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Effects Of Wearing A Brain Booster Smart Belt During Pregnancy On The Development Of Babies Aged 1–12 Months

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Abstract
Child development is an important issue that requires urgent global attention. The Ministry of Health of the Republic of Indonesia has developed programs to increase fetal/child development potential. One of the three main programs is performed cognitive stimulation through sound stimulation using a brain booster smart belt. The study aimed to determine the effects of using the brain booster smart belt during pregnancy on the development of babies aged 1–12 months. This study was conducted in 2019 with a retrospective cohort design. The exposed group included 73 babies from mothers who wore the smart belt during pregnancy. The non-exposed group had 73 randomly selected babies from mothers who did not wear the smart belt. Data collection was carried out by trained midwives who also assessed infant development using the Denver Form II. Of 146 babies aged 1–12 months, 12.3% experienced developmental delays (20.5% babies from mothers who did not wear the Smart Belt and 4.1% babies from the mothers who wore the smart belt). The use of the smart belt has significant effects on the development of babies aged 1–12 months, with an adjusted OR of 6.88 (95% CI: 1.76–26.88). Babies born to mothers who did not wear the smart belt during pregnancy have a 6.9 times greater risk of experiencing developmental delays than babies born to mothers who wore the smart belt during pregnancy. The brain booster smart belt program for pregnant women should be continued and monitoring the program's implementation is necessary.

Keywords: brain booster program, brain booster smart belt, child development, cognitive stimulation, Denver Form II

Introduction
Child development is an important issue that requires urgent global attention and challenges (Jolly, 2007; Lake, 2011). More than 200 million children under the age of five in low- and middle-income countries have not reached their developmental potential due to poor health, nutrition, and other early life stages of investment (Grantham-McGregor et al., 2007). Based on 2010 data, even estimates show that 250 million children under-five (43%) in low- and middle-income countries are at risk of not reaching their developmental potential (Black et al., 2017). Whereas early childhood is recognized as an essential period for brain development, the adverse effects at this stage can limit the potential for human resource development in the following years (Aboud & Yousafzai, 2015; Black et al., 2017).

Responding to this problem, the Ministry of Health of the Republic of Indonesia (MoH RI), through the Center of Care, Improvement, and Management of Health Intelligence, has developed a pregnancy program to increase the potential for fetal intelligence, namely, the Brain Booster Program (Ministry of Health of the Republic of Indonesia, 2009). The Center of Care, Improvement and Management of Health Intelligence was established under Regulation of the MoH RI Number 1295/Menkes/Per/XII/2007 concerning the First Amendment to the Regulation of the Minister of Health Number 1575/Menkes/Per/XI/2005 concerning Organization and Work Procedures of the Ministry of Health (Ministry of Health of the Republic of Indonesia, 2007). This program is an effort to provide fetal stimulation during pregnancy to increase the potential for fetal intelligence. Providing proper stimulation and nutrition is expected to improve fetal brain quality, thus increasing the potential for children's intelligence.

In the 2015–2019 action plan, The Health Intelligence Center stated that it should formulate an integrated cross-program approach through brain assessment and brain development (brain stimulation and brain restoration) approaches for all Indonesian people to prepare quality community resources (Center for Health Intelligence Ministry of Health Republic of Indonesia, 2015). This program is implemented by enhancing the ability of bureaucrats to make policies, empowering communities, and involving professionals/academics who contribute to development through cross-sectoral programs in a coordinated, integrated, and synchronized manner with clear targets and indicators.

The MoH RI in the Information and Health Promotion Magazine stated three main programs implemented by the Health Intelligence Center: brain screening, brain stimulation, and brain restoration (Ministry of Health of the Republic of Indonesia, 2012). Brain screening is performed on people who are not sick. It is a promotive and preventive effort to assess the potential for intelligence in normal people. Brain stimulation is a program to stimulate cognitive brain function in healthy people. This cognitive stimulation is performed on the fetus at 20 weeks of gestation through sound stimulation using a brain booster smart belt for 1 hour per day. The stimulation is carried out from 8–11 pm, and the recommended music is Mozart's compositions. Meanwhile, brain restoration is stimulation to overcome brain damage or cognitive impairment by using stimuli to optimize their brains.

