# Acceptance and Attitude towards Digital Rectal Examination for the Evaluation of Anorectal Conditions in Eastern Province of Saudi Arabia

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**Competing Interests**

-The authors declare no conflicts of interest.

**KEYWORDS**

Digital Rectal Examination, Awareness, Acceptance, Cultural Barriers, Preventive Healthcare

**ABSTRACT**

**Objectives:**

Digital Rectal Examination (DRE) is crucial for diagnosing various medical conditions, including prostate and colorectal cancer. Our study aims to assess the knowledge and acceptance of DRE among the Saudi population.

**Methodology:**

This cross-sectional study used a bilingual online survey distributed among Saudi residents in the Eastern Province. The survey included 22 questions on demographics, DRE awareness, and acceptance. Data was analyzed using SPSS.

**Results:**

Out of 443 participants, 65.2% were male, and 53.7% were aged 18-25 years. Awareness of DRE was high (65.7%), but only 21.7% had undergone the procedure. 56.0% would agree to a DRE if recommended by a doctor,

but 57.0% cited shame and disgust as barriers. Pain (61.4%), mass sensation (57.1%), and bleeding (53.7%) were key symptoms prompting acceptance. Cultural and traditional factors were significant barriers for 57.6% of participants, and 49.0% would consider traditional medicine for anal and rectal diseases. Knowledge about hemorrhoids was varied, with 46.2% correctly identifying them as dilated anal blood vessels, and preventive measures included dietary and behavioral adjustments.

**Conclusions:**

There is a need for educational efforts to improve DRE acceptance in Saudi Arabia. Addressing cultural barriers and misconceptions can enhance preventive healthcare practices and early disease detection.

## Introduction:

Digital Rectal Examination (DRE) is a procedure that has been deeply ingrained in clinical practice despite the constantly changing field of modern medicine. In many medical conditions, such as urological (prostate cancer), gastrointestinal (Dyssynergia, melena, haematochezia) and anorectal (Haemorrhoid, anal fissure) DRE can give the physician an important diagnostic value. (1–4)

The way to perform DRE is by asking the patient to lay in a left lateral position, politely instructing them to take off their bottoms garments, and have them bring their knees up to their chest, Once the buttocks are parted, thoroughly inspect the perianal region, looking for signs of external haemorrhoids, fissures, abscesses, psoriasis, and dermatitis. Physician will lubricate his index finger and the Posterior anal verge of the patient using a water-soluble lubricant, after lubrication and insertion of the index finger. Physician will examine the anal canal looking for any valuable findings. (5)

The American Society of Colorectal Cancer, an organization offering guidelines for screening, prevention, and treatment of colorectal cancer. Recommends that screening of colorectal cancer should be carried out for individual over 40 years using different modalities of screening and one of the most important screening tools is DRE. Also, DRE can be offered as screening part of prostate cancer. (6)

Study was conducted in Riyadh, the capital and the largest city of Saudi Arabia, to evaluate the awareness and acceptance of DRE among Saudi population in Riyadh. 157 (40.9%) of the participants had never heard of DRE at all. Unsurprisingly, the most common factor that stopped the participants from undergoing DRE was feeling shy to expose. (7)

despite previous efforts a gap in understanding the awarness of DRE in the eastern region is present. Thus we aim to study the eastern region population for awarness and knowledge of DRE. Addressing the knowledge gaps and misconceptions surrounding

DRE, we hope to improve the overall acceptance of this procedure in Saudi Arabia. Eventually, this can contribute to improving the overall health outcomes of the population. We conducted this study to evaluate the knowledge about the imprortance of DRE in clinical assessment.

## Method

**Study design:** This cross-sectional study to estimate the Awareness and Acceptance of Digital Rectal Examination for the Clinical Evaluation of Anorectal Conditions among adult live in eastern region of Saudi Arabia

Study setting and time: Online self-administration between November 2023 and February 2024 will distribute among Alhassa, Dammam, Khobar, Dhahran, Al Jubail.

**Inclusion and exclusion criteria:**

**Inclusion criteria:** Male and female Saudi residents in Eastern region aged between 18 to 75 years who consented to participate in this research.

