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**EFFECT OF BLACK SEED OIL VERSUS SESAME OIL TO ENHANCE
EXTERNAL AND INTERNAL ANAL HEMORRHOIDS HEALING**

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ABSTRACT

Objective: Was to investigate the effect of black seed oil versus sesame oil to enhance external and internal anal hemorrhoids healing. Design: Follow-up intervention study was utilized. Sample: A convenience sample was obtained. The study duration was through one year started from Mars 2012 to Mars 2013. Sample size: 120 mothers medically diagnosed with anal external or internal anal hemorrhoids were divided equally into two groups: Group (A) received black seed oil and group (B) received sesame seed oil. Tools: Two tools were utilized a pre-structured interviewing questionnaire and observational checklist that involves Visual Analogue Scale to assess hemorrhoids pain and Reeda Scale to assess hemorrhoids healing. Results: In both black seed oil and sesame oil groups, there were a highly significant improvement in both pain symptoms and enhancement of hemorrhoids healing post-intervention compared to pre-intervention ($p<0.001$). The results showed that, the black seed oil was more effective in relieving the symptoms of pain than sesame seed oil ($p<0.001$). While, sesame seed oil was more effective in enhancing hemorrhoids healing and cheaper than black seed oil ($p<0.001$) Complete cure of hemorrhoids was occurred after 6 weeks post-intervention among 75.0% of sesame seed oil group subjects compared by 50.0% of black seed oil group which indicated that, the sesame oil has higher curative rate than black seed oil ($p<0.001$). Conclusion: Sesame oil is more effective than black seed oil in enhancing healing of external and internal anal hemorrhoids during pregnancy and postnatal period. Recommendations: Both black seed oil and sesame oil were recommended to be utilized in both external and internal anal hemorrhoids but sesame oil is preferable because it is cheaper than black seed oil and its effect is higher than black seed oil in enhancing external and internal anal hemorrhoids healing.

KEYWORDS: Black Seed Oil, Sesame Oil, Hemorrhoids, Pregnant Mothers

INTRODUCTION

In Egypt there was a high incidence rate of hemorrhoid. It was reported that, hemorrhoid was considered one of the most frequent disease of the anal region with high prevalence nearly 50% of proctologic visits in a colorectal unit involving any age and affecting both males and females. Women are affected 4 times more than men. When varicose veins are near the surface they are cosmetically unappealing but are usually not Dangerous ⁽¹⁾.

It was also concluded that, varicosities are enlarged, twisted, swollen veins which may be located anywhere in the body. Most commonly they are found on the legs (varicose veins) or on the anus (hemorrhoids). They may lack symptoms or may cause aching, a feeling of heaviness or pain. Edema may be associated with them as well as coloration over the area and ulceration ⁽²⁾.

Moreover, external and internal anal hemorrhoids occurred when the valves that keep blood flowing one way through the vessels become weak, allowing blood to pool up in the veins and causing the veins to become lax and distended. This weakness of the valves may be due to diet, lack of exercise, or heredity. Additionally, the hormonal changes of pregnancy can contribute to laxity of the valves. Pregnancy is a well known risk factor for the development of both internal and external hemorrhoids. Up to 38% of women in the third trimester of pregnancy suffer from hemorrhoids ⁽³⁾.

Moreover, enlarging uterus increases intra-abdominal pressure on pelvic veins and the inferior vena cava. This excess pressure decreases blood flow to pelvic veins, hence causing vasodilatation and engorgement of hemorrhoidal veins increased blood volume by up to 50% in the third trimester contributes to venous engorgement. Elevated levels of circulating progesterone have multiple effects such as: swelling and decreasing in gut motility that leads to constipation another well known aggravator of hemorrhoids and. Previous pregnancies also pose as a risk factor for developing hemorrhoids ⁽³⁾.

It was suggested that varicosities are classified based on its origin inside the rectum or outside the anal canal. The squamous epithelium below the pectinate line receives somatic sensory innervation from the inferior rectal nerve. Hence, external hemorrhoids may be associated with significant pain. They are also always accompanied with severe discomfort, pruritus and bleeding. External varicosities are prone to thrombosis, and strangulation. When strangulation occurs, hemorrhoids are much larger and may encompass the entire anus ⁽⁴⁾.

