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NUTRITIONAL STATUS, DEVELOPMENT LEVEL, AND PSYCHOSOSIAL FUNCTION OF PRESCHOOL CHILDREN

Asyifa Robiatul Adawiyah [1]✉, Izattul Azijah[2]

[1,2] Public Health Science Study Program, Faculty of Health Sciences, Universitas Respati Indonesia

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Abstract

Background: *Childhood is a critical period of growth and development. Children with malnutrition will cause a decrease in nutritional status so that children become malnourished, it affects physical growth disorders, the quality of intelligence, and future development.*
Method : *This type of research that used in this study was an observational study with a cross-sectional design, The sample of this study were all students of the play group and Kindergarten in Mutiara 17 August Bekasi, totaling 59 children.*
Result: *there was a significant relationship between the history of exclusive breastfeeding and the incidence of stunting in Mutiara 17 August Bekasi (p <0.05), there was a significant relationship (p <0.05) between education, employment and foster care of a mother with functions children's development using the DENVER II instrument. Speech delay in a language development results from the DENVER II test are related to children's psychosocial functioning (p <0.05).*
Conclusion : *Adequacy of nutrition and history of exclusive breastfeeding contribute to the size of the nutritional status of child growth if nutritional insufficiency continues and it is not handled with carefully there will be nutritional deficiencies during growth that will affect they development.*

✉Correspondence Address :
Faculty of Health Sciences,
Universitas Respati Indonesia
Kampus A Jl. Bambu Apus I No. 3, Bambu Apus,
Kecamatan Cipayung, East Jakarta, DKI Jakarta
asyifa2506@gmail.com

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INTRODUCTION

Toddler period is a critical period for growth and development. Real physical growth was marked in early childhood or pre-school age by measuring pe r plant height and weight (Santrock, 2011) . The most important physical development in the pre-school period is the continuous development of the brain and various other parts of the nervous system (Marcdante KJ, 2014) .

Children with malnutrition will result in a decrease in nutritional status so that the child becomes malnourished, this will affect physical growth disorders, the quality of intelligence, and development in the future. One predictor of acute malnutrition is that children with a history of not exclusively breastfed are more likely to be malnourished than those who are exclusively breastfed. Exclusive breastfeeding is known to prevent penul a ran diseases by downloading ingkatkan child's immune either by an increase in immunoglobulin A that would be to regard a NGI cycle of infection (Egata, Berhane, and Worku, 2014) if insufficient nutritional status continuing and unaddressed then malnutrition during infancy will have a lifelong impact because they are largely irreversible. The performance of children with malnutrition in school becomes reduced so that as adults they will have lower working capacity and productivity and in the future they are more likely to be overweight and develop chronic diseases including suffering from mental health problems (Smith & Haddad, 2015) .

There are three main routes identified by which nutritional status especially poor nutrition can affect developmental outcomes in children. First, a lack of nutrients can cause damage receipt Tural and function of the brain, especially in the early years; second, children with a lack of energy experience deterioration and less interaction with their environment, affecting the way they learn, and thirdly the influence of caregivers and teachers who will treat them differently, so that these children will compete below their age ability (Brown & Pollitt, 1996) .

The proportion of malnutrition and malnutrition status among children under five in Indonesia between 2013-2018 has decreased from 19.6% to 17.7% where this achievement has approached the RPJMN (Regional Medium-Term Development Plan) target of 17% (RISKESDAS, 2018) . The total number of children under five in Bekasi City in 2019 was 184,000, out of 23,184 suffering from malnutrition or the amount equivalent to 12.6%, although the number is still smaller than the national percentage, efforts to improve the nutritional status of the community including children under five each year are one of the goals and the medium-term goals of the Bekasi City Health Office (Bekasi, 2018) .

The study was taken in the North Bekasi area, namely in a kindergarten with multi-ethnic diversity and is one of the kindergartens with the most students in Bekasi City, namely TK Mutiara 17 August. The purpose of this study was to analyze the relationship between exclusive breastfeeding history and nutritional status and the relationship between nutritional status and developmental level and psychosocial function in children aged 3-6 years.