**Exclusion criteria:** Male and Female less than 18 years old and above 75 years old

**Sample size:** The following formula will be used to get the sample size (n). Five percent, or 0.05, is the margin error (E). At 95%, or 1.96, the confidence level ($Z\alpha/2$) is reached.

The formula indicates that the sample size will be 385.

**Sample technique:** target population will be selected using convenient sampling method

**Data collection and tool method:** A self-administered, bilingual (Arabic and English) Google form online questionnaire with 22 questions about demographics, acceptance and awareness of the Digital Rectal Examination (DRE), and hemorrhoid knowledge will be used to collect the data. The demographic section of the survey will ask about previous anorectal problems, age, sex, nationality, education level, employment status, and field of work (medical or non-medical). In the section of the questionnaire related to DRE awareness and acceptability, questions about participants' knowledge about DRE and their experience with DREs will be asked. If a participant would consent to a DRE, they will be asked to explain why they would or would not. There will be questions on the definition, etiology, impacts, and prevention of hemorrhoids in the section on the condition. The questionnaire validated and Cronbach's alpha coefficient was 0.707 adopted by Al Faifi, et al (7)

**Data processing:** SPSS version 25 (IBM Corp., Armonk, NY) will be used to analyze the acquired data. The demographic characteristics of the participants will be described using descriptive statistics, and the relationship between demographic characteristics and knowledge and acceptance of DRE will be investigated using a chi-square test.

**Ethical consideration:** The authors have no conflict of interest, and ethical approval was obtained from the Research Ethics Committee at King Faisal University in Al-Ahsa, Saudi Arabia (KFU-REC-2023-DEC-ETHICS1813).

## Results

### Demographic Characteristics and Awareness of Digital Rectal Examination among Participants

**Table 1**
*Demographic Characteristics and Awareness of Digital Rectal Examination among Participants*

| | | N | % |
|---|---|---|---|
| Gender | Female | 154 | 34.8% |
| | Male | 289 | 65.2% |
| Age | 18-25 | 238 | 53.7% |
| | 26-45 | 140 | 31.6% |
| | 46-65 | 64 | 14.4% |
| | >65 | 1 | 0.2% |
| Nationality | Non-Saudi | 10 | 2.3% |
| | Saudi | 433 | 97.7% |
| Educational level | Middle | 32 | 7.2% |
| | Secondary | 92 | 20.8% |
| | University | 319 | 72.0% |
| Employment status | Employee | 152 | 34.3% |
| | Not Employed | 101 | 22.8% |
| | Student | 190 | 42.9% |
| Profession | Medical | 136 | 30.7% |
| | Non-medical | 307 | 69.3% |
| Have you ever suffered from anal and rectal diseases? | No | 290 | 65.5% |
| | Yes, me | 101 | 22.8% |
| | Yes, relative | 52 | 11.7% |
| Have you ever heard of examining the anus and rectum with a finger? | No | 152 | 34.3% |
| | Yes | 291 | 65.7% |
| Have you ever had a digital anal and rectal examination? | No | 347 | 78.3% |
| | Yes | 96 | 21.7% |

This study reveal notable trends of the 443 participants, where 65.2% were male and 34.8% were female. The majority (53.7%) were aged between 18 to 25 years, with smaller percentages in older age brackets. Nearly all participants (97.7%) were Saudi nationals, reflecting the study's focus within Saudi Arabia. Educational attainment was predominantly at the university level (72.0%), and employment status varied, with 42.9% being students and 34.3% employed. In terms of medical history, 22.8% reported personally experiencing anal and rectal diseases, while 11.7% reported a history in relatives. Awareness of examining the anus and rectum with a finger was high (65.7%), contrasting with fewer participants (21.7%) who had undergone a digital anal and rectal examination. These findings underscore the need for targeted educational efforts to enhance awareness and acceptance of DRE among different demographic groups

in Saudi-Arabia. (Table 1)

