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Comparison of Tuina Massage Therapy and Citronella Aromatherapy Oil in Toddler Appetite Enhancement

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Appetite is the desire to eat food of certain types. This desire is useful to help someone choose quality food. The problem in this study is that as many as 75 (60%) of toddlers in Posyandu Anggrek Sidosari Village, South Lampung are experiencing appetite problems. Some of the treatment of appetite problems in toddlers in a non-pharmacological way are the intervention of Tuina Massage and Aromatherapy Oil Administration. The purpose of this study was to determine the comparison of the response of Tuina Massage and Gathering of Aromatherapy Oil of Lemongrass to the increase of toddler's appetite in Posyandu Anggrek, Sidosari Village, South Lampung. This study is an analytical study with a pre-experimental design (two-group pretest-posttest) conducted in February - April 2019. The population in this study were toddlers living in Sidosari Village in South Lampung, as many as 293 people. The sampling technique used is purposive sampling. Data Sources used are primary data obtained directly from respondents, data collection tools in the form of questionnaires and Comstock sheets. The univariate analysis used average values, Bivariate analysis used paired-sample T-tests with Independent T-Tests. Research results obtained from statistical tests with independent sample T-test, the average ratio after the intervention of Tuina Massage was 1.644, and the average after giving Lemongrass Oil Aromatherapy was 1.092. The conclusion of this study is the response of Tuina Massage is more useful to increasing the appetite of toddlers in Posyandu Anggrek Sidosari Village, South Lampung. It is hoped that the Posyandu Anggrek can provide counselling on handling toddlers' appetite problems with non-pharmacological treatments, especially Tuina Massage.

Keywords: *Appetite, Tuina Massage, Aromatherapy Lemongrass Oil.*

Introduction

In this Modern Era, the incidence of stunting in children under five is becoming a phenomenon. The problem of stunting is becoming increasingly common in developing countries, including Indonesia. Stunting is a chronic condition of a child's weak linear growth, which is an accumulation of the effects of various factors, such as poor nutrition before and after the child's birth (Horst, Deming, Lesniauskas, Carr, & Reidy, 2016). The toddler period is a (golden period) that is very sensitive to the environment; this period is very short (Rudy et al., 2018)

Based on WHO data in 2017, there were 22.9% of children under five years experiencing stunted growth (too short for their age), ranging from 6.1% in Europe to 33.8% in Southeast Asia. According to Riskesdas 2018, the status of toddlers who are short and very short in Indonesia in 2018 reached 30.8%, while toddlers who experienced malnutrition reached 17.7%. When compared to the results of Riskesdas in 2013, toddlers who experienced short and concise status reached 37.2%, toddlers who experienced poor nutrition, and undernutrition reached 19.6%: the results were not much different. The percentage of children under five experiencing malnutrition in Lampung Province was 15%, and the rate of children under five experiencing hunger was 3.5%.

At this age, children under five have bad eating habits and often do not want to eat, reject the food, and have decreased appetite. If the symptoms of not wanting to eat are allowed to continue then, the child's weight will reduce with lack of nutritional intake and decreased nutritional status in children. Thus, it has an impact on the incidence of malnutrition in children under five with BGM/Chronic Nutrition Deficiency, and is a triggering factor for the increased prevalence of stunting. If stunting occurs in the first two years of a child's life it can result in low intelligence, decreased physical capacity, which can ultimately result in reduced productivity, slowing economic growth and prolongation of poverty (Syafiq, Fikawati, & Widiastuti, 2015).

Currently, most parents provide supplements such as multivitamins to increase a child's appetite, even though continuous multivitamin administration will hurt the child regardless of the cause. There are other ways to overcome the child's appetite problem using non-pharmacological means, by using massage and herbal drinks.

This nonpharmacological method is simply called a complementary approach, which includes a massage. Massage is a direct therapy to promote a secure and comfortable condition. If the massage were given continuously, it would increase the catecholamine hormone, which can raise the growth stimulation, include the appetite (Ceria & Arintasari, 2019).

One kind of massage that can be applied to the children is Tuina massage. This method will impact on relaxation, increasing appetite, nutritional completion and maximal absorption (Ceria & Arintasari, 2019).

