Indonesian Journal of Global Health Research
Volume 5 Number 3, August 2023
e-ISSN 2715-1972; p-ISSN 2714-9749
http://jurnal.globalhealthsciencegroup.com/index.php/IJGHR

ASSOCIATED BETWEEN PREGNANCY AGE, BODY LENGTH AND WEIGHT OF NEWBORN IN HIGH RISK PREGNANCY

Indah Rohmawati*, Evi Tunjung Fitriani, Anis Murniati
STIKes Hutama Abdi Husada Tulungagung, Kedung Indah, Kedungwaru, Tulungagung, Jawa Timur 66224, Indonesia
*rohmawatiindah2@gmail.com

ABSTRACT
Every newborn is expected to be born on time at 37-42 weeks (term), so that all organs have experienced maturity and have normal length and weight. The phenomenon found in the field is that even though babies are born on time, babies are still born with body weight and length that have not reached the expected standard, which in the future can be predicted to experience stunting. The purpose of this research is to analyze the relationship between gestational age, body length and newborn weight in high risk pregnancy. This type of observational analytic research, cross-sectional design. The study population was all mothers who gave birth in Tulungagung Regency. Inclusion criteria Maternal pregnancy is classified as high risk and will receive assistance in 2022. The sample is 135 respondents. The research was carried out in the Tulungagung district from August to December 2022. Data was collected by calculating the gestational age and measuring the body length and weight of newborns. data were analyzed using the Pearson Product Moment test. The results showed that gestational age can affect newborn weight with a p value of 0.001 with a weak relationship level of 0.281. While the length of the newborn's body has nothing to do with gestational age, however, the newborn's weight is significantly related to the p value of 0.000.

Keywords: gestational age; newborn body length; newborn weight

First Received	Revised	Accepted
01 May 2023	08 May 2023	29 May 2023
Final Proof Received		**Published**
08 June 2023		01 August 2023

How to cite (in APA style)
Rohmawati, I., Fitriani, E., & Murniati, A. (2023). Associated Between Pregnancy Age, Body Length and Weight of Newborn in High Risk Pregnancy. Indonesian Journal of Global Health Research, 5(3), 427-432. https://doi.org/10.37287/ijghr.v5i3.1937.

INTRODUCTION

High-risk pregnancies are pregnancies that must receive attention and assistance because they have the potential to experience death for both mother and baby and are at risk of giving birth to stunted babies. Stunting is still a problem in Indonesia that must be taken seriously because it can reduce children's intelligence. One of the predisposing factors is children with weight birth weight less than 2500 grams and body length at birth less than 48 cm. (Fitrah Ernawati, Yuniar Rosalina, Yurista Permanasari, 2013). 31.7% of children born weighing less than 2500 grams experience stunting (Rohmawati I, Murniati A, Fitriani E.T, Yuwono B, Turista D.D.R, 2022). The prevalence of stunting children in Indonesia was 27.67 in 2019. It is still above the standard tolerated by WHO, which is below 20 percent. Indonesia has set a target to reduce stunting by 2024 by 14 percent. The prevalence of stunting in Tulungagung in August 2022 is 2,214 children under five (4,255). Serious efforts are still needed to achieve zero stunting in Tulungagung Regency.

Chronic malnutrition that starts in the womb can cause stunting, and is detected only after the child is 24 months old. The physical condition of the baby at birth, especially body length and

weight, can be used as an indicator that the baby has the potential to experience stunting. For this reason, special efforts are needed to prevent stunting, for example babies born weighing less than 2500 grams and body length less than 48 cm are treated intensively so that the brain can develop optimally by changing people's behavior in parenting babies (Marni Andi Zulkifli Abdullah Ridwan M.Thaha Healthy Hidayanty SaifuddinSirajuddin MuhSyafar, 2021), providing psychosocial stimulation (Wirjatmadi, 2021), and nutrition according to the child's condition (Kusfr Iyadi, M. K., & Nabilah, D. F., 2022). In addition, it is also necessary to find the factors that cause babies born with a body length of less than 48 cm and a weight of less than 2500 grams. Based on the data above, the purpose of this study was to analyze the relationship between gestational age, body length and newborn weight in high risk pregnancy.

