The performance excellence of cadres of stunting compared to ordinary posyandu cadres in monitoring the nutritional status of toddlers in Demak Regency, Indonesia

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Abstract

Background: One of the breakthroughs in preventing child stunting in Indonesia is the formation of stunting prevention cadres (cadres of stunting) in villages to facilitate the integration of intervention at the village level. Aims: The purpose of this study was to determine the performance advantage of stunting prevention cadres compared to ordinary cadres in monitoring the nutritional status of children under five. Settings and Design: This was a cross-sectional study design conducted in 10 villages as the priority villages for the prevention of stunting in Demak Indonesia. The total number of samples was 231 cadres from 47 integrated health posts (posyandu), consisting of 41 cadres of stunting and 190 ordinary cadres. Methods and Material: Primary data collection was carried out through interviews with questionnaires and anthropometric measurements of children (height, length, and weight) with standard instruments. Statistical analysis used: The research data were analyzed using the differentiation test. Results: Stunting prevention cadres were younger, have fewer children, were more active in social groups, and were more multi-cadres than the ordinary cadres. Cadres of stunting did not differ in the knowledge, attitudes, practices, and self-efficacy compared to the ordinary cadres (p>0.05). They measured the length and height of the children more accurately than ordinary cadres (p<0.05). However, the results of HAZ, WAZ calculations, and the case findings of malnutrition based on anthropometric measurements were not different between the two groups of cadres (p>0.05). Conclusions: Cadres of stunting performed better than ordinary cadres through more accurate child’s height/length measurements.
Key Messages:

One of the breakthrough programs for accelerating stunting reduction in Indonesia is the development of the Human Development Workers (HDWs) or stunting prevention cadres (cadres of stunting) at the village level. This cadre is expected to be able to show good performance in monitoring the nutritional status of children under five, especially accurate anthropometric measures and early detection of malnutrition.

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Introduction

The problem of malnutrition, especially stunting, is still a global public health problem, including in Indonesia. The prevalence of stunting in Indonesia was still high at 30.8% in 2018 according to the Basic Health Survey or still higher than the WHO standard limit which should be less than 20 percent.\(^1\)

Stunting can have an impact on reducing the quality of human resources. In the short term, stunting causes growth failure, inhibits cognitive-motor development, and causes the formation of body physical size is not optimal and metabolic disorders. In the long term, stunting can cause decreased intellectual capacity and increase the risk of non-communicable diseases such as diabetes mellitus, hypertension, chronic heart disease, and stroke.\(^2\) It is predicted that toddlers with stunting contribute to 1.5 million (15%) deaths of children under five in the world and cause the loss of a healthy life span every year (Disability-Adjusted Life Years/DALYs) to 55 million.\(^3\)

Reducing stunting requires integrated interventions,\(^4\) through specific interventions, and also intensify sensitive interventions.\(^5\) An important policy of the Indonesian government for stunting reduction is to take a multi-sector approach by synchronizing national, local, and community programs, both at the central and regional levels, with integration action. Integrated stunting reduction intervention is carried out through 8 (eight) actions, namely (1) situation analysis of stunting reduction programs, (2) preparation of activity plans, (3) stunting deliberations, (4) regent/mayor regulations regarding the role of villages, (5) guidance for human development cadres (6) stunting data management system, (7) measurement and publication of stunting data, and (8) annual performance review.\(^6\)
One of the eight integrated stunting reduction intervention actions is carried out by the Indonesian government, namely Human Development Workers (HDWs). It is a breakthrough intervention. All villages that are prioritized for reducing stunting must implement this intervention. Cadres designated as HDWs in village communities are more often called “the special cadres for stunting prevention” or “cadres of stunting” because these cadres have to facilitate the implementation of integrated stunting prevention and reduction at the village level. These cadres will help to identify service limitations and encourage the community to use these services more. The existence of HDWs or stunting prevention cadres (cadres of stunting) in every village is a breakthrough in accelerating stunting reduction, where each village must ensure the effectiveness of the mobilization of cadres who function as HDWs to assist villages in facilitating the integration of interventions to reduce stunting at the village level.6

Even though their duties and functions require certain competencies and skills, the selection of cadres of stunting is not executed through strict competency selection. They are selected from members of the village community through village meetings. These cadres are elected from the community itself such as posyandu cadres, playgroup teachers, and other cadres in the village. So far there has been no evaluation regarding the performance of the cadres of stunting. Do cadres of stunting perform better than the ordinary posyandu cadres in monitoring children's nutritional status?

