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Influence *Pranayama Breathing* Accompanied *Guided Imagery* Against Increase in PEFR Values for Asthma Patients

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Abstract
Asthma is a respiratory disease caused by several factors such as bacteria, viruses, fungi, allergies, and physical, psychological, and weather activities, which causes the respiratory tract to become narrow and tight so that it can reduce the value of PEFR if left unchecked will cause an attack the more severe (status asthmaticus) then becomes a complication to death. Methods pranayama breathing makes the patient control the duration of the breathing and exhale longer and fuller, it increases the amount of air exchange in the lungs, guided imagery gives the patient a relaxing effect so that the breathing muscles can relax and widen so that lung ventilation is optimal. This study aims to determine the effect of pranayama breathing accompanied by guided imagery on increasing the PEFR value of asthma patients. The research design used was a pre-experimental design with one group pretest-posttest, the sampling technique used was accidental sampling, and the number of samples taken was 15 people. This intervention was carried out 2 times a day for 3 days. The results of the study stated an increase in peak expiratory flow rate after being given pranayama breathing accompanied by guided imagery. This can be seen from the paired t-test with p-value = 0.000 which means that there is an effect of pranayama breathing accompanied by guided imagery. Giving pranayama breathing accompanied by guided imagery can widen the obstruction of the respiratory tract so that the PEFR value can increase in asthma patients.
Keywords: *Peak Expiratory Flow Rate, Pranayama Breathing, Guided Imagery, Asthma*

INTRODUCTION

Asthma is a respiratory disease channel Respiratory with accompanying shortness of breath sound voice-like blowing at the moment of exhaling (*wheezing*), a chest feeling heavy, no breathing regular, cough accompanied by sticky, thick phlegm that causes feelings of anxiety and restlessness. If the phlegm is sticky and thick clogs the bronchi so that alveolar ventilation is reduced, causing the channel Respiratory to become narrow and short of breath, and breathing becomes difficult (dyspnea), if the attack asthma No subsidies (chronic) can cause the attack increasingly heavy to cause status asthmaticus complications to heart and can cause patient died (Herdyani, 2013).

The incidence rate There's enough asthma in the world varies, *The World Health Organization* (2016) estimates that 100-150 million of the world's population is suffering asthma. The amount This estimate will Keep increasing until reaching 180,000 people each year. In Indonesia prevalence disease asthma based on Basic Health Research 2018 around 2.4% of 300,000 members House stairs, while in East Java itself, there is around 2.4%, and in Pasuruan the

prevalence of asthma of 4.1%. Every year there is more than 180,000 inhabitants die consequence of asthma (Putra et al ., 2017). Based on the results of studies In July – September 2019, there were 48 patients with asthma in the Bromo Room at Grati Regional Hospital Pasuruan, meanwhile, the care given treatment pharmacotherapy and nebulizer therapy.

Causative factors of asthma-like bacteria, viruses, parasites, fungi irritants, allergies, activities physical, psychological, and weather, stimulating reaction hyperactivity bronchi inside channel breathing, attack asthma first attacks bronchial muscles so channel breath becomes spasm, then *hyperemia* due to exists inflammation of wall mucosa from the bronchus. Production of thick, sticky mucus increases and can block the bronchus so alveolar ventilation is reduced. Inflammation channel breathing and bronchoconstriction cause channel breathing to narrow so that expiratory airflow is reduced causing a decline in *Peak Expiratory Flow Rate* that is speed expiration maximum someone, and tight breathing / difficult breathing that follows with voice "*wheezing*" (a blowing sound when emitting air/breath) (Putri and Soemarno, 2013) . Attack This Can short and full recovery, but when the disease becomes chronic so chest cavity becomes stiff, the inspiration increases short, and the expiratory increases in difficulty that must assisted by the elevator muscles of the neck which causes the neck seen increase tension. When the attack increases chronic (attacks of asthma have Not subsided) over a long time then the attack will increase become more normal weight called status asthmaticus the one that can give rise to complications heart, especially ventricle right because failure of ventilation causing hypo-oxidation of hemoglobin resulting in patient seen cyanosis. Due to oxygen retention which then becomes carbon dioxide poisoning, the patient will eventually die (Putri and Soemarno, 2013)

Management of asthma can be pharmacological and non-pharmacological, whereas, for acute asthma, the drugs usually given are bronchodilators (fast-acting B2 agonists and ipratropium bromide), as well as systemic corticosteroids. Meanwhile, long-term management of asthma is inhaled corticosteroids, long-acting B2 agonists, anti-leukotrienes, and slow-release theophylline (Guidelines for Controlling Asthma, 2008). Non-pharmacological management for asthma, namely exercise therapy, breathing technique therapy, psychological therapy, and manual therapy (Djojodibroto, 2009).

