

# The Relationship Between Low Fiber Consumption and the Incidence of Haemorrhoids Patients

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**Abstract**—One of risk factors for the occurrence of hemorrhoids is a low fiber consumption habit. Hemorrhoids are widening and inflammation of the veins in the anal area that originate from the hemorrhoidal plexus. This study aims to determine the relationship between low fiber consumption and the incidence of hemorrhoids patients in the surgical department of Dustira Hospital Cimahi. This study is used an analytical design with cross sectional design. The data of this study were analyzed using the chi square test. The results of the study: there were 38 patients with hemorrhoids were taken with the total sampling method. Research shows that the number of hemorrhoids cases is found at the group age of 41 – 50 years with percentage 31,6% and in women at percentage 68,4%. Hemorrhoid patients who consumed lower fiber as many as 28 people (73,7%). Hemorrhoid patients who consumed the low fiber at the group age of 41 – 50 years at percentage 28,6%. Women consume low fiber at percentage 67,9%. Analytical test results showed a significant relationship between low fiber consumption and hemorrhoids incidence in patients in Surgery Department ( $p=0,016$ ). Based on the results, there was an effect of fiber consumption with hemorrhoids events in patients at the Surgery Department of Dustira Cimahi Hospital.

**Keywords**—hemorrhoids, low fiber consumption

## I. INTRODUCTION

Haemorrhoids are swelling of the veins associated with the anal sphincter muscles. Symptoms of hemorrhoids include irritation, pain, and swelling. Internal hemorrhoids originate from the internal rectal venous plexus that arise in the rectum and have a tendency to bleed. Prolapsed hemorrhoids are internal hemorrhoids that come out of the anal canal and form a lump, which can thrombose and cause pain. External hemorrhoids originate from the venous plexus of the rectal chestermus and arise in the distal border of the anal canal [1,2].

Hemorrhoid is not influenced by gender and it is estimated that 50% of the population older than 45 years suffer from hemorrhoids real or minimal. Most of them made no complaints [1]. In America, 500,000 people are diagnosed with hemorrhoids each year. In Indonesia, based on data obtained from the Ministry of Health obtained from hospitals in 33 provinces, there are 355 hemorrhoids on average, both external and internal hemorrhoids [3]. At RSCM Jakarta, as many as 20% of patients who undergo colonoscopy suffer from hemorrhoids [4].

Nowadays, people's diet is changing according to the demands of the situation. Many workers only prioritize satiety compared to the nutrition of the food they want to eat. One of the factors that contribute to the occurrence of hemorrhoids is low consumption of fiber which can cause the consistency of stool to become hard. The average fiber consumption level of the Indonesian population is generally 10,5 grams per day, only about half of the recommended fiber intake, which is 20-35 grams per day. The level of Indonesian people's vegetable consumption is among the lowest in the world. Indonesians only consume 35 kilograms of vegetables per capita per year. This amount is much lower than the amount for vegetable consumption recommended by the Food and Agriculture Organization (FAO), which is 75 kilograms per capita per year. The description of the type and frequency of dietary fiber consumed can be measured using the Food Frequency Questionnaire (FFQ) method in daily, weekly, or monthly periods [5,6].

The habit of eating low-fiber foods can cause constipation. If you have difficulty defecating, in the end, it takes effort to push as hard as you can when defecating. This causes the blood vessels in the anal area, namely the hemorrhoidal plexus, to stretch and enlarge due to high pressure from the inside. If this happens continuously, the blood vessels will not be able to

return to their original shape. Over time, there will be a bulge of hemorrhoids that cannot be inserted back into the anus, so surgery must be performed [7].

Research conducted by Nugroho in 2011 regarding the relationship between dietary fiber consumption and the incidence of hemorrhoids used a case control design, found that there was a relationship between dietary fiber consumption and the incidence of hemorrhoids.

Based on this, researchers became interested in early to do some research on the relationship between low fiber consumption with the incidence of hemorrhoids in patients with postoperative hemorrhoidectomy that exist in Dustira Hospital Cimahi. In addition, this research has never been done before at the Dustira Hospital Cimahi.

**II. METHODS**

This research is an analytical study with a cross sectional approach. The data taken is based on primary data in the form of distributing questionnaires and secondary data in the form of patient medical records. The population in this study were haemorrhoid patients who had been diagnosed by a surgeon and written in a medical record that met the inclusion and exclusion criteria. Data were collected using a total sampling method. Data were analyzed using univariable and bivariabile analysis. The statistical test used in this study is the Chi Square Test.

**III. RESULTS AND DISCUSSION**

This research was conducted at the Surgical Section of the Dustira Hospital Cimahi between January-December 2018. The results of the study were taken from the data on the results of filling out questionnaires and medical records of hemorrhoid patients who had undergone hemorrhoidectomy. The number of samples that met the inclusion criteria and exclusion criteria was 38 people.

