Original Article

Prevalence and risk factors of hemorrhoids in Jazan Region, Saudi Arabia: A cross-sectional study

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Abstract

Background: Hemorrhoids a prevalent anorectal disorder, have gained rising attention due to their impact on public health and quality of life. Despite their significance, limited research has addressed their prevalence and associated risk factors in the Jazan Region, Saudi Arabia. Thus, this study was designed to determine the prevalence and risk factors of hemorrhoids in Jazan region, Saudi Arabia. **Methods:** This was a cross-sectional study conducted in the Jazan region, Saudi Arabia, from January to June 2023. Encompassing both urban and rural areas, the study focused on individuals aged 18 and above, excluding those with communication difficulties, mental illness, or severe conditions. Employing random sampling, a sample size of 420 was determined to ensure representation, and participants were selected using a systematic random sampling technique. The analysis was performed using R version 4.2.3. **Results:** The study included 475 participants, predominantly females (72.57%), aged 25 to 44 (53.38%), with higher education (82.28%) and Saudi nationality (98.31%). Prevalence of hemorrhoids was 13.29%, with 5.27% external, 2.53% internal, and 0.21% thrombosed hemorrhoids. Constipation (OR: 2.28, $P = 0.001$) and family history (OR: 4.77, $P < 0.001$) were significant risk factors. Complications were reported by 5.70%, including ulceration (1.05%) and severe bleeding (1.05%). Social norms hindered treatment seeking for 55.49%. While age correlated ($P = 0.002$ and $P = 0.003$) with increased odds of hemorrhoids, gender, marital status, nationality, education, employment, smoking, exercise, and fiber intake showed no significant associations. **Conclusion:** In conclusion, the study revealed a 13.2% prevalence of hemorrhoids mostly external underscoring the significance of factors such as constipation age group, fiber intake, and family history in increasing susceptibility.

Keywords: Constipation, hemorrhoids, Jazan region, piles, risk factors

Introduction

Hemorrhoids, commonly known as piles, are a prevalent medical condition affecting millions of individuals worldwide. Hemorrhoids involve the connections formed by the superior rectal artery and the veins that encircle the lower rectum and anal canal. This condition entails the downward displacement and swelling of the hemorrhoidal cushions.[1] The term "hemorrhoids" generally pertains to abnormal alteration and displacement of hemorrhoidal tissue which impacts nearly 40% of adult population.[2] It can result in notable discomfort, functional limitations, and a diminished quality of life.[3] Hemorrhoids are typically classified based on their position as either internal or external. Internal hemorrhoids occur above

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the dentate line and are enveloped by columnar epithelium, whereas external hemorrhoids form below the dentate line and are covered by squamous epithelium.[4] The literature lacks a unanimous definition of the underlying pathophysiology of hemorrhoids. Nonetheless, various theories attribute the causes to issues with the veins within the anorectal vascular cushions, deterioration of collagen support in the anal canal, and heightened blood flow to the vascular plexus.[5]

Hemorrhoidal disease ranks as the fourth most common gastrointestinal diagnosis for outpatient cases in the United States, contributing to approximately 3 million visits for ambulatory care.[4] The estimated occurrence in the general global population stands at 4.4%.[6] Numerous studies worldwide have been conducted to evaluate the occurrence of hemorrhoids and the factors associated with them. Notably, Australia exhibits the highest prevalence of hemorrhoids (38.93%), followed by Israel (16%) and Korea (14.4%).[2,7,8] However, there have been limited endeavors to assess the prevalence of hemorrhoids in Saudi Arabia, with one study indicating a rate of 30%.[9]

This research aims to fill a crucial void in the comprehension of the public health scenario concerning a frequently encountered yet insufficiently investigated medical ailment. Hemorrhoids hold the potential to substantially affect the well-being of individuals, and their inconspicuous advancement because of inadequate awareness compounds the problem. Through a methodical exploration of the occurrence and interconnected risk elements inherent to the Jazan Region, the study not only adds geographically relevant data to the current reservoir of information but also establishes a basis for precisely customized awareness drives and precautionary measures. In the final analysis, these endeavors are projected to enhance healthcare outcomes and facilitate prudent distribution of resources to address this particular condition.

