Effect of Java Massage Towards the Quality of Life Child With Asthma

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Abstract: Asthma is a chronic inflammation of the respiratory tract with symptoms of recurring cough, wheezing and shortness of breath. Impaired lung effectiveness generally causes the quality of life of children with asthma is lower than normal children. One of the roles of parents is care with complementary, such as massage to improve blood circulation and stimulates the production of endorphin hormones to cause a sense of comfort and relax in the muscles, reduce stress, and increase the immunity of the child's body. The purpose of this study was to determine the effect of Javanese massage on the quality of life of children with asthma. This is quantitative research with a quasi-experimental with pre and post-test design to determine differences in the average value of quality of life of children before and after the Javanese massage. The population was children suffering from asthma in the Bandar Lampung Region. Samples were counted with 16 consecutive sampling techniques. Data put by interview using the PedsQL questionnaire. The equipment used VCD Java massage tutorial, massage kit, asthma treatment lifted, cellular phone, and logbook format. Data analyzed with paired T-test. The results of the study showed a significant difference in Physical Function (p-value= 0.004); Psychic Function (p-value = 0.012); and the quality of life of an asthmatic child (p-value= 0.000). Javanese massage can be used as a complementary and modalitas therapy for the prevention, and to improve quality of life an asthmatic child.

Keywords: asthma, java massage, quality of life

1. Introduction

Asthma is a chronic inflammation of the respiratory system that causes narrowing and hyper-reactivity of the airways with the manifestation of repeated coughing, wheezing and shortness of breath, which usually occur at night or early morning [1]. it is estimated that 300 million people suffer from asthma and by 2025 asthma is estimated to reach 400 million. From various countries, the prevalence of asthma ranges from 1-18%. Asthma is a disease in the top five causes of death in the world, which varies between 5-30% (range 17.4%) [2]. In Indonesia, the prevalence of asthma is not known with certainty, but it is estimated that 2-7% of Indonesia's population suffers from asthma (Indonesia Asma Foundation, 2014). The incidence of asthma in children and infants is around 10-85% and is higher than that of adults (10-45%). the prevalence of asthma in cities is generally higher than in rural areas. The reason is because the air in urban areas is generally polluted by various air pollutants, where 70-80% of air pollution comes from vehicle exhaust gases and 20-30% from industrial pollution. Sources of pollutants that can trigger a recurrence of asthma include burning residue, chemicals such as: mosquito repellent spray/burning, strong paint odors, perfume, hairspray; dust, fur, and mites on carpets or curtains can also trigger asthma. According to

allergen exposure (p-value= 0.006), exercise (p-value= 0.042), psychological conditions (emotional stress) (p-value= 0.000) and work (p-value= 0.095). The results of multivariate analysis show that psychological conditions (emotional stress) and allergens are [3].

Asthma in children can affect the growth period and quality of life of children [4]. Asthma sufferers, especially those who rarely check themselves into health services, tend to have a lower quality of life [5]. In physical function, asthma reduces respiratory function so that children experience shortness of breath and increased levels of PCO2 in the blood. Acute and recurring attacks of breathlessness often occur at night and early in the morning causing parents to have to bring their child to the Emergency Unit (ER) and cause anxiety. The condition of physical weakness and reduced fitness causes asthmatic children to limit themselves from activities that require energy so that the child's social function is impaired. Frequent relapses of illness cause children to be absent from school and interfere with academic achievement and school functioning. Nearly one third of people with asthma experience disturbances in their daily activities and it is the main cause of children's absence from school. Several studies on the effect of asthma on children's quality of life include research [5] which states that uncontrolled asthma sufferers have a poor quality of life. the more severe the degree of asthma, the lower the quality of life score [6].

Integrated child health services (holistic care) are the most appropriate approach in dealing with asthma, including promotion, preventive, curative and rehabilitative efforts that are carried out comprehensively by parents and nurses so that the quality of life of children with asthma increases. Asthma management by parents can be done by supporting children to participate in every activity, monitoring symptoms, monitoring drug administration, communicating with children about school, identifying and preventing recurrences and providing asthma care for children [7, 8]. Parents in caring for children with asthma are expected to be able to independently monitor symptoms and recurrences and take immediate action to prevent asthma from becoming more severe. Independent monitoring also allows children and families to adjust their asthma management plan for long-term asthma control with minimal side effects. In addition, asthma management with the use of drugs and environmental controls are also carried out to reduce exposure to allergens and irritants.

