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Stimulating Infant Development: A Systematic Review

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A B S T R A C T

Stimulation is an activity that stimulates the basic abilities of children so that children can grow and develop optimally. The golden age is the stage where the child's brain develops very quickly so that the provision of stimulation to children since infancy will stimulate the brain, so that the development of movement skills, speech and language skills, socialization, and independence of infants takes place optimally according to their age. This systematic review analyzed 11 international journals on infant stimulation that has an impact on optimizing infant development. The results found that there are two forms of stimulation, namely stimulation through play and stimulation through interactions between parents or caregivers and infants such as verbal stimulation, visual stimulation, and tactile stimulation. All forms of interaction given to infants have a positive impact on infant development in cognitive and social development.

Keywords: Stimulation, Development, Baby

1. Introduction

All living things experience growth and development, but each individual has different speeds or achievements. Human growth and development follow a general pattern, but the speed and rhythm of development are individualized (Mansur & Budiarti, 2014). This happens because growth and development itself is influenced by several aspects that support it. There are two factors that influence the growth and development of an individual, namely internal factors which include genetic factors and external factors which consist of: nutrition and stimulation given to children from newborn until they pass the golden period. The golden age is the stage where a child's brain develops very quickly. All stimulation received by children in this phase becomes the basis for the formation of their character and personality in the future.

Stimulation is an activity that stimulates the basic abilities of children aged 0-6 years so that children can grow and develop optimally (Sulistyowati, 2019). Stimulation is given to children since newborns (even better since in the womb) every day, to stimulate all sensory systems (hearing, sight, touch, smell, taste). In addition, it is also necessary to stimulate gross and fine motor skills of the feet, hands and fingers, invite communication, and stimulate feelings that please the child (Wijayanti & Edmiandini, 2017). Stimulation is one of the basic needs to support children's growth and development.

Every child needs to routinely get stimulation early and continuously at every opportunity (Yunarsih & Quyuni, 2013). Children have the right to live, grow and develop, receive care, health services, stimulation, education, protection from violence and fulfillment of other children's rights so that children become healthy, intelligent, moral, noble and useful for themselves, their families, communities and countries. Stimulation of child development can be done by parents, caregivers, other family members, or people in the child's environment. Lack of stimulation can cause developmental disorders in children or even permanent disorders. This is in accordance with research by Fitriani & Oktobriariani (2017) regarding stimulation, detection and early intervention of parents to prevent deviations in growth and development of children under five that deviations in child growth and development are caused by the absence of parents.

Adequate stimulation in quantity and quality from the beginning is also needed by babies for their development. Babies who receive a lot of stimulation will develop faster than babies who receive less stimulation. The earlier and longer the stimulation is done, the greater the benefits that will have an impact on child development. Stimulation should be done every time you interact with toddlers (Yanti & Fridalni, 2020). Providing the right stimulation will stimulate the baby's brain, so that the development of the baby's movement, speech and language skills, socialization, and independence takes place optimally according to his age. Stimulation can lead children to recognize and understand developmental tasks and crises that arise during child development, so that parents and caregivers know what to expect with development and when achievements can be stimulated or not, so they can plan stimulation at the right time (Sri, 2010).

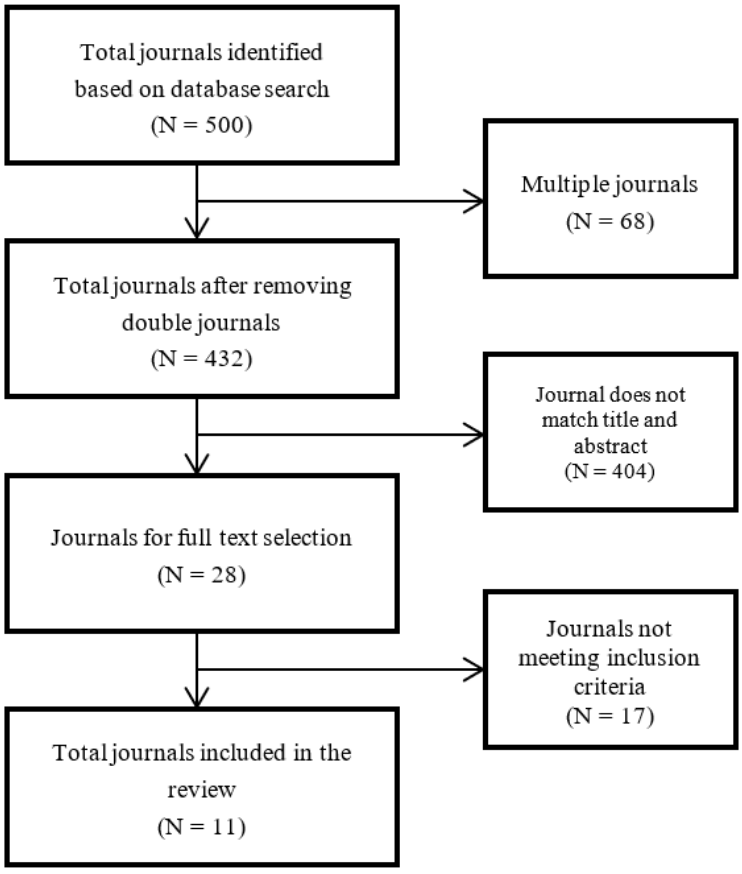
Delays in child development can be caused by the lack of stimulation received by both caregivers and parents. Parents who think that child development can be achieved by itself without stimulation will have an impact on their baby's growth and development. As a baby he has little opportunity to move or explore his body, so he does not learn how to move properly. Babies have few opportunities to play with their toys, rarely engage with other children while playing, are not often invited to communicate and do not get or are rarely invited to play socially and verbally with people who care for them can make baby development less optimal (Ayuningtiyas, 2013).

