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A STUDY ON RISK FACTORS OF HAEMORRHOIDAL DISEASE AMONG ADULTS IN A TERTIARY CARE CENTRE OF VIDISHA, INDIA

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Abstract:

Background:
Haemorrhoidal disease is one of the most common anorectal conditions, affecting a substantial proportion of the adult population. Despite its high prevalence, regional data from semi-urban Indian settings remain limited. This study aimed to assess the sociodemographic and lifestyle-related risk factors associated with haemorrhoidal disease among adults attending a tertiary care centre in Vidisha, Madhya Pradesh.

Methods:
This was a descriptive cross-sectional study conducted over 12 months at Atal Bihari Vajpayi Government Medical College, Vidisha. A total of 240 adult patients clinically diagnosed with haemorrhoidal disease were enrolled. Data on demographics, bowel habits, diet, lifestyle, and clinical grading of haemorrhoids were collected using structured interviews and physical examinations. Associations between risk factors and disease severity were analyzed using chi-square tests, with a p-value <0.05 considered statistically significant.

Results:
The mean age of participants was 44.8 years, with the highest prevalence in the 41–50 year age group. Males constituted 62.1% of the study population. Grade II haemorrhoids were the most common (42.9%). Chronic constipation (57.5%), low dietary fiber intake (69.6%), and sedentary lifestyle (59.6%) were the most prevalent risk factors. These factors were significantly associated with higher disease severity ($p < 0.05$). Other factors such as smoking, alcohol use, and obesity showed no significant correlation with severity.

Conclusion:
Haemorrhoidal disease in this population is strongly associated with modifiable lifestyle factors, particularly constipation, low fiber diet, and inactivity. These findings highlight the need for public health interventions promoting dietary changes and physical activity. Early education and preventive strategies can reduce disease burden and improve outcomes. Further multi-centric studies are recommended to validate these findings and guide region-specific management approaches.

Keywords: Haemorrhoidal disease, Constipation, Fiber intake, Sedentary lifestyle, Risk factors etc.

Introduction

Haemorrhoidal disease is one of the most prevalent anorectal disorders, affecting nearly 4% of the adult population globally, with higher incidence in individuals aged 45 to 65 years [1,2]. It is characterized by the symptomatic enlargement and distal displacement of normal anal cushions, leading to clinical manifestations such as bleeding, prolapse, pain, and perianal discomfort [3]. Despite its prevalence, the condition remains underreported due to social stigma, embarrassment, and the non-fatal nature of the symptoms [4]. The etiology of haemorrhoidal disease is multifactorial, with several established risk factors. These include chronic constipation, prolonged straining during defecation, low-fiber diet, sedentary lifestyle, obesity, pregnancy, and hereditary predisposition [5,6]. Dietary and lifestyle practices have a significant role in the pathophysiology of the disease, particularly in the Indian context where cultural dietary habits and limited awareness of bowel health influence disease occurrence [7]. Increasing urbanization and sedentary behaviors, even in semi-urban and rural populations, are contributing to the growing burden of anorectal disorders in India [8].

Although numerous international studies have investigated the risk factors for haemorrhoidal disease, there is limited region-specific data from smaller Indian towns such as Vidisha, Madhya Pradesh. Tertiary care centers in such regions cater to a large population, often reflecting a broad spectrum of socio-economic and lifestyle profiles. Identifying locally prevalent risk factors can aid in developing targeted educational and preventive health programs. This study aims to assess the risk factors associated with haemorrhoidal disease among adults attending a tertiary care centre in Vidisha, India. By analyzing demographic, dietary, and behavioral patterns, the study seeks to generate actionable insights for better clinical management and public health strategies in similar settings.

Materials and Methods:

This descriptive cross-sectional study was conducted in the Department of General Surgery at Atal Bihari Vajpayi Government Medical College in Vidisha, Madhya Pradesh, over a period of 12 months from January 2024 to December 2024. After obtaining approval from the Institutional Ethics Committee, patients attending the outpatient department and admitted to the surgical wards were enrolled in the study. Written informed consent was obtained from all participants. A total of 240 adult patients diagnosed with haemorrhoidal disease were included in the study using a convenience sampling method. Adult patients (aged ≥18 years) of both sexes who were clinically diagnosed with haemorrhoidal disease and provided informed consent to participate were included in the study. Patients with co-existing anorectal disorders (e.g., anal fissures, fistulas), patients with a history of colorectal malignancy, inflammatory bowel disease, or those who had undergone prior haemorrhoid surgery were excluded. Data were collected using a pre-designed, structured questionnaire administered through face-to-face interviews. The questionnaire included demographic details (age, sex, occupation), lifestyle factors (dietary habits, physical activity, water intake, smoking, alcohol consumption), bowel habits (constipation, straining during defecation, frequency of defecation), personal and family history of haemorrhoidal disease, and obstetric history in females. Clinical evaluation was done through detailed history-taking and physical examination, including per rectal examination and proctoscopy, to confirm the diagnosis and grade the haemorrhoids. The grading of internal haemorrhoids was done based on standard classification (Grade I–IV). Collected data were entered in Microsoft Excel and analyzed using SPSS version 20. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used. Associations between risk factors and severity of haemorrhoidal disease were assessed using the Chi-square test and other appropriate statistical methods. A p-value of <0.05 was considered statistically significant.

