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Relation Between Growth and Developmental Status of Children in Kebon Pala, Jakarta

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Abstract

Background: Child development usually mentioned as related with child's growth. Assuming that delayed growth will affect children development, but in fact, no report about the relation in national research. This study conducted to find relation between children growth and their development. **Methods:** this study is relational quantitative research that used a quantitative approach to measure children body height, body weight, and their developmental status. Study limited in Kebon Pala, Jakarta. Measurement were held by local administrator of Kebon Pala. Body height and weight compared with WHO growth standard, whereas developmental status measured with Developmental Screening Questioner (Kuisioner Pra Skrining Perkembangan, KPSP). Relation between body weight, body height and developmental status assessed with correlational function of Microsoft Excel. **Results:** there are 12.24% underweight children, 8.16% overweight children, 16.33% short children, 4.08% tall children, 4.08% delayed development children, and 20.41% children with suspicious state of development. Relation between weight and development were -0.17 and between height and development were -0.12. **Conclusion:** Prevalence of short children were lower than Indonesian report, and 25% children need attention to may catch their development. No relation between nutritional status and developmental status. Nutrition and development approach should be treated together.

Keywords: Child, Height, Weight, Development, Nutritional status.

INTRODUCTION

Growth and development were unique for any children, regarding of stimulation from their environment. Beginning from their born day until six years old, children grow significantly, from about 45 cm became about 100 cm, and from about 3.5 kg became about 25 kg. And throughout this golden period, they will develop sensomomotor abilitity [8] that will become starter of intelegency, speaking and social ability. The development process need to be considered as they are growing[5], as growth and development is related to each other. A fine growth will potentially help their development, and moreover, a better future [11].

In Indonesia, there are 17,7% children facing malnutrition, 30,8% very short and short, 10,2% very thin and thin, 8% overweight [12], and usually assume that this situation will affect their development. In parental and community guideline of children measurement, it does instructs to measure child development in 3 months or 6 months interval [10] Developmental Screening Questioner (Kuisioner Pra Skrining Perkembangan, KPSP). In fact, it never held, in community service nor health services. And interesting, when reporting national basic health research, Indonesia report with Multiple Indicator Cluster Survey (MICS) 2016, and only for 36-59 months old children[12]. Therefore, this research held to measure children developmental status with KPSP, and to find relation between children nutritional status and developmental status.

METHODOLOGY

This study used a quantitative approach conducted in October 2021. Data collected throughout Kebon Pala, Jakarta, from children within 0-5 years old. Participants were recruited through their parents using non-probability, voluntary sample method. Recruitment were based on in-person strategies, by local administrator that attaining informed consent approval from their own parents. Ethics approval was obtained by Fakultas Vokasi Universitas Kristen Indonesia in August 2021.

The measurement included age (in months), body height, body weight, and Developmental Screening Questioner (Kuisioner Pra Skrining Perkembangan, KPSP). Body height and body weight is the most commonly used anthropometric measure for the assessment and classification of somatic status and

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growth. Body height of prewalker measured in supine position with tapemaker, and children that has been able to walk measured by digital body height counter. Body height records in meter. Body weight measured by digital body weight scale, in kilogram. Body height and body weight compared with their predicted number of height and weight for age using WHO Chart[22]. Body height classified as short, normal and tall using limit 2SD from Zscore. Body weight classified as underweight, normal and overweight using limit 2SD from Zscore.

KPSP enlisted 10 question per 3 months interval for 0-18 months and 6 months interval for 18-72 months. The question were asking their natural abilities for gross motor, fine motor, social-independence and speech abilities as shown as Table 1. The result classified as delayed (able to do <6 questions), suspicious (able to do 7-8 questions), and normal (able to do 9-10 questions) development. Even though KPSP may measure until 72 months old, as WHO chart only give weight-for-age and height-for-age standard until 5 years old, we only take data of 0-60 months old.

Table 1: Item Questions of KPSP

Age of measurement (months)	Item Questions			
	Gross motor	Social and independence	Speech	Fine motor
3	4	2	2	2
6	4	1	1	4
9	5	2	1	2
12	3	2	2	3
15	5	2	1	2
18	4	3	1	2
21	3	3	1	3
24	3	2	3	2
30	2	2	4	2
36	3	1	3	3
42	3	4	0	2
48	3	3	1	2
54	1	3	3	3
60	2	3	3	2
66	2	2	3	3
72	3	2	2	3

Relation between nutritional statuses measured with covariate independent test. All data and relation were analyzed by microsoft excel.

RESULTS

At first, we found 94 children, but 45 children excluded as few reasons, e.g.: (1) did not completed measurement for body weight, body height, or KPSP and (2) older than 60 months old. The proportion of respondent included for this research was nearly equal, consist of 22 boy and 34 girl that live in Jakarta as shown on Table 2.