2. Research Methods

The preparation of this systematic review consists of several stages that are passed, namely making research questions, searching for data sources and extraction, and selecting articles. In the early stages of conducting a systematic review, researchers first formulated a question to form a goal to guide the search for literature to be reviewed. The question in this study is how the impact of stimulation on infant development. After the research question was determined, the researchers conducted a literature search through several databases, namely Scopus, Googlescholar, Crossreff, Science Direct, and ResearchGate. The literature search using these databases resulted in 500 journals and these journals will be selected by researchers whether there are multiple journals, journals that do not match the title and abstract, and journals that do not match the inclusion criteria. After conducting the journal selection stage, 11 journals were found suitable for inclusion in the review.

3. Research Result

The articles obtained from the database search process amounted to 500 journals that matched the keywords regarding developmental stimulation in infants. There were 68 journals excluded due to duplicate journals. The remaining 432 journals were checked for the suitability of the journal titles and abstracts, and 404 unsuitable journals were excluded. Journal selection continued by reading 28 journals that passed the previous selection stage and it was found that there was a mismatch with the topic and inclusion criteria for 17 journals and the journals were excluded. The remaining 11 journals were suitable and then an understanding of the entire contents of the 11 journals was carried out for review. The results of the literature search to find 11 journals that meet the criteria were carried out through databases, namely Scopus, Googlescholar, Crossreff, Science Direct, and ResearchGate. Articles that meet the criteria in this study are the provision of stimulation to infants aged around 0-3 years that have an impact on the development of the baby. The flow of journal selection can be seen in Figure 1.



4. Discussion

An important period in child development is the toddler period, because during this time the basic growth that will affect and determine the child's further development. During this period, language, creativity, social, emotional and intelligence skills run very fast and are the foundation for subsequent development (Vallotton et al., 2017). Moral development and the basic foundations of personality are also formed during this period. Children's abilities and growth and development need to be stimulated by their parents or caregivers so that children can grow and develop optimally and according to their age. Stimulation is stimulation (sight, speech, hearing, touch) that comes from the environment around the child. Children who receive directed stimulation will develop faster than children who receive less or no stimulation. Stimulation can also function as a reinforcer that is beneficial for child development

(Veftisia & Pranoto, 2020). Various kinds of stimulation such as visual (vision), verbal (speech), auditive (hearing), tactile (touch), and various other stimulations can optimize child development.

Providing stimulation will be more effective if you pay attention to the needs of children according to their developmental stages. In the early developmental stages, children are in the sensory-motor stage. Providing visual stimulation to infants will increase children's attention to their environment, babies will be happy by laughing and moving their whole body, and can also recognize what is in the surrounding environment (Peykarjou et al., 2022). But if the stimulation is too much, the reaction can be the opposite: the child's attention will decrease and the child will cry. In the first years the child learns to listen. Verbal stimuli in this period are very important for the child's language development in the first year of life. The quality and quantity of a child's vocals can increase with verbal stimulation and the child will learn to imitate the words they hear (Page Melissa et al., 2010). But if the auditive simulation is too much or excessive the child will have difficulty in distinguishing various sounds.

