



Application of Ginger Aromatherapy to Overcome Main Problems Post Operative Nausea and Vomiting (PONV) in Patients Post Appendectomy

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Abstract

Background: Appendectomy is a type of surgical procedure appendicitis or the removal of an infected appendix. An appendectomy is performed because there is an infection in the appendix in the lower right quadrant of the abdomen or inflammation that occurs in the appendix. The impact of carrying out an appendectomy is PONV due to the anesthesia given. PONV causes discomfort in postoperative patients because it increases intra-abdominal pressure and increases blood pressure and the patient's heart rate. Objective: knowing that the application of ginger aromatherapy to post-appendectomy patients can decrease in Ms. G and Ms. M is experiencing nausea. Method: This research is a qualitative descriptive study with a case study approach, using 2 respondents, namely patients who experienced nausea in the Edelweis Room at TK II 04.05.01 Hospital, dr. Soedjono, Magelang City. Application is carried out 2 times a day for 3 consecutive days with an application time of 10 - 15 minutes, observing complaints of nausea pre and post implementation of the action. Results: Ginger aromatherapy can reduce complaints of post-appendectomy nausea through observing major and minor signs and symptoms regarding nausea in Ms. G and Ms. M with the same range, namely decreasing. Conclusion: The application of ginger aromatherapy is effective in reducing complaints of nausea in post-appendectomy patients.

Keywords: Appendectomy; Ginger Aromatherapy; Nausea

1. INTRODUCTION

Appendectomy is surgery to remove an infected appendix. Appendectomy is performed as soon as possible to reduce the risk of further perforation such as peritonitis and abscess (Wainsani & Khoiriyah, 2020). An inflamed appendix can cause infection and perforation if surgery is not performed immediately (Mardalena, 2018). During the surgical procedure, the patient will receive general or regional anesthesia. Anesthesia has side effects, one of which is postoperative nausea and vomiting (PONV) (Edwar et al., 2022).

The incidence of PONV in children under 5 years of age is 40-50% in the 5-15 year age group, and 20-40% in adults (Arisdiani & Asyrofi, 2019). It is estimated that approximately 30% of patients experience PONV in more than 230 million major operations performed each year. Rather than that, as many as 1% of outpatient surgical patients are treated overnight for untreatable PONV (Syahfarman, 2022). The impact of carrying out surgery is: *Post Operative Nausea and Vomiting* (PONV) because anesthesia given. PONV causes discomfort in patients *post* surgery because it increases intra-abdominal pressure and increases blood pressure and *heart rate* patients (Hasibuan & Pratama, 2022).

The nursing problem that arises after surgery is PONV which is caused by the side effects of the general or regional anesthesia given. Nausea is a feeling of discomfort in the

back of the throat or stomach which can result in vomiting. One of the causes is the effect of pharmacological agents, namely anesthesia. Subjective major symptoms and signs include complaining of nausea, feeling like vomiting, and not being interested in eating. Subjective minor symptoms and signs are feeling sour in the mouth, hot/cold sensation and frequent swallowing (SDKI DPP PPNI Working Group Team, 2017).

PONV can be treated with pharmacological and non-pharmacological therapy which functions as prevention and treatment. Pharmacological treatment can include antiemetics, such as Ondansetron, appetite stimulants, and parenteral and enteral nutrition (Khasanah et al, 2021). Non-pharmacological therapy that nurses can carry out independently to reduce nausea and vomiting is by controlling environmental factors that cause nausea such as unpleasant odors, unpleasant sounds and visual stimuli and teaching non-pharmacological techniques to treat nausea such as *biofeedback*, *hypnosis*, relaxation, music therapy, acupressure (SIKI DPP PPNI Working Group Team, 2018).

One technique used to treat PONV is relaxation using aromatherapy. Aromatherapy comes from the word *aroma* which means smell and *therapy* which means treatment. Aromatherapy as part of complementary therapy can improve the patient's quality of life. The main principle of aromatherapy is to use the aroma of plants or flowers to change sensory, psychological and spiritual states through the connection between the patient's body and mind, as well as influencing a person's physical condition (Hastuty, 2021).

