Development of Models for the Arrangement of the Family Environment, Especially Husbands of Pregnant Women for Early Prevention of Stunting

Erpita Yanti[*], Abdul Razak, Bustari Muchtar

Doctoral Program of Environmental Sciences, Universitas Negeri Padang – Indonesia
*yantierpita@fik.unp.ac.id

ABSTRACT

Research has been carried out to analyze the development of a model for structuring the family environment of pregnant women for early prevention of stunting in Padang Pariaman Regency in 2021. In this study, an analysis of factors that influence variables in the development of a model of structuring the family environment, especially the husbands of pregnant women, was conducted. Development (R&D). This model was developed using the ASSURE model approach (Analyze Learners; State Objectives, Select Methods, Media, and Materials; Utilize Media and Materials; Require Learner Participation, and Evaluate and Revise). The data analysis technique used one-way table analysis presented in the form of a descriptive statistical table which was used to describe the independent and dependent variables. The results of the study found that in the analysis using Structural Equation Modeling (SEM) using a computer program, each variable has a loading factor value greater than 0.5. From the three composites, it can be concluded that with the loading factor value that meets the standard, it can be interpreted that the husband's role can reduce stunting rates in the Padang Pariaman District Health Center.

Keywords: Stunting, SEM, Family Environment Arrangement Model.

INTRODUCTION

Stunting is a condition where toddlers have a length or height that is less when compared to age[1]. This condition is measured by a length or height that is more than minus two standard deviations of the median child growth standard from WHO|World Health Organization[2]. Stunting toddlers in the future will have difficulty in achieving optimal physical and cognitive development, are more susceptible to disease, and as adults are at risk for degenerative diseases[3].

In children under five years old (under 5 years), this condition reflects a failure to thrive due to chronic malnutrition[4], so children become too short for their age[5]. Chronic malnutrition occurs when the baby is in the womb until the age of two[1]. Thus the period of the first 1000 days of life should receive special attention because it determines the level of physical growth, intelligence, and productivity of a person in the future.

This condition is one of the main nutritional problems that are currently being faced. If this problem is chronic, it will certainly affect cognitive function, namely a low level of intelligence and have an impact on the quality of human resources[6]. The problem of stunting has a fairly serious impact, including; the short term is associated with morbidity and mortality in infants/toddlers[7], the medium term is associated with low intellectual and cognitive abilities[8], and the long term is associated with the quality of human resources and the problem of degenerative diseases in adulthood[5]. Meanwhile, children are the nation's assets in the future. You can imagine how the condition of human resources in Indonesia will be in the future if currently many

167

Indonesian children suffer from stunting. This nation will not be able to compete with other nations in facing global challenges[9]. If stunting growth can be prevented, it is hoped that economic growth can be better, without being burdened by medical costs for degenerative diseases[10].

Stunting toddlers experience chronic nutrition caused by many factors such as socioeconomic conditions, maternal nutrition during pregnancy, infant pain, and lack of nutritional intake in infants[11]. Stunting is not only caused by poor nutrition experienced by pregnant women and children under five[12]. The most decisive intervention to reduce the prevalence of stunting is carried out in the first 1,000 days of life (HPK) of children under five. Health services include ANC-Ante Natal Care (health services for mothers during pregnancy), Post Natal Care, quality early learning, lack of household/family access to nutritious food, and lack of access to clean water and sanitation.

Several studies conducted in Dhaka and Bangladesh show that children born with low birth weights have the potential to become malnourished and even worse off. Therefore, pregnant women's nutrition and health status are very important determinants of stunting[13][14]. So far, health improvement in pregnant women has focused more on improving nutrition, while several other factors have not received maximum attention[4]. According to the Ministry of Health of the Republic of Indonesia, one of the provinces that has the highest stunting rate in Indonesia is West Sumatra. The West Sumatra Health Office reported that from 2015 to 2018, the number of stunting under-fives was always above 20%. Judging from the 2018 Riskesdas data, the stunting rate in West Sumatra reached 30% of all children under five. One of the areas that have the largest stunting rate is Padang Pariaman Regency. This area is ranked number 3 highest in West Sumatra. Based on the weighing of infants under five years of age (toddlers), in 2018 it was estimated that as many as 5,862 (19%) toddlers experienced a disorder in the form of stunting, where there were 26.3 percent of short children and 12.9 percent of very short children.

Genetic and environmental factors are also one of the biggest factors that can trigger stunting. In 2019, [15]stated that 90% of stunting was influenced by the environment and 10% by heredity. One of the environmental factors that influence is family. Families have a crucial role in preventing and dealing with stunting problems because they are a determining factor in how we try to prevent and treat disease. The family also plays an important role in every phase of life, starting from the fetus in the womb[14] as well as providing education to pregnant women about the importance of checking the condition of pregnancy health workers.