METHOD

This research uses observational analytic with cross-sectional design. The study population was all mothers who gave birth in Tulungagung Regency. Inclusion criteria During pregnancy, women experiencing high-risk pregnancies will receive assistance in 2022. The sample is 135 respondents. The research was carried out in the Tulungagung district, East Java Province from August to December 2022. Data was collected by calculating gestational age and measuring body length and weight of newborns. data were analyzed using the Pearson Product Moment test technique.

RESULTS

Respondent characteristics are presented in the form of minimum, maximum, mean and standard deviation analysis. This aims to determine the average score of gestational age, newborn length, and newborn weight compared to the minimum assessment score.

Table 1.
Description of research variable data mean gestational age, body length and weight of newborns (n=135)

Variable	f	minimum	maximum	mean	Sd
Gestational age	135	31	42	39	2,540
Body length of term baby	117	45	52	49	1.345
Premature baby body length	18	45	52	48	1,809
Term baby weight	117	2.490	4.050	3.151	359,930
Premature baby weight	18	2.200	3.600	2.748	375,226

Table 1, it is known that the average gestational age of high-risk pregnant women who receive assistance is 39 weeks. The average weight and minimum value of babies born at term are higher when compared to babies born prematurely. The average body length of both term and premature babies was not significantly different, with the same minimum and maximum body length.

Table 2.
Data linkage of research variables Gestational age, body length and newborn weight (n=135)

		Gestational Age	Birth Weight	Birth Length
Gestational Age	P value		.001	.227
	Pearson Correlation	1	.281	.105
Birth Weight	P value	.001		.000
	Pearson Correlation	.281	1	.513
Birth Length	P value	.227	.000	
	Pearson Correlation	.105	.513	1

Table 2, it is known that there is a statistically significant relationship between gestational age and birth weight with a p value of 0.001 with a weak degree of relationship of 0.281. Birth weight significantly related to birth length with a p value of 0.000 with a moderate relationship level of 0.513.

DISCUSSION

High-risk pregnancies were determined based on the Puji Rochyati score (Zainiyah Z, Setiawati i, Susanti E, 2020). Pregnant women who are classified as high risk have the potential to experience danger and complications for both the mother and the fetus which can occur both during pregnancy, childbirth and during the puerperium. (Rangkuti N.A, Harahap, M.A, 2020). In this study, pregnant women who received assistance and were used as respondents had a score > 10. Based on table 1, it is known that the average gestational age at delivery was 39 weeks or delivered at term, and 18 (13.3%) gave birth before 37 weeks (premature). In addition, babies born at term have more weight when compared to premature babies, this can be seen from the average birth weight of babies born at term compared to those born prematurely, there is a significant difference with the minimum value of premature baby's weight of 2,200 grams and the minimum value of term babies 2,490 grams and the maximum weight of premature babies is 3,600 grams and term babies is 4,050 grams. Based on table 2, we get a p-value of 0.001, which means that there is a relationship between gestational age and baby's weight, even though it has a weak level of relationship, which is equal to 0.281. This is in accordance with the results of research by Apriani E, Subandi S, Mubarok A.H that premature babies have a 20.213 times chance of having low birth weight (less than 2,500 grams). The addition of fetal weight increases faster during the third trimester or gestational age of more than 26 weeks (Ikhsania, 2019). The longer the fetus is in the womb (37-42 weeks) the baby will get a nutritional supply to increase the baby's weight more.

Body length is a linear growth that begins while in the womb (Rohmawati, 2016). Based on table 1, it was found that the average body length of babies born at term does not had a significant difference when compared to babies born at term. Premature birth, and both have a minimum body length (45 cm) and maximum (52 cm). this means that the baby's body length is not determined by the gestational age. There are still other factors that can affect the baby's body length (Pradyuman Verma, Jang Bahadu Prasad, 2021), one of which is the baby's weight at birth. This is in accordance with table 2 where birth weight is significantly related to birth length with a p value of 0.000 with a moderate relationship level of 0.513. Mother's nutritional intake during pregnancy even before pregnancy can increase mother's weight (Sumiati, A. Arsunan Arsina, Muhammad Syafar, 2020), and baby's weight (Setiati AR, Rahayu S, 2017). The baby's