Ginger aromatherapy is aromatherapy based on ginger as a source of essential oil. One of the most prominent uses of ginger is its oil. Ginger contains essential oil components which have a distinctive fragrance originating from the active substances ginger and gingerol which have a relaxing effect and provide positive changes (Prahastyono & Alfiyanti, 2022). The content in ginger, gingerol, *flandera*, *zingiberol*, *curcumin*, *vitamin A*, *zingirol*, *bisabilena*, and can block serotonin, a neurotransmitter produced by neuroserotonergic neurons in the central nervous system and enterochromaffin cells, this component can cause a comfortable sensation and can overcome nausea and vomiting (Rimawan, 2021).

Ginger aromatherapy can be done through inhalation or inhalation techniques. Ginger essential oil vapor molecules will directly hit the olfactory receptors in the nasal cavity and are directly connected to the olfactory nerve which will be interpreted by the brain according to Asay et al in Amrina & Nurjayanti (2023). Aromatherapy using inhalation techniques is considered the most effective and practical method, and can easily enter the human body directly. Ginger aromatherapy works by inhibiting serotonin receptors which produces an antiemetic effect on the digestive system and central nervous system so that it can reduce

nausea and vomiting (Syahda, 2022). Ginger aromatherapy is given by inhaling it 2 times a day for 3 days by forming *roll on* then the patient is asked to inhale the aroma of ginger for approximately 10-15 minutes (Amrina & Nurjayanti, 2023).

Several studies have shown the success of using ginger aromatherapy to reduce nausea and vomiting due to chemotherapy, pregnancy and *post* surgery. This is in line with research by Amrina & Nurjayanti (2023) entitled Giving Ginger Aromatherapy to Patients with Impaired Nutrition Fulfillment with Nausea and Vomiting *Post* Appendectomy. Research by Arisdiani & Asyrofi (2019) shows that the aroma of ginger has an effect on reducing the severity of nausea and vomiting (PONV) in patients who have had surgery. Apart from that, Kinasih, et al. (2019) studied patients receiving general anesthesia and the effect of ginger aromatherapy on nausea and vomiting *post* surgery, noting differences in the severity of nausea and vomiting *post* surgery between the control and intervention groups.

Based on preliminary studies at TK II Hospital 04.05.01 dr. Soedjono, Magelang city, in June 2024 there were post-appendectomy patients who complained of nausea, felt like vomiting, and had no interest in eating. The patient said it was difficult to overcome his nausea and had tried to get rid of his nausea just by drinking warm water, but he was still nauseous. The aim of this article is to determine the application of ginger aromatherapy to treat PONV in patients *post* appendectomy in the Edelweis room at TK II Hospital 04.05.01 dr. Soedjono Magelang

2. LITERATURE REVIEW

Appendectomy is surgery or surgical removal of an infected appendix. Appendectomy is performed as soon as possible to reduce the risk of further perforation such as peritonitis and abscess (Wainsani & Khoiriyah, 2020). Appendectomy surgery has a double effect on basic human needs, namely nutritional needs that are not met, because post-appendectomy patients often experience symptoms of nausea, vomiting and loss of appetite, which can hinder wound recovery. and the healing process. *Post Operative Nausea and Vomitus* (PONV) is a physiological reaction experienced after surgery, syndrome *post* Surgery that often occurs is nausea and vomiting that occurs in the first 24 hours *post* surgery, this is due to the spinal anesthesia given and is still a problem because it is feared that it will cause ongoing complications for the patient (Mardiyono & Ta'adi, 2022). Hypotension, hypoxia, anxiety or psychological factors, administration of narcotics as premedication, insufficient fasting and stimulation *visceral* by the operator are several causes of nausea and vomiting after spinal anesthesia. Management of PONV can be done pharmacologically using drugs

commonly called antiemetics, but they have several possible side effects so non-pharmacological therapy can be used to treat nausea and vomiting. Aromatherapy is a non-pharmacological therapy that nurses can carry out independently to reduce nausea and vomiting experienced by patients.