In addition, one of the conditions in the family environment that do not pay attention to the health of pregnant women is the habit of smoking in the house, especially among the husband of pregnant women[10]. The results of research[16], stated that in the umbilical cord serum of non-smoking women who were exposed to cigarette smoke, cotinine (a metabolite of nicotine) was found to be 2.76 ng/ml, and cotinine was found in women who smoked 59.33 ng/ml. This can lead to stunted growth and development of children, thus triggering stunting[17]. One of the family environmental factors that can also trigger stunting is the husband's lack of knowledge and attitudes about health care for pregnant women and the husband's low level of education as the head of the family[5]. Therefore, environmental management efforts are important to empower the families of pregnant women. There have been many efforts and efforts made by the government order to reduce stunting rates in Indonesia. To overcome the above, it is necessary to have many

168

factors that are influenced by the husband's actions against his pregnant wife for early prevention of stunting in pregnant women, which were analyzed using the SEM method. This method not only analyzes the direct relationship but also the indirect relationship in a causal relationship model between variables so that it can be added more accurately to the factors that affect stunting in pregnant women.

METHODS

This type of research is Research and Development (R&D) research. This development research is a research method that systematically aims to find, formulate, improve, develop, produce, and test the effectiveness of certain product models/strategies/methods, services, or procedures that are superior, new, effective, productive, and meaningful[18] [19] [20]. The model in this study was developed using the ASSURE model approach (Analyze Learners; State Objectives, Select Methods, Media, and Materials; Utilize Media and Materials; Require Learner Participation, and Evaluate and Revise). The ASSURE model was developed by Heinich in 2005. The choice of the ASSURE model approach in this study is because the steps or stages of the ASSURE model include community involvement in the implementation of the model, and the design is designed and developed to create effective and efficient activities, logical and simple[21], so it is considered very appropriate to the achievement of the objectives of this study. The product that will be developed in this study is a model for structuring a family environment for pregnant women to prevent early stunting in Padang Pariaman Regency.

This research was conducted in Padang Pariaman Regency, West Sumatra by taking representatives of the location of the Puskesmas in several sub-districts that had the highest stunting rate. The implementation time of this research starts from July to December 2021. The population in this study was 156 husbands of pregnant women taken from 3 health centers with the highest stunting rate in the Padang Pariaman Regency area, while the sample size for filling out questionnaires in this study was 112 people obtained by calculating the sample size based on Slovin calculations.

RESULTS

The results of data analysis using SEM on the development of a model for structuring the family environment, especially for husbands of pregnant women for early prevention of stunting. To get the value of the variables to be studied, each observed variable is composited first based on its group in the SEM which is called the loading factor value. The correlation value is the result of an analysis with a conceptual model that will be the benchmark for comparing it.

For composite variables, it is intended to see the validity or invalidity of data on the observed variable in the latent/unobserved variable or how much variation in indicators can be explained by the latent variable. In research that is still in the development stage or testing theory, the

standard value so that the composite value or loading factor is met is using a tolerance value greater than 0.5[22]. The composite value obtained can be seen in Fig 1 below.
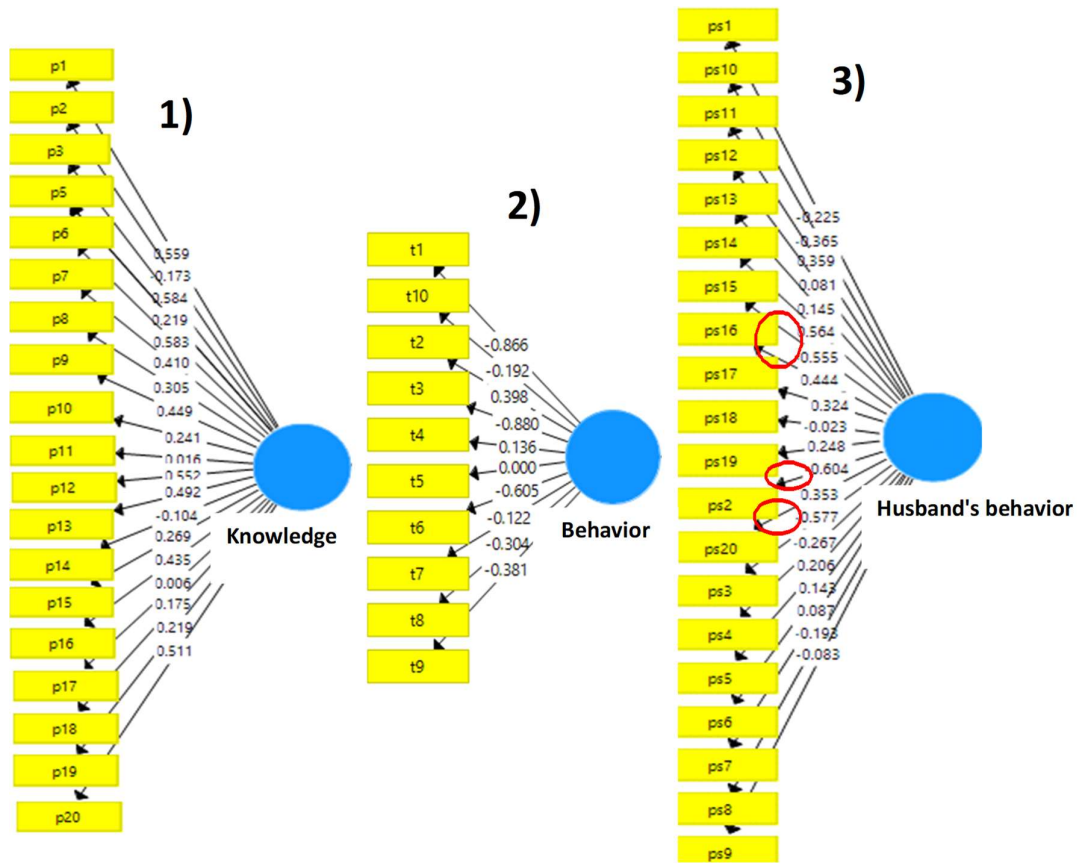