Results:

A total of 240 adult patients diagnosed with haemorrhoidal disease were included in the study. The mean age of the participants was 44.8 ± 12.6 years**,** with the majority (42.5%) aged between 41 and 50 years. Males constituted 62% (n=149) and females 38% (n=91) of the study population.

Table 1 provides a detailed overview of the patient population included in the study. The majority of individuals diagnosed with haemorrhoidal disease were in the 41–50 years age group, accounting for

42.5% of cases, followed by 22.5% in the 31–40 years group and 18.8% in the 18–30 years group. This age distribution highlights that haemorrhoidal disease is most prevalent in middle-aged adults, though a notable proportion of younger individuals are also affected. In terms of sex distribution, males constituted 62.1% of the study population (n=149), while females made up 37.9% (n=91).
The occupational profile of participants reveals that 40% were engaged in sedentary jobs, such as office work or administrative roles. Manual laborers formed the second-largest group at 35.8%, homemakers accounted for 14.6%, and 9.6% were categorized as others, which included students, retired individuals, and those unemployed.

Table 1: Sociodemographic profile of patients (n = 240)

	Variable	Number (n=240)	Percentage (%)
Age Group (years)	18–30	45	18.8
	31–40	54	22.5
	41–50	102	42.5
	51–60	25	10.4
	>60	14	5.8
Gender	Male	149	62.1
	Female	91	37.9
	Manual laborers	86	35.8
	Office workers/sedentary	96	40.0
	Homemakers	35	14.6
	Others (students, retired, unemployed)	23	9.6

Figure 1 shows distribution of haemorrhoidal Grades among patients. Among the 240 participants diagnosed with internal haemorrhoids, Grade II was the most common, observed in 103 cases (42.9%), followed by Grade I in 62 cases (25.8%), Grade III in 56 cases (23.3%), and Grade IV in 19 cases (7.9%). This distribution indicates that the majority of patients presented with early-stage haemorrhoids (Grades I and II), while advanced stages (Grades III and IV) were less frequently encountered.

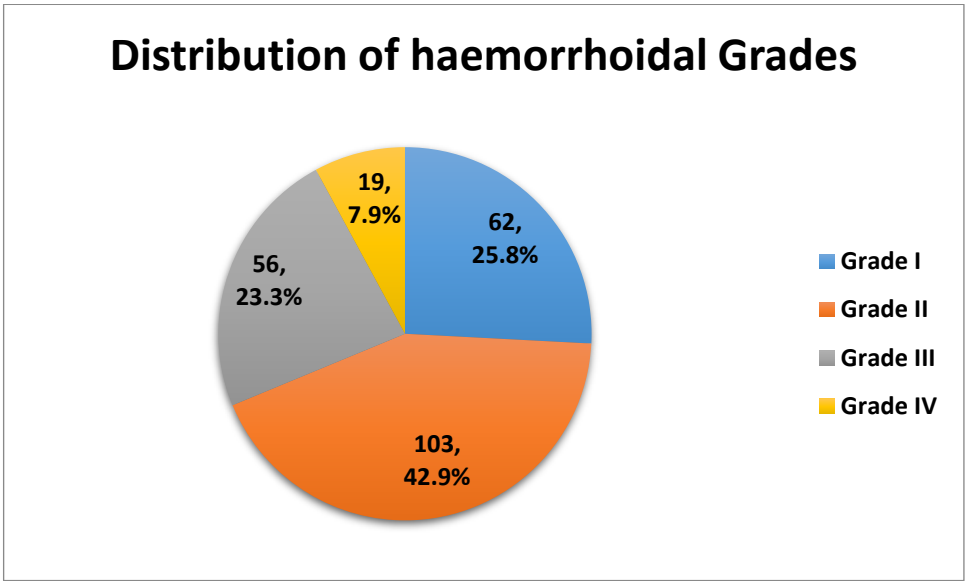

Figure 1: Distribution of Grades of Haemorrhoidal Disease

The table 2 presents the distribution of various risk factors among patients diagnosed with haemorrhoidal disease. Among the 240 patients studied, chronic constipation was reported in 138 individuals (57.5%), making it one of the most common risk factors. Nearly half of the patients