Pharmacological interventions such as stool softeners, bulk laxative, rectal preparations, topical anesthetics (e.g., lidocaine and benzocaine), astringents (e.g., calamine, zinc oxide), systemic analgesics, and anti-inflammatory agents (e.g., hydrocortisone) may be used to shrink the mucous membranes and relieve discomfort. This analgesic and anti-inflammatory agents have major effects on the fetus during pregnancy, and neonate post delivery. And many women will refuse to treat many medical conditions out of concern for harming the developing of fetus ⁽⁵⁾.

A collection of authentic saying of the Prophet Muhammad (Peace Be Upon Him) about black seed is also quoted in Al-Bukhari:

قال رسول الله صلى الله عليه وسلم (عليكم بهذه الحبة السوداء فإن فيها شفاء من كل داء إلا السأم) والسأم هو الله عنه وأخرجه البخاري. أبو هريرة رضى الموت رواه

Abu Huraira (Allah be pleased from him) narrated that Allah's Apostle (peace be upon him) said "Use the black seed, which is a healing for all diseases except 'As-Sam'" and As-Sam is Death ⁽⁶⁾.

Nigella sativa (N. sativa) seed, called as 'Black Seed' in English language, 'Al-Habba Al-Sauda' or 'Habba Al-Barakah' in Arabic, is well known in the Middle East, Middle Asia and Far East as a natural remedy for many ailments and as a flavoring agent in bread and prickles. The oil and the seeds were shown potential medicinal properties in traditional medicine ⁽⁷⁾.

Recently, many biological activities of *Nigella sativa* L. seeds have been reported, including: antioxidant, anti-inflammatory, anticancer and antimicrobial. The chemical composition of N. sativa fixed oil including Linoleic Acid, Oleic Acid, Linolenic Acid, Arachidic Acid, almitoleic Acid, Palmitic Acid, Stearic Acid, Myristic Acid, and Sterols. Aqueous extracts of this plant has anti-inflammatory and analgesic effects ⁽⁸⁾.

The moisture and nutritional activities of black seed oil enhance debridement, neutrophils cell life and proteolytic enzymes action which lead to painless debridement. Additionally, the healing activity of black seed after local and even systemic administration may at least be in part due to its potent antioxidant activity. Also, the antimicrobial, antifungal, antiviral activities of *Nigella sativa* oil may lead to a clean wound healing without secondary infection. As well, *Nigella sativa* is common Islamic belief that Black seed is a remedy of all ailments but that it cannot prevent aging or death ⁽⁷⁾.

Sesame belongs to the family Pedaliaceae and genus *Sesamum*. The genus consists of about 36 species of which 19 species are indigenous to Africa. Sesame is reputed in folk medicine in Africa and Asia. All parts of the plant are used for the treatment of bruised or erupted skins and eye pains. Warm water leaves infusion is used to gargle and treat inflamed membranes of the mouth. Both leaves and roots have been found to be effective against chicken pox and measles (anti-viral) and used as hair shampoo for *Taenia capitis* (antifungal properties) ⁽⁹⁾ The study of the oil fraction shows that, the by-products, compared to the other oils, present a high content in free fatty acids, chlorophyll, polyphenols, sesamol, pigment and less oxidative stability ⁽¹⁰⁾.

As well, sesame seed oil (*Sesamum indicum*) has been used as healing oil for thousands of years. It is an antibacterial, anti-viral and natural anti-inflammatory agent. Sesame seed oil absorbs quickly and penetrates fast in the tissues, bone marrow. So it can be used as carrier oil. Sesame seed oil is rich in Vitamin E, and it is used also for treatment of hemorrhoids ⁽¹¹⁾.

Meanwhile, nurses must instruct and counsel patient with internal or external anal hemorrhoids to practice primary care functions in the four areas of bathing, feeding, toileting, and dressing without the help of the others. Nurses can play a crucial role in helping clients learn self-care techniques, because they focus on clients responses to health and illness rather than on disease itself, help clients gain or regain independency in self illness is one of the most important goals of nursing.