METHOD

The type of research used in this study is an observational study with a cross-sectional design . The research was conducted in August 2019 at Mutiara Kindergarten August 17, Bekasi City, West Java. The sample of this research was all students of the Playgroup and Mutiara Kindergarten 17 August Bekasi City totaling 59 children. This research has undergone an ethical review and was declared feasible to be carried out by the Commission for Health Research Ethics at the University of Respati Indonesia. The independent variable in this study was nutritional status with an anthropometric assessment from WHO and the Center for Disease Control and Prevention (CDC) through 2 indices using the z-score indicator as the mean standard deviation. namely body weight according to age (BW / U) with indicators <-2 SD Gi zi less to poor nutrition; ≥ 2 SD Good nutrition to more nutrition and height according to age (height / age) with indicators <-2 SD short to very short; ≥ 2 SD normal to high, the calculation of nutritional status uses the WHO Anthro software for ages <5 years (World Health Organization, 2011) and WHO Anthro plus

for ages ≥5 years (WHO, 2007) . Socio- demographic status consisting of (1) gender; (2) mother's age; (3) father's age; (4) mother's last education; (5) father's last education; (6) mother's job; (7) father's job; and (8) total income of the father and mother. A history of sufficiency in exclusive breastfeeding for 6 months, home environment consisting of (1) the form of family at home (nuclear family / extend family); (2) figure of care at home (mother / grandmother / caregiver) ; (3) playing with foster figures (absent, ≤1 hour / day,> 1 hour / day); and (4) playing with dad (1-7 times a week, more than once a week). The dependent variable in this study is the level of development of the child in accordance with his age using instruments Denver II outlined by four domains: (1) personal-social, (2) fine motor-adaptive, (3) language, and (4) gross motor skills (Asthiningsih & Muflihatin, 2018) . The interpretation of the value consists of (1) Normal: if there is no delay and / or at most one 'caution' on all aspects and (2) suspicion: if there is ≥ 2 'caution' and / or ≥ 1 delay (WK Frankenburg, MD, MSPH, Joslah Dodds et al., 1992) . Psychosocial functioning using instruments SDQ (Strengths and Difficulties Questionnaire) were filled by teachers and parents described through five domains with a total of 25-item statement: (1) emotional problems; (2) behavior problems; (3) hyperactive ; and (4) peer problems as a domain containing statements about social difficulties from children with interpretation of scores: abnormal (17 - 40), borderline (14 - 16), and norm al (0 - 13), while the domain to (5) prosocial (pro social behavior) is a domain that describes the social power of children with interpretation of scores: abnormal (0 - 4), Borderline (5), and Normal (6 - 10) (Oranga Tamariki, 2019) .

RESULT AND DISCUSSION

Grouping s ISWA in TK Mutiara August 17th Bekasi City consists of four k elompok (Group play: 5 children, group A: 26 children, Group B-1: 14 children and Group B-2: 14 children) with a range of respondent age 37 - 71 months has a range of nutritional status Body weight according to age (BW / U) -3.91 - 4.14 SD with the highest percentage being children with over nutrition (72.9%), while based on Height for Age (TB / U)) obtained a range of -2.83 - 1.79 SD with 4 children (6.8%) suffering from stunting. Based on the results of the study, the mother's age ranges from 27-46 years, while the father's age ranges from 30-50 years with the most recent education of mothers being 64.4% graduated from college while the most recent education of the father was 74.6% graduated from college, occupation the most mothers were housewives as much as 52.5%, while the most fathers' jobs were private employees as much as 64.4%. The range of total family income of TK Mutiara 17 August students is between Rp. 3,000,000 - Rp. 25,000,000. The most common form of family is the nuclear family (66.1%), that is, in one house there is only the nuclear family (father, mother, and child) with the highest number of foster figures being the mother (64.4%) and as many as 54.2% students Mutiara Kindergarten 17 August only has the opportunity to play with my father more than once a week .