Aromatherapy comes from the word *aroma* which means fragrant or fragrance, and *therapy* which can be interpreted as a way of treatment or healing. So aromatherapy can be interpreted as: "a way of caring for the body and/or healing diseases using essential oils (*Essential oil*)" (Jaelani, 2017). Ginger aromatherapy is aromatherapy based on ginger as a source of essential oils (Prahastyono & Alfiyanti, 2022). The content in ginger, gingerol, zingerone, zingiberol, curcumin, vitamin A, zingiberol, bisablenol, and can block serotonin, a neurotransmitter produced by neuroserotonergic neurons in the central nervous system and enterochromaffin cells, this component can cause a comfortable sensation and can overcome nausea and vomiting (Rimawan, 2021).

Management of patients with PONV *post* appendectomy is as follows:

a. Pharmacological management

Pharmacological therapy is carried out by administering antiemetic drugs, antihistamines, using steroids and administering fluids and electrolytes (Putri, 2016).

b. Non-pharmacological management

PONV can be treated using non-pharmacological therapy which functions as prevention and treatment. Non-pharmacological therapy can be carried out by means of acupuncture, aromatherapy, providing adequate nutrition, manipulative therapy, and psychological approaches (Putri, 2016). Ginger aromatherapy can be done through inhalation or inhalation techniques. Aromatherapy using inhalation techniques is considered the most effective and practical method, and can easily enter the human body directly (Asay et al., 2019). Ginger aromatherapy works by inhibiting serotonin receptors which produces an antiemetic effect on the digestive system and central nervous system so that it can reduce nausea and vomiting (Syahda, 2022). When the oil is inhaled, the molecules enter the nasal cavity and stimulate the limbic system in the brain. The limbic system is an area that influences emotions and memory and is directly tied to the adrenal glands, pituitary gland, hypothalamus, parts of the body that regulate heart rate, blood pressure, stress, memory, hormone balance and breathing (Santi, 2019).

3. METHODS

The research method used a case study with 2 female patients who had undergone appendectomy, experienced PONV with a compensatory level of awareness, were willing to be studied and intervened, and liked ginger aromatherapy. Nursing procedures are carried out 2 times a day for 3 days and last for 10-15 minutes. The intervention was carried out at TK II Hospital 04.05.01 dr. Soedjono Magelang in April 2024.

The procedure carried out is to position the patient in a comfortable position, then aromatherapy is given by inhalation or inhalation 2 times a day for 3 days with a duration of 10-15 minutes using ginger aromatherapy in a roll on preparation. The procedure for inhaling ginger aromatherapy is carried out in the patient's room, ginger aromatherapy oil in a roll on preparation is held close to the patient's nose and the patient is asked to inhale the ginger aromatherapy oil while taking a deep breath, the patient is asked to relax then inhale with the nose then hold for three seconds and exhale breathe using your mouth. During the intervention, supervision is carried out to ensure that the actions taken are appropriate. Before and after being given aromatherapy, the patient was assessed for use *Rhodes Index Nausea Vomiting and Retching* (RINVR) to measure nausea and vomiting that patients experience.

The methods and instruments in this research used participatory observation methods, interviews, documentation and test methods using observation sheets measuring nausea and vomiting. The triangulation test method uses sources from patients, nurses, patient families and medical records as sources of information and documentation sources to validate the data that has been obtained.

4. RESULTS

Case Study conducted at TK II Hospital 04. 05. 01 dr. Soedjono Magelang which is located on Jl. Urip Sumoharjo No. 48, Wates, District. North Magelang, Magelang City, Central Java. RST Dr. Soedjono Magelang is a hospital belonging to the Indonesian Army (TNI-AD) unit which is a referral center in the health sector. The author conducted a case study in the Edelweis Room at TK II Hospital 04.05.01 dr. Soedjono Magelang which is a Medical Surgical ward.

The case study was carried out using 2 patient respondents who experienced nausea and vomiting problems *post* appendectomy in accordance with the inclusion criteria written by the researcher. Researchers identified inclusion criteria with the following explanation:

Table 1. Results of Inclusion Criteria Assessment

No	Inclusion Criteria	Nn. G		Mrs. M	
		Yes	No	Yes	No
1.	Male or female clients <i>post</i> nauseous appendectomy in hospital	✓		✓	
2.	Client <i>post</i> appendectomy who has complaints of nausea and vomiting in hospital	✓		✓	
3.	Client <i>post</i> appendectomy with nausea and vomiting with a composementis level of consciousness	✓		✓	
4.	Client <i>post</i> appendectomy with nausea and vomiting who likes ginger aromatherapy	✓		✓	
5.	Client <i>post</i> appendectomy for nausea and vomiting and a cooperative family	✓		✓	
6.	Client <i>post</i> appendectomy who suffer from nausea and vomiting are willing to be respondents	✓		✓	