Next, complementary therapy also includes plans for administering aromatherapy. Aromatherapy is a therapy in the health field that uses the aroma of a particular ingredient to improve physical and psychological conditions by promoting certain stimuli, including increasing appetite for sick clients who have decreased appetite (Fatmawati, 2014). It is in line with Ekawati's research entitled "The Effects of Playing Aroma Jars Therapy on Nutrition Intake of Preschool Children during Hospitalisation in 2018" that children or toddlers who are hospitalised need treatment in their reactions of refusing to eat by using playing jars aromatherapy. Jars aromatherapy is a play therapy that can encourage a child's interest in eating through sensory stimulation, namely sniffing. The child will inhale a variety of foods with a strong aroma, thereby stimulating the child's desire to eat and can improve nutrition in children.

With this simple method to increase appetite, it can change the mindset of parents not to tend to use multivitamin supplements to raise a child's appetite. Parents no longer force their children to eat so that children become traumatised, and this method can be applied by parents who have children who have difficulty eating and can help reduce the incidence of stunting and malnutrition in children. Infancy is a golden period to determine the quality of their next age (Munjidah, 2018).

Lampung Province is one of the priorities in stunting reduction from 160 districts/cities, including South Lampung, East Lampung, Central Lampung, and Tanggamus (TN2PK, 2018). Therefore, the researchers chose a posyandu for toddlers in the village of Sidosari, South Lampung, to be a place of research. In this village, almost all parents who have toddlers complain that their children have difficulty eating; there are still toddlers with BGM. The majority of the population is married at a young age, so that they lack knowledge about the status of nutrition.

Based on this, the authors are interested in conducting research on the Comparison of the Effectiveness of Tuina Massage and Giving Citronella Oil Aromatherapy in Posyandu Anggrek, Sidosari Village, South Lampung Subdistrict in 2019.

Methods

The type of research is an experimental study with the design pre Experiment (Two Group) pretest-posttest Design). The population in this study were all toddlers living in Sidosari Village, South Lampung, with a population of 293 toddlers.

The sample calculated using the formula:

$$(t-1)\,(r-1) \geq 15$$

The size was based on the above formula, the number of applications obtained ≥ 32, the researchers determined the number of samples and 50 respondents were divided into 25 in the intervention group of tuina massage therapy, and 25 respondents in the intervention group given lemongrass oil aromatherapy. The total number of samples to be taken in this study was 50 respondents.

The sampling technique used was purposive sampling, which is sampling based on a particular consideration made by the researcher himself based on characteristics or traits that have been previously known, to select respondents by the criteria desired by researchers, namely respondents who have difficulty eating due to decreased appetite, then using simple random sampling to divide the experimental group with Tuina Massage and Giving Citronella Oil Aromatherapy.

This research will be conducted at Posyandu Anggrek, Sidosari Village, South Lampung, Lampung Province, from February - April 2019.

In this study, data collection was carried out using primary data directly obtained from respondents by completing questionnaire sheets, measuring appetite, and interventions.

Respondents were asked to measure the increase in appetite through weighing and the Comstock sheet. Using the measurement of appetite with the Comstock sheet (measuring leftovers) on a scale of 0 (100% food consumed), 1 (if remaining ¼ portion / only 75% is consumed), 2 (if remaining ½ portion / only 50% is consumed), 3 (if remaining ¾ portion / only 25% is consumed), 4 (if food is close to intact / consumed only 1 tablespoon / 5%) and 5 (whole food). Then from the six scales grouped, namely appetite increases if the food consumed is ≤25% and experiences an increase in bodyweight from the previous body weight, appetite does not increase if > 25% of food is consumed. There is no increase in bodyweight from the previous bodyweight.

Results

Univariate Analysis

The results of data analysis obtained a mean appetite scale before intervention given Tuina Massage intervention with a standard deviation of 0.5393. And the effects of data analysis got a mean appetite scale after given intervention Massage Tuina 1.516, with a standard deviation of 0.5273. The results of data analysis obtained the mean level of appetite before given Aromatherapy

Lemongrass Oil 3.020 with a standard deviation of 0.5515 and 0.55515. The results of data analysis derived mean appetite scale after aromatherapy of citronella oil 1.928 with a standard deviation of 0.7226.

Bivariate Analysis

To compare the intervention of Tuina Massage and Aromatherapy Oil of Lemongrass we used a data analysis independent-Test to see a comparison of the average post-intervention value of Tuina Massage and Giving of Lemongrass Oil Aromatherapy, with the following results.

Results of p-Value data analysis of 0.001 with the assumption of homogeneous data, and 0.001 with no comparable data assumptions, where both p-Value < 0.05. It means that it can be concluded that the difference in appetite is significant between Tuina Massage therapy and the administration of Aromatherapy Lemongrass Oil to respondents where the average after giving Aromatherapy Lemongrass oil has an average lower taste of 1.120 compared to after the intervention of Tuina Massage of 1.656.

