

Children growth monitoring and development, benefits, Implementation of monitoring and evaluation

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ABSTRACT

Background: Monitoring growth and development has been carried out in various countries and has some benefits for children's growth and development and policymakers' guidelines. Although monitoring growth and development is considered necessary, there are still deficiencies in its implementation, both from the patient and professional perspectives.

Objective: to find out how and monitoring children's growth and development, the benefits of monitoring children's growth and development, and monitoring and evaluation in the implementation of monitoring children's growth and development.

Method: This study is a Scoping Review with the implementation phase identifying research questions, identifying relevant studies, selecting articles, mapping data, compiling, streamlining, and reporting results.

Findings: 7 articles were included in this Scoping Review analysis, then divided into three themes, namely Monitoring growth and development, Benefits of monitoring growth and development, and Monitoring and monitoring evaluation of growth and development.

Keyword: Monitoring, Growth, Development.

INTRODUCTION

Developmental disorders in children still occur. In low-income and middle-income countries, 39% of under-five experience mental development disorders. The common problem is inadequate nutrition and stimulation of growth and development. As the child's closest figure, the mother influences nutrition and stimulation [1]. The provision of stimulation and nutritional interventions in the first two years of life for children in low-income and middle-income countries has shown consistent short-term benefits for early and future development. A meta-analysis of early stimulation and nutritional interventions conducted between 2000-2013 in low-income and middle-income countries reported that responsive stimulation had moderate effects ($n = 21$ studies, Cohen $d = 0.42$; 95% CI $0.36 - 0.48$) and nutritional supplementation with or without nutritional education had a small effect ($n = 18$, 0.09 ; $0.04 - 0.14$) on cognitive development of 2 year olds. A systematic review of the provision of stimulation and nutritional intervention reports that consistent stimulation provides benefits for child development. At the same time, nutrition will usually improve nutritional status and growth and sometimes improve child development [2].

Parents, especially mothers, need guidance to provide adequate stimulation for their children's growth and development. Guidance on monitoring child growth and development is useful for monitoring and providing stimulation for child development and increasing maternal knowledge about child development. The benefits of monitoring guidance for child growth can not only monitor

the progress of development in healthy children, but also can compare the development and growth between sexes, as a reference for the development of monitoring tools for growth and development in children, as material for making policies, providing health care to a child, and can be used for intervention research, especially in low-income and middle-income countries [3]. Concerning the importance of monitoring and stimulating child development, this study describes how to record and monitor child development, types of guidance and stimulation of child development, the benefits of recording and monitoring child development and monitoring and evaluation of monitoring child development.

Data Source: The literature review was conducted at Science Direct, Google Scholar, Pubmed, Cochrane, and Scopus, which included growth and development in children. Literature search uses the terms "child", "child development", "child growth", "child growth and development", "child growth monitoring", "child growth stimulation", "child health book", "child health record", "Child health handbook", "children's handbook". In these search for articles, 89 articles were identified, then filtered to get the relevance of the article 63 articles. The articles' screening was carried out further to find references related to monitoring and stimulation of growth and development in children and obtaining seven articles that could be included in this study—the author screens the titles and abstracts of all articles. In this Scoping Review, the author does not limit the literature search within territorial boundaries and cases.