Significance of the study:

About 50% of proctologic visits in a colorectal unit involving any age and affecting both males and females ⁽⁴⁾ Additionally, it was reported that pregnancy is a well-known risk factor for the development of both internal and external hemorrhoids. Up to 38% of women in the third trimester of pregnancy complaining from hemorrhoids ⁽⁵⁾

In Egypt, is a developing country; the mothers in rural areas are poor and need inexpensive and safe measures for promoting their anal varicosities healing. Many pregnant mothers who attending the antenatal and gynecological clinics are complaining of external and internal anal haemorrhoids additionally, no previous studies in faculty of nursing, Benha University investigate cost effectiveness and efficacy of black seed oil versus sesame oil to enhance external and internal anal hemorrhoids healing. So the objective of the present study was to examine the effect of black seed oil versus sesame oil to enhance external and internal hemorrhoids healing.

Objective of the study:

To study the effect of black seed oil versus sesame oil to enhance external and internal anal hemorrhoids healing

Research Hypothesis:

Is black seed oil more effective than sesame oil for enhancing external and internal anal hemorrhoids healing?

Subjects and Methods:

Design: Follow-up intervention study.

Setting:

The study was implemented at obstetric outpatient clinic and labor unit of Benha University and Benha Teaching Hospitals.

Sample:

Sample type: A convenience sample was obtained through 1 year started from March 2012 to Mars 2013. Sample size: 120 women medically diagnosed with anal

external or internal hemorrhoids were involved in the study and they were equally divided into two groups: The first group (Group A) was received black seed oil and the second group (Group B) was received sesame seed oil. The sample criteria; the participants were in the third trimester of pregnancy, multipara, normal vaginal delivery, medically diagnosed with external or internal anal hemorrhoids and free from any medical or reproductive disorders.

Ethical consideration:

Both black seed oil and sesame oil are 100% safe, non harmful and are natural herbal remedy formulated by specific team of natural health expertise in convenient oil form. Both used seeds oils are anti-inflammatory and are especially selected to promote hemorrhoids healing⁽¹²⁾.

An official permission for data collection and implementation of the study was obtained from the heads of the obstetric and gynecological director of Benha University and Benha Teaching Hospital and from all health staffs who will be included in the conduction of the study. The researcher emphasized that the participation is voluntary and she was obtained a written consent from each mother to participate in the study. In addition, anonymity and confidentiality were assured through coding the data. Moreover, these data will be used for the purpose of this research only.

Tools of data collection:

The tools were developed by the investigators to include the following:

[1] Interview questionnaire sheet which consists of:

- 1-The first part:** was used to assess mother's general characteristics.
- 2-The second part:** was used to assess mother's knowledge regarding concept, causes and types as well as anal complications and measures of self-utilization by mothers to relieve external and internal anal hemorrhoids. The scoring system of the knowledge part is as the following: (zero) for incorrect answer and (1) for correct answer with total score of $\leq 60\%$ = unsatisfactory and $>60\%$ = satisfactory.
- 3- The third part:** was used to assess mothers complains regarding external and internal anal hemorrhoids.

[2] Checklist which consists of two parts:

1-The first part: Reeda Scale which includes five parameters to assess redness, edema, ecchymosis, discharge, and approximation. Each item was given from Zero to 3 scores according to the healing process of hemorrhoids: poor healing = 0, mild = 1, moderate = 2 and good = 3.

All mothers were instructed to lie on left side and then reeda scale will be applied to assess varicosities and its degree.

2- The second part: A modified visual analogue scale to identify the degree of pain, it consists of 10 cm. horizontal line, the right end is marked 0 which indicates "no pain", the left end is marked 10 which indicates intolerable pain. The scoring of this scale consists of the following grades: No pain = 0, Mild pain (pricking, pinching, and aching) its grades ranged from 1-3.5 cm. Moderate pain: The distance between (4-7.5cm.) the pain characterized by (pressing, cramping, sharp and burning) and severe pain: its grades ranged from 8.5-10 cm. the pain characteristics are: cutting, suffocating, and killing.

Pilot study:

The pilot study was conducted on 10 patients whom were admitted to the same study sitting. It was aimed to evaluate clarity and applicability of the tools used. According to the results of the pilot study, tools modifications were done. Patients included in the pilot study were excluded from the study sample.