Discussion

Univariate

Toddlers'Appetite Before Given Tuina Massage Therapy

Based on the results of a study of 25 respondents about the comparison of Tuina massage therapy and the administration of citronella oil aromatherapy to the increase in toddler's appetite in Posyandu, Sidosari Village, South Lampung, obtained an average of toddlers' thirst before conducting Tuina massage therapy. Which is 3.160, with a standard deviation of 0.5393.

It is in line with the theory of Guyton and Hall, that appetite is produced from several nerve centres in the hypothalamus, which consists of the nuclei in the hypothalamus affecting the secretion of several essential hormones derived from the adrenal glands, which then allows the thyroid and pancreatic islet cells to regulate the balance of energy metabolism. The hypothalamus receives nerve signals from the digestive tract that provide sensory information about the contents of the stomach, including chemical signals from nutrients in the blood (glucose, amino acids, signals from hormones gastrointestinal, signals from fat tissue and messages from the cerebral cortex (vision, smell, and taste) (Abebe, Haki, & Baye, 2017).

According to researchers' suitability by one factor, namely, massage (kabiri, Hassanpour, & Dreis, 2018), emphasises the body's meridian points or energy flow lines in the body by accelerating blood circulation to the spleen and digestion. Impaired digestive function is the most dominant cause in children with eating difficulties. Through massage Tuina, some organs related to metabolism can be touched, such as fingers, palms, stomach, and back. The techniques in massage are Tuinasliding (known as Effleurage or Tui), massaging (Petrissage or Nie), tapping (tapotement or Da), friction, pulling, twisting, shaking, and shaking points, inducing blood circulation, intestine, stomach and especially the spleen to become more reliable (Wei, Wang, Li, & Zhu, 2017). Incoming foods will be more natural to digest, so food stagnation and accumulation can be minimised in the digestive tract, in addition to increasing stamina and the immune system. Which, in turn, strengthens the constitution of the child's body, supports the flow of chi health, and increases the child's appetite. By minimising the stagnation and accumulation of distributed food digestion, nausea and unwillingness to eat in children can be overcome (Horst et al., 2016)

Based on research conducted by many people, Sidosari still uses herbal drinks, multivitamins, and abdominal massage to overcome toddlers' appetite problems.

Toddlers' Appetite After Being Given Tuina Massage Therapy

The results are based on of a study of 25 respondents about the comparison of tuina massage therapy and providing aromatherapy lemongrass oil to the increase in toddler's appetite in the Posyandu Anggrek in Sidosari Village, South Lampung. It was found that the average appetite for toddlers after Tuina massage therapy had increased to 1.516, with a standard deviation of 0.5273. The results of this study are also researched by Anif Munjidda (2015) on 25 respondents who were given the tuina massage intervention, obtaining a significant value of p 0.009 <α0.05. Then Ho is rejected. It means that Tuina massage is effective in overcoming feeding difficulties in toddlers.

It was also explained in the results of Naningsih's research in 2019 with the title; "The Effect of Tuina Massage on Increasing Appetite in Toddlers in the Mataoleo Community Health Centre in Bombana Regency in 2019" which obtained paired t-test results of -8.666 with the most considerable significant value of 0.000. It shows a considerable amount smaller than 0.05 (0.000 <0.05), so the hypothesis is accepted (Wei et al., 2017)

According to researchers, suitability is caused by one physiological factor – the touch stimulation through massage can affect the mechanism of brain waves, especially the hypothalamus, which is the key and the centre of the response to hunger and appetite. The hypothalamus will also produce hormones, including hormones that affect the taste, the ghrelin hormone (Jiang et al., 2016; Yang et al., 2017).

Based on research conducted by many people, Sidosari still uses herbal drinks, multivitamins, and abdominal massage to overcome toddlers' appetite problems. Therefore, respondents are expected to routinely intervene with Tuina Massage for toddlers who experience appetite disorders; doing Tuina Massage is expected to increase appetite in toddlers (Lee et al., 2017; Zhu et al., 2016).

Toddler's Appetite Before Lemongrass Oil Aromatherapy

These are the results of a study of 25 respondents about the comparison of Tuina massage therapy and the administration of lemongrass oil aromatherapy to increase appetite for toddlers in the Posyandu Anggrek in Sidosari Village, South Lampung. The healthy desire for toddlers before lemongrass oil aromatherapy is 3.020, with a standard deviation of 0.5515.