**Participant Attitudes Toward Digital Rectal Examination and Perceived Barriers and Indications**

| | | N | % |
|---|---|---|---|
| If your doctor recommended a finger examination of your anus and rectum, would you agree? | No | 195 | 44.0% |
| | Yes | 248 | 56.0% |
| If you answered no to the previous question, which of the following reasons prevents you from undergoing the examination? (N=195) | Feeling ashamed to be examined in front of the doctor | 110 | 57.0% |
| | I am disgusted by the way the test is done | 110 | 57.0% |
| | The absence of symptoms | 79 | 40.9% |
| | Fear of the method of conducting the examination | 57 | 29.5% |
| | Fear of the results of the examination | 38 | 19.7% |
| | None of the options mentioned | 19 | 9.8% |
| What are the symptoms that will make you agree to undergo the examination | Pain | 272 | 61.4% |
| | Sensation of a mass in the anus and rectum | 253 | 57.1% |
| | Bleeding | 238 | 53.7% |
| | Changes in bowel movement | 104 | 23.5% |

| | | | |
|---|---|---|---|
| | (constipation, diarrhea) | | |
| | Nothing | 50 | 11.3% |
| In your opinion, which of the following conditions can be detected by examining the anus and rectum with a finger | Hemorrhoids | 236 | 53.3% |
| | Anal skin tags | 226 | 51.0% |
| | Anal fissure | 173 | 39.1% |
| | Colorectal cancer | 167 | 37.7% |
| | Prostate cancer | 150 | 33.9% |
| | Don't know | 59 | 13.3% |

**Table 2**
*Participant Attitudes Toward Digital Rectal Examination and Perceived Barriers and Indications*

A majority (56.0%) indicated they would agree if their doctor recommended a DRE, while 44.0% would not, citing reasons such as feeling ashamed (57.0%) or being disgusted by the procedure (57.0%). Symptoms that participants believed would prompt them to agree to a DRE included pain (61.4%), sensation of a mass in the anus and rectum (57.1%), and bleeding (53.7%). When asked about conditions detectable by DRE, respondents most commonly mentioned hemorrhoids (53.3%) and anal skin tags (51.0%), with fewer mentioning anal fissure (39.1%) and colorectal cancer (37.7%). These findings underscore the importance of patient education and communication in addressing misconceptions and encouraging acceptance of DRE for preventive healthcare. (Table 2, Figure 3)


**Figure 3**

**Participant Perceptions of Digital Rectal Examination and Influence of Cultural and Traditional Factors**

A significant portion (56.0%) expressed the view that such examinations are perceived as painful and aggressive, suggesting reluctance towards them being performed by doctors. Additionally, a substantial majority (57.6%) identified customs and traditions as a significant barrier preventing timely medical visits for these examinations. When it comes to treatment preferences, nearly half (49.0%) would consider traditional medicine if affected by anal and rectal diseases, highlighting cultural influences on healthcare decisions. However, there is openness towards preventive measures, as 46.5% indicated they would agree to undergo digital examinations at clinics aimed at disease screening and prevention, indicating potential acceptance of proactive healthcare initiatives despite cultural barriers. (Table 3)

| | **I don't know** | | **No** | | **Yes** | |
|---|---|---|---|---|---|---|
| | N | % | N | % | N | % |
| Do you think that an anal and rectal examination is a painful and aggressive procedure performed by a doctor and should not be performed by doctors? | 104 | 23.5% | 248 | 56.0% | 91 | 20.5% |
| Do you think that customs and traditions constitute a barrier to society that causes them to be late or prevent them from going to the doctor for a finger examination of the anus and rectum? | 52 | 11.7% | 136 | 30.7% | 255 | 57.6% |

| | | | | | | |
|---|---|---|---|---|---|---|
| If you or someone in your family was afflicted with anal and rectal diseases, would you resort to traditional medicine? | 83 | 18.7% | 217 | 49.0% | 143 | 32.3% |
| If there was a clinic that screened for anal and rectal diseases for the purpose of prevention using a digital anal and rectal examination, would you agree to be examined? | 80 | 18.1% | 157 | 35.4% | 206 | 46.5% |

**Table 3**
*Participant Perceptions of Digital Rectal Examination and Influence of Cultural and Traditional Factors*

**Participant Knowledge of Hemorrhoids: Causes, Complications, Definitions, and Preventive Measures**

The table 4 provides comprehensive insights into hemorrhoids, covering causes, complications, definitions, and preventive measures. Causes commonly cited include prolonged sitting (65.5%), chronic constipation or diarrhea (57.1%), and lack of exercise (40.6%), highlighting lifestyle factors contributing to their development. Complications associated with hemorrhoids include anemia (53.5%) and hypertension (49.7%), underscoring potential health impacts. The definition of hemorrhoids is described as dilated anal blood vessels (46.2%), with symptoms like bleeding during defecation (36.8%), itching (35.0%), and pain around the anus (31.6%) further characterizing the condition. Preventive measures emphasize dietary habits, such as consuming fiber-rich foods (66.8%) and drinking plenty of fluids (47.4%), along with behavioral adjustments like timely defecation (49.7%) and avoiding fatty foods