In 2019, Salatiga City Health Office supported the Brain Boost program launched by the Ministry of Health of the Republic of Indonesia by giving brain booster Smart Belts to pregnant women. This study aimed to determine the effects of using a smart belt during pregnancy on the development of babies aged 1–12 months.

Methods

Study Population

This study was conducted in Salatiga City in 2019 with a retrospective cohort design, covering five working areas of the Health Center in Salatiga City. The five health centers are Mangunsari, Sidorejo Kidul, Sidorejo Lor, Cebongan, and Tegalrejo. The exposed group included 73 babies from mothers who wore the smart belt during pregnancy. The unexposed group also included 73 randomly selected babies from mothers who did not use the smart belt. All mothers who were respondents gave written consent. Babies with congenital abnormalities and incomplete data were excluded from this study.

Data Collection

Trained midwives conducted data collection (interviews and growth assessments). The dependent variable, infant development, was carried out with the Denver Form II. The primary independent variable, smart belt usage, is measured using several questions, including gestational age when the mother used the smart belt, frequency of use, and duration. Other potential confounding variables, such as mother's education, family income, maternal illness during pregnancy, illness in children after birth, and infant nutritional status, were also measured.

Midwives use the second revision of the Denver Developmental Screening Test (DDST) to measure child development. The DENVER II form consists of a sheet containing the stages of child development (Budiman et al., 2013). The DENVER II form of psychological examination covers four aspects: gross motor, language skills, adaptive-fine motor, and personal-social (Leslie et al., 2005). A psychological examination is carried out in a special room which is relatively quiet. Children may be accompanied, but caregivers cannot guide or help children solve the tested problems. The scoring of items in Denver II is done on the left side of the rectangular box with Pass, Fail, No Opportunity, and Refusal codes. The individual assessment consists of

Advance, Normal, Caution, Delayed, and No Opportunity. After conducting individual assessments, a conclusion is made. There are three types of conclusions from the Denver II test: Normal, Suspected, and Untestable (Frakenburg et al., 1992). It is normal if there is no "delay/D" and at most "one warning/C". Suspect the occurrence of delays if there are 2 "warning/C" and or 1 "delay/D". Untestable if there is a rejected score on 1 item to the left of the age line or rejects 1 item crossed by the age line in the 75% to 90% area. If the results are untestable, a retest will be carried out in 1-2 weeks.

Statistical Analysis

Data analysis was carried out using chi-square and simple logistic regression to assess the relationship between each independent variable and potential confounding variables with the development of babies aged 1-12 months). Multiple logistic regression with a significance level of 0.05 was performed to obtain the adjusted odds ratio (AOR) and 95% confidence interval (CI). All analyzes were performed using SPSS version 17.

Results

Table 1. The relationship between independent variables with the developmental delay of babies aged 1-12 months

Independent Variables	Development of babies aged 1-12 months						COR 95% CI
	Delayed		Normal		Total		
	n=18	% (12.3)	n=128	% (87.7)	n=146	% column	
Mother's Education							
Junior high school or lower	4	11.4	31	88.6	35	24.0	0.89 (0.27-2.92)
Senior high school or higher	14	12.6	97	87.4	111	76.0	
Family Income							
< IDR 1.0 million	3	25.0	9	75.0	12	8.2	reff
IDR 1.0–3.0 million	8	12.1	58	87.9	66	45.2	0.41 (0.09-1.86)
> IDR 3.0 million	7	10.3	61	89.7	68	46.6	0.34 (0.08-1.58)
Mother was sick during pregnancy							
Yes	6	13.6	38	86.4	44	30.1	1.18 (0.41-3.39)
No	12	11.8	90	88.2	102	69.9	
Baby Sick after birth							
Yes	1	14.3	6	85.7	7	4.8	1.20 (0.14-10.55)
No	17	12.2	122	87.8	139	95.2	
Baby nutritional status							
Underweight	1	6.7	14	93.3	15	10.3	0.48 (0.06-3.88)
Normal	17	13.0	114	87.0	131	89.7	
The use of the Smart Belt							
No	15	20.5	58	79.5	73	50.0	6.03 (1.67-21.87)**
Yes	3	4.1	70	95.9	73	50.0	
The gestational age when the mother starts wearing the smart belt							
Do not use	15	20.5	58	79.5	73	50.0	reff
6-8 months	2	3.6	53	96.4	55	37.7	0.15 (0.03-0.67)*
2-5 months	1	5.6	17	94.4	18	12.3	0.23 (0.03-1.85)