Peak Expiratory Flow Rate (PEFR) or Peak Expiratory Flow (APE) is the highest flow point a person reaches during maximal expiration and this point reflects a change in the size of the airway to a large one. This measurement is closely related and the same as *the force expiratory volume in the first second* (FEV1) (Suprayitno, 2017) . PEFR describes circumstances channel Respiratory. There is a significant decrease in PEFR obstruction to the flow of air in the duct breathing (Dyah Laksmana, 2010). One that influences the decline in PEFR value is the disease asthma.

Therapy asthma Yoga *Pranayama* and *guided imagery* is one of the incoming non - non-pharmacological therapies in the category therapy technique breathing

is possibly used For sufferer asthma. *The yoga breathing exercise (Pranayama)* is an exercise of Respiratory with technique breathe in a way slowly and deeply, using the muscle diaphragm, which allows the abdomen to rise slowly and the chest to expand fully. *Pranayama* Yoga practice can optimize ventilation so that PEFR/peak expiratory flow will increase automatically. An increase in PEFR/peak expiratory flow will increase the partial pressure of oxygen in the alveoli and cause diffusion in the alveoli and capillaries to increase. The decrease in CO2 and O2 occurs along with increased diffusion in the alveoli and capillaries so that oxygen saturation increases (.

Guided imagery is a technique that uses an individual's imagination with guided imagery to reduce stress (Nadira and Kunci, 2018) . This is a combining process of strength thought For relaxation and body For cure through communication involving the mind and all senses (e.g., sight, touch, smell, sight, and sound), (Louie, 2004) . Therapy-guided *imagery* carried out in patients with asthma can balance activity system nerve autonomy in patients (Lahman, 2009). Apart from that, therapy-guided *imagery* is also possible to lower total serum IgE levels in body sufferers of asthma (Lahman, 2009).

Based on the explanation namely *Pranayama* yoga and *Guided Imagery* are effective actions For done Because action the easy For done or not cost in doing the action.

Based on the statements above, the researcher is interested In do study with the title ***" The influence of pranayama breathing accompanied by guided imagery on increase in patient PEFR asthma at Grati Hospital Pasuruan ".*** Where researchers want to know exists influence of *pranayama breathing* accompanied by *guided imagery* on exists increase in patient PEFR asthma

RESEARCH METHODS

Design in study This is *pre-experimental* with type One *Group Pretest- Posttest Design* design. Population patients treated with asthma, meanwhile sample technique *accidental sampling*, technique *accidental sampling*, analysis (*pre-test*) before intervention and (*post-test*) after intervention *Pranayama Breathing* accompanied *Guided Imager* 2X/ day for 10 minutes in 3 days, then tested *paired sample t-test.*

RESEARCH RESULTS AND DISCUSSION

Research result :

Table 1 Frequency distribution of characteristics of asthma patient respondents

Characteristics	Frequency	Percent
Gender		
Man	6	40.0
Woman	9	60.0
Total	15	100.0
Employment history		
Laborer factory	2	13.3
IRT	3	20.0
Trader	3	20.0
Farmer	3	20.0
Civil servants	1	6.7
Doesn't work	3	20.0
Total	15	100.0
Smoking History		
Smoke	4	26.7
Do not smoke	11	73.3
Total	15	100.0

Table 1, Shows patients asthma 9 people (60%) are women, the rest manifold men, meanwhile history housewives, traders, and farmers, no 3 people each work (20%). R history smoke 11 respondents (73.3%) did not smoke and the remaining 4 people smoked (26.7%)

Table 2 Frequency distribution of respondents based on the age of the asthma patient

Variable	N	Mean	Min	Max	Std. Deviation
Age					
	15	51.67	28	70	11,493
Height					
	15	156.20	140	174	9,473

Table 2 Distribution frequency average age of respondents is 52 years old, the minimum age is 28 years old, and the age maximum is 70 years, medium Body height shows an average of 156 cm, a minimum of 140 cm, and a maximum height of 174 cm.

Table 3 *Peak Expiratory Flow Rate* value before *pranamaya breathing* accompanied *guided imagery* on Asthma patients

PEFR	N	Mean	Min	Max	Std. Deviation
Pre	15	216.00	200	250	15,946

Based on table 3 shows the *Peak Expiratory Flow Rate* before intervention As many as 15 respondents had a minimum of 200 L/ minute, a maximum of 250 L/ minute, with an average of 216 L/ minute. The PEFR value is between 200-350L/minute, indicating that the respondent's PEFR is in the yellow zone, which means there is a narrowing of the respiratory tract. A standard deviation of 15.946 means that the SD value is smaller than the average (mean), so it can be said that the data is homogeneous, which means that the average PEFR before giving the intervention has a low level of deviation.