(41.1%). These findings illustrate a multifaceted approach to understanding and managing hemorrhoids, focusing on both lifestyle modifications and symptom management strategies. (Table 4, Figure 1,2)

| | | N | % |
|---|---|---|---|
| What are the causes of hemorrhoids? | Sitting for a long time | 289 | 65.5% |
| | Chronic constipation or diarrhea | 252 | 57.1% |
| | Lack of exercise | 179 | 40.6% |
| | Dilatation due to constant pressure during defecation | 177 | 40.1% |
| | Using the bathroom for a long time | 160 | 36.3% |
| | Tight pants | 140 | 31.7% |
| | Childbirth | 84 | 19.0% |
| | Hot baths and Jacuzzis | 67 | 15.2% |
| | Birth control pills | 57 | 12.9% |
| | Eat a lot of vegetables | 33 | 7.5% |
| What are the complications of hemorrhoids? | Anemia | 237 | 53.5% |
| | Hypertension | 220 | 49.7% |
| | Diabetes mellitus | 102 | 23.0% |
| What is the definition of hemorrhoids? | Dilated anal blood vessels | 202 | 46.2% |
| | Bleeding during defecation | 161 | 36.8% |
| | Itching | 153 | 35.0% |
| | Pain in the area around the anus | 138 | 31.6% |
| | Anal wounds | 132 | 30.2% |
| | Swelling in the area around the anus | 115 | 26.3% |
| | Sweating | 99 | 22.7% |
| | Abdominal pain | 89 | 20.4% |
| | Dilated intestinal blood vessels | 79 | 18.1% |
| | Diarrhea | 79 | 18.1% |
| | Fecal incontinence | 67 | 15.3% |
| | Anal discharge | 65 | 14.9% |
| | Pain during urination | 55 | 12.6% |
| | Urinary incontinence | 50 | 11.4% |
| | Ulceration in the area around the anus | 37 | 8.5% |
| | Pain in the perianal area | 16 | 3.7% |
| | Ulceration in the perianal area | 14 | 3.2% |
| | Swelling in the perianal area | 7 | 1.6% |

| | | | |
|---|---|---|---|
| What measures can be taken to prevent hemorrhoids? | Eat food rich in fiber | 296 | 66.8% |
| | Defecate when needed | 220 | 49.7% |
| | Drinking plenty of fluids | 210 | 47.4% |
| | Avoiding fatty foods | 182 | 41.1% |
| | Stop smoking | 138 | 31.2% |
| | Use tissues to clean | 112 | 25.3% |
| | Fasting | 102 | 23.0% |
| | Sufficient hours of sleep | 92 | 20.8% |
| | Hot drinks | 85 | 19.2% |

**Table 4**

*Participant Knowledge of Hemorrhoids: Causes, Complications, Definitions, and Preventive Measures*