The purpose of this study was to determine the performance advantage of cadres of stunting compared to ordinary cadres in monitoring the nutritional status of children under five including the following aspects: knowledge, attitudes, monitoring practices, self-efficacy, and ability to measure children's anthropometry (accuracy and precision of measurement and findings of malnutrition).

Subjects and Methods

This was a cross-sectional study design. The research locations were all of 10 villages in Demak Regency, Indonesia which had been determined by the government as the location of the stunting intervention acceleration program.

The study population was all posyandu cadres in 10 selected villages. The sample selection was done purposively. The sample of cadres was selected from all of the cadres in posyandu in selected locations and was willing to be involved in the research. The number of research samples was 231 posyandu cadres consisting of 41 human development cadres or cadres of stunting, and 190 ordinary cadres. The names of stunting prevention cadres were based on a list of names in the district health office and confirmed by the cadres themselves. If the name was written by the district health office, but not confirmed by the cadre concerned, or vice versa, the cadre's name was removed from the list and categorized as an ordinary cadre.
Data collection was carried out in October 2019. This research was conducted after receiving Ethical Approval from the Ethical Committee for Public Health Research, Faculty of Public Health, Diponegoro University. All cadres and toddlers who were involved in the study through their mothers were asked for informed consent before participating in the study.

This study used primary data. The types of data collected included data on the characteristics of cadres and cadre performance which consisted of knowledge, attitudes, practices, self-efficacy, and measurement of cadres' ability to measure children's anthropometry accurately and precisely, as well as the ability to detect malnutrition.

Data were collected through interviews and direct measurements in the field. Interviews with instrument questionnaires were used to collect data on cadre’s characteristics (including age, sex, occupation, education, family income, number of children under five, cadre’s status, and social involvement) and knowledge, attitudes, practices, and cadre's self-efficacy. The cadres' knowledge was obtained from the percentage of the total correct score obtained by cadres in answering the questions presented correctly from a series of questions related to the monitoring of children's nutritional status at posyandu. The attitude of the cadres was the percentage of the total score of the suitability of the perceptions and attitudes of the cadres from a series of questions related to the monitoring of children's nutritional status at posyandu. Cadre’s practice was the percentage of activities carried out by cadres from a series of activities that must be carried out in the monitoring of children's nutritional status at posyandu. Self-efficacy was measured as a rating of perceived ability to perform a target behavior, which was to the monitoring of children's nutritional status and to carry out cadre’s duties and functions in posyandu activities.

Data on the ability of cadres in anthropometric measurements and malnutrition detection were carried out by direct measurements at posyandu. This activity involves a supervisor (gold standard) and toddlers. Cadres and supervisors take anthropometric measurements (height, length, and body weight) of children with standard instruments, namely stadiometer, infantometer, and steelyard (‘dacin’). Each cadre and supervisor measured 10 children and repeated it twice. This activity involved 231 subjects/cadres, 900 children under five, and 15 supervisors as the gold standard. Supervisors were final year students and undergraduate nutritionists who have been intensively trained and have experience in research measuring following WHO’s Standard Operating Procedures (SOP) for anthropometric measurements to children. The assessment of the accuracy and precision of the cadres’ anthropometric measurements was carried out at posyandu which was scheduled separately from the monthly activities.

