Original Research

The Occurrence of Stunting during The COVID-19 Pandemic at Integrated Health Center: An Observational Study in Mekarjaya, Depok, West Java

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Abstract: The COVID-19 pandemic could challenge the nutrition fulfillment case, especially for under five-year-old children in low-middle-income countries, including Indonesia. Infection in children could be worsened by malnutrition, contributing to virus transmission. Local healthcare facilities monitored the nutritional status of under-five-year-old children, particularly during the pandemic. This study aimed to identify the nutritional status of under-five-year-old children during the COVID-19 pandemic in the Integrated Health Post "Kuntum Mekar A RW 21" in Depok District, West Java. This research used secondary data analysis: height/length, age, and sex. The study results involved 135 data from subjects included in the analysis. Those are one newborn (0-3 months old) who did not experience stunting, 27 toddlers (4-12 months old) with a stunting percentage of 7.4% and severe stunting of 3.7%, 31 children (13-23 months old) with a stunting prevalence of 12.9% and severe stunting 3.2%. Twenty-seven children ((24-35 months old) had a stunting prevalence of 14.8%, 22 children (35-47 months old) had a prevalence of stunting at 22,7%, and 4,5% of them were severe stunting. Last, the children aged 47-59 months old had a prevalence of stunting at 14.8%. The total prevalence of stunting in the Posyandu Kuntum Mekar A RW 21 Mekarjaya, Depok, was 16.3%. The stunting eradication program required multi sectors approach to reach the goal of gold generation in 2045.

Keywords: COVID-19 pandemic, malnutrition, stunting, Depok.

INTRODUCTION

The world emerged under a pandemic on March 12, 2020, after the World Health Organization (WHO) announced the distribution of the severe acute respiratory - coronavirus 2 (SARS-CoV-2) virus reported in almost all countries (World Health Organization, 2020). The first positive case was established in Depok on March 2, 2020, and spread to almost all cities. At the end of March 2020, it was found in 30 provinces in Indonesia, and the number of cases reached 1,300 (Sub Direktorat Penyakit Infeksi Emerging, 2020).

The cases of infection with the SARS-CoV-2 virus are considered asymptomatic in children but have the potential to be carriers and spread to comorbid groups, and increase the risk of mortality (Tsankov et al., 2021). In addition, children with comorbidities can experience multi-organ disorders, acute respiratory distress syndrome (ARDS), and the risk of death (Cavalcante et al., 2021; Ceriello et al., 2020).

In low-middle income countries, the pandemic raises the challenge of meeting the nutrition requirement, especially for the under-five-year-old group (Aborode et al., 2021). These conditions are exacerbated by recommendations to stay at home, undergo isolation, and close school and health facilities that change our diet and physical activity habits (Nicodemo et al., 2021). In addition, the pandemic disrupted the product distribution system due to the economic situation (Paslakis et al., 2021).

The increase in the incidence of under-five children who experience these changes can experience two types of malnutrition, under- and overnutrition. Malnutrition is caused by difficulty accessing nutritious food, which impacts growth and development (Paslakis et al., 2021). In addition, the isolation factor during the pandemic changes to diet and tends to compensate for the stress by consuming foods that are high in calories but low in nutrients (Cena et al., 2021). Malnutrition conditions, more or less nutrition, reduce immune system function through inflammatory mechanisms (Chatterjee et al., 2022). Infectious disorders in children, including under-five-year-old, can be exacerbated by malnutrition and increase the risk of infection.

Integrated health center (*Posyandu*) is a community-based institution to monitor the program of the nutritional status of children under-five-year-old, including during the pandemic. What is different is in the implementation during the pandemic; cadres enforce health protocols and limit the number of children who come to posyandu activities. In addition, during the pandemic's peak, activities were abolished and replaced with cadre visits to children's houses.

All posyandu activities are carried out under the instructions of the local government (UNICEF, 2021).

This study was conducted to determine the prevalence of under-five malnutrition at *Posyandu* in the Depok area by assessing nutritional status based on secondary data from regular measurements. The study results are expected to provide information regarding the prevalence of malnutrition and relevant factors.

METHOD

Routine measurements at the Posyandu use a cross-sectional design that includes all under-five-year-old children who live in the neighborhood. The population of the study was the under-five-year-old-children resided in Depok, West Java. The Sample in this study were child-under-five-year-olds at Posyandu Kuntum Mekar A RW (hamlet) 21, in February-March 2022, a total of 266 toddlers were recruited. Therefore, 135 data of the subject meet the criteria and are eligible for further analysis.

Data collection and Analysis

This study utilized secondary data from Posyandu activities carried out in February 2022. The Kuntum Mekar Posyandu is located in the Mekarjaya urban village, Sukmajaya sub-district. The regular measurement was conducted during the Posyandu activities.