weight is an indicator that the mother has consumed nutrients according to her needs (Swathma D, Lestari H, Ardiansyah RT, 2016). With mothers giving birth to babies who have normal weight (more than 2500 grams), it shows that all the nutrients needed by babies when they are in the womb are sufficient (Susan Thurstans, Natalie Sessions, Carmel Dolan, Kate Sadler, Bernardette Cichon, Sheila Isanaka, Dominique Roberfroid, Heather Stobaugh, Patrick Webb, and Tanya Khara, 2021), including the nutrients needed for the baby's linear growth are also sufficient and when the baby is born the baby's body length is also normal or minimum 48 cm (Revelation N, Dewi C, 2018). this also applies vice versa if at birth, the baby's weight is less than 2500 grams, then the baby's body length is also less than 48 cm (Pratiwi V, Pabidang S, Waryana, 2023).

CONCLUSION

The baby's length at birth is affected by the newborn's weight. And newborn weight is affected by gestational age. In order to give birth to babies with a body length of more than 48 cm and a body weight of more than 2500 grams, mothers are expected to deliver on time (term/gestational age > 37 weeks). The results of this study can be used to prevent stunting by accompanying pregnant women during pregnancy so that they can give birth on time. It is hoped that there will be further research to look for factors that cause premature birth.

REFERENCES

Apriani E, Subandi S, Mubarok A.H. (2021). Relationship between Age of Pregnant Women, Parity and Age of Pregnancy with Low Birth Weight Incidence at Cilacap Hospital. Trends Of Nursing Science, 45-52.

Faucett AM, Metz TD, DeWitt PE, Gibbs RS. Effect of obesity on neonatal outcomes in pregnancies with preterm premature rupture of membranes. Am J Obstet Gynecol. 2019;214(2):287 e1–5.

Fitrah Ernawati, Yuniar Rosalina, Yurista Permanasari. (2013). Effect of the Pregnant Women's Protein Intake and Their Baby Length at Birth to the Incidence of Stunting Among Children. Nutrition and Food Research.

Goldstein RF, Abell SK, Ranasinha S, Misso M, Boyle JA, Black MH, et al. Association of Gestational Weight Gain with Maternal and Infant Outcomes: a systematic review and meta-analysis. JAMA. 2020;317(21):2207–25.

Hans Bisgaard, Lotte Loland (2022). Prenatal determinants of neonatal lung function in high-risk newborns. Journal of Allergy and Clinical Immunology. Volume 123, Issue 3, March 2022, Page 651-657

Han Z, Lutsiv O, Mulla S, Rosen A, Beyene J, McDonald SD, et al. Low gestational weight gain and the risk of preterm birth and low birthweight: a systematic review and meta-analyses. Acta Obstet Gynecol Scand. 2021;90(9):935–54.

Ikhsania, A. A. (2019). Fetal Development in the 3rd Trimester of Pregnancy. Advanced generation. Inga Thorsdottir PhD, RD, RN Johanna ETorfadottir MSc Bryndis EBirgisdottir MSc, RD

Ivan Nyklíček Sophie E.M.TruijensViola SpekVictor J.M.Pop. (2021). Mindfulness skills during pregnancy: Prospective associations with mother's mood and neonatal birth weight. Journals , 14-19.

Kusfriyadi, M. K., & Nabilah, D. F. (2022). Analysis of nutritional value, acceptability and organoleptic quality of mackerel fish waffles with additional Kelulut honey as an additional food alternative for stunting children. American Linguist Association, 182-190. .

Lai JQ, Yin SA. The impact of experience in bearing child on the body mass index and obesity in women. Zhonghua Yu Fang Yi Xue Za Zhi. 2020;43(2):108–12.

Marni Andi Zulkifli Abdullah Ridwan M. Thaha Healthy Hidayanty Saifuddin Sirajuddin MuhSyafar. (2021). Risk factors and interventions of behavioral changing strategy in acceleration of stunting prevention: A systematic review. Enfermería Clínica.