One of the roles of parents in the care of children with asthma is to carry out independent care with complementary treatments, such as massage, herbs, acupuncture, breathing exercises, giving vitamins and supplements, diet programs and so on [9]. Massage in children with asthma is one of the complementary therapies besides medical management such as giving anti-allergic, antispasmodic and mucolytic drugs. The application of massage in children with asthma functions to improve blood circulation and stimulate the production of endorphin hormones which cause a feeling of comfort and relaxation in the muscles, reduce stress and increase body immunity. Giving massage to children with asthma showed a significant difference between the control group and the case group, where the value of Forced Vital Capacity (FVC) P= 0.05, Forced Expiratory Volume at 1 second (FEV1) value [10]. The other research showed that symptom Scores in massage group were improved significantly compared with control group, and the rate of dyspnea, cough and wheeze in the experimental group than the control group were reduced by approximately 45%, 56% and 52% [11].

2. Methods

This type of quantitative research uses a quasi-experimental research design with pre-post test to see and compare the actions taken before and after the intervention is carried

out, then the differences in the pre-test and post-test are assumed to be the effect of the experiment. This study will examine the effect of Javanese massage on the quality of life of children with asthma before and after the intervention. The research was conducted for approximately seven months from May to November 2017 in four community health centers in the Bandar Lampung City working area.

Population was all pediatric patients diagnosed with asthma at the sub-district health center in the Bandar Lampung work area. The sample calculation used a paired numerical analysis research sample size formula. In this study 16 people were in the case group. The sampling technique was carried out by consecutive sampling. The inclusion criteria for the study sample were: biological parents willing and cooperative to participate in doing the massage for one month; Children has no other chronic disease apart from asthma and is willing to participate in the research. While the study exclusion criteria were contraindications for massage: edema in the area to be massaged, injury, incisions, burns, use of eye contact lenses, anticoagulant drugs, fracture, inability to follow the action for certain reasons, changes in treatment protocols, recurrence of asthma, living with adoptive parents, and parents not cooperating.

The implementation of this research requires several equipment, facilities/infrastructure including: Javanese massage leaflets and VCDs, leaflets for children with asthma, Javanese massage kits: essential oils, small towels, small bowls, aromatherapy, teaching aids in the form of children's models / phantoms, an outreach program. (SAP) massage Jawa and SAP Care for children with asthma, representative rooms for health education, stationery: notebooks, pens, notebooks and questionnaires.

The research questionnaire consisted of 3 parts, the first part was demographic data, the second part was history of asthma and part 3 PedsQl 4.0 according to the age of the children, namely the age group of 5-7 years, 8-12 years and 13-18 years. The PedsQL questionnaire consists of 23 questions to measure four multidimensional scales, namely physical functions (8 questions), emotional functions (5 questions), social functions (5 questions), and school functions (5 questions). Every aspect of health, the patient will be asked how much of the problem occurred within 1 month. In PedsQL for ease of interpretation printed and linear items are transformed to a scale of 0-100. Each scale is scored in reverse, for each selection of zeros (never in the last month) scores 100, one (very rarely) gets 75, two (sometimes) gets 50, three (often) gets 25, and four (always every day) scores zero. Higher scores indicate better health-related quality of life (HRQoL). From the 23 questions, four dimensional scales and three final results will be obtained, namely: Overall health results (Physical health summary); Psychological health summary is the average score of emotional, social and school functioning; and Total summary score is the average score of physical and psychological assessments. Based on several studies using PedsQL, children are in good health if the score is ≥ 83 and children who are in poor health if the score is between 60-≤70 [12].

Before the bivariate test was carried out because the number of responses for each group was less than 30, the normality test was carried out. In the case group, the data was tested using the Shapiro-Wilk test, with the result that the value of $p = 0.105$ ($p > 0.05$) so that the data distribution was normal. Bivariate analysis was carried out by comparing the difference in the mean value of the quality of life of children before and after Javanese massage.

3. Result

Table 1. Differences in the Mean Value of Physical Health of Children with Asthma at the Puskesmas, Bandar Lampung City District, 2017

Variable	N	Mean± SD	Mean ± SD	p-value
Pre	16	74.22 ±18,17	14.78±3.69	0.004
Post	16	86.79±11,54		

The mean value of physical health of children with asthma before the Javanese massage was 74.22 ± 18.17, while after the Javanese massage it was 86.79 ± 11.54 with a mean difference of 14.78 ± 3.69. The statistical test results obtained p-value = 0.004 ($p < 0.05$), so it can be concluded that there is a significant difference in the mean value of physical health of children with asthma before and after the Javanese massage.