Visual and verbal stimulation at the beginning of child development is an important early stimulation, because it can lead to expressive traits such as raising eyebrows, opening the mouth and eyes as an expression of amazement, and others. In addition, children also need tactile stimulation or touch, lack of tactile stimulation can lead to deviations in social, emotional and motor behavior. Attention and affection are also stimulation that children need, for example by interacting, stroking, kissing, playing, and so on (Mammen et al., 2016). This stimulation will create a sense of security and self-confidence in children, so that children will be more responsive to their environment and develop more. Providing stimulation can also be done through games. Play is an important activity in childhood. Because their age does not allow them to "learn" like adults, children can learn through play. Through play, children get good stimulation for their growth and development (Saadah et al., 2020). He can recognize movements, sounds, smells, objects, shapes, colors, and touch.

Older children who are able to walk and talk will enjoy exploring and manipulating their environment. This motive can be strengthened or weakened by the environment through a number of reactions to the child's behavior. For example, the child will learn to know which behaviors make their mother happy / get praise from their mother, and which behaviors can make their mother angry. Children raised in a responsive environment will show high explorative behavior (Ramadhani et al., 2022). Verbal stimulation is also needed at this stage of development. With the mastery of language, children will develop their ideas through questions, which will further affect their cognitive development (intelligence).

Table 1 Baby development stimulation journal

No	Author (years)	Title	Subject/Informant	Methods/Stimulation	Result
1	Schulze & Buttelmann, (2022)	*Infants differentiate between successful and failed communication in a false-belief context*	84 18 month old baby / Baby	Experimentation/ Toy laying	Full communication results in the infant's trust in the communicator, whereas incomplete communication will not result in trust.
2	Smith-Flores & Feigenson, (2022)	*''Yay! Yuck!" toddlers use others' emotional responses to reason about hidden objects*	16 22-29 month old baby / Bayi	Experiment. Hidden object game, Emotional response	Infants can use the emotional responses of others around them to reason about the physical world.
3	Bigelow & Power, (2022)	*Influences of infants' and mothers' contingent vocal responsiveness on young infants' vocal social bids in the Still Face Task*	54 mom and baby / Mom	Experimentation. Mother-infant interaction	The two-way interaction between mother and baby will encourage the development of the baby's social interaction.
4	Sethna et al., (2017)	*Father–Child Interactions At 3 Months And 24 Months: Contributions To Children's Cognitive Development At 24 Months*	192 father and 3-month-old child and 24 month old / Father	Experimentation. Father-child interaction	Father-child interaction, even from a very young age (i.e., 3 months) can influence a child's cognitive development.
5	Yu et al., (2019)	*Infant sustained attention but not joint attention to objects at 9 months predicts vocabulary at 12 and 15 months*	26 parent-infant, average age 9.21 months / Parents	Experimental / 6 Experimental toys	Joint attention can predict word learning because joint attention supports infants' attention to the named object.

6	Althaus & Westermann, (2016)	*Labels constructively shape object categories in 10-month-old infants*	63 10 month old baby / Baby	Experiment/ Visual Stimuli	Labels and visual perceptual information interact in category formation, with labels having the potential to constructively shape category structure in preverbal infants, and that nonlinguistic sounds do not have the same effect.
7	Murray et al., (2016)	*Randomized controlled trial of a book-sharing intervention in a deprived South African community: effects on carer–infant interactions, and their relation to infant cognitive and socioemotional outcome*	91 family and 14-16 month old child / Babysitter	Experiment. Infant interactions with caregivers who have attended the intervention program	Infants in the intervention group showed significantly higher levels of prosocial behavior, and tended to show more frequent imitation of interpersonal interactions.
8	Vally et al., (2015)	*The impact of dialogic book-sharing training on infant language and attention: a randomized controlled trial in a deprived South African community*	91 families with children aged 14-16 months / Babysitter	Experiment. Infant interaction with caregivers who have participated in the dialogue book program	Infants in the intervention group showed an increase in the number of words understood and an increase in sustained attention.
9	Page Melissa et al., (2010)	*A comparison of maternal sensitivity and verbal stimulation as unique predictors of infant social-emotional and cognitive development*	6377 mother and baby / Mother baby	Longitudinal / Verbal stimulation	Verbal stimulation has a direct positive effect on infants' cognitive abilities.
10	Mammen et al., (2016)	*Infant patterns of reactivity to tactile stimulation duringparent-child interaction*	497 infants aged 9 months / Parents	Longitudinal / Tactile stimulation	Infants' intense sensory processing interacting with the social environment will influence development.
11	Hofstee et al., (2022)	*The direct and indirect effects of parenting behaviors and functional brain network efficiency on self-regulation from infancy to early childhood: A longitudinal mediation model*	109 infants aged 4 months - 2 years 10 months / Infant mother	Longitudinal / Parents stimulation	Stimulation provided by parents to infants can make functional brain tissue work more efficiently.