Material and Methods

This cross-sectional study aimed to examine the prevalence, awareness, and risk factors of hemorrhoids in the Jazan region of Saudi Arabia from January 2023 to June 2023. The study encompassed both urban and rural areas within the Jazan region, focusing on individuals aged 18 years and above of any gender who resided in the selected areas. Exclusions were made for patients who faced difficulties in communication, were mentally ill, or experienced severe illness. The use of random sampling techniques ensured a representative sample. The sample size was determined using a single population proportion formula, with a 95% confidence interval, a margin of error of 0.05, and a 5% non-response rate taken into account. Since no previous studies had been conducted in the area, and the anticipated proportion of hemorrhoid cases was considered to be 50%, a minimum sample size of 420 was established. Participants were chosen using a systematic random sampling technique.

The study defined constipation as unsatisfactory bowel movements characterized by infrequent stool passage, challenges in defecation, or both, persisting for a minimum of three months.

Data collection was carried out through a self-administered questionnaire in the Arabic language, requiring participant consent for participation. A validated and structured questionnaire was developed and administered to participants. This questionnaire included sections addressing socio-demographic aspects such as age, gender, residence, education level, occupation, marital status, and average monthly income. It also delved into medical history, lifestyle habits.

Data was securely stored and accessed exclusively by authorized researchers for research purposes. The research's framework has been granted ethical approval by the Standing Committee for Scientific Research - Jazan University (REC-44/02/313).

The data were coded and entered into R (version 4.2.3) for analysis. Data cleaning involved identifying and rectifying missing values and inconsistencies. Descriptive statistics, such as frequency and percentage, were utilized to depict the study population concerning various variables. A multivariable logistic regression model was employed to determine associations, and variables with a P value of <0.05 were deemed to have a significant connection with the outcome variable. An adjusted odds ratio with a 95% confidence interval was used as a measure of association.

Results

In this study, a total of 475 patients were included, with females constituting the majority at 344 (72.57%). The largest portion, 253 (53.38%), fell within the age group of 25 to 44 years. The majority of participants, 390 (82.28%), possessed a university degree, and 466 (98.31%) held Saudi nationality. Marital status indicated that only 230 (48.52%) were married, while 247 (52.11%) were unemployed. A mere 34 (7.17%) were identified as smokers, and 142 (29.96%) were reported to engage in regular exercise [Table 1].

Table 2 presents the prevalence of hemorrhoids among the study participants, 63 (13.29%) of participants reported currently experiencing hemorrhoids. Further classification of hemorrhoid types revealed that 25 (5.27%) of participants had external hemorrhoids, 12 (2.53%) had internal hemorrhoids, and a mere 1 (0.21%) reported having thrombosed hemorrhoids. In terms of the duration of hemorrhoidal issues, 58 (12.24%) of participants reported experiencing hemorrhoids for more than 6 months, while only 1.06% (5) indicated a shorter duration of less than 6 months. The prevalence of family members with hemorrhoids was found to be 233 (49.16%).

In regard to complications associated with hemorrhoids, 27 (5.70%) of participants reported experiencing complications. Among those who reported complications, 5 (1.05%) mentioned

ulceration, 5 (1.05%) severe bleeding, details are shown in Table 2.

Among participants, different therapeutic modalities were reported in which medical was used by 30 (6.33%) and surgical was used by 3 (0.63%), and 30 (6.33%) did not need any treatment. Only 28 (5.91%) had improvement after using therapeutic modalities. The study also explored the potential social and work impacts of hemorrhoids on the participants. A small percentage, 29 (6.12%), reported experiencing such impacts, while the majority, 34 (7.17%), indicated no such effects on their social or work life. Interestingly, a significant number of respondents, 263 (55.49%) felt that social norms acted as a hindrance to the treatment of hemorrhoids, possibly influencing their decisions in seeking medical assistance.

When questioned about their course of action if they or a family member were to develop hemorrhoids, a substantial portion, 374 (78.90%), expressed their intention to seek medical help. A mere 2 (0.42%) indicated a preference for alternative medicine, while 45 (9.49%) stated they would consider both medical and alternative approaches. Conversely, 53 (11.18%) of participants asserted that they would opt for neither medical nor alternative methods.

