadres is evident in their involvement with public kitchens. These kitchens organized food processing and distributed meals to residents in need of food assistance. Health cadres acted as coordinators and mobilized the community to participate in these activities. The first public kitchen was established during the COVID-19 pandemic when many community members were in self-isolation. Sources of food and funding for public kitchens were obtained through community donations. Even after successfully controlling the COVID-19 pandemic, public kitchens continue to operate periodically to assist those in need. This demonstrates the dedication and commitment of health workers to implement effective measures to address underweight in the under-fives.<sup>22</sup>

Indonesia is basically a religious community. One behavior that contributes greatly to the prevention of being underweight is providing food alms to those in need. Many Indonesian Muslims distribute foods and side dishes to the other people in their neighborhood, specifically on Fridays. Additionally, some community leaders become donors for the procurement of supplementary feeding food during the IHC activities. This study's findings support previous studies indicating that participation is the primary means of addressing many health issues through social capital.<sup>23-26</sup>

### *Family Support*

Poverty restricts access to nutritious food. Most mothers in poor families are facing difficulties in providing some nutritious intake for their under-fives while they do not receive support from their husbands and extended family members. The extended family, particularly parents, in-laws, or grandparents, play a significant role in assisting with food needs. In the paternalistic cultural context, husbands or men typically avoid involvement in kitchen-related tasks. The responsibility for food provision falls entirely on the wife or mother. In impoverished families with such cultural norms, mothers face double challenges in meeting the nutritional needs of their under-fives.<sup>18</sup>

This study identified deviant PD behavior from paternalistic culture. Husbands in the study location showed a concern for meeting the nutritional needs of their children. Some husbands even brought home meals provided by the factory where they worked to give to their children. Nutritional support also comes from in-laws/parents, who have the

ongoing practice of providing food to their grandchildren.<sup>27</sup> This PD behavior aligns with findings of prior studies stating that family support is a form of PD behavior practiced by almost all communities worldwide.<sup>19,28</sup>

### *Maternal Nutritional Literacy*

Mothers are key actors in meeting the nutritional needs of the under-five.<sup>11,28</sup> Nutritional literacy is the capacity they possess to acquire, process, and understand nutritional information for practical application. Mothers from low-income families with good nutritional literacy have a greater likelihood of preventing undernutrition in their under-fives.<sup>29</sup> Maternal nutritional literacy in the context of this study was obtained from nutritional counseling services provided by nutrition officers during IHC activities. Mothers of the under-fives also received nutritional counseling when the health officers and cadres visited their homes to provide food assistance packages.

Some mothers could also utilize the free WiFi facility provided by the government to access nutritional information from social media. Additionally, some mothers demonstrated the ability to validate nutritional information by consulting nutrition experts during counseling sessions at the IHCs. The efforts made by those mothers to advance nutritional literacy represent a form of PD that needs to be maintained and replicated. The findings of this study align with previous studies exploring PD behavior related to preventing nutritional problems among children under five.<sup>30</sup>

### **Conclusion**

Interventions by health workers and cadres, community awareness and concern, family support, and maternal nutritional literacy are key factors contributing to the mitigation of underweight under-five. Strengthening and replicating these factors on a larger scale within the community can aid efforts to address underweight in the under-five. For nutritional program managers, this study's findings can serve as a reference for developing programs related to improving the nutrition and health of children. Further study can be carried out to deepen the understanding of each factor mentioned above.

### **Abbreviations**

PD: Positive Deviance; IHC: Integrated Health Care; FGD: Focus Group Discussions; ID: in-depth interviews; KII: Key Informant Interviews; PHC: Primary Health Care.

### **Ethics Approval and Consent to Participate**

The research was conducted after obtaining ethical clearance documents from the Health Research Ethics Commission of Universitas Negeri Semarang, registration number 048/KEPK/III/2022. All subjects participating in the study provided informed consent before the research was carried out.

### **Competing Interest**

The authors declare that there are no significant competing financial, professional, or personal interests that might have affected the performance or presentation of the work described in this manuscript.

### **Availability of Data and Materials**

Data and materials are available from the corresponding authors.

### **Authors' Contribution**

IB was responsible for the entire process, including the analysis, writing, and revision of the manuscript. LF was responsible for the conceptualization, and DSR supervised the findings of the work. All authors discussed the results and contributed to the final manuscript.

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