Technical design:

The investigators visited the previously mentioned study setting four days/week from 9 am to 2 pm. All two days for each setting. Mothers were recruited from the obstetric department from the registration book. The first three mothers with the sample criteria were obtained and assessed daily. Firstly, the mother was interviewed and the aim of the study was explained to them, then a written consent was signed by each mother participated in the study and she was asked to stay at the end of the clinic day where two sessions were implemented. Each session's duration was consuming 15 minutes. The first session was conducted to explain the definition, causes, and complications of external and internal anal hemorrhoids while the second session was explaining the method of application of either black seed or sesame oil on the internal and external hemorrhoids. An instructional broacher was given to each mother after

attending pre mentioned session. The researcher was injected oil into the rectum through syringe applied to catheter to inject 3 ml of oil then one ml of the same oil was applied to the external hemorrhoids. Also, follow up card was given to each mother including the date and time for follow up visits as well as the researchers' telephone numbers. Each mother was assessed (pre intervention and post intervention) using pain rating scale (modified visual analogue scale) to assess pain severity and reeda scale to estimate the size and condition of external and internal anal hemorrhoids. As well as mothers' complications regarding external and internal anal hemorrhoids were assessed 2 weeks, 4 weeks and 6 weeks after application of black seed oil and sesame seed oil.

Each participant in (Group A) was supplied by a black colored bottle of 50 ml black seed oil and a package of disposable gloves and each participant in (Group B) was supplied by a bottle of 50 ml of sesame seed oil and a package of disposable gloves. The bottle of 50 ml black seed oil costs 5 LE. While the bottle of 50 ml sesame seed oil costs 3 LE. Another supply was occurred in every visit according to the clinical condition of each participant. The participants in both groups were instructed to trim their finger nails, to wash their hands, to perform perineal hygiene and to wear a disposable glove before the application of oil on their external anal hemorrhoids while they lies on their side. Every participant instructed to place 1/2 teaspoon of oil on her finger and make a gentle message against the external anal varicosities. She should hold it in place for 15 minutes and maintain a supine position for some time and apply soft gauze to the anal region to keep the oil at the site of application and to allow the oil to penetrate circulation and make its effect on hemorrhoids. The application of oil must be done three times daily (at daily rest period or after defecation and before sleeping). Also each woman was instructed to keep the bottle of oil away from the sun and light, to avoid constipation by proper nutrition, to keep early ambulation, and to avoid long standing.

Women were instructed to return for follow up after 2 weeks to check her hemorrhoids. Also to check her baby for stump condition and her general condition and to be sure that she was following the instructions of oil application. After 4 and then after 6 weeks post intervention the condition of the varices were checked, also the

degree of pain was reassessed by the analog scale, reeda scale as well as women's self-reported complains were evaluated through these follow-up visits.

Limitations of the study:

Ten mothers refused to participate in the study because they were exhausted and need to sleep due to lab or pain and they were excluded from the study sample.

Results:

- Table (1) describes socio-demographic characteristics of the studied group subjects. Findings revealed that, less than two thirds (60.0%) of black seed oil group and more than half (58.3%) of sesame oil group their age was less than 30 years, with mean age (30.60 ± 6.232 years and 30.733 ± 5.749 years, respectively). Also, (58.3%) and (60.0%) of black seed oil sesame oil groups were housewives respectively. As well, (60.0 %) of black seed oil and (61.7%) of sesame oil groups were residents of urban areas. There are no statistical significant differences between the two groups which mean that the two groups are homogeneous.
- Table (2) describes distribution of the study subjects according to their present obstetric history. Findings showed that the majority (86.7% & 88.3%) of both black seed oil group and sesame oil group respectively had no complications during the present pregnancy or labor. As regard to degree of hemorrhoids, more than half (63.3%) of black seed oil group and more than two thirds (66.7%) of sesame oil group had second degree of hemorrhoids. As well, more than half (55.0% & 58.3%) of both black seed oil group and sesame oil group respectively had hemorrhoids after pregnancy without statistical significant differences between the two groups ($p > 0.05$).
- Table (3): Distribution of the study subjects According to their correct Knowledge about Hemorrhoids: This table revealed that more than half(58.3%) and half (50%) of both black seed oil and sesame oil groups had correct knowledge related to definition of hemorrhoids. While less than two thirds (60%) and more than two thirds (66.7%) of both black seed oil and sesame oil groups had correct knowledge about types of hemorrhoids. While less than one third(30%) of black seed oil group and more than one third (36.7%) of sesame oil group had correct knowledge related to warning signs such as bleeding with