*A. Characteristics of Respondents Based on Gender*

Table 1 shows that more female respondents experienced hemorrhoids with a total of 26 people (68,3 %), while male respondents were 12 people (31.6%).

TABLE I. CHARACTERISTICS OF RESPONDENTS BASED ON GENDER

Gender	Amount	Percentage (%)
Male	12	31,6
Female	26	68,4
Total	38	100,0

The results of this study are in accordance with research conducted previously by Sitti in 2017, in this study, there were more female with a total of 45 people (81.8%) compared to male which is 10 people (18.2%) [8]. It is different from the research conducted by Yanti at RSUP Sleman Yogyakarta in 2008 with the result that male suffers from hemorrhoids more with the number of cases of 61 people (64.9%) and 33 people

(35.10%) in female [9]. Another study conducted by Novalita at RSUP Haji Adam Malik Medan in 2009 - 2011 showed that male suffered more hemorrhoids, amounting to 47 people (56.62%) when compared to female, which is 36 people (43,38 %) [10].

In the case of hemorrhoids, it is not influenced by gender and can affect anyone [1]. There are several risk factors that both male and female have, for example, in female they have a risk factor for increased intraabdominal pressure due to pregnancy and this can cause stretching of the plexus hemoroidales which will eventually cause enlargement at that location [7,11]. For male, the risk factors that exist are work and lifestyle [12].

*B. Characteristics of Respondents Based on Group of Ages*

In Table 2 shows that the age of the respondents with hemorrhoids highest in the age group 41-50 years with a total of 12 people (31,6 %).

TABLE II. CHARACTERISTICS OF RESPONDENTS BASED ON GROUP OF AGES

Group of Ages	Amount	Percentage (%)
<20 ages	4	10,5
21 – 30 ages	8	23,7
31 – 40 ages	6	13,2
41 – 50 ages	12	31,6
51 – 60 ages	6	15,8
>60 ages	2	5,2
Total	38	100,0

The results of this study are the same as those conducted at the Surgical Section of the Dustira Hospital in 2011 which showed that the highest incidence rate in this study was in the 41-50 years age group [13]. These results differ from studies conducted by Tronton which showed that the highest incidence rates in the study were in the 46–65 years age group and that the incidence rates increased to the seventh decade of life [14].

According to Pigot et al., it is stated that one of the risk factors for hemorrhoids is age. Respondents with age older prone to constipation five times more often than respondents with younger age, so that pattern of this defecation can cause hemorrhoids. The degenerative effect on the anal pads caused by aging weakens the supporting tissue and the pressure by hard feces results in the need for repeated straining which in turn causes friction on the anal pads leading to prolapse [12].

*C. Relationship between Fiber Intake and Incidence of Hemorrhoid*

The habit of consuming fiber sources of respondents in this study can be seen from the habits of respondents in consuming foods that contain fiber such as vegetables, fruits, and nuts. This can be seen using the Food Frequency Questionnaire (FFQ). In this study, researchers divided fiber food consumption habits into two categories, which are low fiber and high fiber.

Table 3 shows that respondents with hemorrhoids consume more low-fiber foods when compared to foods high in fiber. It was found that 28 (73,3 %) consume foods low in fiber, and 10 (26.3%) consume foods high in fiber.

TABLE III. RELATIONSHIP BETWEEN FIBER INTAKE AND INCIDENCE OF HEMORRHOID

Variable	Hemorrhoid		p-value
	Amount	Percentage (%)	
Fiber Intake			0,016
Low Fiber	28	73,7	
High Fiber	10	26,3	

Based on the results of statistical tests using Chi-square at the 95% degree of confidence, the p-value is 0.016, so it can be concluded that statistically there is a significant relationship between low fiber consumption and the incidence of hemorrhoids.

The results of this study are in line with research conducted by Parathon in 2011, namely that there is a relationship between dietary fiber consumption and the incidence of hemorrhoids ( $p < 0,5$ ). The value of  $RP < 1$  indicates that a fibrous diet is a protective factor against hemorrhoids. The results of the study conducted by Parathon showed that 68.8% of respondents consumed low-fiber foods and as many as 31.2% of respondents consumed high-fiber foods [15].

In line with other research conducted by Sitti in 2017, it showed that as many as 18 people (66.6%) with hemorrhoids consumed low-fiber foods and as many as 9 people (33.4%) consumed high-fiber foods [8].