In line with the theory of Guyton and Hall, appetite is produced from several nerve centres in the hypothalamus whereby the nuclei in the hypothalamus affects the secretion of several essential hormones derived from the adrenal gland. Thyroid and pancreatic islet cells then regulate the balance of energy metabolism (Abebe et al., 2017). The hypothalamus receives nerve signals from the digestive tract that provide sensory information about the contents of the stomach, including chemical signals from nutrients in the blood (glucose, amino acids, signals from gastrointestinal hormones, signals from fat tissue and messages from the cerebral cortex (vision, smell, and taste) (Horst et al., 2016).

According to the researchers, aromatherapy treatment in the human body takes place through two physiological systems; the circulatory system of the body, and the system of smell. When taken by mouth or applied to the surface of the skin, essential oils will be absorbed by the body, which would then be carried by the circulatory system to allow better blood circulation and sympathetic circulation through the process of digestion and breathing of the skin by capillaries (Powell, Frankel, & Hernandez, 2017; Saltzman, Fiese, Bost, & McBride, 2018).

The odour is a molecule that quickly evaporates into the air and enters the nasal cavity through inhalation so that the brain will record it as an olfactory process. The olfactory process itself is divided into three levels, starting with the reception of the odour molecule in the olfactory epithelium, which is a receptor that contains 20 million nerve endings. Furthermore, the odour will be transmitted as a message to the olfactory center located on the back of the nose. At this place, various neuron cells interpret the fragrance and deliver it to the limbic system, which will then be sent to the hypothalamus for processing (de Barse et al., 2017). Through the delivery of responses made by the hypothalamus, all elements in the essential oil will be delivered by the circulation system and chemical agents to the organs of the body in need (Blaine, Kachurak, Davison, Klabunde, & Fisher, 2017).

As many people in Sidosari still use herbal drinks, multivitamins, and stomach massage to overcome toddlers' appetite problems, therefore respondents who experience appetite disorders should understand various other non-pharmacological managements to overcome appetite disorders. (Khandpur, Charles, & Davison, 2016).

Toddler's Appetite After Lemongrass Oil Aromatherapy

Being based on the results of a study of 25 respondents about the comparison between Tuina massage therapy and the administration of lemongrass oil aromatherapy to an increase in toddler's appetite in the Posyandu Anggrek in Sidosari Village, South Lampung, the average desire for toddlers after lemongrass oil aromatherapy is 1.928, with a standard deviation of 0.7226.

This research is supported by the Tisserand (1996) Aromatherapy of lemongrass oil psychologically and physically through activation of the limbic system, giving odour signals to be delivered to the lateral olfactory area in the cerebral cortex and subsequently transported to the limbic system. In the limbic system, odour signals will be carried through stimulation of the hypothalamus, activating the endocrine system and central autonomic nerves: from the hypothalamus the message will be delivered to the amygdala which will affect behavior, mood, emotions, and pleasure which is categorised as body relaxation. The signal will be processed and delivered to the amygdala and produce feelings from the aroma that has been inhaled; then stimulation is given to the autonomic central nervous system. Aromatherapy will affect the sympathetic nervous system and parasympathetic system—effects produced in parasympathetic regulation in the medulla oblongata and sacral spinal cord. The central control in the medulla oblongata affects the heart organs, bronchii, and digestive system (Pertiwi, Idriansari, & Kusumaningrum, 2016; Rofi'ah, Widatiningsih, & Sukini, 2019).

This research also reinforced the opinion of some research, which argues that most of the oil-smelling aromatherapy will enter the tissue and find its way into the blood circulation. This will help expedite blood circulation to accelerate absorption so that it can help the stomach work so that the stomach can give signals to the hypothalamus to secrete the hormone Ghrelin (for appetite). Each essential oil has a different absorption rate, generally between 20 minutes to 2 hours (Author & Newsom, 2014; Friska Astrilita, Mugi Hartoyo, 2016).

Based on research conducted by many people in Sidosari, who still use herbal drinks, multivitamins, and abdominal massage to overcome toddlers' appetite problems, therefore respondents who experience an appetite disorder should be able to give lemongrass oil aromatherapy regularly before going to bed at night to increase appetite (Buckle, 2015; Lis-Balchin, 1996; Sánchez-Vidaña et al., 2017).

Bivariate

Comparison of Interventions for Tuina Massage and Giving Citronella Oil Aromatherapy.