Frequency of Smart Belt usage							
Do not use	15	20.5	58	79.5	73	50.0	reff
1-4 days per week	1	3.7	26	96.3	27	18.5	0.15 (0.02-1.19) †
5-7 days per week	2	4.3	44	95.7	46	31.5	0.18 (0.04-0.81) *
Duration of Smart Belt usage							
Do not use	15	20.5	58	79.5	73	50.0	reff
30 minutes - 1 hour	1	2.8	35	97.2	36	24.7	0.11 (0.01-0.87)*
1 hour or more	2	5.4	35	94.6	37	25.3	0.22 (0.05-1.02) †

COR = Crude Odds Ratio (Result for bivariate analysis), CI = Confident Interval,
†p-value<0.1, *p-value<0.05, **p-value<0.01

Table 1 shows that the proportion of delay in infant development among respondents who did not wear the smart belt was 20.5%, whereas only 4.1% among respondents who wore the smart belt. More mothers started using smart belts when they were 6-8 months pregnant (37.7%) and used them 5-7 times per week (31.5%) with a duration of an hour or more per use (25.3%). More mothers with higher education (senior high school or higher) (76%) and were not sick during pregnancy (69.9%). Based on family income, 46.6% earned more than 3 million rupiahs, 45.2% earned 1-3 million rupiahs, and 8.2% earned less than 1 million rupiahs. Meanwhile, based on infant factors, more babies were not sick after birth (95.2%) and had normal nutritional status (89.7%). Variables that had a significant relationship with delayed infant growth were the use of smart belts (COR = 6.03; 95% CI: 1.67–21.87), gestational age when the mother started using smart belts (COR for gestational age 6-8 months= 0.15; 95% CI: 0.03–0.67), frequency of smart belt usage (COR for 5-7 days per week = 0.18; 95% CI: 0.04–0.81), and duration of smart belts usage (COR for 30 minutes – 1 hour = 0.11; 95% CI: 0.01–0.87).

The multiple logistic regression analysis (Table 2) shows the effects of using a smart belt during pregnancy on the developmental delay of babies aged 1-12 months. The use of the smart belt significantly affects the development of babies aged 1–12 months with an adjusted OR of 6.88 (95% CI: 1.76–26.88). Babies born to mothers who did not wear the smart belt during pregnancy have up to 6.9 times greater risk of experiencing developmental delays than babies born to mothers who wore the Smart Belt during pregnancy, after controlling for the confounding.

Table 2. Multiple Logistic Regression the effects of using Brain Booster Smart Belt during pregnancy on the developmental delay of babies aged 1-12 months

Variable	AOR	95% CI AOR		P-value
		Lower	Upper	
The use of the Smart Belt				
No	6.88	1.76	26.88	0.006**
Yes	1.00			
Mother's Education				
Junior high school or lower	0.76	0.20	2.86	0.678
Senior high school or higher	1.00			
Family income				
< IDR 1.0 million	1.00			

IDR 1.0–3.0 million	0.49	0.10	2.55	0.396
> IDR 3.0 million	0.32	0.06	1.73	0.185
Mother was sick during pregnancy				
Yes	1.16	0.36	3.72	0.809
No	1.00			
Baby Sick after birth				
Yes	3.60	0.31	41.48	0.304
No	1.00			
Baby nutritional status				
Underweight	0.51	0.06	4.40	0.540
Normal	1.00			