Based on the results of observations and interviews of researchers about the level of development of Mutiara Kindergarten students on August 17 in the DENVER II test, it was found that 27.1% of children had personal social values that were still below their age, there were children who still could not say the names of their friends, using dress properly, brush your teeth properly and take your own food. Based on the fine motor assessment, 5.1% of children had fine motor scores that were still below their age, such as not being able to draw circles, draw 3-6 people, choose longer lines, and draw rectangles. In the language assessment, it was found that 15.3% of the children had the results of speaking and language skills that were still below their age, such as the mention of colors that were still wrong in Indonesian, not being able to mention the usefulness of the object pointed to by the researcher, not knowing 5-7 activities which the researcher points to through the picture, and mentions and continues the opposite words such as "the sun is in the daytime, the moon is at night", some children still spoke not in clear intonation. In gross motor function , there are 1.7% of children who have gross motor value results that are still below their age, such as not being able to stand up to 6 seconds lifting 1 leg, walking with a heel lift, this is due

to the inclusion of Down syndrome in the child.

The psychosocial functions of Mutiara Kindergarten 17 August children were assessed through a Strength Difficulties Questionnaire (SDQ) questionnaire filled out by the child's parents and homeroom teacher. In emotional function, it was found that 8.5% of children according to their parents and 13.6% of children according to their homeroom teacher had difficulties such as crying frequently, looking worried, shy, and unwilling to be separated from their mother / caregiver when in class. Based on the behavioral assessment, there were 10.2% children according to their parents and 15.3% according to the homeroom teacher, it was difficult to control their angry emotions, and acted indifferently towards their peers and parents / homeroom teacher. 15.3% of children according to parents and 22% of children according to teachers found that children who cannot sit still for long periods in class, have difficulty concentrating and are easily distracted. 15.3% of children according to their parents and 13.6% of children according to their homeroom teacher are still indifferent to their surroundings. Based on observations on pro-social functions, 91, 5% of children according to their parents, and 81.3% of children according to their homeroom teacher, are able to adapt well in class, can empathize with peers, easily give, and help each other between friends.

The results of the analysis in table 3 show that 4 children (22.2%) TK Mutiara 17 Agustus Bekasi City who do not have a history of exclusive breastfeeding suffer from stunting and no children who have a history of exclusive breastfeeding suffer from stunting, the Chi Square test results obtained p = 0.007, then It can be concluded that there is a significant relationship between the history of exclusive breastfeeding and the incidence of stunting in TK Mutiara 17 Agustus Bekasi City. The results of this study are in line with those conducted by Ayu Rosita, Yulia Lanti, and Bhisma Murti in 2018 on 200 children aged 2-5 years where there is a significant relationship (p <0.001) between the history of exclusive breastfeeding and the incidence of stunting, under five who do not have a history of exclusive breastfeeding has a 4.78 times risk of stunting compared to children who have a history of exclusive breastfeeding. Long-term effect of exclusive breastfeeding one of them is able to mengu Rangi incidence of stunting for Milk I bu (ASI) are sufficient nutrition for growth and development process, especially in childhood. Increasing the duration of breastfeeding can increase intelligence in late childhood and adulthood. The risk of obesity in late childhood can be reduced by exclusive breastfeeding (Dewi, Dewi, & Murti, 2019)

The results of the analysis between the sociodemographies of the students' parents, and the environment at home with the function of child development in table 4 show that there is a significant relationship between mother's education , mother's work as a housewife and a mother's caring figure with the child's fine motor development (p value = 0.009 ; 0.008; and 0.002) . The results of this study are in line with Nilay Comuk, Birgul Bayoglu, Agah Tekindal, Mintaze Kerem, and Banu A nlar in 2016 in 2038 children over 24 months of age using DENVER II to test fine motor skills, high maternal education is associated with increased fine motor skills. in children, especially in the learning section how to make circles (r = 0.200), draw lines (r = 0.334), and make squares (r = 0.350), fine motor functions have great biological importance in humans. Fine motor skills correlate with cognitive test results. (Comuk-Balci, Bayoglu, Tekindal, Kerem-Gunel, & Anlar, 2016)

The form of the nuclear family and the foster care of a mother has a significant relationship with language development (p value = 0.05; and 0.007) . The results of this study are in line with Suna Eryigit-Madzwamuse and Jacqueline Barnes in 2019 using the cohort method and the total sample size is 978 then the data is taken when the children are 3, 18, 36, and 51 months old, there are significant differences between children cared for by the mother. directly with those not directly cared for by the mother. The results show that if the child care for up to 36 months is dominated by mothers, there is a potential to improve cognitive abilities, especially for the language section at a later date, there is a longitudinal association between stimulation given by the mother to her child except when the child is 51 months old which has been moderated. by the pattern of care given to the child The mother's job as a housewife has a significant relationship with the child's gross

