Description of nutritional status and the incidence of stunting children in early childhood

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Description of nutritional status and the incidence of stunting children in early childhood education programs in Bali-Indonesia

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ABSTRACT

Introduction: Early childhood is often called the golden age that is an active individual with rapid growth and development so the nutritional needs must be met and balanced. Every parent would want a balance between physical growth and optimal mental development in their child. In reality, there are still some cases of under-nutrition, stunting, and wasting in some areas of Bali Province. This is certainly a challenge for governments, especially health providers to reduce and prevent that situation because the lack of nutrients that occur in this golden period is irreversible. The less nutritional status will decrease the cognitive abilities development, the child easily sick and low competitiveness. This study aims to know the description of the nutritional status and the incidence of stunting children in early childhood in Bali Province.

Method: This research was observational with cross-sectional design, involving 53 children in early childhood programs which are scattered in several regencies in Bali Province such as Bangli, Gianyar, Singaraja, and Denpasar. The nutritional status of children was assessed by comparing body weight with age, whereas stunting incidence was evaluated by comparing height with age using an anthropometric standard of child nutritional status assessment based on Minister of Health Decree No. 1995/MENKES/SK/XII/2010.

Result: This research showed that 35.85% sample were underweight, 60.38% well nourished, and 3.77% overweight. The data after Height/Age measurement has shown that 9.43% sample were short, 73.58% normal, and 16.98% tall.

Conclusion: This study has concluded most of the sample were well nourished (60.38%), nevertheless there was still underweight and overweight sample. According to the Height/Age index can be concluded that most of the sample was normal 73.8%. Also, some of the samples were short and tall.

Keywords: Nutrition status, stunting, early childhood program.

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INTRODUCTION

Early childhood is often called the golden age that is an active individual with rapid growth and development so the nutritional needs must be met and balanced. Moreover, this period is susceptible to the environment contact and more attention is needed, especially the nutritional adequacy. Nutrition problems that occur in toddlers, especially undernutrition and stunting are the impact of the mother's condition/expectant mother during pregnancy, fetal period, toddler, including illness suffered during childhood. Inadequate nutrition and stunting in under-five children may inhibit the development of the children, later the negative impacts will occur in life such as intellectual decline, disease susceptibility, decreased productivity to poverty and the risk of low birth weight babies.[1]

Every parent would want a balance between physical growth and optimal mental development in their child. Moreover, 10 - 30 years to come, children will face more challenges to their physical and mental health must and be healthy to achieve success in the future. WHO data showed that underweight cases in preschoolers in the world of 15.7% and overweight by 6.6%.[2] Nationally in Indonesia, the prevalence of malnutrition in 2013 is 19.6%, consisting of 5.7% malnutrition and 13.9% less nutrition.[3] Results from Basic Health Research in 2007 to 2013 showed appalling fact that underweight in Indonesia increased from 18.4% to 19.6%, stunting also increased from 36.8% to 37.2%, while wasting decreased from 13.6% to 12.1%. According to WHO, the prevalence of stunting became a public health problem if prevalence is 20% or more.[4]

The trend of nutritional problems in Bali 2015-2017 shows the case of malnutrition decreased very small that is 9.0% (2015) to 8.6% (2017), with the highest prevalence in Buleleng Regency 14.4%, wasted cases increased 5.9% (2015) to 6.3% (2017)
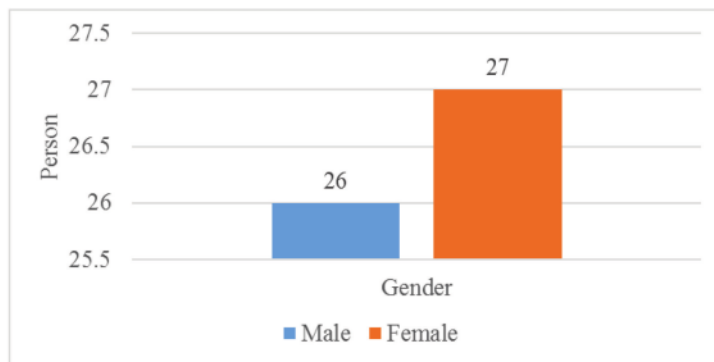
Figure 1 Sample Characteristics by Gender

Table 1 Overview of Children Nutritional Status in Early Childhood Program In Bali Province

No	Nutritional Status Overview	n	(%)
1.	Severe Underweight	0	0
2.	Underweight	19	35.85
3.	Well-nourished	32	60.38
4.	Overweight	2	3.77
	Total	53	100