AOR = Adjusted Odds Ratio, CI = Confident Interval, **p-value<0.01

Discussion

In this study, as many as 12.3% of babies aged 1–12 months (20.5% among respondents who did not wear the Smart Belt and only 4.1% among respondents who wore the smart belt) in Salatiga City were found to experience developmental delays. Overall, the results of this study were lower than the 2013 South East Asian Nutrition Survey (SEANUTS) using the DDST method, which showed that 21.6% of Indonesian children aged under six (0.5–5.9 years) were found to have developmental deviations (Budiman et al., 2013). However, if we only include respondents who did not wear the Smart Belt, the results were slightly below the results of the SEANUTS analysis (20.5% compared to 21.6%). Compared with the result from Kiki Meilia (Meylia et al., 2022), there is a wide difference where the prevalences of children having delayed fine motor, gross motor, and social independence developments were 2.9%, 1.9%, and 2.1%, respectively. Their study used the Pre-Screening Development Questionnaire (KPSP) to detect developmental delays. Several studies in Indonesia did show that the Denver II questionnaire detected more babies with developmental delays than the Pre-Screening Development Questionnaire (KPSP), even though the two questionnaires had fair to moderate agreement (Apriani & Febrianti, 2020; Artha et al., 2016; Kadi et al., 2016; Khasan et al., 2014).

This study found that the use of the Smart Belt has significant effects on the development of babies aged 1–12 months. This is in line with research from Arya et al. (Arya et al., 2012) stated that Prenatal music exposure significantly and favourably influences neonatal behaviour. The infants of mothers exposed to music during pregnancy performed significantly better on 5 of the 7 BNBAS clusters, with the maximal beneficial effect on orientation and habituation. Another study shows that prenatal exposure to music can have long-term plastic effects on the developing brain and enhance neural responsiveness to the sounds used in prenatal training (Partanen et al., 2013). Campbell (2001) also stated that music could enhance the neural connections in the brain, which could stimulate verbal abilities (Campbell, 2001). A further study by Groß et al. (2010) states that music therapy has a measurable effect on children's speech development through treatment interactions with fundamental aspects of speech development (Groß et al., 2010). Thus, music therapy can provide basic and supportive therapy for children with delayed speech development.

Mozart's compositions are the recommended music while using the smart belt (Ministry of Health of the Republic of Indonesia, 2009). The study by Verrusio et al. (2015) on the effects of Mozart's music on brain activity through spectral analysis from EEG. After listening to Mozart, there was an increase in alpha waves and an index of the median frequency of alpha background rhythm activity (patterns of brain wave activity related to memory, cognition, and an open mind to problem-solving) (Verrusio et al., 2015). This may indicate that Mozart's music can activate cortical neuronal circuits associated with attention and cognitive function. In another study, Fatmawati stated differences in the influences of classical music and murottal stimulation on the heart rate and movements of the baby in the womb (Fatmawati, 2013). The results showed that classical music increased the heart rate and movements of the baby in the womb compared with murottal stimulation and controls.

This smart belt is also equipped with a headset so mothers can also listen to music. For mothers themselves, music intervention was found to reduce anxiety (Corbijn van Willenswaard et al., 2017) and control psychosocial stress during pregnancy (Chang et al., 2015). Maternal anxiety during pregnancy was found to be predictive of "difficult" infant temperament (Austin et al., 2005). During pregnancy, positive maternal mental health is also associated with adaptive development in early childhood, especially in cognitive, language, and competencies (Phua et al., 2017).

Conclusions and suggestions

The use of the smart belt has significant effects on the development of babies aged 1–12 months with an adjusted OR of 6.88 (95% CI: 1.76–26.88). Babies born to mothers who did not wear the smart belt during pregnancy have a 6.9 times greater risk of experiencing developmental delays than babies born to mothers who wore the smart belt during pregnancy.

The smart belt program should be continued and further improved to obtain more optimal research results. It is necessary to monitor the implementation of the smart belt program during pregnancy in Salatiga City by midwives at the health center as much as possible, persuading pregnant women to wear the Smart Belt every day for half an hour starting from two months of pregnancy.

Limitation

This study uses primary data where the number of samples is limited following the number of babies from mothers who use brain booster smart belts during pregnancy in Salatiga City. The number of samples corresponds to the number of brain booster smart belts distributed from the public health center where the research is located. This may potentially lead to bias as the two groups (exposed and unexposed) may not be comparable. This retrospective cohort study also relies heavily on the availability of complete and accurate records from midwives, especially for assessments with Denver Form II, which may be challenging. Before conducting the assessment, midwives received training, so we believe in the results of the recording from the midwives.

Conflict of Interest

The authors declare that they have no conflict of interest.