Epidemiological studies show the role of low-fiber diet habits and the effect of constipation on the incidence of hemorrhoids. High-fiber foods have the ability to bind water in the colon so that it can soften the consistency of the stool and make the stool volume bigger and stimulate the nerves in the rectum which cause the desire for defecation and stool is easier to eliminate. Unlike the case with low-fiber foods which will cause constipation and cause repeated feces and straining during defecation which can contribute to hemorrhoids. Repeated attempts to pass hard stool and straining will increase the pressure on the pads resulting in prolapse. Prolapse will interfere with venous return. The pads get bigger due to straining, inadequate fiber consumption, prolonged bowel movements, and conditions such as pregnancy and obesity that can increase intra- abdominal pressure. Bleeding arising from enlarged hemorrhoids is caused by local mucosal trauma or inflammation that damages the underlying blood vessels [7,11,16].

#### IV. CONCLUSION

Most hemorrhoid patients were found at the group age of 41-50 years as many as 12 cases (31,6%). Female had more

hemorrhoids incidence than male as many as 26 cases (68,4%). There were 28 hemorrhoid patients who consumed low fiber with a percentage of 73,7%. There was a significant relationship between low fiber consumption and the incidence of hemorrhoids ( $p=0,016$ ).

#### REFERENCES

- [1] L.D. Richard, V Wayne, and W.M. Adam, *Gray's Anatomy of The Human Body*. Amsterdam, Netherlands: Elsevier, 2014, p. 245.
- [2] W. Fridolin, I. Saleh, dan A.D. Hernawan, Faktor-faktor yang berhubungan dengan kejadian hemoroid pada pasien di RSUD DR Soedarso Pontianak. Pontianak: Fakultas Kedokteran Universitas Muhammadiyah Pontianak, 2014.
- [3] Kemenkes RI, *Profil Kesehatan Indonesia*. Jakarta: Kemenkes RI, 2009.
- [4] The Jakarta Globe, "Indonesian hemorrhoid increase blamed on western toilets," 2012. [Online]. Retrieved from: <http://jakartaglobe.id/health/indonesian-hemorrhoid-increase-blamed-on-western-toilets/365518>. [Accessed on: March 22nd, 2021].
- [5] Republika Online, "Konsumsi Sayuran Masyarakat Indonesia Masih Rendah," 2012. [Online]. Retrieved from: <https://m.republika.co.id/berita/breakingnews/%20nasional/10/06/14/119729-konsumsi-sayuran-rakyat%20indonesia-masih-rendah> [Accessed on: March 22<sup>nd</sup>, 2021].
- [6] W.S. Pray, "Hemorrhoids: Self-care vs. Physician Care," *US PHARMACIST*, vol. 26, no. (5), pp. 22-68, 2001.
- [7] M.A. Suprijono, *Hemorroid*. Semarang: Fakultas Kedokteran Universitas Islam Sultan Agung, 2009.
- [8] H.F. Sitti, Hubungan diet dan kebiasaan duduk dengan hemoroid eksterna pada mahasiswa semester 7 Fakultas Kedokteran Universitas Hasanuddin. Makassar: Fakultas Kedokteran Universitas Hasanuddin, 2017.
- [9] Y. Yanti, Hubungan jenis kelamin dan usia terhadap kejadian hemoroid di RSUD Sleman Yogyakarta. Yogyakarta: Fakultas Kedokteran Universitas Gadjah Mada, 2008.
- [10] N.W. Novalita, *Prevalensi hemoroid di RSUD. Haji Adam Malik periode 2009-2011 Medan*. Medan: Fakultas Kedokteran Universitas Sumatera Utara, 2011.
- [11] A. Muthmainnah, *Peranan Diet Rendah Serat terhadap Timbulnya Hemoroid di RSUD. Dr. M. Djamil Padang*. Padang: Fakultas Kedokteran Universitas Andalas Padang, 2015.
- [12] F. Pigot, L. Siproudin, and F.A. Allaert, *Risk factor associated with hemorrhoidal symptoms in specialized, 3rd ed*. London: Informa Health Care, 2010, pp. 1270-1274.
- [13] W.Y. Mahardika, *Gambaran Kasus Hemoroid di Departemen Bedah RS Dustira tahun 2011*. Cimahi: Fakultas Kedokteran Universitas Jenderal Achmad Yani, 2011.
- [14] S.C. Thornton, "Hemorrhoids. Yale University of Medicine," 2010. [Online]. Retrieved from: <http://www.emedicine.medscape.com/article/d/195401-overview> [Accessed on: March 24<sup>th</sup>, 2021].
- [15] S.P. Nugroho, *Hubungan Antara Konsumsi Serat Makanan dengan Kejadian Hemoroid*. Malang: Fakultas Kedokteran Universitas Muhammadiyah Malang, 2011.
- [16] U. Bifirda, *Faktor Risiko Kejadian Hemoroid usia 21-30 tahun di RS Kariadi Semarang*. Semarang: Fakultas Kedokteran Universitas Diponegoro, 2012.