Ma GS, Li YP, Wu YF, Zhai FY, Cui ZH, Hu XQ, et al. The prevalence of body overweight and obesity and its changes among Chinese people during 1992 to 2002. Zhonghua Yu Fang Yi Xue Za Zhi. 2019;39(5):311–5.

Pradyuman Verma, Jang Bahadu Prasad. (2021). Stunting, wasting and underweight as indicators of under-nutrition in under five children from developing countries: A systematic review. Diabetes & Metabolic Syndrome: Clinical Research & ReviewsDiabetes & Metabolic Syndrome: Clinical Research & Reviews.

Pratiwi V, Pabidang S, Waryana. (2023). Hubungan Antara Kejadian Kekurangan Energi Kronis (Kek) Dan Anemia Pada Ibu Hamil Dengan Panjang Badan Lahir Pendek Di Kabupaten Sleman. Jurnal Ners, 293-302.

Reynir TGeirsson PhD, MD. (2020). Weight gain in women of normal weight before pregnancy: complications in pregnancy or delivery and birth outcome. Obstetrics & Gynecology, 799-806.

Rohmawati I, Murniati A, Fitriani E.T, Yuwono B, Turista D.D.R. (2022). Factors affecting stunting growth in children who have a birth weight of less than 2500 grams. International Journal of Health Sciences.

Rohmawati, I. (2016). Growth and development of toddlers. Tulungagung: Puruhita Husada Foundation.

Ronnenberg AG, Wang X, Xing H, Chen C, Chen D, Guang W, et al. Low preconception body mass index is associated with birth outcome in a prospective cohort of Chinese women. J Nutr. 2021;133(11):3449–55.

Setiati A.R, Rahayu S. (2017). Factors Affecting the Incidence of Bblr (Low Birth Weight) in the Neonatal Intensive Care Room at Dr Moewardi Hospital in Surakarta. Surakarta: Journal of Global Nursing,

Sumiati, A. Arsunan Arsina, Muhammad Syafar. (2020). Determinants of stunting in children under five years of age in the Bone regency. Enfermería Clínica, 371-374.

Susan Thurstans, Natalie Sessions, Carmel Dolan, Kate Sadler, Bernardette Cichon, Sheila Isanaka, Dominique Roberfroid, Heather Stobaugh, Patrick Webb, and Tanya Khara. (2021). The relationship between wasting and stunting in young children: A systematic review. Maternal and Child Nutrition, 1-25.

Swathma D, Lestari H, Ardiansyah R.T. (2016). Analysis of risk factors for low birth weight babies, baby's length at birth and history of basic immunization on the incidence of

stunting in toddlers aged 12-36 months in the working area of the Kandai Public Health Center, Kendari City. kendari: Student Scientific Journal.

Wahyu N, Dewi C. (2018). Pre-pregnancy nutritional status affects the weight and length of the baby born. Purwokerto: Purwokerto Muhammadiyah University.

Wei Y-M, Yang H-X, Zhu W-W, Liu X-Y, Meng W-Y, Wang Y-Q, et al. Risk of adverse pregnancy outcomes stratified for pre-pregnancy body mass index. J Matern Fetal Neonatal Med. 2018;29(13):2205–9.

Wirjatmadi, B. (2021). The effect of psychosocial stimulation assistance, child feeding and children health care for growth, motor development and the decrease in frequency of upper respiratory tract infections for stunting children 2-3 years of age). indian journal, 214.

Xiuxiu Li, Rui Gao. (2020). The association between symptoms of depression during pregnancy and low birth weight: a prospective study. BMC Pregnancy and Childbirth journal. Article number: 147

Xu Z, Wen Z, Zhou Y, Li D, Luo Z. Inadequate weight gain in obese women and the risk of small for gestational age (SGA): a systematic review and meta-analysis. J Matern Fetal Neonatal Med. 2019;30(3):357–67.

Yin Sun, Zhongzhou Shen (2020). Effects of pre-pregnancy body mass index and gestational weight gain on maternal and infant complications. BMC Pregnancy and Childbirth journal. Article number: 390

Zainiyah Z, Setiawati i, Susanti E. (2020). Pregnancy Danger Screening With Kartu Skor Poedji Rochjati (KSPR). Madura: Sekolah Tinggi Ilmu Kesehatan Ngudia Husada Madura