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References

1. Aboud, F. E., & Yousafzai, A. K. (2015). Global health and development in early childhood. Annual Review of Psychology, 66, 433–457.
2. Apriani, D., & Febrianti, T. (2020). Pre-School Age Children between KPSP Examination Method and Denver II: Case Study at Gandus Health Center Palembang [Anak Usia Pra Sekolah antara Metode Pemeriksaan KPSP sengan Denver II Studi Kasus di Puskesmas Gandus Palembang]. Jurnal Keperawatan Sriwijaya, 7(1), 34–38.
3. Artha, N. M., Sutomo, R., & Gamayanti, I. L. (2016). Agreement of results between the pre-screening developmental questionnaire, parent’s evaluation of developmental status, and the Denver-II test for developmental screening of children under five [Kesepakatan hasil antara kuesioner pra skrining perkembangan, parent’s evaluation of developmental status, dan tes Denver-II untuk skrining perkembangan anak balita]. Sari Pediatri, 16(4), 266–270.

4. Arya, R., Chansoria, M., Konanki, R., & Tiwari, D. K. (2012). Maternal Music Exposure during Pregnancy Influences Neonatal Behaviour: An Open-Label Randomized Controlled Trial. International Journal of Pediatrics, 2012, 901812. https://doi.org/10.1155/2012/901812
5. Austin, M.-P., Hadzi-Pavlovic, D., Leader, L., Saint, K., & Parker, G. (2005). Maternal trait anxiety, depression and life event stress in pregnancy: relationships with infant temperament. Early Human Development, 81(2), 183–190.
6. Black, M. M., Walker, S. P., Fernald, L. C. H., Andersen, C. T., DiGirolamo, A. M., Lu, C., McCoy, D. C., Fink, G., Shawar, Y. R., Shiffman, J., Devercelli, A. E., Wodon, Q. T., Vargas-Barón, E., & Grantham-McGregor, S. (2017). Early childhood development coming of age: science through the life course. The Lancet, 389(10064), 77–90. https://doi.org/https://doi.org/10.1016/S0140-6736(16)31389-7
7. Budiman, B., Syarief, N. S., & Soekatri, M. (2013). Mental Development of Indonesian Infant and Children: SEANUTS Indonesia Results [Perkembangan Mental Bayi dan Anak Indonesia: Hasil SEANUTS Indonesia]. Gizi Indonesia, 36(2), 153–160.
8. Campbell, D. (2001). The Mozart Effect for Children: Awakening Your Child’s Mind, Health, and Creativity with Music [Efek Mozart bagi Anak-anak: Meningkatkan daya pikir, Kesehatan, dan Kreativitas Anak melalui Musik]. Gramedia.
9. Center for Health Intelligence Ministry of Health Republic of Indonesia. (2015). 2015-2019 Health Intelligence Center action plan [Rencana Aksi Pusat Intelegensia Kesehatan 2015-2019]. https://adoc.pub/pusat-inteligensia-kesehatan-rencana-aksi-program-dan-kegiat.html
10. Chang, H.-C., Yu, C.-H., Chen, S.-Y., & Chen, C.-H. (2015). The effects of music listening on psychosocial stress and maternal–fetal attachment during pregnancy. Complementary Therapies in Medicine, 23(4), 509–515. https://doi.org/https://doi.org/10.1016/j.ctim.2015.05.002
11. Corbijn van Willenswaard, K., Lynn, F., McNeill, J., McQueen, K., Dennis, C.-L., Lobel, M., & Alderdice, F. (2017). Music interventions to reduce stress and anxiety in pregnancy: a systematic review and meta-analysis. Bmc Psychiatry, 17(1), 1–9.
12. Fatmawati, E. (2013). The Effect of Stimulation Between Classical and Murotal Music on Infant Heart Rate and Fetal Movements in Second Trimester and Third Trimester Pregnant Women [Pengaruh Pemberian Stimulasi antara Musik Klasik dan Murotal terhadap Denyut Jantung Bayi dan Ge. Universitas Sebelas Maret.
13. Frakenburg, W., Dodds, J., Archer, P., Bresnick, B., Maschka, P., Edelman, N., & Shapiro, H. (1992). The Denver-II Training Manual. Denver Developmental Materials, Inc.
14. Grantham-McGregor, S., Cheung, Y. B., Cueto, S., Glewwe, P., Richter, L., & Strupp, B. (2007). Developmental potential in the first 5 years for children in developing countries. Lancet, 369(9555), 60–70. https://doi.org/10.1016/S0140-6736(07)60032-4
15. Groß, W., Linden, U., & Ostermann, T. (2010). Effects of music therapy in the treatment of children with delayed speech development - results of a pilot study. BMC Complementary and Alternative Medicine, 10(1), 39. https://doi.org/10.1186/1472-6882-10-39
16. Jolly, R. (2007). Early childhood development: the global challenge. Lancet (London, England), 369(9555), 8–9. https://doi.org/10.1016/S0140-6736(07)60007-5
17. Kadi, F. A., Garna, H., & Fadlyana, E. (2016). Equivalence of the results of screening for the risk of developmental deviation according to the developmental pre-screening questionnaire (KPSP) and Denver II in children aged 12-14 months with low birth weight [Kesetaraan hasil skrining risiko penyimpangan