Table 1. Description of the study included in the Scoping Review

Author, year, title	Aim	Methodology	Conclusion
Yi-Fan Li et al. (2016) [4].	Develop new growth references for height, weight, and body mass index (BMI) for children aged 0-5 years in the Taiwan Cohort Study (TBCS) and compare these references with the 1997 Taiwan reference and the World Health Organization (WHO) standard.	Longitudinal Study	Taiwan has developed the Taiwan Birth Cohort Study (TBCS) to monitor children's growth in Taiwan, whose growth patterns are different from those determined by WHO.
Da Rocha Neves K et al. (2016) [5].	Investigate the growth and development of underprivileged children and their relationship with environmental, socio-economic, and biological risk factors using Marte@digital Scale (Marte, SP, Brazil) (measuring weight), Alturaexata® (MG, Brazil) (measuring high), Bayley Scale of Infant and Toddler Development (Bayley III) (measuring child development), Revised Infantry Toddler Scale (ITERS-R) (measuring the quality of early childhood education), Inventory Home Observation for Measurement of the Environment (HOME) (measuring the quality of the home environment), and the Associação Saoileira de Empresas de Pesquisa (ABEP) (measuring socioeconomic status).	Cross-Sectional	The family mostly comes from the socio-economic class D, with low parental education. Stunted growth prevalence is 14.1%; Cognitive and language development is below average at 28.6% and 28.3%, respectively. Educational institutions are classified as inadequate, and 69.6% of homes are classified as presenting risks for child development. Factors such as access to parks and pharmacies and perceived security receive the worst score about the surrounding environment.
Jose´ Villar et al. (2018) [6].	Study growth, health, nutrition, and neurological development from gestational age <14 weeks to 2 years using the International Fetal and Newborn Growth Consortium for the 21st Century (INTERGROWTH-21st)	Longitudinal Study	The cohort listed in the INTERGROWTH-21 standard corresponds to motor growth and development up to 2 years old children, supporting its suitability for fetal, premature, and postnatal growth standards on an international scale.
Ilgı Ozturk Ertem. (2018) [3].	Ensure when healthy children in four different cultural and linguistic countries (Argentina, India, South Africa, and Turkey) reach milestones by using the Guide for Monitoring Child Development (GMCD) and identifying similarities and differences across genders and countries.	Observational Cross-Sectional	The age of achieving progress in healthy children and similarities and differences between genders and country samples can help develop international tools to guide policy, service delivery, and intervention research, especially in low- and middle-income countries. Income countries.
De Almeida et al. (2016) [7].	Assess the use of health monitoring tools in Brazilian children, emphasizing variables related to growth and development, which are essential aspects of child health care.	Systematic Review	The articles' results were assessed as revealing the lack of use of child health monitoring tools and reflecting low awareness by health professionals regarding recording information in child health monitoring documents.
Abud SM, Gaiva MAM. (2015) [8].	Analyze input data on growth and development in the Child Health Manual.	Cross-Sectional	Low data input on growth and development levels in the handbook reveals the need to create awareness among residents, health care professionals, and managers about the importance of handbooks and the need to invest in training and empowering professionals concerning their proper use.
Da Cunha AJ et al. (2015) [9].	Describe the importance of the concept of the first 1000 days of birth which is very important for health	A Nonsystematic Review	Together with other professionals, pediatricians can act by promoting actions that emphasize the concept of the first 1000 days to ensure healthy nutrition and development. A focus on action in this period can increase the chances of children having a healthy and productive life in the future, strengthening families and community ties, helping to break the cycle of intergenerational poverty.

RESULTS AND DISCUSSION

This review consists of articles published between 2016 - 2018 taken from countries in Taiwan, Brazil, Argentina, and low-income countries such as Turin (Italy), Muscat (Oman), Oxford (United Kingdom), Seattle (WA), Shunyi County (Beijing), Nagpur (India), Nairobi (Kenya). This article included in the Scoping Review discusses how and types of monitoring growth and development in children in each country, the benefits of monitoring growth and development in children, monitoring and evaluating monitoring, and recording growth and development in children.

Monitoring growth and development in children: The World Health Organization recommends that human growth must be monitored using international standards. However, in midwifery practice, many health workers

monitor fetal growth using many local graphs or equations based on different body structure populations [10]. Growth charts are an essential tool in examining and monitoring child health growth and pediatric clinical examinations. The aim is to describe how children must grow in each period of growth. Although WHO has developed new international growth references using children born to mothers who do not smoke, exclusive breastfeeding for at least four months, and from favorable socio-economic conditions, there is plenty of evidence against the universal application of WHO standards in monitoring child growth. Other studies have found that children in the UK are significantly more prolonged and heavier at birth than WHO standards. Children under five years of age from Denmark, Norway,

and Belgium are also significantly more prolonged and more weight.