Anthropometric measurement precision of cadres was obtained from the average value of the difference between the first and second measurement results for 10 toddlers conducted by cadre (dc). The difference value was in absolute value or there was no negative value. The measurement precision
criterion was calculated by comparing the value of the sum of the squares of the difference between the first and second measurements of a cadre (\(\sum d_c^2\)) with the sum of squares of the difference between the first and second measurements of a supervisor (\(\sum d_s^2\)). If the cadre’s \(\sum d_c^2\) was no more than twice the supervisor’s \(\sum d_s^2\), it means that the cadre had satisfactory precision (good precision).\(^8\)

The measurement accuracy was obtained by calculating the average difference between the anthropometric measurements by a cadre and by a supervisor (\(D_c\)) from the measurement results of 10 children, each measured twice. The measurement accuracy criterion was calculated by comparing the sum of squared value of the difference between the results of measurements by cadres and supervisors (\(\sum D_c^2\)) with the sum of squared the difference measures between the first and second measurements of the supervisor (\(\sum d_s^2\)). If the cadre’s \(\sum D_c^2\) was not more than three times the supervisor’s \(\sum d_s^2\), it means that the cadre had satisfactory accuracy (good accuracy).\(^8\)

Anthropometric measurement data are not only used to calculate the accuracy and precision of cadre measurements but also to calculate the difference in the results of stunting and underweight determination in children measured by the two groups of cadres. For this purpose, the anthropometric data (height/body length/weight) were converted into height-for-age z-score (HAZ) and weight-for-age z-score (WAZ) using the WHO’s Anthro software, then classified following WHO’s criteria, HAZ<-2 SD as stunting, and WAZ<-2SD as underweight.\(^9\)

Before the data were analyzed, the data normality test was carried out through the Kolmogorov-Smirnov test. The statistical analysis used was a different test with a confidence level of 95% (\(\alpha=0.05\)).

Result

Characteristics

The several characteristics of the cadre of stunting and the ordinary cadre group were compared, the results are summarized in Table 1.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Cadres of stunting (n=41)</th>
<th>Ordinary cadres (n=190)</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex, female (%)</td>
<td>100.00</td>
<td>99.47</td>
<td>1.000(^5)</td>
</tr>
<tr>
<td>Marital status, married (%)</td>
<td>100.00</td>
<td>99.47</td>
<td>1.000(^5)</td>
</tr>
<tr>
<td>Occupation, housewives (%)</td>
<td>58.54</td>
<td>61.58</td>
<td>0.717(^a)</td>
</tr>
<tr>
<td>Age, years (mean, SD)</td>
<td>34.12 (7.36)</td>
<td>38.82 (8.88)</td>
<td>0.002(^c)</td>
</tr>
<tr>
<td>Education, years (mean, SD)</td>
<td>10.68 (2.46)</td>
<td>9.77 (3.05)</td>
<td>0.080(^c)</td>
</tr>
<tr>
<td>Number of cadre’s children (mean, SD)(^f)</td>
<td>1.66 (0.94)</td>
<td>2.28 (0.97)</td>
<td>0.000(^c)</td>
</tr>
<tr>
<td>Family income, IDR/mo (mean, SD)(^d)</td>
<td>2.189.743 (1.876.277)</td>
<td>2.033.516 (1.154.789)</td>
<td>0.626(^c)</td>
</tr>
<tr>
<td>Experience as a cadre, years (mean, SD)</td>
<td>7.90</td>
<td>5.66</td>
<td>10.10 (8.93)</td>
</tr>
<tr>
<td>Multi-cadre status (%)</td>
<td>82.93%</td>
<td>28.42%</td>
<td>0.000(^a)</td>
</tr>
</tbody>
</table>

\(^{a}\) Significant \((p <0.05)\).
Table 1 shows the characteristics of the cadres of the two groups studied were predominantly women and married, mostly unemployed or as housewives, in productive age, having children (more than one child on average), middle education (junior/senior high school), having low income or below the regional minimum wage, and having sufficient experience as cadres (more than 7 years) and some were multi-cadres. Based on the results of statistical analysis, it can be concluded that three characteristics were significantly different between the cadres of the stunting prevention group and the ordinary cadre groups, i.e. cadre’s age, the number of children, and multi-cadre status \((p<0.05)\).

### Differences in the knowledge, attitudes, practices, and self-efficacy

An overview of the relationship between cadre types and cadres’ knowledge, attitudes, practices, and self-efficacy are presented in Table 2.