(47.5%) experienced frequent straining during defecation, while 98 patients (40.8%) had infrequent bowel movements, defined as fewer than three times per week. A significant majority of patients (69.6%) reported following a low fiber diet, and 143 patients (59.6%) led a sedentary lifestyle. Regarding lifestyle habits, smoking was present in 21.7% of the patients, and alcohol consumption was noted in 20.0%. Additionally, obesity, defined as a body mass index (BMI) of 25 kg/m² or greater, was observed in 35.8% of the participants.

Table 2: Risk factors among patients of haemorrhoidal disease

Risk factors	Present	Absent
Chronic constipation	138 (57.5%)	102 (42.5%)
Frequent straining during defecation	114 (47.5%)	126 (52.5%)
Bowel movements < 3 times/week	98 (40.8%)	142 (59.2%)
Low fiber diet	167 (69.6%)	73 (30.4%)
Sedentary lifestyle	143 (59.6%)	97 (40.4%)
Smoking	52 (21.7%)	188 (78.3%)
Alcohol consumption	48 (20.0%)	192 (80.0%)
Obesity (BMI ≥ 25 kg/m²)	86 (35.8%)	154 (64.2%)

A comparison of risk factors between patients with mild (Grade I and II) and severe (Grade III and IV) haemorrhoidal disease is presented in Table 3. Among the 240 patients, 165 (68.8%) had mild haemorrhoids, while 75 (31.2%) presented with severe disease. Chronic constipation was significantly more common in patients with severe haemorrhoids (72.0%) compared to those with mild disease (50.9%) ($p = 0.003$). Similarly, a low fiber diet was reported by 81.3% of patients with severe haemorrhoids versus 64.2% in the mild group, which was statistically significant ($p = 0.01$). A sedentary lifestyle was also significantly associated with severity, reported in 72.0% of the severe group compared to 53.9% of those with mild haemorrhoids ($p = 0.02$). Other factors, such as frequent straining during defecation (56.0% vs. 43.6%, $p = 0.08$), infrequent bowel movements (48.0% vs. 37.6%, $p = 0.07$), and obesity (42.7% vs. 32.7%, $p = 0.09$), were more prevalent in the severe group but did not reach statistical significance. No significant associations were found between haemorrhoidal severity and smoking ($p = 0.56$) or alcohol consumption ($p = 0.62$). These findings suggest that chronic constipation, low fiber diet, and a sedentary lifestyle are significant risk factors associated with increased severity of haemorrhoidal disease.

Table 3: Comparison of Risk Factors between Mild and Severe Haemorrhoidal Disease

Risk Factor	Mild HD (Grade I & II) n = 165	Severe HD (Grade III & IV) n = 75	p-value
Chronic constipation	84 (50.9%)	54 (72.0%)	**0.003**
Frequent straining during defecation	72 (43.6%)	42 (56.0%)	0.08
Bowel movements < 3 times/week	62 (37.6%)	36 (48.0%)	0.07
Low fiber diet	106 (64.2%)	61 (81.3%)	**0.01**
Sedentary lifestyle	89 (53.9%)	54 (72.0%)	**0.02**
Smoking	35 (21.2%)	17 (22.7%)	0.56
Alcohol consumption	32 (19.4%)	16 (21.3%)	0.62
Obesity (BMI ≥ 25 kg/m²)	54 (32.7%)	32 (42.7%)	0.09

Discussions:

This study aimed to identify the key risk factors associated with haemorrhoidal disease among adults attending a tertiary care hospital in Vidisha, India. The demographic analysis revealed that the condition predominantly affected individuals in the 41–50-year age group (42.5%), with a mean age of 44.8 years. This trend is consistent with global epidemiological data, which indicate the peak incidence of haemorrhoidal disease occurs in middle age, particularly between the fourth and sixth decades of life [10,11]. This may be attributed to cumulative exposure to risk factors such as prolonged straining, sedentary behavior, and deteriorating dietary habits with age. A male predominance (62.1%) was observed in this study, similar to findings in Indian studies by Gupta et al. and Jain et al., suggesting either a higher disease prevalence among men or greater healthcare-seeking behavior in this group [11,12]. Western literature often reports a more balanced gender distribution, possibly reflecting differences in healthcare access and reporting norms [13].

