



The Effect of Implementing Baby Gym on Gross Motor Development in Babies Aged 3-4 Months

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Abstract. Data shows that motor development disorders are experienced by 5-10% of children in the world. Disrupted motor development can be an indirect cause of increased morbidity, poverty and in the long term can hamper the country's development. One effort to prevent gross motor delays in children is by stimulating them from infancy, for example by doing baby gym exercises. The aim of this research was to determine the effect of a baby gym on gross motor development in babies aged 3-4 months. The research design uses a *quasi-experimental with control group design*. The intervention group is the group that carries out the baby gym. Meanwhile, the control group did not do the baby gym. Data analysis used the *Mann Whitney test*. The population in this study were all babies aged 3-4 months at PMB Andina Palembang. The sampling technique used a *total sampling* of 24 respondents who were divided into 12 intervention group respondents and 12 control group respondents. The research results showed that the average gross motor development in the intervention group after *baby gym training* for 2 weeks showed faster gross motor development compared to babies in the control group who were not given intervention. Meanwhile, the p value obtained was 0.001, meaning that there was a difference in gross motor development in babies who were stimulated with baby gym exercises and babies in the control group who were not given any intervention. It is recommended for health workers to intensify education about stimulating gross motor development in babies, one of which is by doing a baby gym.

Keywords: baby gym, gross motor skills, children.

1. BACKGROUND

Babies are a golden period and a critical period of development. During this period there are important stages in the process of child growth and development, where physical development grows rapidly (Tarigan et al., 2021). According to the Indonesian Ministry of Health (2020), growth and development during infancy is divided into four parts, namely, ages 0 – 3 months, 4 – 6 months, 7 – 9 months and 10 – 12 months. At the age of 4 - 6 months, children's motoric development is faster.

Development is an increase in body structure and complex functions in gross motor, fine motor, language, speech, independence and socialization. Health services check the growth and development of babies, toddlers and preschoolers to ensure they get the stimulation they need and get help early if they have growth and development problems (Andriana, 2017).

Data shows that motor development disorders are experienced by 5-10% of children in the world. Disrupted motor development can be an indirect cause of increased morbidity, poverty and in the long term can hamper the country's development (Rosidi et al., 2023) .

The percentage of delayed motor development in children in Indonesia shows 15-20%. The cause is a lack of stimulation in gross motor and language or speech aspects (Siringoringo, 2022). Data obtained from Basic Health Research (RisKesDas) in 2021 showed that 12.4% of children in Indonesia experienced gross motor development problems. Meanwhile, in 2022, gross motor development problems will be experienced by 13.27% of children in Indonesia and in 2023 it will be 13.02% (Ministry of Health of the Republic of Indonesia, 2024).

Development is a continuous process, it is *continuous* and growth is part of the development process (Wong, 2009; Potter & Perry, 2005). In the development process, stimulation is needed to stimulate the baby to develop, especially active gross motor skills in babies, through tactile stimulation, moving the baby's legs and arms in extension and flexion positions (Soedjatmiko, 2012).

One form of stimulation by moving the legs and arms that can be done to maximize gross motor development is by doing *a baby gym*. Baby gym is a tummy time activity which is a series of physical exercises designed specifically for babies (Patimah, 2021).

Baby gym training aims to stimulate gross motor development in babies 6-9 months, which includes the baby's ability to move the body as a whole, such as rolling over, crawling, standing and walking. Baby gym or baby gym is an exercise to help stimulate the growth and development of the baby's nervous and motor systems optimally (Ayudita and Lestari, 2022).

Baby exercise is very important to strengthen the muscles and joints of babies and to give babies the opportunity to recognize themselves in normal development according to their age (Tarigan et al, 2021). Research by Andinawati et al (2022) suggests that healthy full-term babies who receive baby exercise have higher motor and mental development than babies who are not given any activities. Zaidah's (2020) research shows a positive influence on gross motor development after doing the baby gym twice a week and for 3 durations of 15 minutes, showing that there is an influence of the baby gym on the baby's development.