Table 1 shows the various forms of infant stimulation. There are two forms of stimulation found from the results of this systematic review, namely providing stimulation through play and providing stimulation through interactions between parents or caregivers with infants such as verbal stimulation, visual stimulation, and tactile stimulation. All forms of stimulation given to infants have a positive impact on the development of infants in cognitive and social development. In three journals, stimulation is given through the medium of games. Games can be used as an alternative to providing stimulation so that children get a comfortable and pleasant situation so that they can easily respond to the stimulation provided. Through games, children can also learn more fun (Saadah et al., 2020).

There are also several journals that look at children's responses to stimulation provided through the interaction of infants with their parents or caregivers. The involvement of parents or caregivers in conducting early stimulation has an important role in the growth and development of their children. Parents or caregivers have a golden opportunity to educate their children at an early age because in this phase children are still easy to guide and shape (Sandi & Setyorini, 2018). At an age that is still in the golden age phase, children's development occurs so rapidly that providing the right stimulation will optimize their development.

Conclusion

This systematic review shows that the provision of stimulation is very important for development at the age of infants, which is around 0-2 years. Infants' abilities and growth and development need to be stimulated by their parents or caregivers so that infants can grow and develop optimally and according

to their age. Babies who get the right stimulation will have an impact on their development. However, it should also be noted that providing stimulation will be more effective if you pay attention to the needs of children according to their stages of development.

References

Althaus, N., & Westermann, G. (2016). Labels constructively shape object categories in 10-month-old infants. Journal of Experimental Child Psychology, 151, 5–17. https://doi.org/10.1016/j.jecp.2015.11.013

Ayuningtiyas, V. (2013). Metode Bermain Peran (Role Playing) Dalam Upaya Menumbuhkembangkan Keterampilan Berbicara Bahasa Indonesia Pada Anak Usia Dini Di TK Bhayangkari 17 Cimahi. Journal of Chemical Information and Modeling, 2(2), 48–55.

Bigelow, A. E., & Power, M. (2022). Influences of infants' and mothers' contingent vocal responsiveness on young infants' vocal social bids in the Still Face Task. Infant Behavior and Development, 69(September), 101776. https://doi.org/10.1016/j.infbeh.2022.101776

Fitriani, I. S., & Oktobriariani, R. R. (2017). Stimulasi, Deteksi dan Intervensi Dini Orang Tua terhadap Pencegahan Penyimpangan Pertumbuhan dan Perkembangan Anak Balita. Indonesian Journal for Health Sciences, 1(1), 1. https://doi.org/10.24269/ijhs.v1i1.383

Hofstee, M., van der Velde, B., Huijding, J., Endendijk, J., Kemner, C., & Deković, M. (2022). The direct and indirect effects of parenting behaviors and functional brain network efficiency on self-regulation from infancy to early childhood: A longitudinal mediation model. Infant Behavior and Development, 69(October). https://doi.org/10.1016/j.infbeh.2022.101769

Mammen, M. A., Moore, G. A., Scaramella, L. V., Reiss, D., Shaw, D. S., Leve, L. D., & Neiderhiser, J. M. (2016). Infant patterns of reactivity to tactile stimulation during parent-child interaction. Infant Behavior and Development, 44, 121–132. https://doi.org/10.1016/j.infbeh.2016.06.004

Mansur, H., & Budiarti, T. (2014). Psikologi ibu dan anak untuk kebidanan (2nd ed.). Salemba Medika.

Murray, L., De Pascalis, L., Tomlinson, M., Vally, Z., Dadomo, H., MacLachlan, B., Woodward, C., & Cooper, P. J. (2016). Randomized controlled trial of a book-sharing intervention in a deprived South African community: effects on carer–infant interactions, and their relation to infant cognitive and socioemotional outcome. Journal of Child Psychology and Psychiatry and Allied Disciplines, 57(12), 1370–1379. https://doi.org/10.1111/jcpp.12605

Page Melissa, M., Wilhelm, M. S., Gamble, W. C., & Card, N. A. (2010). A comparison of maternal sensitivity and verbal stimulation as unique predictors of infant social-emotional and cognitive development. Infant Behavior and Development, 33(1), 101–110. https://doi.org/10.1016/j.infbeh.2009.12.001