#### Table 2. Differences in knowledge, attitudes, practices, and self-efficacy of cadres in monitoring children’s nutritional status, according to the cadre group

| Performance indicator | Cadres of stunting  
|-----------------------|-------------------------|
|                       | \(n=41\) | Mean | (SD) | Ordinary cadres  
|                       | \(n=190\) | Mean | (SD) | Sig\(^a\).
| Knowledge (%)         | 54.24 | (13.80) | 54.72 | (10.52) | 0.967
| Attitude (%)          | 68.78 | (23.39) | 74.36 | (18.38) | 0.175
| Practice (%)          | 72.06 | (21.88) | 70.77 | (22.68) | 0.774
| Self-efficacy (%)     | 76.33 | (16.34) | 70.35 | (16.74) | 0.644

\(^a\)Mann-Whitney test

Based on Table 2, there was not a significant difference in the knowledge, attitude, practice, and self-efficacy between the cadre of stunting and the ordinary cadre group \((p \geq 0.05)\). Table 2 also illustrates that the mean score of knowledge in the two groups of cadres is lower than the scores for attitude, practice, and self-efficacy. The average score of knowledge of the cadres in the two groups studied can be categorized as low because the score is below 55,\(^{10}\) while the attitude, practice, and self-efficacy scores are categorized as moderate, even the self-efficacy score from the cadre of stunting group is categorized as good because the score is greater than 76.\(^{10}\)
Differences in the capability of anthropometry measurement

The summary of differences in the results of the calculation of the accuracy and precision of measuring height, length, and height by the cadre of stunting and the ordinary cadre group is shown in Table 3. From Table 3, it is known that almost all types of anthropometric measurements carried out by cadres of stunting have smaller inter-observer error (the difference in measurement between cadres and supervisors) and intra-observer error (the difference between the first and second measurements) than that of ordinary cadres. The cadre of stunting had a mean inter-observer error for height was 0.24 cm, body length was 1.83 cm, and body weight was 0.21 kg.

### Table 3. Differences in measurement ability (inter and intra-observer errors) according to the cadre groups

<table>
<thead>
<tr>
<th>The difference in measurement capability</th>
<th>Cadres of stunting (n=41)</th>
<th>Ordinary cadres (n=190)</th>
<th>Sig*.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inter-observer error (accuracy)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height measurement (cm)</td>
<td>0.24</td>
<td>0.19</td>
<td>0.33</td>
</tr>
<tr>
<td>Body length measurement (cm)</td>
<td>1.83</td>
<td>0.92</td>
<td>2.34</td>
</tr>
<tr>
<td>Weight measurement (kg)</td>
<td>0.21</td>
<td>0.13</td>
<td>0.22</td>
</tr>
<tr>
<td>Intra-observer error (precision)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height measurement (cm)</td>
<td>0.46</td>
<td>0.35</td>
<td>0.51</td>
</tr>
<tr>
<td>Body length measurement (cm)</td>
<td>0.75</td>
<td>0.42</td>
<td>0.89</td>
</tr>
<tr>
<td>Weight measurement (kg)</td>
<td>0.10</td>
<td>0.08</td>
<td>0.10</td>
</tr>
</tbody>
</table>

* Significant (p<0.05), *Mann-Whitney U test

The results of statistical analysis showed that the inter-observer error of height and body length measurements between the two cadre groups was significantly different (p<0.05), while the child's weight was not (p>0.05). The cadre of stunting had a mean intra-observer error for height was 0.46 cm, body length was 0.75 cm, and body weight was 0.10 kg. Statistical analysis found that the intra-observer error of children's height, length, and weight measurements between the two groups of cadres were not significantly different (p>0.05). If the inter and intra-observer error of anthropometric measurements is categorized into good and not good precision/accuracy, the results are shown in Table 4.
Table 4. The difference in the results of grouping the accuracy and accuracy of anthropometric measurements according to the cadre group