perkembangan menurut cara kuesioner praskrining perkembangan (KPSP) dan denver II pada anak usia 12-14 bulan dengan berat lahir rendah]. Sari Pediatri, 10(1), 29–33.
18. Khasan, U., Kep, G. S. L. M. K. S., & Oktiawati, N. A. (2014). Using the Denver Developmental Screening Test II (Denver II) and the Developmental Pre-Screening Questionnaire (KPSP) [Menggunakan Denver Developmental Screening Test Ii (Denver II) dan Kuesioner Pra Skrining Perkembangan (KPSP)]. Jurnal Keperawatan Anak, 2(1), 44–51.
19. Lake, A. (2011). Early childhood development - Global action is overdue. The Lancet, 378(9799), 1277–1278. https://doi.org/10.1016/S0140-6736(11)61450-5
20. Leslie, L. K., Gordon, J. N., Meneken, L., Premji, K., Michelmore, K. L., & Ganger, W. (2005). The physical, developmental, and mental health needs of young children in child welfare by initial placement type. Journal of Developmental and Behavioral Pediatrics : JDBP, 26(3), 177–185. https://doi.org/10.1097/00004703-200506000-00003
21. Meylia, K. N., Siswati, T., Paramashanti, B. A., & Hati, F. S. (2022). Fine motor, gross motor, and social independence skills among stunted and non-stunted children. Early Child Development and Care, 192(1), 95–102.
22. Ministry of Health of the Republic of Indonesia. (2007). Regulation of the Minister of Health of the Republic of Indonesia Number 1295/Menkes/Per/XII/2007 concerning Organization and Work Procedures of the Ministry of Health.
23. Ministry of Health of the Republic of Indonesia. (2009). Guidelines for Brain Leverage Stimulation and Nutrition (Brain Booster) in Fetus through Pregnant Women [Pedoman Stimulasi dan Nutrisi Pengungkit Otak (Brain Booster) pada Janin melalui Ibu Hamil]. Ministry of Health of the Republic of Indonesia.
24. Ministry of Health of the Republic of Indonesia. (2012). Brain Booster in Fetus will be made a National Program. Majalah Informasi Dan Referensi Promosi Kesehatan, 26–27.
25. Partanen, E., Kujala, T., Tervaniemi, M., & Huotilainen, M. (2013). Prenatal music exposure induces long-term neural effects. PloS One, 8(10), e78946.
26. Phua, D. Y., Kee, M. K. Z. L., Koh, D. X. P., Rifkin-Graboi, A., Daniels, M., Chen, H., Chong, Y. S., Broekman, B. F. P., Magiati, I., & Karnani, N. (2017). Positive maternal mental health during pregnancy associated with specific forms of adaptive development in early childhood: Evidence from a longitudinal study. Development and Psychopathology, 29(5), 1573–1587.
27. Verrusio, W., Ettorre, E., Vicenzini, E., Vanacore, N., Cacciafesta, M., & Mecarelli, O. (2015). The Mozart Effect: A quantitative EEG study. Consciousness and Cognition, 35, 150–155. https://doi.org/https://doi.org/10.1016/j.concog.2015.05.005