Nutritional status of the children, height/length and weight were measured using tools and methods routinely carried out at the Posyandu. Anthropometric data recording also includes the age and sex of the child. Conversion of height/length, weight, age, and gender will be converted into a z-score using the 2005 World Health Organization (WHO) standard to determine the nutritional status of children (World Health Organization, 2006). The results obtained through secondary data are then processed using the WHO Anthro Survey software; if the z-score of height/body length for age <-2SD will be categorized as stunting.

The children's nutritional status categories based on the z-score, including height/length, age, and gender. As classification of nutritional status based on height/body length value for age: < -3,0 as savere stunting, ≥ 3,0 s.d < -2,0 as stunting, and ≤ -2,0 as normal.

RESULTS

The secondary data were processed using the WHO Anthro Survey software. Parameters used as a reference are body weight for age. The result of the data was converted into a z-score compared with the WHO standard deviation data.

Based on the analysis of regular measurement of Posyandu Kuntum Mekar RW 21 in the period February 2022, the following results.

Tabel 1
Prevalence of stunting (height-age z score) of under-five-year-old

Age Category	No of subject	Stunting (%)	Severe stunting (%)
0 – 3 months old	1	0	0
4 – 12 months old	27	7.4	3.7
13-23 months old	31	12.9	3.2
24-35 months old	27	14.8	0
35-47 months old	22	22.7	4.5
47-59 months old	27	14.8	0
Total	135	14.1	2.2

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The prevalence of nutritional status among children under five nationally based on data from the Studi Status Gizi Indonesia (SSGI) in 2021 in height by age reached 24.4%. In West Java, the prevalence of stunting under five (height-for-age) reaches 24.5%, while in the Mekarjaya Posyandu area, it was at 16.3%.

The calculation was based on WHO Child Growth Standard, and the stunting category was calculated from the index of body length for age or height for age with a Z-score <-2 SD (World Health Organization, 2014). The prevalence of stunting among under-five-year-old children in Depok City in 2019 and 2021 was 16.09% and 12.3%, respectively.

DISCUSSION

The result of the study from Kuntum Mekar A Village implies that the prevalence of stunting in the Kuntum Mekar A Village area has increased. Furthermore, based on the survey conducted, it is known that almost all parents of children under five experience a decrease in income. Allegedly, the decline has an impact on the nutritional adequacy of mothers during pregnancy and toddlers. Thus, weight status data was measured against age to support this assumption (Shahreza & Lindiawatie, 2021).

It showed that the factors that influence the incidence of stunting at an early age in Indonesia are: birth weight, mother's education level, family income level, parenting patterns, and food diversity. In the population of research conducted, most of the subjects came from families whose income is below the provincial minimum wages; those are informal workers with the highest education completed senior high school) (Nugroho et al., 2021). This condition confirms that stunting cases are still found in sub-urban areas, especially during the pandemic (Akseer et al., 2020; Zar et al., 2020).

Monitoring the nutritional status of children should be a special concern, especially for families, as an effort to prevent early detection of stunting

events that will result in death if not treated immediately. Posyandu is a place for periodic checks to monitor the nutritional status of under-five-year-old children (SMERU et al., 2021). During the COVID-19 pandemic, the nutrition monitoring for under-five-year-old children was disrupted due to the restriction of gathering in public areas. Due to these limitations, it is suspected to be a factor in the increasing stunting rate in Depok City. Another possible explanation is also due to mothers' lack of knowledge about stunting cases and the adequacy of nutrition itself. Parents' knowledge about stunting and other malnutrition conditions is illiterate. It requires assistance from the authority to improve knowledge, attitudes and behaviour in dietary patterns, parenting, sanitation, and infectious diseases to overcome nutrition problems (Pambudi Karuniawaty et al., 2020).

Feeding children aged 6-24 months can also affect the prevalence of stunting due to failure to meet the exclusive breastfeeding period (Oktaria et al., 2017). Thus, the active role of parents is significant in feeding children emotionally and verbally, which will affect the child's weight gain. Low knowledge responses to child feeding will have a 10.2 times risk of stunting in children. Families with a low income can increase the risk of having stunted children because the quality, quantity, and variety of food are not suitable and fulfilled. In contrast, adequate family income will meet primary and secondary needs (Efrizal, 2020).

The complexity of the stunting problem requires multi-sectoral handling and approach because stunting is characterized by non-single causes of the problem (Wolde et al., 2015). For example, history of pregnancy, exclusive breastfeeding, suffering from infectious diseases, early complementary feeding, and parenting in the family contribute to the incidence of stunting (World Health Organization, 2014). Therefore, a multi-stakeholders' role is needed to help alleviate the stunting problem in Indonesia to achieve the golden generation in 2045.

CONCLUSION AND SUGGESTION

Based on secondary data obtained in February 2022 at the Kuntum Mekar A Posyandu with 135 subjects under five, a total prevalence of 14.8%. Several factors contribute to the prevalence of stunting in this study: decreased income, diet, and parenting style in the family during the COVID-19 pandemic.

The Shortage of Study

The regular assessment required a huge number of the population and standardized equipment to ensure the quality of the data collected.

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Notes

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