<table>
<thead>
<tr>
<th>Categories measurement</th>
<th>Cadres of stunting (n=41)</th>
<th>Ordinary cadres (n=190)</th>
<th>Sig$^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Accuracy:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good Accuracy$^b$</td>
<td>10</td>
<td>24.4</td>
<td>26</td>
</tr>
<tr>
<td>Body length,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good Accuracy$^b$</td>
<td>7</td>
<td>17.1</td>
<td>24</td>
</tr>
<tr>
<td>Weight,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good Accuracy$^b$</td>
<td>6</td>
<td>14.6</td>
<td>41</td>
</tr>
<tr>
<td>Precision:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good Precision$^c$</td>
<td>16</td>
<td>39</td>
<td>65</td>
</tr>
<tr>
<td>Body length,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good Precision$^c$</td>
<td>17</td>
<td>41.5</td>
<td>54</td>
</tr>
<tr>
<td>Weight,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good Precision$^c$</td>
<td>38</td>
<td>92.7</td>
<td>171</td>
</tr>
</tbody>
</table>

$^a$ Chi-Square test
$^b$ Good precision criterion if Σd$^2$ is not more than twice Σd$^2$
$^c$ Good accuracy criterion if ΣD$^2$ is not more than thrice Σd$^2$

Table 4 shows that the percentage of cadres of stunting with good accuracy for height measurement was 24.4%, body length measurement was 17.1%, and body weight measurement was 14.6%. The percentage of cadres of stunting with good precision for height measurement was 39%, body length measurement was 41.5%, and body weight measurement was 92.7%. Statistical analysis showed that the results of the categorization of accuracy and precision between the two groups of cadres were not significantly different and these results were found for all types of anthropometric measurements.

Differences in determining child malnutrition

After the height and weight of the children had been measured by cadres and their ages had been verified, then to assess the child's growth and nutritional status in general based on the age and sex of the growth reference, the height-for-age Z-scores (HAZ) and weight-for-age Z-scores (WAZ) were calculated, and the results as shown in Table 5.

Table 5. Differences in HAZ, WAZ, and case findings of malnutrition according to the group of cadres

<table>
<thead>
<tr>
<th>Measurements</th>
<th>Cadres of stunting (n=41)</th>
<th>Ordinary cadres (n=190)</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAZ from the child's height mean (SD)</td>
<td>-1.53 (0.33)</td>
<td>-1.47 (0.40)</td>
<td>0.376$^a$</td>
</tr>
<tr>
<td>HAZ from the child's body length mean (SD)</td>
<td>-1.05 (0.47)</td>
<td>-0.95 (0.52)</td>
<td>0.166$^a$</td>
</tr>
<tr>
<td>WAZ from the child's weight mean (SD)</td>
<td>-1.19 (0.38)</td>
<td>-1.12 (0.45)</td>
<td>0.483$^a$</td>
</tr>
<tr>
<td>Stunting cases from the child's height measurement (HAZ&lt;2 SD)$^T$ %</td>
<td>28.9</td>
<td>27.7</td>
<td>0.622$^b$</td>
</tr>
<tr>
<td>Stunting cases from the child's body length measure (HAZ&lt;2 SD)$^T$ %</td>
<td>20.0</td>
<td>18.2</td>
<td>0.396$^b$</td>
</tr>
<tr>
<td>Underweight cases from the child's weight (WAZ&lt;2 SD)$^T$ %</td>
<td>22.2</td>
<td>20.9</td>
<td>0.547$^b$</td>
</tr>
</tbody>
</table>

$^a$ Mann-Whitney U test
$^b$ Chi-Square test
$^T$ WHO, 2006
Table 5 shows that the mean HAZ and WAZ of anthropometric measurements by the cadre of stunting were lower than that of the usual cadre group, and these results were consistent for all types of anthropometric measurements (height, length, and weight). The percentage of stunting case findings based on the measurement results of the child's height and body length by the cadre of stunting was higher than the ordinary cadre group. Likewise, the percentage of finding underweight through the measurement of the child's body weight by the cadre of stunting was also higher than that of the ordinary cadre group.

However, from the results of statistical analysis, it is known that the difference between HAZ and WAZ, as well as the findings of cases of malnutrition following the two groups of cadres, was not significantly different ($p>0.05$).