Conditions before carrying out the action, the researcher examined the two respondents with *post* appendectomy to determine the signs and symptoms experienced. In the form of an examination of complaints of nausea and vomiting before administering ginger aromatherapy with the results of the examination described in the table

Table 2. Observation Results Before Implementing Actions

No	Indicator	Nn. G	Nn. M
1.	Feeling like vomiting	Yes	Yes
2.	Sour feeling in the mouth	Yes	Yes
3.	Excessive sweating	No	Yes
4.	Tachycardia	105 x/minute	99 x/minute
5.	Pale	Yes	Yes
6.	Reduced appetite	Yes	Yes
7.	The amount of saliva increases	No	Yes

Implementation of ginger aromatherapy techniques on Ms. G is carried out according to the SOP for providing ginger aromatherapy. Giving ginger aromatherapy to Ms. G was carried out for 3 consecutive days starting April 15 – April 17 2024. The first day of implementation was carried out on April 15 2024. The implementation of the application of ginger aromatherapy began with saying hello, asking about feelings, explaining the purpose of the activity, the patient was cooperative and after giving aromatherapy continued evaluation and documentation of activities on the observation sheet.

Giving ginger aromatherapy to Ms. The second day was held on April 16 2024. The implementation of ginger aromatherapy began with asking about feelings, explaining the purpose of the activity, the patient was cooperative and after administering aromatherapy continued with evaluation and documenting the activity on an observation sheet. Giving ginger aromatherapy to Ms. The third day was held on April 17 2024. The implementation of ginger aromatherapy began with asking about feelings, explaining the purpose of the activity,

the patient was cooperative and after administering aromatherapy continued with evaluation and documenting the activity on an observation sheet.

Implementation of ginger aromatherapy techniques on Mrs. M is carried out according to the SOP for administering ginger aromatherapy. Giving ginger aromatherapy to Ms. M was carried out for 3 consecutive days starting April 22 2024. The first day of implementation was carried out on April 22 2024. The implementation of ginger aromatherapy began with saying hello, asking about feelings, explaining the purpose of the activity, the patient was cooperative and after giving aromatherapy continued with evaluation and documentation of the activity. on the observation sheet.

Giving ginger aromatherapy to Mrs. The second day was held on April 23 2024. The implementation of ginger aromatherapy began with asking about feelings, explaining the purpose of the activity, the patient was cooperative and after administering aromatherapy continued with evaluation and documentation of the activity on an observation sheet. Giving ginger aromatherapy to Mrs. The third day was held on April 24 2024. The implementation of ginger aromatherapy began with asking about feelings, explaining the purpose of the activity, the patient was cooperative and after administering aromatherapy continued with evaluation and documenting the activity on an observation sheet.

After implementing actions based on implementation carried out directly by researchers, the application of the ginger aromatherapy technique succeeded in reducing complaints of nausea and vomiting from complaints of nausea increasing to decreasing. Conditions before carrying out the action, the researcher examined the two respondents with *post* appendectomy to determine the signs and symptoms experienced. In the form of an examination of complaints of nausea and vomiting before administering ginger aromatherapy with the results of the examination described in the table

Table 3. Observation Results After Action

No	Indicator	Nn. G	Nn. M
1.	Feeling like vomiting	No	No
2.	Sour feeling in the mouth	No	No
3.	Excessive sweating	No	Yes
4.	Tachycardia	90 x/minute	88 x/minute
5.	Pale	Yes	Yes
6.	Reduced appetite	Yes	Yes
7.	The amount of saliva increases	No	Yes

The results of the analysis of the application of ginger aromatherapy for 3 days were effective in overcoming the problem of complaints of nausea from increasing to decreasing according to the results criteria in the SLKI.