Table 1. Relationship between exclusive breastfeeding (EBF) history and children nutritional status

Exclusive breastfeeding history	Nutritional Status				Total		p value	OR (95% CI)
	Nutritional status less/ more		Adequate nutritional status					
	n	%	n	%	n	%		
No EBF	8	4,4	10	55,6	18	100	0,061	-
EBF	8	19,5	33	80,5	41	100		
Total	16	27,1	43	72,9	59	100		
Exclusive breastfeeding history	**Stunting**		**normal**		**total**		**P value**	**OR (95% CI)**
	n	**%**	**n**	**%**	**n**	**%**		
No EBF	4	22,2	14	77,8	18	100	0,007*	1,29
EBF	0	0,0	41	100	41	100		(1,00 – 1,64)
Total	4	6,8	55	93,2	59	100		

* p value ≤0,05 there is relationship between variables, Chi-Square analysis

motor development (p value = 0.003) , while the figure of mother's care and the frequency of meeting and playing with the father has a significant relationship with the overall function child development (Eryigit-madzwamuse & Barnes, 2014) .

The frequent frequency of children meeting and playing with their father has a significant relationship (p value = 0.05) with the overall results of children's developmental function in DENVER II. The results of this study are in line with research conducted by Francisco Perales and Janeen Baxter in 2019 with 3,273 children. aged 4 to 8 years using the Peabody Picture Vocabulary Test, version three (PPVT-III) cognitive ability instrument conducted by the research team in the Ordinary Least Square model found that 1 hour of togetherness between father and child was associated with an increase in children's PPVT scores ren (β = 0.027; p < 0 .001) and every five additional hours each week when father and son PPVT score increases of about 1.2% h ingga 1.7% of a standard deviation (Perales & Baxter, 2014) . The involvement of the father can create greater heterogeneity in exposure to child stimuli. The father figure will teach educational activities and combine them with games. Father involvement makes children's vocabulary better predictive than mother's vocabulary and provides extra ability to communicate with strangers. The way of teaching fathers encourages children to take risks whereas mothers encourage children to understand and consider the feelings of others, fathers will also teach children how to strengthen, adopt, and pursue goals as observation points for children to learn. problem-solving behaviors. The combination of teaching between father and mother will result in increased cognitive development capacity in children (Cano, Perales, & Baxter, 2019)

The results of the analysis of sociodemographic status and home environment with the psychosocial function of students TK Mutiara 17 Agustus Bekasi City in table 5 show that the younger the respondent's age, the class assessed the age of students> 60 months, the psychosocial difficulties were seen to be higher (p value = 0.037) compared to the group. higher age , especially in adapting to peers, and concentrating in class. There is a significant relationship between a mother's parenting figure and the child's psychosocial function, both in facing difficulties in her psychosocial and strength in her social function (p value = 0.045; and 0.024). The results of the analysis between children with speaking and language difficulties in DENVER II with children's psychosocial difficulties filled by their parents showed significant results (p value = 0.04). The results of this study

Table 2 . Relationship of Nutritional Status, Sociodemographic Status, History of Exclusive Breastfeeding Coverage, and Characteristics of the Home Environment of Preschool Children with Child Development Level according to DENVER II