**Discussion**

The breakthrough policy carried out by the Indonesian government to reduce the prevalence of stunting under five is by mapping districts/cities that have a high prevalence of stunting, making them a priority for stunting reduction, and in 2019 160 districts/cities were designated as a priority area for stunting prevention. In each district/city that was designated as a priority, several villages were designated as locations for integrated interventions to reduce the prevalence of stunting. The district/city then encourages each locus village to form a special cadre to monitor stunting or to be named as Human Development Workers (HDWs). This is a breakthrough intervention because it did not exist before. Comprehensive implementation plan on maternal

The people who are selected as cadres of stunting or Human Development Workers (HDW) are not newcomers. Almost all of those who have been appointed come from posyandu cadres in their respective villages. The process of selecting cadres is carried out through village meetings. Although it is subjective, this forum can select people who can be approved and are known to be capable of working by the community. Thus, the selection can avoid people who talk much but do nothing, are inflexible or have rigid beliefs, have uncontrollable emotions, or have a negative personality.

The findings in the field indicate that cadres of stunting have more workloads than ordinary cadres. They have worked to assist health workers in Community Feeding Centers (CFCs) for stunting toddlers, carried out activities of updating stunting data by name-by-address for all toddlers in the village, evaluating stunting intervention programs, helping health workers in distributing supplements (Fe, Vitamin A) to target groups in the village, conducting outreach activities to toddlers' homes and carrying out other activities that support the reduction of stunting in the village following government guidelines regarding the duties of these cadres. Considering that the cadres have more workload to prevent stunting, the cadres must fulfill the minimum requirement criteria as posyandu cadres as stipulated by the government.
Related to the characteristics of cadres, the result of this study was generally the characteristics of the two groups of cadres studied had a similar pattern to the characteristics of posyandu cadres in Indonesia. The similarities in the characteristic pattern of cadres which were also found from other research were that cadres were predominantly women,\textsuperscript{14-16} were married,\textsuperscript{14,17} mostly unemployed or as housewives,\textsuperscript{14,18} in productive ages,\textsuperscript{16,17} had an average of more than 1 child,\textsuperscript{16} had middle education,\textsuperscript{14,16,17} had low income or below the regional minimum wage,\textsuperscript{14,18} had quite long experience of the cadres,\textsuperscript{16,17} and some as dual/multi-cadres.\textsuperscript{18}

This study found three characteristics that stood out in the cadre of stunting that was significantly different from the ordinary cadre group. The first difference found between the two groups of cadres was that the average age of the cadres of stunting was lower than that of the ordinary cadre group (34.12: 38.82 years). It was found that the average age of the cadres of stunting was 4.7 years younger than the ordinary cadre group. In the cadre of stunting group, there were no cadres over 50 years of age, while in the ordinary cadre group there was still 10 percent. This means that the village community has a desire to provide opportunities for young cadres to emerge, this is part of the cadre regeneration effort. The high percentage of older cadres is not profitable, because other studies show that along with increasing age, productivity decreases, this is because physical ability decreases along with age, although experience or maturity will increase.\textsuperscript{19} Older workers tend to experience a decreased capacity to support solid physical activities over long periods.\textsuperscript{20}

The second difference found between the two cadre groups was that the average number of children in the cadre of stunting was lower than that of the ordinary cadre group (1.66: 2.28 children). The reason may be related to a shift in the proportion of cadres to younger cadres so that parity is still low, or could be young cadres obey the concept of family planning more than older cadres so that they have fewer children. Having many children is an obstacle to cadres' activity. Family caregiving responsibilities and roles can limit women from being as productive as they want to be. Females are more likely to identify practical limitations, such as daycare duties or work commitments.\textsuperscript{21}

The third difference found between the two groups of cadres was that the percentage of cadres who doubled as another cadre (multi-cadre) was higher in the cadre of stunting group than the ordinary cadre group (82.93%: 28.42%) or there was a 54.5% gap. The participation of a cadre as another cadre (multi-cadre) can be seen from two points of view. First, cadres have a good social and service spirit, are accustomed to volunteering, and are trusted by the community, so that when they are elected as cadres to prevent stunting there are no obstacles because they already have experience in social work (volunteer). Second, being a multi-cadre means that multiple tasks can lead to role conflict or a lack of focus. A study revealed that cadres who were not actively involved in other organizations/cadres had 17.57 times the risk of becoming passive cadres compared to active cadres.\textsuperscript{18}
Reducing dual cadre or multi-cadre, moreover eliminating them is a difficult task because human resources in the village are limited. Other studies confirm that finding cadres or volunteers in the village is not easy, the human resources in the village are limited, causing one person to become various cadres (such as posyandu, PKK, Dasawisma, BKB, Jemantik, KIA, PAUD, etc.).\textsuperscript{22} As a result, almost all cadres of stunting were also posyandu cadres.