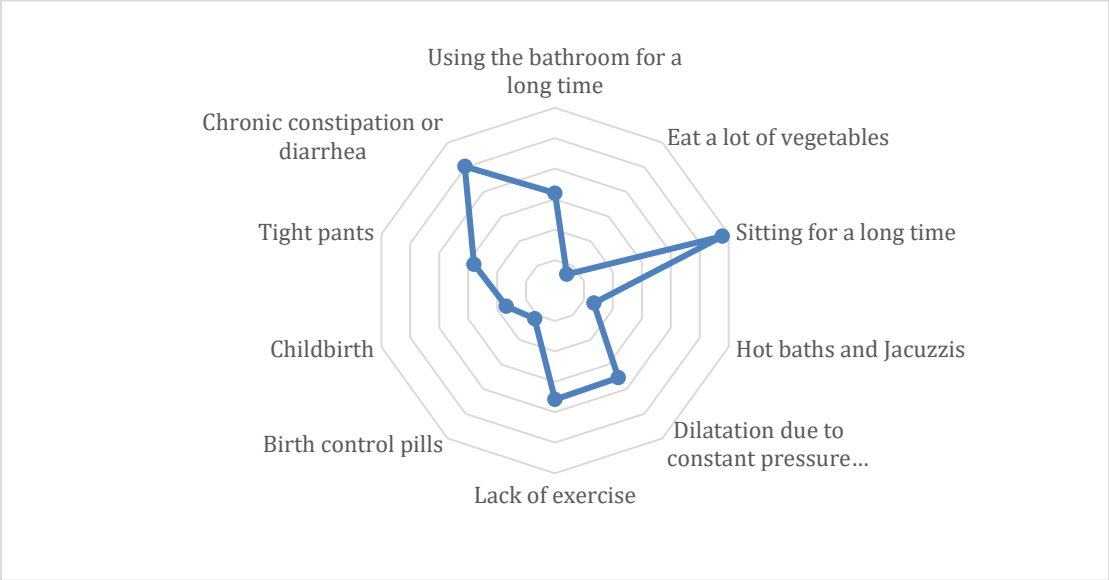


**Figure 1**
*Prevalence of Hemorrhoid Causes Among Study Participants*

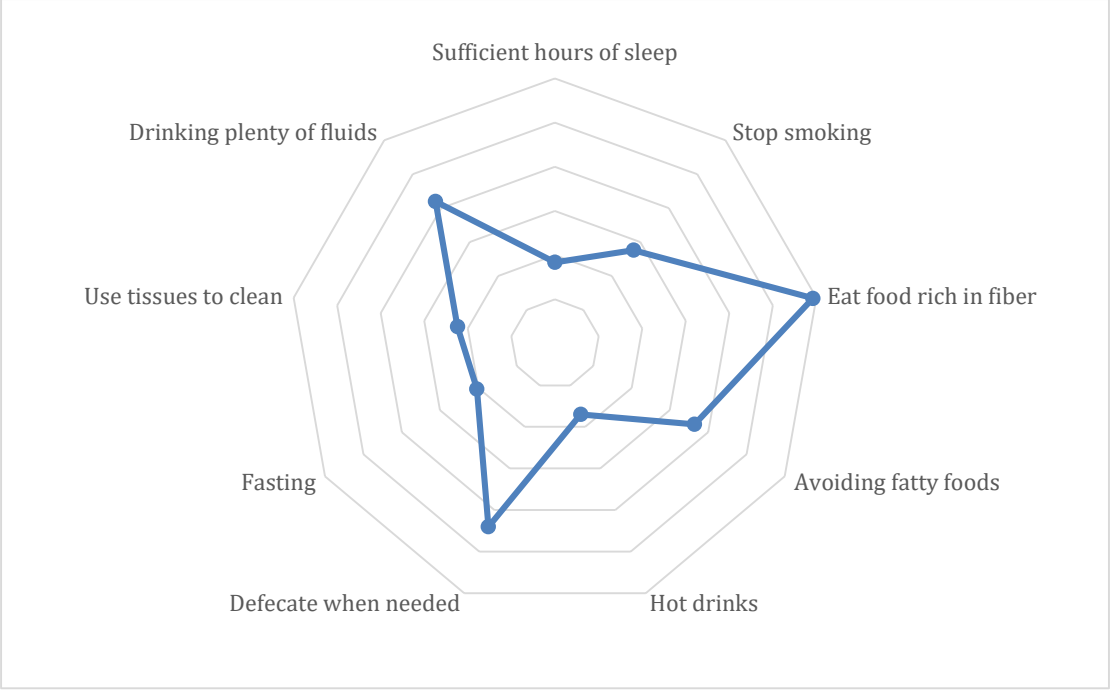


**Figure 2**
*Acceptance of Digital Rectal Examination (DRE)*

**Factors Influencing Agreement with Digital Anal and Rectal Examination Recommendation by Doctor**

The table presents data on the willingness to undergo a finger examination of the anus and rectum based on demographic and medical history factors. Overall, 56.0% of participants agreed to the examination, while 44.0% declined. Significant differences were found across several demographic categories: males (59.2%) were more likely than females (50.0%) to agree although only marginally significant ($p = 0.071$). Age-wise, older participants (46-65 years) showed a higher willingness (64.1%) compared to younger age groups (18-25 years) (52.5%), although this difference was not statistically significant ($p = 0.179$). Professionally, those in medical professions (64.7%) showed higher acceptance rates than non-medical professions (52.1%, $p = 0.017$). Participants who had suffered from anal and rectal diseases (80.2%) were significantly more likely to agree compared to those who hadn't (49.7%, $p < 0.001$). Awareness of the examination also influenced willingness, with 63.9% of those familiar agreeing compared to 40.8% unfamiliar ($p < 0.001$). Additionally, prior experience with digital examinations increased agreement (86.5%) versus no prior experience (47.6%, $p < 0.001$). These findings highlight demographic and medical history factors influencing acceptance of medical procedures involving digital rectal examinations. (Table 5)

| | | If your doctor recommended a finger examination of your anus and rectum, would you agree? | | | | |
|---|---|---|---|---|---|---|
| | | No | | Yes | | p value[F] |
| | | N | Row % | Count | Row % | |
| Gender | Female | 77 | 50.0% | 77 | 50.0% | 0.071 |
| | Male | 118 | 40.8% | 171 | 59.2% | |
| Age | >65 | 1 | 100.0% | 0 | 0.0% | 0.179 |
| | 18-25 | 113 | 47.5% | 125 | 52.5% | |
| | 26-45 | 58 | 41.4% | 82 | 58.6% | |
| | 46-65 | 23 | 35.9% | 41 | 64.1% | |
| Nationality | Non-Saudi | 4 | 40.0% | 6 | 60.0% | 1.000 |
| | Saudi | 191 | 44.1% | 242 | 55.9% | |
| Educational level | Middle | 14 | 43.8% | 18 | 56.3% | 0.835 |
| | Secondary | 43 | 46.7% | 49 | 53.3% | |
| | University | 138 | 43.3% | 181 | 56.7% | |