Table 4. Analysis Results for the Application of Ginger Aromatherapy Ms. G

Indicator	Nn. G											
	Morning						Afternoon					
	Pre Action			Post Action			Pre Action			Post Action		
	H1	H2	H3	H1	H2	H3	H1	H2	H3	H1	H2	H3
Feeling like vomiting	2	3	5	3	4	5	3	4	5	4	5	5
Sour feeling in the mouth	3	4	5	4	4	5	4	4	5	4	4	5
Excessive sweating	3	5	5	4	5	5	4	5	5	4	5	5
Tachycardia	3	5	5	5	5	5	5	5	5	5	5	5
Pale	3	5	5	4	5	5	4	5	5	4	5	5
Reduced appetite	3	4	4	4	4	5	4	4	4	4	4	5
The amount of saliva increases	5	5	5	5	5	5	5	5	5	5	5	5

Table 5. Analysis Results for the Application of Ginger Aromatherapy Ms. M

Indicator	Ny. M											
	Morning						Afternoon					
	Pre Action			Post Action			Pre Action			Post Action		
	H1	H2	H3	H1	H2	H3	H1	H2	H3	H1	H2	H3
Feeling like vomiting	2	2	3	2	3	4	2	3	4	3	4	5
Sour feeling in the mouth	3	4	5	4	4	5	4	4	5	4	4	5
Excessive sweating	5	5	5	5	5	5	5	5	5	5	5	5
Tachycardia	5	5	5	5	5	5	5	5	5	5	5	5
Pale	3	5	5	4	5	5	4	5	5	4	5	5
Reduced appetite	3	4	4	4	5	4	4	4	4	4	4	5
The amount of saliva increases	3	4	5	4	5	5	4	5	5	4	5	5

The results showed that ginger aromatherapy could overcome the problem of nausea in patients *post* appendectomy. The action twice a day in the morning and evening can reduce the level of nausea, so that the action of giving ginger aromatherapy to Ms. G and Ms. M is effective in reducing nausea in patients *post* Appendectomy with the criteria of feeling like vomiting is quite increased 2 to 5 decreased, sour feeling in the mouth 3 moderate to 5 decreased, excessive sweating 3 moderate to 5 decreased, tachycardia 3 moderate to 5 decreased, pallor 3 moderate to 5 decreased, appetite 3 moderate to 5 decreased, the amount of saliva increased from 3 to moderate to 5 decreased

5. DISCUSSION

Based on the age in this study, Ms. G is 23 years old and Ms. M, 24 years old, is in his late teens. This is in line with research according to Arisdiani & Asyrofi (2019) which states that nausea and vomiting occur *post* surgery or PONV increases from childhood to late adolescence, remains constant in adulthood and decreases in the elderly. Incidents of nausea and vomiting *post* surgery, namely 5% in infants, 25% in those aged under 5 years, 42-51%

in those aged 6-16 years and 14-40% in adults, PONV usually decreases after the age of 60 years according to Islam & Jani in Arisdiani & Ashrofi (2019).

In this study, Ms. G and Ms. M are women. This is in line with research according to Chatterjee et al in Karnina & Salmah (2022) that in women the incidence of nausea and vomiting is greater than in men, because in women there is the estrogen hormone, which can sensitize dopamine receptors in the CTZ which causes nausea stimulation. and vomiting which makes blood circulation easier to channel dopamine receptors which have been stimulated by the presence of estrogen in the blood which results in increased nausea and vomiting after surgery.

Patient Ms. G is a student who has not worked while the patient Ms. M is a private employee at a company. Work is related to a person's social and economic conditions, which means that the impact of a PONV incident can prolong a person's hospitalization period which can affect the patient's social and economic conditions (Arisdiani & Asyrofi, 2019). Another thing was also said by Jankowski et al in Cing et al (2022) about the incidence of nausea and vomiting *post* Surgery can cause medical complications, psychological effects which can hamper the overall therapy process and hinder the healing process which can result in an increase in the cost of care while in hospital.