statistical significant differences at p value <0.05 . Regarding methods used to relieve hemorrhoid pain it was found that less than two thirds (66.7%) and more than three quarters (76.7%) were used home remedies such as warm water and herbal to relieve hemorrhoids pain. There is a highly statistical significant differences at p value <0.001 .

- Table (4): Distribution of the study subjects According to their Pain Degree, Bleeding episodes and local irritation before, 2 weeks, 4 weeks and 6 weeks post intervention. This table demonstrated that before intervention half (50%) of black seed oil group and more than half (58.3%) of sesame oil group had severe pain. This percentage decrease to 20% at black seed oil group and 25% at sesame seed oil group after 2 weeks post intervention and reached to 0.0% in both groups after 6 weeks post intervention. Additionally it was observed that black seed oil is more effective in relieving hemorrhoid pain than sesame oil with a highly statistical significant improvement was observed at 2 weeks and 4 weeks at p value <0.001 except at 6 weeks post intervention at p -value >0.05 . As well, a general improvement was observed between two groups regarding relieving bleeding and local irritation at 2 weeks, 4 weeks and 6 weeks post intervention. There is a highly statistical significant difference at p -value <0.001 .
- Table (5): Distribution of the study subjects according to degree of healing before intervention, 2 weeks, 4 weeks and 6 weeks post intervention. It was revealed that, before intervention the majority (86.7% & 91.7%) of both black seed oil and sesame oil groups respectively, had poor healing with statistical significant differences at $p < 0.05$. This percentage decreases to (28.3% & 16.7%) after 2 weeks and after 4 and 6 weeks post intervention poor healing was disappeared with a highly statistical significant differences at p -value <0.001 . While after 6 weeks post intervention three quarters (75%) of sesame oil group compared to half (50%) of black seed oil group had good healing with a highly statistical significant differences at p -value <0.001 .
- Table (6): Distribution of the study subjects according to hemorrhoids condition before intervention, 2 weeks, 4 weeks and 6 weeks post intervention. This table shows that, more than half (53.3% & 58.3%) in both groups of black seed oil (Group A) and sesame oil (Group B) had hypertrophied hemorrhoids

respectively, while prolapsed hemorrhoids constituted (28.3% & 25.0%) in both groups respectively, but after continuous application of black seed oil and sesame oil within 2 weeks, hemorrhoids shrunk among 60.0% of black seed oil group compared to 58.3% among sesame oil group and reached after 6 weeks to (71.6% & 83.3%) among both groups respectively. Whereas, during the hemorrhoids have been shrunken, also a there was a significant decreased in the prolapsed hemorrhoids observed, the differences were highly statistically significant $p < 0.001$.

Table (1): Distribution of the subjects according to their general characteristics (n=120)

Items	Black seed oil Group A (n=60)		Sesame seed oil Group B (n=60)		χ^2	p-value
	No.	%	No.	%		
Age group:						
<30	36	60.0	35	58.3	2.024	>0.05 n.s
30-40	18	30.0	20	33.3		
more than 40	6	10.0	5	8.3		
Mean & \pm SD	30.60 \pm 6.232		30.733 \pm 5.7499			
Education:						
Illiterate	9	15.0	10	16.7	2.043	>0.05 n.s
Read & write	16	26.7	15	25.0		
Diplom	14	23.3	15	25.0		
Bachelor	21	35.0	20	33.3		
Occupation:						
Housewife	35	58.3	36	60.0	0.998	>0.05 n.s
worker	25	41.7	24	40.0		
Area of residence:						
Rural	24	40.0	23	38.3	0.899	>0.05 n.s
Urban	36	60.0	37	61.7		

n.s = not statistical significant at p value > 0.05

Table (2): Distribution of the study subjects according to their present obstetric history (n=120)