Table 4 *Peak Expiratory Flow Rate* value after *pranamaya breathing* accompanied by *guided imagery* on Asthma patients

PEFR	N	Mean	Min	Max	Std. Deviation
Post	15	248.00	200	300	24,553

Based on Table 4 PEFR values after giving *pranayama breathing* accompanied by *guided imagery* Minimum value of 200L/ minute, a maximum of 300 L/ minute, and an average of 248L/ minute. The PEFR value of respondents after the intervention increased, although it was still in the yellow zone, namely 200L/minute-350L/minute, which means there is still obstruction in the respiratory tract. The standard deviation is 24,553, which means the SD value is smaller than the average (mean), so it can be said that the data is homogeneous, which means that the average PEFR after giving the intervention has a low level of deviation.

Table 5 Test the normality of patient data asthma using *Shapiro Wilk*.

	Measurement	Normality
Group Intervention	Pre-Test	0.056
	Post-Test	0.651
	Difference	0.129

Based on table 5 shows normality test results using *Shapiro Wilk*, difference measurement *pre-test* and *post-test* have significant values namely > 0.05 which means the data is normally distributed

Table 6 Influence *Pranayama Breathing* accompanied *Guided Imagery* to enhancement PEFR value in asthma sufferers

	N	Mean	Std. Deviation	Sig.(2Tailed)
Pre-Test – Post-Test PEFR	15	-32.00	13,202	,000

Based on table 6 shows *paired t-test* results after the intervention *pranayama breathing* accompanied *guided imagery* obtained the result is p = 0.000 < 0.05 which

means There is an influence *Pranayama breathing* accompanied *guided imagery* to enhance PEFR value.

Discussion

Peak Expiratory Flow Rate Before Giving Pranayama Breathing Accompanied by Guided Imagery

In Table 3, the PEFR data results before intervention were given for 15 asthma sufferers, the minimum was 200L/minute, the maximum was 250L/minute, and the average was 216L/minute. The PEFR value is between 200-350L/minute, indicating that the respondent's PEFR is in the yellow zone, which means there is a narrowing of the respiratory tract. A decrease in PEFR means there is an obstruction to the airflow in the respiratory tract (Laksmana, 2010).

The presence of obstruction which causes the PEFR value to decrease is related to factors, such as age, gender, smoking history, work history, height, and BMI. The researchers' results showed that the average age of sufferers was 52 years, where in theory lung function would decrease after reaching the age of 40 so that the PEFR value would also decrease. Cigarette smoke can damage the airways, poison the bronchial epithelium, cause oxidative damage, involve inflammatory cells, increase epithelial permeability, and cause limitations in airway development (Chalmers et al., 2001. The results of research according to the theory show that the gender is more female, which is proven if the patient Asthma is more common in women because men's lung function is 20% - 25% higher than women's because the anatomical size of men's lungs is larger than women's, so women are more at risk of experiencing a decrease in PEFR than men -men are taller than women so that lung *recoil* and *compliance* are trained (Guyton & Hall, 2011).

The average height of asthma sufferers is 15 6cm Having a tall and large body means that the ventilation function of the lungs is higher compared to people with a small, short stature (Guyton & Hall, 2011). The body mass index of respondents is at normal, category overweight and obesity. The theory says That obesity can cause a decline in system compliance between the lungs, and peripheral airway diameter, consequently enhancement of hyperreactivity airway, changes in blood pulmonary, and disorders function ventilation-perfusion Monica et al . (2010) in Supianto et al . (2014), which ultimately will make PEFR value decreases. Factors that have been mentioned cause the ability function of the lungs to decrease so PEFR will also experience a decline. Whereas For history work and history smoking from research that has been done, there is a difference Where in theory mentioned history work influences to decline function lungs, however from results have been obtained researchers, which causes decline function lungs it's not work but exposed factor exposure. As well as the history of smoking, inside theory mentioned That smokers are more prone to experience declining function lungs than those who don't smoke, however, the results study obtained sufferer asthma more Lots from those who are not

smokers than smokers, p because the study respondents more Lots manifold sex Woman than man, where amount smoker Woman more A little than man.