Figure 1. 1) The loading value of husband's knowledge composite factor; 2) The loading value of the husband's action composite factor; and 3)The loading value of husband's behavior composite factor

Husband's knowledge of composite

In Fig 1, information is obtained that there are 5 significant indicators out of 20 indicators as knowledge indicators because they have a loading factor value greater than 0.5. This shows that the husband's level of knowledge meets the standard of tolerance value. With a sufficient level of knowledge, the stage of accepting new ideas requires several processes such as the learning process, the selection process, adjustment, and adaptation. According to Kalangie, this process can take place at different degrees of speed between one social system and another[23].

Husband's action composite

In Fig 1, information is obtained that there are 3 significant indicators out of 10 indicators as action indicators because they have a loading factor value greater than 0.5. This means that delays in decision-making at the family level can be avoided if mothers and families, especially

husbands of pregnant women can know the danger signs of pregnancy and childbirth and the actions that need to be taken to prevent early stunting[24].

Husband's behavior composite

In Fig 1, information is obtained that there are 4 significant indicators out of 20 indicators as indicators of a husband's behavior because they have a loading factor value greater than 0.5. Based on the CFA analysis, the husband's positive behavior toward pregnant women can have a good health impact on pregnant women and there is no stunting in toddlers. It can be further explained that these positive behaviors include the husband's support. In addition, protective behaviors such as prescribing vitamin A, immunization, good sanitation, and the use of iodized salt depend on the level of education of both parents[25].

CONCLUSION

From the three composites above, it can be concluded that with the loading factor value that meets the standard, the husband's role can reduce stunting rates in the Padang Pariaman District Health Center. However, the percentage of stunting in 2017 in Padang Pariaman Regency is still above the WHO standard. This is largely determined by changes in the characteristics indicated by a significant reduction in stunting rates. The role of the family environment, especially the husband, is the best indicator in improving the quality of early stunting prevention in the Padang Pariaman Regency area. As is known, the quality of the family environment is directly related to better cognitive development.

REFERENCES

1   Mitra, M. (2015). Stunting problems and interventions to prevent stunting (a Literature Review). *Jurnal Kesehatan Komunitas*, *2*(6), 254-261.

2   Aditiawarman, A., Armini, N. K. A., & Kristanti, Y. I. (2008). The Beneficience of Family Social Support toward Anticipatory Behaviour of Pregnancies Sign's Alert in Primigravida. *Jurnal Ners*, *3*(1), 67-71.

3   Welasasih, B. D., & Wirjatmadi, R. B. (2012). Beberapa faktor yang berhubungan dengan status gizi balita stunting. *The Indonesian Journal of Public Health*, *8*(3), 99-104.

4   Almatsier S., (2010). Prinsip Dasar Ilmu Gizi. Jakarta: Gramedia Pustaka Utama

5   Aryastami, N. K., & Tarigan, I. (2017). Kajian kebijakan dan penanggulangan masalah gizi stunting di Indonesia. *Buletin Penelitian Kesehatan*, *45*(4), 233-240.