Obstetric history	Black seed oil (n=60)		Sesame seed oil (n=60)		x ²	p-value
	No.	%	No.	%		
Complications during present pregnancy or labor:						
Bleeding	2	3.3	2	3.3	2.998	>0.05 n.s
Hypertension	3	3.3	4	6.7		
Others anemia	3	3.3	1	1.7		
Total:	8	13.3	7	11.7		
Degree of hemorrhoids:						
First degree	14	23.3	13	21.7	3.009	>0.05 n.s
Second degree	38	63.3	40	66.7		
Third degree	8	13.3	7	11.6		

n.s = not statistical significant at *p* value >0.05

Table (3): Distribution of the study subjects according to their correct knowledge and history of hemorrhoids (n=120)

Items	Black seed oil Group A (n=60)		Sesame oil Group B (n=60)		x ²	p-value
	No.	%	No.	%		
1- Definition	35	58.3	30	50.0	12.5	<0.001**
2- Causes	28	46.7	33	55.0	12.5	<0.001**
3- Types	36	60.0	40	66.7	7.999	<0.05*
4- Warning signs:						
- Bleeding					7.990	<0.05*
- Severe pain	18	30	22	36.7		
- Itching & burning	16	26.7	19	31.7		
- Inability to sit or to move	20	33.3	25	41.7		
	14	23.3	17	28.3	4.5	<0.05*
5- Onset of hemorrhoids:						
- Before pregnancy	12	20.0	11	18.3	3.004	>0.05 n.s
- After pregnancy	33	55.0	35	58.3		
- During previous delivery	15	25.0	14	23.3		
6- Methods used						
a- Medical treatment	20	33.3	14	23.3	23.997	<0.001**
b- Home remedies	40	66.7	46	76.7		
- warm water	28	46.7	30	50		
- herbal	6	10	8	13.3		
-no remedies	6	10	8	13.3		

n.s= not statistical significant at *p* value >0.05

* Statistical significant at *p* value ≤ 0.05

** High statistical significant at *p* value <0.001

Table(4): Distribution of the study subjects according to pain degree, bleeding episodes and local irritation before intervention, 2 weeks, 4 weeks and 6 weeks post intervention (n=120)

Items	Assessment- periods															
	Before				After 2 weeks				After 4 weeks				After 6 weeks			
	Group A (n=60)		Group B (n=60)		Group A (n=60)		Group B (n=60)		Group A (n=60)		Group B (n=60)		Group A (n=60)		Group B (n=60)	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
pain degree:																
-Severe	30	50.0	35	58.3	12	20.0	15	25.0	3	5.0	4	6.7	0	0.0	0	0
-Moderate	11	18.3	10	16.7	15	25.0	20	33.3	7	11.7	6	10.0	0	0.0	0	0
- Mild	12	20.0	10	16.7	11	18.3	5	8.3	10	16.7	15	25.0	6	10.0	8	13.3
- No pain	7	11.7	5	8.3	22	36.7	20	33.3	40	66.6	35	58.3	54	90.0	52	86.7
χ^2	17.014				36.980				26.050				4.002			
<i>p</i> -value	<0.05*				<0.001**				<0.001**				>0.05 n.s			
Bleeding degree:																
- Excessive	12	20.0	15	25.0	9	15.0	8	13.3	5	8.3	4	6.7	0	0.0	0	0.0
- Spotting after defecation	39	70.0	40	66.6	20	33.3	17	28.3	15	25.0	10	16.7	5	8.3	0	0.0
- No bleeding	9	10.0	5	8.3	31	51.7	35	58.3	40	66.7	46	76.6	55	91.7	60	100.0
χ^2	12.900				12.970				31.001				15.003			
<i>p</i> -value	<0.01**				<0.01**				<0.001**				<0.001**			
Local Irritation:																
- Itching & burning	24	40.0	26	43.3	10	16.7	7	11.7	5	8.3	3	5.0	0	0.0	0	0.0
- Heaviness	27	45.0	23	38.3	18	30.0	15	25.0	8	13.3	6	10.0	3	5.0	0	0.0
- No irritation	9	15.0	11	18.3	32	53.3	38	63.3	47	78.3	51	85.0	57	95.0	60	100.0
χ^2	11.980				27.002				12.013				6.75			
<i>p</i> -value	<0.01**				<0.001**				<0.01**				<0.05*			

n.s= not statistical significant at *p* value >0.05

*= statistical significant at *p* value ≤ 0.05

**= high statistically significant at *p*-value<0.01

Table (5): Healing enhancement in both groups at the assessment periods (n=120)