Table 2. Differences in The Mean Value of The Psychological Health of Children With Asthma at The Puskesmas, Bandar Lampung City District, 2017

Variable	N	Mean	Difference in Mean ± SD	p-value
Pre	16	76.15±13.26	11.78±2.95	0.012
Post	16	84.60±10.27		

The average psychological health value of children with asthma before the Javanese massage was 76.15 ± 13.26, while after the Javanese massage. It was 86.19 ± 10.06 with a mean difference of 10.83 ± 2.70. The statistical test results obtained p-value=0.012 ($p < 0.05$), so it can be concluded that there is a significant difference in the mean value of the psychological function of children with asthma before and after the Javanese massage.

Table 3. Differences in The Mean Quality of Life for Children with Asthma at The Puskesmas, Bandar Lampung City District, 2017

Variable	N	Mean ± SD	Difference in Mean ± SD	p-value
Pre	16	73.95±14.21	10.83 ± 2.70	0.000
Post	16	86.19±10.06		

The mean value of quality of life for children with asthma before the Javanese massage was 73.95 ± 14.21, while after the Javanese massage it was 86.19 ± 10.06 with a mean difference of 10.83 ± 2.70. The statistical test results obtained p-value = 0.000 ($p < 0.05$) so that there is a significant difference in the mean value of the quality of life of children with asthma before and after the Javanese massage.

The limitations of the study were: The limited population caused the condition among case patients. In the case group, generally, patients who come to the polyclinic to check themselves and get treatment due to an acute asthma attack in the period August-October 2017. In the case group the age of the respondents is not the same, but varies according to the age group, namely 5-7 years, 8 -12 years, 13-18 years. In the 5 year age group, the filling of the questionnaire was mostly guided by the child's parents.

4. Discussion

4.1. Physical Health

The difference in the mean physical health of children with asthma in the case group before and after the Java massage was 74.22 ± 18.17 vs 86.79 ± 11.54, with a mean difference of 14.78 ± 3.69. The statistical test results obtained p-value = 0.004 (p <0.05) so it can be concluded that there is a significant difference in the mean physical health of children with asthma before and after the Javanese massage. generally asthmatic children experience impaired respiratory function effectiveness. Not optimal oxygenation causes the tissue to experience hypoxia, which in turn will interfere with body functions so that it is easy to tire (fatigue) and experience chest pain. Children with asthma then experience chronic fatigue, namely fatigue within a period of 6 months which weakens the body and does not disappear with bedrest and causes a reduction in individual activity levels by as much as 50% [12].

Some physical problems in children with asthma, such as fatigue and pain, can be overcome by giving regular massage by mothers to children with asthma. The movements in the Javanese massage are sequences. friction and pressure on the muscles of the body will improve blood circulation. Giving a massage to patients with chronic fatigue such as in children with asthma will reduce symptoms of fatigue, somatic symptoms and pain. Cortisol levels decreased 32% after the first and last session while urinary cortisol levels increased by 41% and dopamine levels increased by 2l%. Giving massage to asthma patients not only showed improvement in their clinical condition but also showed a decrease in cortisol, an increase in dopamine and a decrease in depression and anxiety [12].

In this study, the mean value of physical health after intervention in the case group was 86.79 ± 11.54 vs 83.61 ± 15.29 in the control group. This shows that the physical health of asthmatic children who received Javanese massage was better than the control group. Javanese massage movements are generally in the form of sequences, friction, pressure on the muscles of the body starting from the distal muscles towards the median to help blood circulation, especially veins/peripherals towards the heart. Smooth blood circulation in the legs, back, chest, hands and face will increase the effectiveness of lung function, reduce pain and create a feeling of relaxation so that sleep becomes better quality [12].

These results are almost the same can also showing massage therapy (Swedish massage) by parents for 20 minutes before going to bed every night for 5 weeks in addition to standard asthma treatment will increase lung function parameters expiratory pulmonary flow in the first second (FEV1), forced vital capacity (FVC), FEV1 / FVC and peak expiratory flow (PEF), reduce prostaglandin levels and increase dopamine [13,14].

4.2. Psychological Health.

In this study, the average psychological health value of children with asthma before the Javanese massage was 76.15 ± 13.26, while after the intervention the psychological score was 84.60 ± 10.27 with p-value=0.012. The statistical test results obtained p-value=0.012 (p<0.05) so it can be concluded that there is a significant difference in the mean of psychological function of children with asthma before and after the Javanese massage.