The results of research conducted at Posyandu Anggrek, Sidosari Village, South Lampung, regarding the intervention of Tuina massage and the administration of Lemongrass Oil Aromatherapy, showed that each response influenced increasing toddlers' appetite. However, based on the significant value of the average cost of the appetite scale after being given an intervention, it was found that the Tuina massage was more effective compared to the use of lemongrass oil aromatherapy. The average value of the appetite scale before being given the intervention of Tuina massage was 3.160. After giving lemongrass oil aromatherapy, it increased to 1.516. In contrast, the average value of the appetite scale before being given aromatherapy of citronella oil was 3.020 and after being given aromatherapy of citronella oil to 1.928. Then the statistical test results using the Independent T-Test obtained the average scale difference after the Tuina massage intervention > the medium-scale difference after being given lemongrass oil aromatherapy is 1.656 > 1.120. So it means in this study that the response of Tuina massage is more effective than the administration of Lemongrass Oil Aromatherapy in increasing the appetite of toddlers in Posyandu Anggrek, Sidosari Village, South Lampung.

The results of this study are supported by (Mackay, 1992; Songkro et al., 2009); the theory that the through the intervention of Tuina Massage, several organs related to digestion can be touched, such as fingers, palms, abdomen, and back. The techniques in Tuina massage are a sliding (known as Effleurage or Tui), massaging (Petrissage or Nie), tapping (tapotement or Da), friction, pulling, twisting, shaking, and shaking points, inducing blood circulation, intestine, stomach and especially the spleen to become stronger (Timung, Barik, Purohit, & Goud, 2016). Incoming foods will be more natural to digest, so food stagnation and accumulation can be minimised in the digestive tract, in addition to increasing stamina in the immune system, which in turn strengthens the constitution of the child's body, supports the flow of chi health, and increases the child's appetite. By minimising the stagnation and accumulation of distributed food, digestion, nausea, and unwillingness to eat in children can be overcome (Barbas et al., 2017; de Almeida et al., 2016).

After increasing the appetite, next it will impact the children's weight gain. This is because the effect of Tuina massage makes the blood circulation clearer in the lymph and digestive tract, so the children's nutrition will meet its needs and increase the children’s weight (Fatmawati, 2014; Timung et al., 2016).

According to researchers, caused by one physiological factor the touch stimulation through massage can affect the mechanism of brain waves, especially the hypothalamus, which is the key and the centre of the response to hunger and appetite (Guba, 2002; Wilkinson, 1995; Zhang et al., 2019). The hypothalamus will also produce hormones, including hormones that affect appetite, namely the ghrelin hormone. Therefore, respondents should be able to apply various methods of increasing appetite. In this case, Tuina massage is proven effective in growing toddlers' appetite. Also, this method is easy to do so that it can be done for all toddlers who experience appetite disorders. (Al-Bedah, Ali, Abushanab, & Qureshi, 2017).

Conclusion

Based on the results of the research conducted, it can be concluded that the average value of appetite before Tuina massage therapy is 3.160. The average cost of appetite after Tuina massage therapy is 1.516. The average amount of appetite before being given lemongrass oil aromatherapy was 3.020. Appetite after being given aromatherapy lemongrass oil was 1.928. There is a difference between the Tuina massage therapy and the use of lemongrass oil aromatherapy to toddler's appetite where the difference between toddlers' appetite before and after is 1.656 and the average difference in appetite before and after citronella oil aromatherapy is 1.120, which means that massage is more effective for toddlers to increase the toddler's appetite. It is expected that the results of this study can be applied and provide benefits as a non-pharmacological treatment in increasing toddlers' appetite, including being able to use Tuina massage to overcome appetite problems in the village of Sidosari. It is expected that the results of this study can provide information that can be applied as one of the non-pharmacological ways to improve toddler's appetite by doing Tuina massage therapy so that it can be applied to toddlers who experience appetite disorders. It is expected that the results of this study can be used as additional material that can develop further research on Tuina massage therapy to overcome the problem of appetite.

Table 4.1. Distribution of Toddlers' Appetite Frequency in the Tuina Massage Intervention group

Mean	N	Interventions Standard Massage Tuina Deviation
Pre 3.160	25	0.5393
Post 1.516	25	0.5273

Table 4.2. Distribution of Toddler's Appetite Frequency in the Aromatherapy Oil Group

Mean	N	Standard Citronella Oil Deviation
Pre 3.020	25	0.5515
Post 1.928	25	0.7226

Table 4.3. Frequency Distribution Comparison of Toddler's Appetite in the Tuina Massage group and Lemongrass Oil Aromatherapy

	N	Mean	St. DP Value
Average Massage	25	1.64	.57885 0.001
Average aromatherapy	25	1.09	.59786

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