Table 2 The Incidence of Stunting Children in Early Childhood Program in Bali Province

No	Nutritional Status Overview	n	(%)
1.	Very Short/Stunting	0	0
2.	Short	5	9.43
3.	Normal	39	73.58
4.	Tall	9	16.98
	Total	53	100

with the highest prevalence in Jembrana Regency (12.8%). The stunting case experienced a very small decline of 20.7% (2015) to 19.0% (2017), with the highest prevalence in Buleleng Regency at 28.9%.[5]

The nutritional status of preschool children is an important thing that every parent should know. Preschool children's growth needs to be considered because malnutrition that occurs during this golden period is irreversible.[6] Chronic malnutrition is caused by poverty, improper parenting, and parents ignorance of the nutritional needs of children. This condition will decrease cognitive abilities development, the child easy to sick and low competitiveness. The first 1000th day of a child's life is a critical period that determines their future, and in that period Indonesian children face serious growth disorders. The problem is, over 1000th day, the adverse effects of malnutrition are complicated to treat.

Considering the impacts when children experience nutritional problems (overweight and underweight) also stunting, evaluation and monitoring of nutritional status is very important at least once a month. Early childhood programs should monitor the nutritional status of children by weighing and measuring children's height each month subsequently reported in parenting activities meeting then the parents know the development of children's health, especially the nutritional status of children. This study aims to find out the description of the nutritional status and stunting incidence of early childhood education in Bali Province so it can be used as information material for the community and related institutions and can be taken steps in handling nutritional problems and prevent the increasingly widespread nutritional issues in Bali Province.

MATERIAL AND METHODS

This research was observational research using cross-sectional design. This research was conducted by taking each one of early childhood program randomly in Bangli, Gianyar, Singaraja Regency, and Denpasar districts consider that area still have stunting and malnutrition cases. The population in this study were all children of early childhood program whose schools were randomly selected so that the number of early childhood programs observed was four schools (one school for each district). The sampling technique used total sampling, with the inclusion criteria are children of early childhood program, aged 4-6 years, male or female, and attending school at the time of data collection. The data collected in body weight, height, and age of the children. The nutritional status of children was assessed by comparing body weight with age, whereas stunting events were evaluated by comparing height with age. The standard reference standard used refers to the anthropometric standards for the assessment of the nutritional status of children based on the Decree of the Minister of Health of the Republic of Indonesia Number 1995/MENKES/SK/XII/2010 dated 30 December 2010. That standard included weight index following the children age 0-60 months is categorized overweight if the threshold (Z-score) is > 2 SD, well-nourished if -2 SD until 2 SD, underweight if -3 SD until <-2 SD, and severe underweight if <-3 SD. Meanwhile, Height or Length index following children age 0-60 months is categorized as tall if the threshold (Z-score) is > 2 SD, normal if -2 SD until 2 SD, short if -3 SD until <-2 SD, and very short (stunting) if <-3 SD.

RESULTS

Sample Characteristics

The samples observed were 53 children with an almost equal male and female, 26 (49.06%) male and 27 (50.94%) female with 4-6 year age range as shown in figure 1.

Nutrition Status of Children

The nutritional status of children reflects the history of child consumption patterns. Consumption of adequate nutrients in accordance with the nutritional needs of children will have a good nutritional impact on children, while excessive consumption of nutrients or less will provide nutritional problems in children. Children nutritional status of aged 4-6 years is assessed based on the body weight/age index. malnutrition cases in Bali Province were still high at 35.85% underweight and overweight is 3.77% (Table 1)

The Incidence of Stunting

Stunting describes the chronic underweight status of growth and development from early life. After of height measurement with age then compared with z-score standard obtained by 9.43% children are short, and no children very short or stunting (Table 2).