**Related to the knowledge, attitudes, practices, and self-efficacy perform**, this study found that the cadre of stunting and the ordinary cadre group were not significantly different. The reason is probably related to the fact that almost all cadres of stunting come from Posyadu ordinary cadres (dual cadres). They were chosen not because they were the best among the others, but for certain reasons, mainly because they had more time, energy and were trusted to be able to carry out activities as cadres of stunting.

This study found that the mean score of cadre’s knowledge is the lowest compared to scores for attitude and practice. The reason is probably related to the low education of cadres, because 59% of the cadre of stunting group has junior high school education or below, and 61% in the ordinary cadre group. As a result of low education, insights, knowledge, attitudes, and practices also tend to be lower. Education has a positive effect on the maintenance of knowledge, attitudes, and practices.\textsuperscript{23} Studies on cadres conducted in other areas reveal the same thing, posyandu cadres' knowledge is lower than in other aspects.\textsuperscript{18}

**Related to the ability of cadres to measure** children's height/length and weight is an important aspect, because in determining nutritional status, especially in children, anthropometric measurements based on height and weight are excellent tools for measuring nutritional status in general in a population.\textsuperscript{24} The ability of cadres to take anthropometric measurements is evaluated from the value of inter-observer error or accuracy and intra-observer error or precision.\textsuperscript{25}

This study found that cadres of stunting had an average inter-observer error of height and body length measurements that was smaller than that of ordinary cadres, while the inter-observer error of weight measurement for both groups of cadres was relatively the same. The smaller the inter-observer error, the better and more accurate the results of the measurements made by the cadres. The reason why the measurement of height and length was more accurate was that the cadres of stunting practiced more height and length measurements than ordinary cadres. Since being selected and appointed as a cadre of stunting, they have attended training at the district level on how to monitor children's nutritional status. Besides, they practice measuring length and height while assisting health workers in monitoring stunting toddlers and updating stunting toddlers by name-by-address in the village following their duties as Human Development Workers.

Although this study found that the level of accuracy of stunting height and body length measurements was better than that of ordinary cadres, statistical analysis showed that the mean HAZ
and WAZ, as well as case findings of malnutrition following the two groups of cadres, were not significantly different. This means that the ability of the two groups of cadres in the early detection of malnutrition is relatively equal. The reason is that the difference in the results of the measurements between the two cadre groups is relatively small, so it does not have much impact on differences in the classification of nutritional status.

One research finding that needs attention is related to the percentage of cadres from stunting and ordinary cadres who can measure height, length, and weight with good accuracy or precision (satisfactory criteria), the number is still small, less than half of the cadres. Many factors cause, following WHO, low precision because cadres are still negligent in measuring, or tired, or subject to change over some time, etc. while low accuracy is caused by carelessness or systematic bias, habits / other individual factors.⁸

Considering the phenomena in the field, it is better, that for future training and standardization activities are carried out regularly at least once every two months to assess precision and accuracy or once a year where the trained person or cadre is compared to an anthropometric meter who is expert of a higher level.²⁶

This research as a form of evaluation of the existence of stunting, or Human Development Worker (HDW) cadres in this village has resulted in positive feedback. In addition to obtaining information about the characteristics of excellent cadres of stunting, it also describes the cadres’ abilities in anthropometric measurements. Although cadres for stunting have better height and length measurement accuracy than regular cadres, in general, the level of accuracy and precision of measurement is still not satisfactory. Therefore, for the cadre of stunting or Human Development Worker (HDW) to be able to effectively detect and monitor nutritional status in the village, continuous training and mentoring must be carried out.

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