Healing Degree	Assessment- periods															
	Before intervention				After 2 weeks				After 4 weeks				After 6 weeks			
	Group A n=60		Group B n=60		Group A n=60		Group B n=60		Group A n=60		Group B n=60		Group A n=60		Group B n=60	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Good	0	0.0	0	0.0	0	0.0	0	0.0	10	16.7	15	25.0	30	50.0	45	75.0
Moderate	0	0.0	0	0.0	8	13.3	10	16.7	30	50.0	35	58.3	20	33.3	15	25.0
Mild	8	13.3	5	8.3	35	58.3	40	66.6	20	33.3	10	16.7	10	16.7	0	0.0
Poor	52	86.7	55	91.7	17	28.3	10	16.7	0	0.0	0	0.0	0	0.0	0	0.0
χ^2	8.901				39.112				75.432				150.31			
<i>p</i> -value	<0.05*				<0.001**				<0.001**				<0.001**			

*= statistical significant at p -value ≤ 0.05

**= high statistically significant at p -value < 0.001

Table (6): Hemorrhoids condition in both groups at the assessment periods (n=120)

Hemorrhoids condition	Assessment periods															
	Before intervention				After 2 weeks				After 4 weeks				After 6 weeks			
	Group A (n=60)		Group B (n=60)		Group A (n=60)		Group B (n=60)		Group A (n=60)		Group B (n=60)		Group A (n=60)		Group B (n=60)	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Hypertrophies	32	53.3	35	58.3	10	16.7	15	25.0	5	3.0	10	16.7	0	0.0	0	0.0
Prolapsed	17	28.3	15	25.0	14	23.3	10	16.7	13	21.7	7	11.7	10	16.7	5	8.3
Shrunken	11	18.3	10	16.7	36	60.0	35	58.3	42	70.0	43	71.6	50	83.3	55	91.7
χ^2	7.433				21.102				31.444				25.304			
<i>p</i> -value	<0.05*				<0.001**				<0.001**				<0.001**			

*= statistical significant at p -value ≤ 0.05

**= high statistically significant at p -value < 0.001

Discussion:

The present study was aimed to study the effect of black seed oil versus sesame oil to enhance external and internal anal hemorrhoids healing. This aim was significantly achieved through the present study findings because there was significant enhancement healing of external and internal anal hemorrhoids among the group who was utilizing sesame oil than the group utilizing the black seed oil. In both black seed oil and sesame oil groups, there was a highly significant improvement in pain symptoms and enhancement of hemorrhoids healing post-intervention compared to pre-intervention ($p < 0.001$). The results show that, the black seed oil was more effective in relieving the symptoms of pain than sesame seed oil ($p < 0.001$). While, sesame seed oil was more effective in enhancement of hemorrhoids healing than black seed oil ($p < 0.001$). In addition, sesame seed oil is cheaper than black seed oil. Complete cure of hemorrhoids was occurred after 6 weeks post-intervention among 75.0% of sesame seed oil group subjects compared by 50.0% of black seed oil group which indicated that, the sesame oil has higher curative rate than black seed oil ($p < 0.001$).

Results of the current study cleared that, less than two thirds of black seed oil group and more than half of sesame oil group their age was less than 30 years old which hemorrhoids could be as a result of multiple pregnancies and labors, that comes in with study ⁽¹³⁾ which reported that, females are more affected than men, because, female's hemorrhoids may result, besides other reasons, due to pregnancy. Some women suffer from hemorrhoid during their first pregnancy and those who have it once and been pregnant are more likely to get it during their next pregnancy. Furthermore, women may also get hemorrhoids during the second stage of labor i.e., during childbirth. This finding comes with ⁽¹⁴⁾, who reported that, there are several reasons for getting hemorrhoid, one of the most common reasons for them would be age because age weakens the body and this can include the muscles around the anus.