Peykarjou, S., Langeloh, M., Baccolo, E., Rossion, B., & Pauen, S. (2022). Superior neural individuation of mother's than stranger's faces by five months of age. Cortex, 155, 264–276. https://doi.org/10.1016/j.cortex.2022.07.011

Ramadhani, A. S., Azizah, W., Selpiyani, Y., & Khadijah. (2022). Bentuk-bentuk Stimulasi Pada Anak Dalam Perkembangan Motorik Anak Usia Dini di RA. Jurnal Pendidikan Dan Konseling, 4(3), 2360–2370. http://journal.universitaspahlawan.ac.id/index.php/jpdk/article/view/5080

Saadah, N., Suparji, Sulikah, & Yulianto, B. (2020). Stimulasi perkembangan oleh ibu melalui bermain dan rekreasi pada anak usia dini. Scopindo Media Pustaka.

Sandi, N. V., & Setyorini, R. (2018). Analisis Kegiatan Bimbingan Belajar Pada Anak Usia Dini Dalam Kreativitas Pembelajaran Finger Painting (Melukis Terhadap Peningkatan Motorik Halus). Generasi Emas, 1(2), 128. https://doi.org/10.25299/ge.2018.vol1(2).2749

Schulze, C., & Buttelmann, D. (2022). Infants differentiate between successful and failed communication in a false-belief context. Infant Behavior and Development, 69(March), 101770. https://doi.org/10.1016/j.infbeh.2022.101770

Sethna, V., Perry, E., Domoney, J., Iles, J., Psychogiou, L., Rowbotham, N. E. L., Stein, A., Murray, L., & Ramchandani, P. G. (2017). Father–Child Interactions At 3 Months and 24 Months: Contributions To Children'S Cognitive Development At 24 Months. Infant Mental Health Journal, 38(3), 378–390. https://doi.org/10.1002/imhj.21642

Smith-Flores, A. S., & Feigenson, L. (2022). "Yay! Yuck!" toddlers use others' emotional responses to reason about hidden objects. Journal of Experimental Child Psychology, 221. https://doi.org/10.1016/j.jecp.2022.105464

Sri, Y. (2010). Stimulasi Tumbuh Kembang Anak. Psympathic Jurnal Ilmiah Psikologi, III(1), 121–130.

Sulistyowati, D. (2019). Keterlibatan Ayah Dalam Pemberian Stimulasi Tumbuh Kembang Pada Anak Prasekolah. Jkep, 4(1), 1–11. https://doi.org/10.32668/jkep.v4i1.276

Vallotton, C. D., Mastergeorge, A., Foster, T., Decker, K. B., & Ayoub, C. (2017). Parenting Supports for Early Vocabulary Development: Specific Effects of Sensitivity and Stimulation through Infancy. Infancy, 22(1), 78–107. https://doi.org/10.1111/infa.12147

Vally, Z., Murray, L., Tomlinson, M., & Cooper, P. J. (2015). The impact of dialogic book-sharing training on infant language and attention: a randomized controlled trial in a deprived South African community. Journal of Child Psychology and Psychiatry and Allied Disciplines, 56(8), 865–873. https://doi.org/10.1111/jcpp.12352

Veftisia, V., & Pranoto, H. H. (2020). Hubungan Persepsi Ibu Tentang Stimulasi Perkembangan Anak Dengan Stimulasi Perkembangan Anak. Indonesian Journal of Midwifery (IJM), 3(1), 40–45. https://doi.org/10.35473/ijm.v3i1.344

Wijayanti, A. R., & Edmiandini, U. F. (2017). Hubungan Sikap Ibu Tentang Stimulasi Perkembangan Dengan Tahap Perkembangan Motorik Kasar Pada Anak Usia 3-4 Tahun. Jurnal Kebidanan, 10, 8–8. http://jurnal.stikeswilliambooth.ac.id/index.php/Keb/article/view/200

Yanti, E., & Fridalni, N. (2020). Faktor Yang Mempengaruhi Perkembangan Motorik Anak Usia Prasekolah. Jurnal Kesehatan Medika Santika, 7(2), 108–113. http://www.jurnal.syedzasaintika.ac.id/index.php/medika/article/view/761

Yu, C., Suanda, S. H., & Smith, L. B. (2019). Infant sustained attention but not joint attention to objects at 9 months predicts vocabulary at 12 and 15 months. Developmental Science, 22(1), 1–12. https://doi.org/10.1111/desc.12735

Yunarsih, & Quyuni, E. (2013). The Effect of the Young Age Marriage Mother stimulating growth on the Growth and Development of Children Under the Age of Five Years. Jurnal Ilmu Kesehatan, 2(1), 83–88.