Grade II haemorrhoids were the most frequently diagnosed (42.9%), followed by Grades I (25.8%) and III (23.3%). This distribution indicates that patients typically present during the intermediate stages of disease, likely due to the increasing discomfort and functional limitations associated with prolapse and bleeding [14]. Early-stage presentations (Grades I and II) still accounted for a significant proportion of cases, providing an opportunity for non-operative management and lifestyle interventions.

Chronic constipation was the most prevalent risk factor, reported in 57.5% of patients, and showed a significant association with severe disease grades ($p = 0.003$). The role of constipation in haemorrhoidal development is well-established. Repeated straining increases intra-abdominal and anorectal venous pressures, contributing to the prolapse of haemorrhoidal cushions [15,16]. These findings are supported by a systematic review by Alonso-Coello et al., which emphasized the importance of bowel regularity and laxative use in preventing haemorrhoid exacerbation [17]. Low fiber intake was reported in 69.6% of patients and was also significantly associated with more severe disease ($p = 0.01$). Inadequate dietary fiber results in hard stools, delayed intestinal transit, and increased straining, all of which are central to the pathophysiology of haemorrhoids [18,19]. In a randomized controlled trial, meta-analyses have shown that fiber supplementation significantly reduces bleeding and recurrence of symptoms [20]. Sedentary lifestyle, observed in 59.6% of the study population, was more frequent among patients with advanced haemorrhoidal grades ($p = 0.02$). Lack of physical activity has been proposed to slow gastrointestinal motility and venous return, thereby contributing to both constipation and venous congestion in the anorectal region [21]. This association is supported by Mishra and Shukla, who demonstrated that physical inactivity is a significant independent risk factor for symptomatic haemorrhoids in the Indian population [22].

Though smoking (21.7%) and alcohol use (20.0%) were reported by a subset of patients, they did not show significant associations with disease severity. These findings are consistent with the literature, which presents mixed evidence on these variables. While Loder et al. proposed that smoking may affect vascular tone and lead to mucosal ischemia, others have failed to establish a consistent link [23,24]. Similarly, alcohol has been postulated to cause mucosal irritation and exacerbate bleeding, but its role in disease causation remains unclear [25]. Obesity (BMI ≥ 25 kg/m^2) was present in 35.8% of participants, with a non-significant trend toward greater disease severity ($p = 0.09$). Riss et al. reported a positive association between higher BMI and the prevalence of haemorrhoidal disease, suggesting that increased intra-abdominal pressure and systemic inflammation may contribute to disease development [26]. However, other studies, such as that by Johannsson and Sonnenberg, have found inconsistent associations, indicating the multifactorial nature of the disease [27]. The occupational analysis revealed that 40% of participants were engaged in sedentary work, with an additional 35.8% performing manual labor. This bimodal distribution aligns with previous observations that both prolonged sitting and strenuous physical activity can contribute to haemorrhoidal symptoms, albeit via different mechanisms—venous stasis and increased intra-abdominal pressure, respectively [28]. The convergence of these risk factors underscores the multifactorial etiology of haemorrhoidal disease. Importantly, most of the significant risk factors—constipation, low fiber intake, and sedentary lifestyle—are modifiable. This provides a substantial

opportunity for primary prevention through dietary counseling, physical activity promotion, and bowel habit education. International clinical guidelines emphasize lifestyle modification as the first-line approach in the management of early-stage haemorrhoidal disease [29].

Strengths and Limitations:
This study contributes valuable data from a semi-urban Indian population, offering region-specific insights into the burden and risk profile of haemorrhoidal disease. The inclusion of a relatively large sample size and systematic data collection enhances its internal validity. However, the cross-sectional design precludes the establishment of causal relationships, and the use of convenience sampling may limit generalizability. Furthermore, reliance on self-reported lifestyle and dietary habits introduces potential recall and reporting bias.

Conclusions:
Haemorrhoidal disease in this study was most prevalent among middle-aged adults, with a male predominance. Chronic constipation, low fiber intake, and sedentary lifestyle were the most significant and modifiable risk factors associated with both occurrence and severity of the disease. These findings emphasize the need for preventive strategies focused on dietary and lifestyle modification. Early intervention and public awareness can play a crucial role in reducing the burden of haemorrhoidal disease, particularly in semi-urban populations. Further large-scale studies are warranted to strengthen these observations.

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Conflicts of interest: None

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