Variable	**Personal Social Children**	**Children's fine motori skills**	**Children's language**	**Children's rough motoric**	**Overall Level of Child Development**
Gender	0,489	1,000	1,000	0,458	0,815
Respondent Age	1,000	0,264	0,287	1,000	0,806
Mother's Age	0,622	0,286	1,000	1,000	1,000
Father's Age	0,746	0,549	1,000	1,000	1,000
Mother's Education	0,292	**0,009***	0,806	0,398	0,408
Father's Education	0,09	0,129	0,321	0,225	0,316
Mother's Occupation	0,423	**0,008***	0,301	**0,003***	0,927
Father's Occupation	0,069	0,290	0,970	0,225	0,106
Total Income	1,000	1,000	1,000	1,000	1,000
Nutitional Status (Weight/Age)	0,937	0,555	0,368	0,828	0,476
Variabel	**Personal Social Children**	**Children's fine motori skills**	**Children's language**	**Children's rough motoric**	**Overall Level of Child Development**
Nutritional Status (Height/Age)	1,000	0,193	0,494	1,000	1,000
Family Forms	0,962	0,263	**0,05***	0,339	0,167
Foster figure	0,403	**0,002***	**0,007***	0,225	**0,037***
Play with father	0,629	1,000	0,031*	1,000	**0,05***

are in line with Ingrid Schoon, Samantha Parsons, Robert Rush, and James. Law in 2010 with a cohort research model that was conducted for 29 years. Children with speech and language delays find it difficult to express themselves so that at the age of 5-10 years if they are not treated they will have antisocial behavior and low self-esteem (p value <0.01). Children with poor initial language skills are more likely to experience behavioral problems, they feel inferior compared to other children because they experience a lot of social adaptation difficulties in transitioning to adulthood, the risk of further problems for mental health after adulthood which is also influenced by the family environment and the psychosocial adjustment of the individual (Schoon, Parsons, Rush, & Law, 2010)

The strength of this research is that the assessment is carried out comprehensively by measuring the nutritional status of the child, testing the DENVER II test which is carried out directly by the researcher and involving the parents and homeroom teacher in assessing the child's psychosocial condition. Limitations of this study are in h acyl research between nutritional status and degree of developmental and psychosocial functioning which do not show significant differences it is influenced by students KB and TK Mutiara August 17 more that have nutritional status compared with malnutrition, a factor middle and upper income economies also contributed to the absence of significant differences between nutritional status and level of development .

CONCLUSION

Nutritional adequacy and history of exclusive breastfeeding also contribute to the size of the nutritional status of the child's growth. If nutritional insufficiency continues and is not handled, there will be malnutrition during the growth period which will affect their development. The factors of education, occupation, a mother's caring figure, the frequency of the

Table 3 . Relationship of Nutritional Status, Sociodemographic Status, History of Exclusive Breastfeeding Coverage, and Characteristics of the Home Environment of Preschool Children with Child Psychosocial Function based on the *Strength Difficulties Questionnaire (SDQ)* according to parents and teacher

Variable	**Child psychosocial difficulties according to parents**	**prosocial children according to parents**	**Children's psychosocial difficulties according to the teacher / homeroom teacher**	**prosocial children according to the teacher / homeroom teacher**
Gender	0,205	0,362	0,303	0,092
Respondent Age	0,679	0,388	**0,037***	0,289
Mother's Age	1,000	1,000	0,498	0,733
Father's Age	1,000	0,641	0,512	0,729
Mother's Education	0,237	0,644	0,788	0,509
Father's Education	0,640	0,758	0,923	0,630
Mother's Occupation	0,644	0,592	0,160	0,468
Father's Occupation	0,535	0,662	0,318	0,403
Variable	**Child psychosocial difficulties according to parents**	**prosocial children according to parents**	**Children's psychosocial difficulties according to the teacher / homeroom teacher**	**prosocial children according to the teacher / homeroom teacher**
Total Income	1,000	1,000	1,000	1,000
Nutitional Status (Weight/Age)	0,658	0,606	1,000	1,000
Nutritional Status (Height/Age)	0,357	1,000	1,000	0,534
Family Forms	1,000	0,325	1,000	0,469
Foster figure	0,073	**0,045***	**0,024***	0,097
Play with father	1,000	1,000	0,526	0,741
Social Personal Function	0,658	0,606	0,149	0,116
Fine motor function	0,279	1,000	1,000	0,433
Language function	**0,04***	0,577	1,000	0,170
Rough Motor function	1,000	1,000	1,000	1,000

child's meeting and playing with the father will help the level of development and the child's psychosocial function .