Table 1: Baseline characteristics of the sample (*n*=475)

Characteristics	Frequency (%)
Gender	
Male	130 (27.43%)
Female	344 (72.57%)
Age	
18 – 24 years	167 (35.23%)
25 – 44 years	253 (53.38%)
≥ 45	54 (11.39%)
Educational level	
Has a degree (university and higher)	390 (82.28%)
No degree	84 (17.72%)
Nationality	
Saudi	466 (98.31%)
Non-Saudi	8 (1.69%)
Marital status	
Married	230 (48.52%)
Others (single, divorced, and widowed)	244 (51.48%)
Job status	
Employed	227 (47.89%)
Unemployed	247 (52.11%)
Smoking status	
Smoker	34 (7.17%)
Non-smoker	440 (92.83%)
Exercise regularly	
Yes	142 (29.96%)
No	332 (70.04%)
Fiber intake	
Yes	299 (63.08%)
No	175 (36.92%)
Constipation	
Yes	113 (23.84%)
No	361 (76.16%)

Table 3 presents a comprehensive analysis of the intricate relationship between social, lifestyle, and health factors and their potential influence on the development of hemorrhoids.

Participants within the age range of 25 to 44 years exhibited an odds ratio of 2.86 (95% CI: 1.47 – 5.67, $P = 0.002$), while those aged 45 years and above had an odds ratio of 4.18 (95% CI: 1.66 – 10.68, $P = 0.003$) when compared to the reference group of 18 to 24 years. Gender, however, showed no significant association with hemorrhoids, as males demonstrated an odds ratio of 1.23 (95% CI: 0.69 – 2.18, $P = 0.485$) when compared to females. Marital status, nationality, education level, and job status displayed no substantial impact on hemorrhoid development, with odds ratios of 0.84 (95% CI: 0.49 – 1.44, $P = 0.530$), 1.31 (95% CI: 0.21 – 11.35, $P = 0.781$), 0.94 (95% CI: 0.51 – 1.77, $P = 0.849$), and 1.30 (95% CI: 0.76 – 2.26, $P = 0.339$), respectively. Examining lifestyle factors, smoking status, exercise, and fiber intake did not demonstrate significant associations with hemorrhoid development. The odds ratios were 0.76 (95% CI: 0.27 – 1.94, $P = 0.580$) for smokers, 1.07 (95% CI: 0.63 – 1.80, $P = 0.811$) for participants engaging in exercise, and 0.41 (95% CI: 0.25 – 0.67, $P < 0.001$) for those with fiber intake when compared to their respective reference groups. However, constipation and a family history of hemorrhoids exhibited noteworthy associations. Participants experiencing constipation had an odds ratio of 2.28 (95% CI: 1.37 – 3.78, $P = 0.001$), while those with a family history of hemorrhoids showed a substantially higher odds ratio of 4.77 (95% CI: 2.93 – 7.95, $P < 0.001$) when compared to their respective reference groups.

Table 2: Prevalence of hemorrhoids among participants (*n*=475)

Characteristics	Frequency (%)
Hemorrhoids	
Yes	63 (13.29%)
No	411 (86.71%)
Type of hemorrhoids*	
External	25 (5.27%)
Internal	12 (2.53%)
Thrombosed	1 (0.21%)
I don't know	25 (5.27%)
Hemorrhoids duration*	
>6 months	58 (12.24%)
<6 months	5 (1.06%)
Family members with hemorrhoids	
Yes	233 (49.16%)
No	241 (50.84%)
Any complications?	
Yes	27 (5.70%)
No	17 (3.59%)
I don't know	19 (4.01%)
Type of complications**	
Ulceration	5 (1.05%)
Severe bleeding	5 (1.05%)
Anemia	2 (0.42%)
Strangulated hemorrhoids	11 (2.32%)
I don't know	14 (2.95%)

Table 3: The relationship between social, lifestyle, and health factors and the development of hemorrhoids