1. Before carrying out the procedure, give ginger aromatherapy

Experienced feelings of nausea and vomiting *post* appendectomy with a diagnosis of Nausea. Nausea is an uncomfortable feeling in the back of the throat or stomach that can result in vomiting. Associated clinical conditions are Meningitis, Labrinitis, Uremia, Diabetic ketoacidosis, Peticum ulcers, Esophageal disease, Inta-abdominal tumors, Meniere's disease, Acoustic neuroma, Brain tumors, Cancer, Glaucoma (PPNI, 2016). The two respondents, namely Ms. G and Ms. M experienced post-appendectomy nausea with a score of 3 in Ms. G, which means there were complaints of nausea 3-4 times and Ms. M with a score of 2, which means there were complaints of nausea 1-2 times as measured using the observation sheet for complaints of nausea and vomiting.

Unpleasant and frequent effects *post* surgery is nausea and vomiting that occurs as a result of surgical procedures and anesthesia (Cing et al, 2022). Post-operative nausea and vomiting can occur due to pharmacological factors such as the use of certain types of anesthesia or the effects of a drug, non-pharmacological factors can come from the patient himself (Cing et al, 2022).

2. After carrying out the procedure of giving ginger aromatherapy

Decreased nausea in patients *post* Appendectomy surgery can be performed using pharmacological and non-pharmacological methods. One of the non-pharmacological measures that can be given to reduce nausea and vomiting is local plants such as ginger aromatherapy. In accordance with research according to Prahastyono & Alfiyanti (2022), ginger contains essential oil components which have a distinctive fragrance originating from the active substances ginger and gingerol which have a relaxing effect and provide positive changes. In line with research according to Amrina & Nurjayanti (2023), ginger aromatherapy can provide a feeling of comfort so that it can reduce nausea and vomiting experienced by patients. This is also in line with research by Ferrington (2019) which states that the use of ginger aromatherapy in patients *post* Surgery can cause a feeling of comfort that reduces feelings of nausea and vomiting, this is because the ginger content minimizes the antimetic effect on the digestive system and central nervous system.

Nausea and vomiting that occurs after an appendectomy is caused by the side effects of the anesthesia given. because gastric emptying is slow so that the accumulated stomach contents cannot come out and causes nausea and vomiting. Nauseous Vomiting that is not resolved properly can cause the risk of hypovolemia (Nurarif & Kusuma, 2016).

Amrina & Nurjayati (2023) in research entitled Providing Ginger Aromatherapy to Patients with Impaired Nutrition Fulfillment with Nausea and Vomiting *Post* Appendectomy shows that the research method uses a case study with 1 patient who is able to communicate well, has PONV, is willing to be studied and intervened, and has undergone appendectomy surgery. The results of this case study show that after the ginger aromatherapy intervention was carried out for 3 days there was a decrease in the RINVR score from 15 (moderate nausea and vomiting) becomes 2 (mild nausea and vomiting).

The results of this study are in line with Arisdiani, & Asyrofi (2019) entitled The Effect of Non-Pharmacological Nursing Interventions of Ginger Aromatherapy on Nausea and Vomiting in Patients *Post* Operation: The research results obtained a p value = 0.010, which shows that there is a significant difference in nausea and vomiting scores between the control and intervention groups. The results of this study show that ginger aromatherapy has an influence in reducing nausea and vomiting (PONV) scores in patients *post* operation.

Research by Kinasih, & Trisna, DKK (2018) entitled The Effect of Ginger Aromatherapy on Nausea and Vomiting in Post-operative Patients with General Anesthesia. The results of this study found $p < 0.05$, namely $p = 0.003$, this means there is a

difference in post-operative nausea and vomiting scores in the control group and intervention with a mean difference of 0.88.

The results of research conducted on both patients can be concluded that the application of ginger aromatherapy was able to be applied to both clients and had the effect of reducing nausea and vomiting after being given ginger aromatherapy, starting from an increase of 5 to a decrease of 2. Therefore, it can be recommended to the hospital to use ginger aromatherapy as a one of the non-pharmacological therapies reduces the client's complaints of nausea and vomiting *post* appendectomy in the treatment room, but in its implementation it is necessary to pay attention to the situation and environmental conditions.

6. CONCLUSION

The results of achieving the level of nausea in both case study respondents decreased, which means that the level of nausea felt decreased after applying ginger aromatherapy twice a day in the morning and evening for 3 days, so it can be said that the application of ginger aromatherapy is effective in overcoming the main problem of nausea in patient *post* appendicitis.