REFERENCES

Asthiningsih, N. W. W., & Muflihatin, S. K. (2018). Deteksi Dini Perkembangan Balita Dengan Metode DDST II Di Posyandu Wilayah Kerja Puskesmas Juanda Samarinda. Jurnal Endurance, 3(2), 367. https://doi.org/10.22216/jen.v3i2.3149

Bekasi, dinas kesehatan K. (2018). Renstra Dinas Kesehatan Kota Bekasi. Retrieved from https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=9&cad=rja&uact=8&ved=2ahUKEwjW1sSU_4zlAhWW7XMBHeZxALYQFjAIegQICBAC&url=http%3A%2F%2Fppid.bekasikota.go.id%2Ffront%2Fdokumen%2Fdownload%2F300008271&usg=AOvVaw3StT7QCD-K_P6aQwxU1OKF

Brown, J. L., & Pollitt, E. (1996). Malnutrition, poverty and intellectual development. Scientific American. https://doi.org/10.1038/scientificamerican0296-38

Cano, T., Perales, F., & Baxter, J. (2019). A Matter of Time: Father Involvement and Child Cognitive Outcomes. Journal of Marriage and Family, 81(1), 164–184. https://doi.org/10.1111/jomf.12532

Comuk-Balci, N., Bayoglu, B., Tekindal, A., Kerem-Gunel, M., & Anlar, B. (2016). Screening preschool children for fine motor skills: Environmental influence. Journal of Physical Therapy Science, 28(3), 1026–1031. https://doi.org/10.1589/jpts.28.1026

Dewi, A. R., Dewi, Y. L. R., & Murti, B. (2019). Life Course Factors Associated with Stunting in Children Aged 2-5 Years: A Path Analysis. Journal of Maternal and Child Health, 4(5), 348–357. https://doi.org/10.26911/thejmch.2019.04.05.09

Egata, G., Berhane, Y., & Worku, A. (2014). Predictors of acute undernutrition among children aged 6 to 36 months in east rural Ethiopia: A community based nested case - control study. BMC Pediatrics. https://doi.org/10.1186/1471-2431-14-91

Eryigit-madzwamuse, S., & Barnes, J. (2014). Behavior. 2(5). https://doi.org/10.4172/jcalb.1000165

Marcdante KJ. (2014). Nelson Ilmu Kesehatan Anak. In Pediatrics. https://doi.org/10.1530/REP-10-0294

Oranga Tamariki. (2019). STRENGTHS & DIFFICULTIES QUESTIONNAIRE (SDQ) MANUAL. Retrieved from https://www.sdqinfo.com/.

Perales, F., & Baxter, J. (2014). A Matter of Time : Father Involvement and Child Cognitive Outcomes. 81(February), 164–184. https://doi.org/10.1111/jomf.12532

RISKESDAS. (2018). Hasil Utama Riset Kesehatan Dasar 2018. Kementrian Kesehatan Republik Indonesia. https://doi.org/1 Desember 2013

Santrock, J. W. (2011). Educational Psychology 5th Edition. In Educational Psychology. https://doi.org/10.1017/CBO9781107415324.004

Schoon, I., Parsons, S., Rush, R., & Law, J. (2010). Children's language ability and psychosocial development: A 29-year follow-up study. Pediatrics, 126(1), 1–9. https://doi.org/10.1542/peds.2009-3282

Smith, L. C., & Haddad, L. (2015). Reducing Child Undernutrition: Past Drivers and Priorities for the Post-MDG Era. World Development, 68(1), 180–204. https://doi.org/10.1016/j.worlddev.2014.11.014

W.K. Frankenburg, M.D., M.S.P.H., Joslah Dodds, P. D., Phillips Archer, S. D., Beverly Bresnick, M. A., Patrick Maschka, M. A., Edelman, N., & Howard Shapiro, P. D. (1992). DenverI-Itraining_manual.pdf (pp. 1–52). pp. 1–52. Retrieved from https://denverii.com/denver-ii-training-manual/

WHO. (2007). AnthroPlus for Personal Computers. Manual: Software for assessing growth of the world's children and adolescents. In Geneva. Retrieved from http://www.who.int/growthref/tools/en/

World Health Organization. (2011). W HO Anthro assessing ing. In WHO anthro. Retrieved from https://www.who.int/childgrowth/software/anthro_pc_manual_v322.pdf?ua=1