Peak Expiratory Flow Rate After Given Pranayama Breathing Accompanied Guided Imagery

Based on Table 4 results study shows sufferers of asthma after *pranayama breathing* accompanied by *guided imagery* 2x deep a day for 3 days, all respondents experienced enhanced PEFR value, though only 1 respondent has a mark still. PEFR value from 15 respondents, minimum 200 L/minute, maximum 300L/minute, and average 248 L/minute. The average PEFR value before the intervention was 216 L/minute, the average PEFR value after the intervention was 248 L/minute, and the average difference between the PEFR values before and after the intervention was 32 L/minute. Of the 15 respondents who did not experience an increase in the PEFR value, there was one person, this was because the respondent was 70 years old, based on the theory that age influences the lung function of asthma patients, where after the age of 40 years the lung function will decrease.

Respiratory yoga can improve lung function, one of which is increasing the PEFR value in asthma patients. Optimal ventilation occurs when asthma patients do p *pranayama yoga*, usually a person only uses 10-15% of their ability to breathe every day. Yoga practice will increase the amount of air exchange in the lungs which causes an increase in the partial pressure of oxygen in the alveoli so that diffusion in the alveoli and capillaries increases (Sukarno, 2017). Yoga breathing exercises are done by regulating and controlling breathing. Respiratory control consists of regulating the length and duration of the inhalation (*inhalation*), the length and duration of the exhalation (*exhalation*), and stopping the breath. Normal breathing in adults averages 16-18 times/minute. By doing yoga breathing exercises the speed of breathing will become slower, and each inhale and exhale will become longer and fuller. This condition is called deep breathing and will enable the existing energy to move to reach every cell (Sukarno, 2017).

Apart from *pranayama breathing*, *guided imagery* is also a technique that can increase the PEFR value from the relaxation effect obtained. Relaxation with technique-guided *imagery* will make the body more relaxed and comfortable in his sleep. With breathing in a way slowly, the body will become more relaxed. Feeling relaxed will continue to the hypothalamus To produce the *corticotropin-releasing factor (CRF).* Next CRF stimulates the pituitary gland to increase production of Proopioidmelano-cortin (POMC) so enkephalin production by the adrenal medulla increases. The pituitary gland also produces endorphins to influence neurotransmitters atmosphere and the heart becomes relaxed (Sherwood & Lauralee, 2001). When the body relaxes tension muscles body is reduced as well as tension smooth muscles, p This causes obstruction resulting in airway contraction and smooth muscle reduction Then ventilation lungs can increase in the end enhancement of PEFR value (Lisa, 2018).

The Influence of Pranayama Breathing Accompanied Guided Imagery

Research result table 5 shows after a normality test was carried out on the differences *pre-post* obtained results *P-value* = 0.129 > 0.05 then the data is concluded as normally distributed. Based on the *paired t-test* after *pranayama breathing* accompanied by *guided imagery* obtained results *P-value* = 0.000 < 0.05 which means There is an influence of *pranayama breathing* accompanied by *guided imagery* against PEFR value, and proven almost all respondents experienced enhancement PEFR value, though only 1 respondent has mark still.

Respondents provided *pranayama breathing* accompanied by *guided imagery* proved the PEFR value can increase, because, with *pranayama breathing*, respondents control the duration inhale and exhale more and full, p the increased amount exchange the air in the lungs causes enhanced pressure Partial oxygen in the alveoli so diffusion in alveoli and capillaries increased, as well affect relaxation caused by guided *imagery* capable lower tension smooth muscle so even a contradiction follow reduce the cause Genre ventilation air from and to lungs more optimal.

Result of journal research by Sari et al. (2018) entitled Therapy *guided imagery* effective lower frequency pattern breath patient asthma bronchial exacerbation Acute treatment in the emergency room at the 2017 Siswang Regional Hospital was obtained that *guided imagery* effective lower frequency patient's breathing pattern asthma bronchial exacerbation I with *p-value* 0.000. results show That the average patient's breathing pattern before *guided imagery* is 26.25, whereas after given therapy *guided imagery* is 19.88. Therapy-guided imagery provided capable relaxing muscles body including the smooth muscle of the lungs, when tension of smooth muscle decreases, constriction occurs follow decrease so that ventilation lungs is more optimal and create respondent's breathing pattern becomes normal.

Based on the results study previous research and research conducted by researchers, researchers conclude that *pranayama breathing* accompanied by *guided imagery* is effective For increasing a patient's PEFR value in asthma Because maximizing ventilation lungs, PEFR value can be increased**.**

CONCLUSION

Researchers' results conclude that *pranayama breathing* accompanied by *guided imagery* is effective For increasing a patient's PEFR value in asthma Because can maximize the ventilation lungs, so PEFR value can be increased.

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