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RESEARCH ARTICLE

The Association Between Body Mass Index (BMI) and Occupation with the Incidence of Hemorrhoids at Mitra Sejati General Hospital, Medan, in 2023

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ABSTRACT

Background: *Hemorrhoids are a very common anorectal condition defined as symptoms of enlargement and displacement of the normal anal pad to distal. The causes of hemorrhoids themselves are still idiopathic or not widely known, but many are caused by age, gender, lack of drinking and fiber consumption, constipation, occupation, genetics, lack of exercise, overweight, increased intraabdominal pressure.* ***Objective:*** *This study aimed to determine the relationship between body mass index and occupation in hemorrhoid incidence.* ***Methods:*** *This type of study uses an observational analytical method, with a crosssectional design, a data collection method using secondary data obtained from medical records diagnosed with hemorrhoids at Mitra Sejati Hospital, Medan city in 2023.* ***Results:*** *The results of this study showed that there was a relationship between body mass index and the incidence of hemorrhoids with a value of p = 0.024, and there was a significant relationship between work and hemorrhoids with a value of p = 0.031.* ***Conclusion:*** *There is a relationship between body mass index and occupation in hemorrhoid incidence*

Keywords: hemorrhoids, body mass index, occupationz

INTRODUCTION

Hemorrhoids are defined as the prolapse of anal cushions, resulting in bleeding and painful swelling within the anal canal.1 According to the National Center for Biotechnology Information (NCBI), hemorrhoids are a highly prevalent anorectal condition characterized by the symptomatic enlargement and distal displacement of normal anal cushions. This condition affects a significant number of individuals worldwide, representing a major medical and socioeconomic burden.2

According to Kibret A and Oumer M (2017), the global prevalence of hemorrhoids is estimated at 4.4%. In Indonesia, data collected by the Ministry of Health of the Republic of Indonesia (2018) indicates that approximately 5.7% of the population suffers from hemorrhoids.3

The etiology of hemorrhoidal disease remains largely idiopathic; however, it is widely suspected to be influenced by factors such as age, gender, inadequate fluid and fiber intake, constipation, occupation, genetics, lack of physical activity, overweight, pregnancy, and other conditions that increase intra-abdominal pressure.4

Hemorrhoids are classified based on their location into internal and external hemorrhoids. Internal hemorrhoids involve the dilation of the superior hemorrhoidal veins above the dentate line, while external hemorrhoids involve the dilation of the inferior hemorrhoidal veins below or outside the dentate line. External hemorrhoids are classified as acute or chronic, whereas internal hemorrhoids are categorized into four stages: Grades I, II, III, and IV.5

Body Mass Index (BMI) is a metric used to assess an individual's nutritional status, categorizing them as underweight, normal weight, overweight, or obese. Obesity contributes to increased intra-abdominal pressure, which leads to venous congestion of the hemorrhoidal plexus in the distal rectum, ultimately precipitating hemorrhoids.3

Hemorrhoids are particularly common in obese individuals due to excess body weight or pressure that constricts the blood vessels surrounding the anus and rectum. Excess weight, especially in the abdominal region, poses a higher risk for developing hemorrhoids and can complicate existing hemorrhoidal tissue, further exacerbating the condition.6

Certain occupations also pose a risk, particularly those involving prolonged sitting or heavy physical labor. Individuals who engage in strenuous activities or sit for durations exceeding 4 hours on a routine basis experience increased pressure in the hemorrhoidal veins, which significantly contributes to the development of hemorrhoidal disease.7

METHOD

This study employs an observational analytic approach with a cross-sectional design. The study, titled *"The Association Between Body Mass Index and Occupation with the Incidence of Hemorrhoids at Mitra Sejati General Hospital, Medan, in 2023,"* utilizes secondary data. The sampling was conducted using a total sampling technique, resulting in a total of 34 samples consisting of patients diagnosed with hemorrhoids.

In this study, hemorrhoid incidence serves as the dependent variable, while body mass index (BMI) and occupation are the independent variables. Data analysis was performed using the Chi-square statistical test via SPSS (Statistical Product and Service Solutions) software. A significance level of 5% ($p < 0.05$) was applied to determine statistically significant results.

RESULT

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The frequency distribution and percentage of hemorrhoid patients revealed that 28 respondents (82.4%) were diagnosed with internal hemorrhoids, while 6 respondents (17.6%) were diagnosed with external hemorrhoids.

Body Mass Index (BMI)
The assessment of BMI among hemorrhoid patients at Mitra Sejati Hospital showed that 15 patients (44.1%) had a BMI below 24.9 kg/m² (underweight to normal weight category), while [masukkan jumlah] patients ([...%]) had a BMI above 25 kg/m² (overweight to obese category).
The frequency distribution of occupations among hemorrhoid patients was as follows: laborers accounted for 3 individuals (8.8%), housewives 5 individuals (14.7%), students 2 individuals (5.9%), retirees 6 individuals (17.6%), civil servants 7 individuals (20.6%), drivers 7 individuals (20.6%), and entrepreneurs 4 individuals (11.8%).

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Regarding the association between Body Mass Index (BMI) and the incidence of hemorrhoids, it was observed that among patients with a normal BMI, 15 individuals were diagnosed with internal hemorrhoids and 0 individuals with external hemorrhoids. In contrast, among obese patients, 13 individuals were diagnosed with internal hemorrhoids and 6 individuals were diagnosed with external hemorrhoids. Based on the statistical analysis, a p-value of 0.024 ($p < 0.05$) was obtained, indicating a statistically significant association between Body Mass Index and the type of hemorrhoid incidence.