| Employment status | Employee | 58 | 38.2% | 94 | 61.8% | 0.136 |
| | Not employed | 44 | 43.6% | 57 | 56.4% | |
| | Student | 93 | 48.9% | 97 | 51.1% | |
| Profession | Medical | 48 | 35.3% | 88 | 64.7% | 0.017* |
| | Non-medical | 147 | 47.9% | 160 | 52.1% | |
| Have you ever suffered from anal and rectal diseases? | No | 146 | 50.3% | 144 | 49.7% | <0.001* |
| | Yes, me | 20 | 19.8% | 81 | 80.2% | |
| | Yes, relative | 29 | 55.8% | 23 | 44.2% | |
| Have you ever heard of examining | No | 90 | 59.2% | 62 | 40.8% | <0.001* |
| | Yes | 105 | 36.1% | 186 | 63.9% | |

| | | | | | | |
|---|---|---|---|---|---|---|
| the anus and rectum with a finger? | | | | | | |
| Have you ever had a digital anal and rectal examination? | No | 182 | 52.4% | 165 | 47.6% | <0.001* |
| | Yes | 13 | 13.5% | 83 | 86.5% | |

[F]Fisher's Exact test
[F]Fisher-Freeman-Halton Exact test
*p<0.05, Significant

**Table 5**
*Factors Influencing Agreement with Digital Anal and Rectal Examination Recommendation by Doctor*

## Discussion

The population of eastern provience of Saudi Arabia showed good insight toward acceptance and knowledge about doing DRE to diagnose anorectal diseases based on this article. A study conducted by Al-Faifi et al. (2023) demostrated that cultural and traditional belives significantly affect the acceptance of medical procedures, particularly DRE [7]. In this study, 57.6% of participants belives that customs and traditions act as a barrier for performing DRE, suggesting a similar cultural influence in Saudi Arabia. Males showing a slightly higher acceptance rate (59.2%) compared to females (50.0%), similar to the findings from a study by Teoh et al. (2023), which documented gender-specific attitudes towards invasive medical procedures in conservative societies [8]. This gender difference necisate educational campaigns to improve acceptance rates among women.

Education and professional background also played an important role in acceptance of DRE. Participants with a university education and those in medical professions demonstrated higher acceptance rates, echoing findings from Fitzgerald et al. (2007), which indicated that higher educational level and professional exposure to medical environments correlate with increased acceptance of preventive health measures [9]. This suggests that educational campign for thos with low educational level can help to increase the acceptance rate. [10].