On the other hand, the hypothesis of the present study was built upon the fact that black seed oil is more effective than sesame oil application on external and internal anal hemorrhoids healing. This hypothesis was not significantly approved because it was observed from the present study findings that, significant improvement

in enhancement healing of external and internal anal hemorrhoids among the group utilizing sesame oil than the group utilizing the black seed oil.

Supporting the present study findings ⁽⁹⁾ who stated that sesame seed oil has been used as healing oil for thousands of years and also enjoyed by humans since the dawn of civilization. As well, ⁽¹⁵⁾ stated that sesame oil externally is used to treat hemorrhoids and ulcers.

The present study findings revealed that sesame oil is more effective than black seed oil in promoting healing of external and internal anal hemorrhoids with highly statistical significant differences at p-value=0.001. In agreement to this study finding ⁽¹⁶⁾ who revealed that sesame oil promote wound healing. When the oil is applied topically it significantly promotes the breaking strength, wound contraction and period of epithelization in incision, excision and wound models.

Also, ⁽¹⁷⁾ agree with the present study findings that stated that, the black seed oil act as occlusive dressing with good edge seals and can provide a barrier to migration of micro organisms into the wound and also keep the site moist and give a soft texture to the skin during the healing process.

The present study findings showed that a significant improvement in external and internal anal hemorrhoid healing among both groups of black seed oil and sesame oil. But sesame oil was more effective than black seed oil in this respect. In agreement to these study findings ⁽¹⁸⁾ who stated that, the goal of wound reconstruction is to return the individual to the best possible function as quickly as possible and with the best cosmetic results, innumerable substances and methods have been used, either locally or systemically to achieve this goal. Some examples are: prophylactic administration of antibiotics, medicinal plants such as black seed and sesame oil. Additionally, most of these therapies were found ideal and had wide success in promotion of wound healing. Otherwise, ⁽¹⁹⁾ stated that, wound healing generally requires support at three levels: first, improving general resistance and support, second, stimulating the repair and regenerative mechanisms and third, therapeutic and nutritional activities. Multitude of these requirements was well provided by *Nigella sativa*.

As well, herbal medicine plays a significant role in treatment of hemorrhoids during pregnancy, birth and postpartum care in many rural areas of the world. Women use traditional well-known recipes to secure pregnancy, facilitate the delivery after childbirth⁽²⁰⁾. Still Egypt is one of the developing countries with limited facilities and resources; mothers are poor so the inexpensive and effective oils are highly needed in our community especially in rural areas and it can be easily and safely prescribed by nurses and midwives to the mothers.

Regarding the effect of both black seed oil and sesame oil on hemorrhoid's hypertrophy, prolapse and shrinking, results indicated that, there were a highly significant differences between both groups with p-value=0.001 for each. That comes in agreement with⁽²¹⁾ who reported that, complementary oil helps avoids irritating the inflamed tissue. The researcher's point of view is that, both black seed and sesame oils are strengthening the pelvic floor muscles which lead to decrease the protrusion as well as painful sensation. But sesame oil is more effective than black seed oil in promoting healing of external and internal anal hemorrhoids. But in few cases hemorrhoids relapsed after improvement due to reluctance of women to follow the instructions.

CONCLUSION

Sesame oil was more effective and cheaper than black seed oil in promoting healing of external and internal anal hemorrhoids. While, black seed oil is more effective in relieving pain than sesame seed oil.

RECOMMENDATIONS

- 1) Both black seed oil and sesame oil were recommended to be utilized in both external and internal hemorrhoids but sesame oil is preferable because it is cost effective and promoting hemorrhoid healing.
- 2) Further studies to investigate utilization of bee honey for relieving external and internal anal hemorrhoids symptoms.
- 3) Training program for nurses and midwives at Benha University and Ministry of Health Hospitals about cost effectiveness and efficacy of black seed oil versus sesame oil to enhance external and internal anal hemorrhoids healing.

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