Regarding the association between occupation and the incidence of hemorrhoids, among the 34 patients diagnosed with hemorrhoids, it was found that those in high-risk occupations included 14 individuals with internal hemorrhoids and 0 individuals with external hemorrhoids. In the low-risk occupation group, 14 individuals were diagnosed with internal hemorrhoids and 6 individuals with external hemorrhoids. Based on the data analysis, a p-value of 0.031 ($p < 0.05$) was obtained, indicating a statistically significant association between occupation and the occurrence of hemorrhoids at Mitra Sejati General Hospital in 2023."

DISCUSSION

The Association Between Body Mass Index (BMI) and Hemorrhoids

Based on the results shown in Table 2, this study found that among patients with a normal BMI, 15 individuals experienced internal hemorrhoids and none experienced external hemorrhoids. In contrast, among obese patients, 13 individuals had internal hemorrhoids and 6 individuals had external hemorrhoids. With a p-value of 0.024 ($p < 0.05$), it is concluded that there is a significant association between Body Mass Index and the incidence of hemorrhoids.
These findings are consistent with a study by Hendry Wibowo (2018) involving 40 respondents, which found that 22 (55%) were obese and 18 (45%) were not, with a significance value of 0.026 ($p < 0.05$). Wibowo states that obesity is a risk factor for hemorrhoids because fat accumulation in the abdominal area acts as a stressor on the anal sphincter muscles. This condition can lead to venous congestion and dilation of the hemorrhoidal venous plexus.20
This research also aligns with a study by Maria (2022) involving 50 respondents, where 29 individuals had hemorrhoids (16 obese and 13 normal weight) with a p-value of 0.028 ($p < 0.05$). According to Maria, obese individuals are 1.7 times more likely to develop hemorrhoids than those of normal weight. Furthermore, a study by Kibret (2021) in Ethiopia showed that 13.1% of 403 samples had hemorrhoids, with individuals having a BMI > 25 kg/m² being 2.6 times more likely to develop the condition than those with a BMI < 25 kg/m².21
Obese individuals have higher intra-abdominal pressure, which increases venous pressure in the distal rectum, leading to hemorrhoids. Additionally, obesity triggers the release of pro-inflammatory cytokines and proteins; consequently, the immune system is activated and metabolic homeostasis is altered, resulting in the development of hemorrhoids.21

The Association Between Occupation and Hemorrhoids

As shown in Table 3, the association between occupation and hemorrhoid incidence revealed that in the high-risk occupation group, 14 patients had internal hemorrhoids and none had external hemorrhoids. In the low-risk occupation group, 14 patients had internal hemorrhoids and 6 had external hemorrhoids. Statistical analysis yielded a p-value of 0.031 ($p < 0.05$), indicating a significant association between occupation and hemorrhoid incidence.

This study is in line with Henry (2018), where among 20 respondents, 13 (65%) had a habit of prolonged sitting and 7 (35%) did not. That study showed a significant correlation between prolonged sitting and hemorrhoids with a p-value of 0.026 ($p < 0.05$).20 Similarly, research by Mizar Erianto (2022) involving 63 respondents (52 in heavy-labor occupations and 11 in light-labor occupations) found a p-value of 0.036 ($p < 0.05$). Therefore, it can be concluded that prolonged sitting and heavy physical labor (such as construction work) correlate with hemorrhoid risk. This is due to increased intra-abdominal pressure, excessive pressure on the veins in the anal area, and strain on the anal sphincter.22

In this study, prolonged sitting is defined as the habit of sitting for more than 4 hours a day. Certain medical conditions related to venous blood clotting, particularly in the calves and lower gastrointestinal tract, can arise from sitting for extended periods without movement to facilitate blood circulation.20

These findings also support research by Adwilia (2017) at RS DR. Reksodiwiryo Padang ($p = 0.020$) and Afifah (2015) at RSUP Dr. M. Djamil Padang ($p = 0.01$), both of which demonstrated a significant association between occupation and the incidence of hemorrhoids.4

CONCLUSION

1. Based on the frequency distribution of hemorrhoid classification, internal hemorrhoids were the most prevalent, occurring in 28 patients (82.4%).
2. Regarding the frequency distribution of gender, male patients constituted the majority, with a frequency of 20 individuals (58%).
3. The frequency distribution of age showed that the most affected groups were those aged 40–49 years and >60 years, with 8 individuals (23.5%) in each category.
4. Based on the frequency distribution of Body Mass Index (BMI), the majority of patients were in the group with a BMI above 25 kg/m², totaling 19 individuals (55.9%).
5. In terms of occupational frequency, Civil Servants and Drivers were the most common, with an equal frequency of 7 individuals (20.6%) each.
6. There is a statistically significant association between Body Mass Index (BMI) and the incidence of hemorrhoids, with a p-value of 0.024.
7. There is a statistically significant association between occupation and the incidence of hemorrhoids, with a p-value of 0.031.

SUGGESTIONS

1. For Future Researchers: It is recommended to employ more advanced analytical methods and investigate other variables associated with hemorrhoid disease, such as pregnancy, constipation, and inadequate intake of dietary fiber and water.
2. For Educational Institutions: This study is expected to provide valuable input and information for academic institutions to enhance knowledge regarding the correlation between Body Mass Index,

occupation, and the incidence of hemorrhoids.

3. For the General Public: It is hoped that these findings will increase public awareness, particularly regarding the risks of prolonged sitting (exceeding 4 hours) and obesity in contributing to the development of hemorrhoids.

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