	Hemorrhoids		
Predictors	**Odds Ratios**	**95% CI**	***P***
Age [reference: 18-24 years]			
[25 – 44 years]	2.86	1.47 – 5.67	0.002
[≥ 45 years]	4.18	1.66 – 10.68	0.003
Gender [reference: female]			
Male	1.23	0.69 – 2.18	0.485
Marital status [reference: unmarried]			
Married	0.84	0.49 – 1.44	0.530
Nationality [reference: non-Saudi]			
Saudi	1.31	0.21 – 11.35	0.781
Education level [reference: no degree]			
University degree	0.94	0.51 – 1.77	0.849
Job status [reference: unemployed]			
Employed	1.30	0.76 – 2.26	0.339
Smoking status [reference: non-smokers]			
Smokers	0.76	0.27 – 1.94	0.580
Exercise [reference: no exercise]			
Yes	1.07	0.63 – 1.80	0.811
Fiber intake [reference: no fiber intake]			
Yes	0.41	0.25 – 0.67	<0.001
Constipation [reference: no]			
Yes	2.28	1.37 – 3.78	0.001
Family history of hemorrhoids [reference: no]			
Yes	4.77	2.93 – 7.95	<0.001

CI: 95% confidence intervals

Discussion

The main objective of this study is to explore the occurrence, characteristics, associated factors, and potential effects of hemorrhoids. The findings offer valuable insights into the demographics, types, duration, complications, treatment approaches, and societal influences linked with hemorrhoids. Within this study, the prevalence of hemorrhoids was determined to be 13.29%. This outcome aligns with research conducted in Ethiopia, which reported a prevalence of 13.1%,[10] as well as studies in Israel (16%)[7] and Korea (14.4%).[8] However, this prevalence is lower than the rates reported in earlier studies conducted in Saudi Arabia (30%)[9] and Egypt (18%).[11] Conversely, Johanson and Sonnenberg identified a considerably lower prevalence rate of 4.4%.[6]

In the hemorrhoid population, women were slightly more prevalent than men. Jensen and colleagues observed a slight majority of men in their study on hemorrhoids,[12] whereas we identified a slight predominance of women. Similar results were demonstrated by Khan *et al.*[13] However, in other investigations, no notable disparity was noted between the two genders.[14] Additional epidemiological analyses propose that neither gender faces a higher susceptibility to developing hemorrhoidal disease compared to the other.[15] The average age of patients in that particular study (25–45 years) closely resembled the age range of participants in the current study. It's worth noting that while this observation was backed by multiple logistic regression analysis, its clinical significance may raise questions.

In our study, individuals with constipation demonstrated a higher likelihood of having hemorrhoids when compared to their counterparts. Likewise, research conducted in different settings has supported the idea that constipation plays a significant role in the development of hemorrhoids.[16,17] This association could be attributed to the breakdown of supportive tissue in the anal canal and the strain induced by prolonged efforts during defecation and the presence of hard stool. Consequently, these factors contribute to the displacement of the anal cushions and the eventual formation of hemorrhoids.

Insufficient consumption of dietary fiber emerged as a risk factor for hemorrhoids, as did a high intake of spicy foods. There is evidence to suggest that enhancing dietary fiber intake can lead to a reduction in the incidence of hemorrhoids. This is likely due to the fact that fiber consumption helps alleviate constipation, which is recognized as one of the risk factors for hemorrhoid development.[18]

Several limitations should be acknowledged in this study. First, the study's cross-sectional design prevents the establishment of causal relationships between the identified factors and hemorrhoid development. Second, the reliance on self-reported data for variables like hemorrhoid history, symptoms, and treatment could introduce recall bias and inaccuracies. Additionally, the study's sample is drawn from a specific demographic within Saudi Arabia, limiting the generalizability of findings to broader populations.

Conclusion

In conclusion, prevalence of hemorrhoids in our study was 13.2%. The findings highlight the influential role of constipation, age group, fiber intake, and family history of hemorrhoids in elevating the likelihood of hemorrhoid occurrence. These results emphasize the importance of early screening and intervention for hemorrhoids, particularly among individuals at higher risk. We advocate for health professionals to prioritize regular screening for hemorrhoids, especially in susceptible groups.

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Conflicts of interest

There are no conflicts of interest.

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