Many asthma attacks are associated with trigger factors such as chronic fatigue, stress, depression and anxiety. Asthmatic children experience anxiety due to acute asthma attacks that occur more often at night and early morning which threatens their safety. Asthmatic children also feel psychologically different from their friends because their weak physical condition prevents them from being able to participate in activities with friends their age [12].

Increased cortisol levels stimulate the body to become stressed easily and reduce autoimmunity so that asthmatic children get sick more easily. Physical weakness causes asthmatic children to often miss school and reduce their performance at school. Touch therapy in this case is massage from parents which is a holistic approach to relieve stress and tension in massage children in the form of pressing movements, squeezing the soft tissues of the body including muscles, connective tissue and joints. Massage helps the body improve blood circulation by decreasing sympathetic nerve activity which causes vasodilation of blood vessels and relaxes muscles and sedation. Massage movements in the form of friction, pressing, warm and relaxing massage cause relaxation of the respiratory muscles and improve respiratory function by reducing the production of mucosal secretions in the respiratory tract without the need to consume chemical drugs [12].

Massage in asthmatic children can also be used as stress management to prevent the uncertainty of an asthma attack. Close skin to skin contact between mother and child at bedtime will also improve the quality of togetherness (quality time) so that it will calm the sufferer physically, mind and mentally. Even though it doesn't treat asthma directly, through the biofeedback mechanism, massage will bring the body to a point where the body can heal itself (Self-healing). Children with asthma who were randomly selected to receive massage therapy or relaxation therapy. Parents of children are taught to provide therapy for 20 minutes before going to bed every night for 30 days. Children who received massage therapy showed decreased levels of anxiety and salivary cortisol levels decreased by 37% [12].

RCT research showed that massage combined with other therapies can reduce stress anxiety and increase relaxation. Massage has been shown to be effective in reducing the psychological stress response and depressive symptoms as indicated by a decrease in heart rate and blood pressure. In addition, further positive results include reducing pain, improving sleep quality and quality of life for patients. Massage will also reduce the level of anxiety of mothers of asthmatic children [15].

4.3. Quality of Life for Asthma Children

The mean value of quality of life for children with asthma in the case group before the Javanese massage was 73.95 ± 14.21, while after the Javanese massage it was 86.19 ± 10.06 with a mean difference of 10.83 ± 2.70. The statistical test results obtained p-value=0.000 ($p<0.05$) so it can be concluded that there is a significant difference in the mean value of the quality of life of children with asthma before and after the Javanese massage.

This condition is in accordance with the results of several previous studies that giving massage to children with asthma can improve physical and psychological health which in turn can improve the quality of life of children and other family members [10]. Massage apart from having a positive impact on children also has a positive impact on other family members (parents) who provide massage because it puts them in an active caring position so as to reduce parental anxiety. The role of nurses in teaching massage to parents shows that nurses provide family centered nursing care and empowering parents to play an active role in controlling asthma [15].

The most important thing in asthma management is education to sufferers and their parents about disease, treatment, monitoring and how to prevent asthma and administering treatment properly. The experience of mothers in caring for children with asthma is that mothers need support from health workers in the form of education in caring for children with asthma [8]. Educational programs for independent management of asthma in children and adolescents show that educational programs will improve lung function and feelings of

being able to manage independently, reduce school absenteeism, limited activity days, visits to the ER, and nighttime sleep disturbances. It is recommended that educational programs be part of routine services for children and adolescents with asthma [16].

Family knowledge about the care and management of asthma in children affects the prevention of asthma recurrence and improves children's quality of life. Through interactive education parents can learn how to manage and prevent asthma recurrence in children and children at certain ages are taught how to manage asthma independently. The quality of life of children with asthma is strongly influenced by several factors other than massage intervention. Several other factors that affect the quality of life of children with asthma are the severity of asthma [9].

5. Conclusion

This paper has presented a significant difference in the mean value of physical health (p-value = 0.004), psychological health (p-value = 0.012) and the quality of life of children with asthma, p = 0.000 before and after Javanese massage.

Ethical approval

The study team strictly followed ethical standards in research, ethics approval documents are available by No. 257/EC/KEP-TJK/XII/2017. We asked for approval before becoming a participant, all individual information was strictly kept confidential and not reported in the paper.

Conflicting Interest

All authors declare no conflict of interest.

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