In contrast, other studies have found that children in the US are significantly lighter in the first six months of their lives than children who represent WHO standards. Children under three years of age in Japan and Hong Kong are also shorter and lighter than WHO standards. Third, there are material changes in the length/height, and weight of children. Thus, countries can only partially adopt WHO standards (for example, the United States and the United Kingdom). Thus the WHO standard will not eliminate the need to reference local growth. Based on this background, new guidelines began to be formed to measure and monitor children's growth and development that adjust children's characteristics in each country. The main objective of each study is to recommend guidelines for monitoring growth and development that are appropriate and applicable following the local community's characteristics. Although the measurement tools and monitoring guidelines used are different for each country, the researcher's goal remains the same, which is to expect optimal child growth and development as an asset for future growth and development.

Benefits of monitoring growth and development in children: Several studies discuss the benefits of monitoring growth and development in children. The findings obtained in the study stated that the importance of monitoring children's nutrition and development in the first 1000 days of a child's age, starting from conception to the end of the second year of life. This is a crucial period for implementing interventions to ensure healthy nutrition and development, which will bring benefits throughout life. Children must get adequate nutrition through the right prenatal diet, exclusive breastfeeding for the first 6 months, the addition of adequate complementary foods, and continue to feed for up to 2 years of life. Given the condition of absolute dependence on adult care, it is imperative to build an enabling and friendly environment needed to build strong bonds [9]. Other literature states that monitoring growth and development is not only useful for knowing the age of developmental achievements in healthy children and similarities and differences between sexes, but also can help the development of growth and development monitoring tools, as a guide for policy, service delivery, and as tools for intervention research, especially in low-middle income countries [3].

Monitoring and evaluating monitoring of development and growth in children: Monitoring and evaluation are essential to assess the success of a program. Although monitoring the growth and development of children has been carried out for a long time and is governed by government policies in improving child welfare, there is still much monitoring of growth and development. The findings obtained by de Almeida et al., 2016 in Brazil show that most children have a Child Health card, but it is not complete. There is no information about weight and height, notes on the growth chart, and many mothers do not understand the curve's meaning. Child health care is only a record for controlling immunization and not as a child health monitoring tool. The schedule for routine medical visits most often occurs in the first months of birth, the risk and the need for routine monitoring. Over time, preventive

visits were gradually replaced by visits due to health problems.

The low input for monitoring growth and development in a detected child health handbook indicates inadequate monitoring of children, which can interfere with the quality of care and interfere with the assessment of health measures. Besides, handbooks are children's rights, and their misuse by health care professionals is a violation of these rights [8]. The study conducted by Abud SM, Gaiva MAM., 2015, stated that 95.4% of 929 children's health handbooks had incomplete or non-existent information related to child development. Of the 950 handbooks studied, 756 (79.6%) had missing or incomplete data on growth charts. Only the age variables of children showing statistical significance showed the risk for those who did not fully complete the handbook. The study shows that the main factors that hamper the use of handbooks by health professionals are the lack of training to use this instrument, the unavailability of handbooks and guidelines for use in the primary care unit, not all members of the health team use the book and lack of knowledge about the guidebook by the mother/family.

CONCLUSION

The World Health Organization recommends that human growth must be monitored using international standards. Although WHO has developed new international growth references, there is much evidence against the universal application of WHO standards for monitoring child growth. Measuring tools and monitoring guidelines for developments that are used are different for each country, but the goals that the researcher expects remain the same, namely expecting optimal growth and development of children as assets for future growth and development. Various kinds of literature have described many benefits in monitoring child growth and development. There are also many obstacles and disadvantages, from both the patient from the perspective and professional in the implementation.

Strengths and Limitations: This Scoping Review topic allows the author to investigate how to monitor growth and development in children, the benefits and monitoring and evaluation that has been carried out. Articles come from several countries so that the results can be generalized. This study's weakness is that the author still lacks articles that are in line with the theme so that the discussion of the article is still lacking. This study's limitation is that the article's scope monitoring the growth and development is still too broad, not included in the sample inclusion and exclusion criteria, yet that can cause bias in this study.

Author Agreement: This article is Eliyana Lulianthy and Winny Setyonugroho as mentors of the Scoping Review theme. This article has never been published or sent for publication elsewhere.

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