The main reason for refusing DRE, such as feelings of shame (57.0%) and disgust (57.0%), along with the psychological barriers identified in previous studies by Furlan et al. (2008), which found that emotional responses significantly hinder the acceptance of colorectal screening methods [11]. Addressing these psychological barriers through patient education and reassurance from healthcare providers can potentially mitigate these concerns. Participants acceping to undergo DRE when they have symptoms like pain (61.4%), sensation of a mass (57.1%), and bleeding (53.7%) indicates that symptomatic individuals are more likely to accept DRE [12]. This is going with the Health Belief Model, which indicate that severity and susceptibility affect health

behaviors [13]. Therefore, emphasizing the importance of DRE for early detection of serious conditions like colorectal cancer in educational materials could improve acceptance rates.

The study's findings also highlight the strong influence of cultural and traditional beliefs on healthcare decisions. Around 49.0% indicated a preference for traditional medicine if affected by anal or rectal diseases. This preference highlights the importance of a method to promot education about DRE that is not violating cultural belives. [14].

A good number of participants (56.0%) showed that DRE is painful and aggressive, this perception can be changed by good patient-doctor communication. Studies by Kulińska et al. (2022) have shown that effective communication and patient education can significantly alter perceptions of medical procedures, making them more acceptable to patients [15].

This study revealed a good level of awareness about hemorrhoids, their causes, and preventive measures among participants. However, there is still a gap in understanding more severe complications like colorectal cancer, which only 37.7% of participants associated with DRE. The high level of awareness about lifestyle factors contributing to hemorrhoids, such as prolonged sitting (65.5%) and chronic constipation (57.1%), suggests that public health campaigns focusing on lifestyle modifications could be effective. Similar findings by Hosseini et al. (2023) highlight the role of lifestyle education in managing and preventing anorectal conditions [16].

Demographic factors such as age and medical history were also significant in determining acceptance of DRE. Older participants and those with a history of anal and rectal diseases were more likely to agree to the examination. This aligns with findings from previous studies, such as those by Chien et al. (2019), which indicate that personal experience with disease and increased age correlate with a higher likelihood of undergoing preventive health screenings [17].

This study shows the need for healthcare providers in the Eastern Province of Saudi Arabia to increase the awareness about the importance of DRE throught good educational program. By improving patient education and communication, healthcare professionals can help increase acceptance and early detection of anorectal conditions. Emphasizing the importance of DRE for preventing serious diseases, like colorectal cancer, in clinical settings can further encourage patients to undergo this essential screening.

## Conclusion

Although this study showed good level of awareness about DRE among people in the Eastern Province of Saudi Arabia, the acceptance of the procedure is still low due to cultural believs, feelings of shame, and fear. Male gender, high level of education and medical background increase the acceotance of DRE. Symptoms like pain and bleeding, increased willingness to undergo the procedure. To improve acceptance,

targeted educational efforts are needed to address cultural barriers and misconceptions, and to emphasize the importance of DRE in preventing serious conditions.

## Declarations

Ethical Approval and Consent to Participate

Ethical approval was obtained from the Research Ethics Committee at King Faisal University in Al-Ahsa, Saudi Arabia (KFU-REC-2023-DEC-ETHICS1813). An informed consent form is included in the first section of the questionnaire. Participants were made aware of the information's confidentiality via this consent form. They were informed about the goal of the study and their right to withdraw participation at any point without giving any justification.

## Consent for Publication

Not Applicable

## Availability of data and materials

The corresponding author can provide the survey tool used in this study upon request. The raw survey responses along with individual participant data will not be made publicly available due to the sensitive nature of the data and the possibility of participant identification.

Competing Interests

The authors declare no conflicts of interest.

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## Authors' Contribution

Each author contributed to the manuscript's preparation and gave their approval to the completed submission. Omar S. AlGhamdi, Jehad A. AlGhamdi, Hatim S. Alzahrani, Mujtaba M. AlKhamees, Sadeem AlSulaiman, and Mohammed R. Almousa

helped with the Original Draft's conceptualization, methodology, and writing. In addition to overseeing and managing the project, Mohammed Alessa edited and reviewed the manuscript.

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**Abbreviations**

| | |
|---|---|
| (DRE) | Digital Rectal Examination |

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