6   Ekawati, R., Supangat, S., & Hairrudin, H. (2019). The Relationship between Exposure Tobacco Smoke in Pregnant Women with Perinatal Death in Jember Regency. *Journal of Agromedicine and Medical Sciences*, *5*(3), 141-147.

7   Marimbi, H. (2010). Tumbuh kembang, status gizi dan imunisasi dasar pada balita. *Yogyakarta: Nuha Medika*, *42*.

8   Lestari, T. M. P., & Kadarisman, Y. (2015). Perilaku ibu hamil dalam menjaga kesehatan kehamilan di desa pasar baru kecamatan pangean kabupaten kuantan singingi. *Dalam JOM FISIP*, *2*(2).

9   Karamelaka. W, (2015). Faktor Yang Mempengaruhi Pemanfaatan Pelayanan Antenatal Care di Wilayah Kerja Puskesmas Kec. Wolo Kabupaten Kolaka Tahun 2015, FKM Universitas Halu Oleo Kendari

10   Renyoet, B. S. (2013). *Hubungan pola asuh dengan kejadian stunting anak usia 6-23 bulan di wilayah pesisir kecamatan tallo kota makassar* (Doctoral dissertation, Universitas Hassanuddin).

11   Zaif, R. M., Wijaya, M., & Hilmanto, D. (2017). Hubungan antara Riwayat Status Gizi Ibu Masa Keha milan dengan Pertumbuhan Anak Balita di Kecamatan Soreang Kabupaten Bandung. *Jurnal Sistem Kesehatan*, *2*(3).

12   Bell, M. L., & Ebisu, K. (2012). Environmental inequality in exposures to airborne particulate matter components in the United States. *Environmental health perspectives*, *120*(12), 1699-1704.

13   Birmeta, K., Dibaba, Y. & Woldeyohannes, D., (2013). Determinants of Maternal Health Care Utilization in Holeta town, Central Ethiopia. BMC Health Services Research, 13(256), pp.1–10

14   Browne, J. L., Kayode, G. A., Arhinful, D., Fidder, S. A., Grobbee, D. E., & Klipstein-Grobusch, K. (2016). Health insurance determines antenatal, delivery and postnatal care utilisation: evidence from the Ghana Demographic and Health Surveillance data. *BMJ open*, *6*(3), e008175.

15   Yadika, A. D. N., Berawi, K. N., & Nasution, S. H. (2019). Pengaruh stunting terhadap perkembangan kognitif dan prestasi belajar. *Jurnal Majority*, *8*(2), 273-282.

16   Hackshaw, A., Rodeck, C., & Boniface, S. (2011). Maternal smoking in pregnancy and birth defects: a systematic review based on 173 687 malformed cases and 11.7 million controls. *Human reproduction update*, *17*(5), 589-604.

17   Lupo, S. M., Tortorelli, L., Invernizzi, M., Ryoo, J. H., & Strong, J. Z. (2019). An exploration of text difficulty and knowledge support on adolescents' comprehension. *Reading Research Quarterly*, *54*(4), 457-479.

18   Barlian E. (2018). *Metodologi Penelitian Kualitatif dan Kuantitatif*. Sukabina: Padang.

19   Yanti, E., Fatimah, S., Razak, A., & Aprihatin, Y. (2021). Direction of Earthquake Disaster Mitigation Policy for Pregnant Mothers based on Local Wisdom. *European Journal of Molecular & Clinical Medicine*, *8*(3), 2189-2196.

20   Yanti, E., Aprihatin, Y., & Iffah, U. (2021). Development Model of Improving the Role of Pregnant Women Husbands for Preventing Early Stunting in Regency Padang Pariaman in 2021. International Journal on Integrated Education. 4(10), 224-226

21   Carol, C., Saara, L., Tiina, P., Gregor, Š., Eva, S., & Esther, C. (2021). Integration of the ASSURE Model for Bachelor of Nursing Training: An International Project. *Интеграция образования*, *25*(3 (104), 372-386.

22   Ramli, N. A., Latan, H., & Nartea, G. V. (2018). Why should PLS-SEM be used rather than regression? Evidence from the capital structure perspective. In *Partial least squares structural equation modeling* (pp. 171-209). Springer, Cham.

[23] Kalangi, S., & Thakur, H. (2019). Status of health management education in India: past, present, and future. *Frontiers in Public Health*, *6*, 375.

[24] Siswanto. (2011). Himpunan Undang-Undang Lingkungan Hidup, Jakarta: PT Bumi Aksara

[25] Semba, R. D., de Pee, S., Sun, K., Sari, M., Akhter, N., & Bloem, M. W. (2008). Effect of parental formal education on risk of child stunting in Indonesia and Bangladesh: a cross-sectional study. *The lancet*, *371*(9609), 322-328.