Table 2: Characters of Respondents

Characters	Amount	Percentage
Sex		
Girl	27	55.10%
Boy	22	44.90%
Age		
0-3	3	6.12%
4-6	2	4.08%
7-9	2	4.08%
10-12	5	10.20%
12-15	2	4.08%
15-18	3	6.12%
18-24	4	8.16%
24-30	4	8.16%
30-36	7	14.29%
36-42	5	10.20%
42-48	4	8.16%
48-54	7	14.29%
54-60	1	2.04%

The number of respondent for each age criteria were not equal, as that are the situation on the population. For their status of weight, as shown on Table 3, there are 9.09% of boys and 14.81% of girls facing underweight situation. And on the other side, 9.09% of boys and 7.41% of girls were overweight.

Table 3: Child's weight per age

Status of Weight For Age	Boy		Girl		Summary	
	respondent	%	respondent	%	respondent	%
Underweight	2	9.09	4	14.81	6	12.24
Normal	18	81.82	21	7.78	39	79.59
Overweight	2	9.09	2	7.41	4	8.16

For their status of height, as shown on Table 4, there are 18.18% of boys and 14.81% of girls that are shorter than their predicted height for age. There are 4.55% of boys and 4.08% of girls that are taller than their predicted height for age, but as we confirm to the local administrator, their situation not caused by hormonal diseases, so we insert them in normal situation for relational test.

Table 4: Child's height per age

Status of Height For Age	Boy		Girl		Summary	
	respondent	%	respondent	%	respondent	%
Short	4	18.18	4	14.81	8	16.33
Normal	17	77.27	22	81.48	39	79.59
Tall	1	4.55	1	3.70	2	4.08

For their developmental status, as shown on Table 5, 7.41% of girls facing delayed development (only able to do no more than six questions). There are 22.73% of boys and 18.52% of girls facing suspicious situation, were only have 7-8 from 10 abilities from KPSP.

Table 5: Child's developmental status

Status of Development	Boy		Girl		Summary	
	respondent	%	respondent	%	respondent	%
Delayed	0	0	2	7.41	2	4.08
Suspicious	5	22.73	5	18.52	10	20.41
Normal	17	77.27	20	74.07	37	75.51

Correlation between weight and development are -0.17, and between height and development are -0.12. Therefore, very weak relation between nutritional status and developmental status.

DISCUSSION

As we find at result above, 12.24% children were underweight, and this number is considerably lower than national report that reporting 13-17% of underweight, either for DKI Jakarta, East Jakarta, or Indonesian children[10]. As we find at the same table, 4.08% children were overweight, that are considerably lower than DKI Jakarta (6.22%) and Indonesia (9.0%). It may happen as from 2018 to 2021, Indonesia has been improve the quality of service and education for child nutrition. For body height, as 16.33% children were short in this study, this number were considerably lower than national report that reporting 31.8 for Indonesian children, but considerably equal with DKI Jakarta (16.05%) and East Jakarta (18.25%). It should be our concern, as different with body weight that act as acute situation of nutrition, body height act as chronic situation of nutrition.

For the developmental status, there are 4.08% children were delayed development, and 20.41% children were suspicious development (have a potential to delayed development). This number were surprisingly high, as the children measured were considerably normal, without health condition nor disability. This situation may happen for many factors, such as socio-economic, biological, maternal, environmental, nutritional, and genetic factors [13]. But as we find that are no relation between nutritional status and developmental status, we need to consider nurturing setting, including availability of learning materials at home [13].

Unlike other research [13], that claim that are nutrition related with skills, we may explain that developmental status different with cognitive skills. In this research, we focus on KPSP and seems like as long as the children have adequate stimulation of gross motor, fine motor, speech and social abilities, they may gain optimal development. We need to state that children in Kebon Pala have some privilege for their development such as playground for each district, and close neighbourhood. It may help them to gain some abilities.

And we need to consider the parents factor. Parents and caregiver need to know about the way of stimulation and the method of evaluation (KPSP), so they may help to stimulate their children to catch their developmental potential [14]. Paternal engagement in early child development, too, need to be improve, as some gross motor development could be more effective in maternal-paternal engagement [15].

CONCLUSION

The nutritional status were better than national report, but undernutrition and over nutrition were still exist. Number of delayed development and suspicious development were surprisingly high. Future investigation needed to find if this situation related with their parents and their intake. Therefore, we may arrange a target specific treatment for each families.

The limitation of this study is that the number of respondent are not equal for age groups enlisted, and we not taking cognitive skills, as few researcher state that stunting related with cognitive.

Conflict of interest

The author has no conflict of interest to declare.

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Compliance with Ethics

This study was obtained ethical form University with reference number 553/UKI.F8.D/PPM.1.6/2021.

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