7. LIMITATION

The results of achieving the level of nausea in both case study respondents decreased, which means that the level of nausea felt decreased after applying ginger aromatherapy twice a day in the morning and evening for 3 days, so it can be said that the application of ginger aromatherapy is effective in overcoming the main problem of nausea in patient *post* appendectomy. However, there were obstacles during the implementation which was carried out directly by researchers, such as ineffectiveness for patients, because it was not easy for researchers to find patients *post* appendectomy at TK II Hospital 04.05.01 dr. Soedjono, Magelang City, the low level of knowledge of respondents about health in receiving the information that researchers provided, meant that researchers had to repeat explanations several times and equate perceptions with respondents and in this study, not all patients wanted to apply ginger aromatherapy because each patient's condition was different. . This is inseparable from the two respondents receiving antiemetic drug therapy, with the application of ginger aromatherapy making it easier to reduce nausea levels.

BIBLIOGRAPHY

- Amrina, Y., Nurjayanti, I. (2023). Pemberian Aromaterapi Jahe terhadap Pasien Gangguan Pemenuhan Nutrisi dengan Mual Muntah Post Apendektomi. *Jurnal Kesehatan Amanah*, 7(1), 90-106.
- Arisdiani, T., Asyrofi, A. (2019). Pengaruh Intervensi Keperawatan Non Farmakologi Aromaterapi Jahe Terhadap Mual Muntah Pasien Post Operasi. In *Prosiding Seminar Nasional Widya Husada*.
- Asay, K., et al. (2019). The use of aromatherapy in postoperative nausea and vomiting: a systematic review. *Journal of PeriAnesthesia Nursing*, 34(3), 502-516.
- Cing, M.T.G.C., Hardiyani, T., Hardini, D.S. (2022). Faktor Yang Mempengaruhi Kejadian Mual Muntah Post Operasi. *Poltekita: Jurnal Ilmu Kesehatan*, 16(1), 16-21.
- Fearrington, M.A., Qualls, B.W., Carey, M.G. (2019). Essential oils to reduce postoperative nausea and vomiting. *Journal of PeriAnesthesia Nursing*, 34(5), 1047-1053.
- Jaelani. (2017). *Aroma Terapi*. Jakarta : Pustaka Populer Obor 22-35.
- Mardalena, I., (2018). *Asuhan Keperawatan Pasien Dengan Gangguan Sistem Pencernaan*. Yogyakarta: Pustaka Baru Press.
- Nurarif, A.H., Kusuma, H. (2016). *Asuhan Keperawatan Purwanto, H. 2016. Keperawatan Medikal Bedah II*. Jakarta: Pusdik SDM Kesehatan. watan Praktis.
- Prahastyono, A.R., Alfiyanti, D. (2022). Pemberian Aromaterapi Jahe Menurunkan Skor Mual dan Muntah pada Klien yang Menjalani Kemoterapi. *Ners Muda*, 3(1), 37-45.
- Rimawan, I.N. (2021). Pengaruh Aroma Terapi Jahe Terhadap Keluhan Mual Muntah Pada Pasien Kanker Payudara Yang menjalani Kemoterapi Di Ruang Bima RSUD Sanjiwani Gianyar. *Jurnal Medika: Karya Ilmiah Kesehatan*, 6(1).
- Standar Diagnosis Keperawatan Indonesia : Definisi dan Indikator Diagnostik. Jakarta Selatan: Dewan Pengurus Pusat Persatuan Perawat Nasional Indonesia.
- Standar Intervensi Keperawatan Indonesia : Definisi dan Tindakan Keperawatan. Jakarta Selatan: Dewan Pengurus Pusat Persatuan Perawat Nasional Indonesia.
- Syahda, S. (2022). Efektifitas Aromaterapi Jahe Terhadap Penurunan Frekuensi Mual Muntah Pada Ibu Hamil Trimester I Di Wilayah Kerja Upt Blud Puskesmas Tambang Tahun 2021. *Sehat: Jurnal Kesehatan Terpadu*, 1(1), 35-47.
- Wainsani, S., Khoiriyah, K. (2020). Penurunan Intensitas Skala Nyeri Pasien Appendiks Post Appendektomi Menggunakan Teknik Relaksasi Benson. *Ners Muda*, 1(1), 68.