DISCUSSION

Child Nutrition Status

Nutritional status is a measurement of a person's body condition that can be seen from the food consumption and the use of nutrients in the body. The determination of nutritional status classification. Indonesia commonly used standard size by World Health Organization-National Center for Health Statistics (WHO-NCHS). Based on WHO-NCHS standard nutritional status is divided into four categories such as overweight, well nourished, underweight, and poor nutrition (severe underweight).[6]

The results showed 60.38% of children with well nourished, 35.85% underweight, and 3.77% overweight. Nationally, the result of nutritional status monitoring in toddlers year 2017 showed most of them (80.4%) well nourished, severe underweight 3.8%, underweight 14.0%, and overweight 1.8%.[7] Sulaiman et al. (2018) studied about prevalence and determinants of undernutrition among children under 5-year-old in rural areas in North Sudan found that 32.7% sample were underweight and 22.5% severe underweight. Other research that conducted by Chaundhary et al. (2018) in Ahmedabad India about regarding nutritional status of children showed that 43.3% sample were underweight.[8,9]

Nutritional intake in children plays an essential role in the optimization of growth in children.[10] Adequacy or absence of nutritional intake in children can be assessed with a state of nutritional status characterized by thin, normal, and obese children.[6,10] Less nutrient intake will lead to poor child health conditions, growth and developmental disorders, and can cause death. Toddlers who are nutritional deficiency susceptible to infection and affect the appetite, if the diet is not met then the child's development will be disturbed.

The occurrence of nutritional problems is very complex because it is associated with many factors such as nutrition knowledge, socio-economic status of the family including poverty, cultural issues in society and the beliefs that exist in the community, the way food processing, and diet. This is consistent with the research of Myrnawati and Anita (2015) who reported that there was a direct influence of nutrition knowledge, socioeconomic status, and diet to the nutritional status of early childhood in Semarang City.[12] Sadiya et al. (2015) also found that there is a relationship between the diet with nutritional status of pre-school children in early childhood program in Mojokerto Regency.[12]

The Incidence of Stunting

Stunting describes the chronic underweight status of growth and development from early life. This situation was presented with a z-score score of height according to age (H/A) less than (-2) standard deviation (SD) growth standard according to WHO.[13] Stunting among under-fives can impede child development, such as intellectual decline, vulnerable to non-communicable diseases, decreased productivity to poverty and the risk of low birth weight babies.[1]

The results of the study found 9.43% of children were classified as short, 73.58% were normal, and the remaining 16.98% were tall. Although the percentage of short children found less than 10%, this should be seriously handled. Stunting which is not appropriately handled will impact on social life, in the long term life will disrupt health, education, and productivity. Nationally, the result of nutritional status monitoring in toddlers in 2017 showed most of them (70.4%) were normal, (19.8%) short, and (9.8%) stunting.[7] Sulaiman et al.. (2018) evaluating nutrition status in children in North Sudan found that 42.5% sample were short and 28.2% stunting. Other research that conducted by Chaundhary, et al. (2018) in Ahmedabad India showed prevalence of stunting cases were around 65.2%.[8,9]

Many factors have been contributed to children stunting residence. The nutritional status of pregnant women greatly affects the health and

development of the fetus. Impaired growth in the uterus can cause low birth weight.[14] Research conducted by Paudel et al. (2012) in Nepal showed that infants with low birth weight have a higher risk of stunting. The length of birth associated with the incidence of stunting.[15] Meilyasari and Isnawati (2014) study in Kendal showed that infants with short-term lengths were at high risk for stunting events.[16] Exclusive breastfeeding is associated with stunting events. Fikadu et al. (2012) study in South Ethiopia proven that infants who are not exclusively breastfed for 6 months are at high risk of stunting.[17] Family income, parental education, mother's knowledge of nutrition, and the number of family members can be indirectly related to stunting events. Report from Basic Health Research of Indonesia (2013) showed that the incidence of stunting in infants is influenced by the low income and education of parents.[3] Study by Nasikhah et al. (2012) in Semarang shows the number of family members have a risk of the incidence of stunting in children aged 24-36 months.[18]

Other research conducted by Aridiyah et al. (2015) in Jember Regency found that factor affecting the occurrence of stunting among children under five in rural and urban areas are maternal education, family income, mother's knowledge of nutrition, exclusive breastfeeding, zinc insufficiency, iron inadequacy, history of infectious diseases, and genetic factors of parents.[19]

According to current research findings, could be suggested that the parents and health providers should emphasize the attention to nutritional fulfillment requirement of children so the children do not experience malnutrition. Also, more extensive data collection needs to be done by conducting a routine survey determining nutritional status and looking for factors causing the occurrence of malnutrition and stunting. Therefore the appropriate improvement can be performed.

CONCLUSION

The conclusions of this study are: nutritional status with BW/Age index obtained 35.85% of children belonging to underweight, 60.38% well nourished, and 3.77% overweight, and stunting cases with H/Age index obtained 9.43% children classified as short, 73.58% normal, and 16.98% are tall.

CONFLICT OF INTEREST

Author has no conflict of interest regarding all elements in this study.

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