2. THEORETICAL STUDY

Development motor is change form movement abilities from babies to adults that involve various aspects of behavior And ability motion each other influence each other others (Bakhtiar et al., 2022). Gross motor skills are body movements that use large muscles or most or all of the body parts which are influenced by the child's own maturity. Gross motor skills are skills that include large muscle activities, such as moving the arms and walking (Bakhtiar et al., 2022).

Gross motor development is development related to aspects of a child's ability to carry out movements and body postures that involve large muscles such as lying on his stomach, sitting, walking and so on. Basically, this development is in accordance with the maturity of the child's nerves and muscles (Soetjningsih, 2016).

Baby gymnastics or baby gym is physical exercise which has special characteristics and rules, namely that movements are always made to achieve certain goals, the movements are always structured and systematic (Hazmi, 2017). Baby gymnastics is applied as an exercise to help stimulate the growth and development of the nervous and motor systems of healthy and normal babies. Baby exercise can be done by parents or someone close to the baby, but it is best done by the mother, because the baby is used to his mother's touch. It can also be done by experts or physiotherapists, but the baby feels tense or shocked because the person doing it is a stranger to the baby (Purwati, 2016).

Baby gym can improve development, growth, increase endurance, increase baby's concentration & make babies sleep more soundly. Baby gymnastics also provides stimulation for the maturity of gross motor skills, fine motor skills, adaptive social skills and increases the quantity of sleep a baby has (Jin Jing et al, 2007).

3. RESEARCH METHODS

The research method uses *a quasi-experiment with control group design*. The intervention group is the group that carries out the baby gym. Meanwhile, the control group did not do the baby gym. Data analysis used the *Mann Whitney test*. The population in this study were all babies aged 3-4 months at PMB Andina Palembang. The sampling technique used *a total sampling* of 24 respondents who were divided into 12 intervention group respondents and 12 control group respondents. The intervention was carried out for 2 weeks 3 times a day. Gross motor development was assessed using the Developmental Pre-Screening Questionnaire (KPSP).

4. RESULTS AND DISCUSSION

Table 1. Mann Whitney Test Results in the Intervention Group and Control Group

Group	Mean	Elementary school	<i>p value</i>
Intervention	Fast	0.314	0.001
Control	Normal	0.526	

This research involved 24 respondents, namely babies aged 3-4 months. The results of the *Mann Whitney* test shown in table 1 show that the average gross motor development in the intervention group after 2 weeks of *baby gym training* showed faster gross motor development compared to babies in the control group who were not given intervention. Meanwhile, the p value obtained was 0.001, meaning that there was a difference in gross motor development in babies who were stimulated with baby gym exercises and babies in the control group who were not given any intervention.

The results of this research are in line with Mildiana's (2019) research which shows that the influence of the baby gym on development is calculated using the odds ratio formula with results that are 11 times greater for increasing the ability to lift the chest, 10 times greater for increasing the ability to lift the neck.

Ayu's research (2023) shows a *p-value* of $0.000 < 0.05$ so there is a significant influence on the baby's gross motor development before and after the baby gym. Research by Retnaningsih and Purwanti (2023) shows that *the Wilcoxon test results* show a sig. 0.025 (< 0.05), so it can be concluded that there is an influence of baby massage and gym on the motor development of babies aged 3-6 months.

baby gym movements carried out are the movement of turning the head in both directions which aims to support the ability to move the head, the hand-face play movement aims to support the ability to develop the hands, with the baby's hands finding his own face, the game movement of opening the hand aims to straighten the spine in the the baby's neck and chest, as well as straightening the baby's nape muscles, straightening movements aim to stretch the muscles of the baby's neck and trunk, directed foot play movements aim to support the formation of arcs on the soles of the baby's feet, lap-hand and face play movements aim to strengthen the relationship between mother and child, wearing the baby's own face and body as well as the mother's and playing movements.

In this study, the results showed that babies who were regularly given stimulation in the form of exercises and movements involving the hands and feet would respond to stimulation more quickly than babies who were not given baby gym training so that gross motor development was achieved more quickly in babies who regularly did the baby gym.

5. CONCLUSIONS AND RECOMMENDATIONS

The conclusion of this research is that there is a difference in gross motor development in babies who regularly do baby gym and babies who do not do baby gym. It is recommended for health workers to intensify education about stimulating gross motor development in babies, one of which is by doing a baby gym.

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