Original Article

Public Knowledge, Attitude and Practice Towards Esophageal Cancer in Makkah Region, Saudi Arabia: A Cross-Sectional Study

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ABSTRACT

Introduction: Esophageal cancer is a highly aggressive malignancy affecting the esophagus. In Saudi Arabia, including the Makkah region, the incidence is rising, highlighting the need for a better public understanding of the disease. This study evaluated knowledge, attitudes, and practices regarding esophageal cancer in Makkah.

Methods: A cross-sectional study surveyed the public in Makkah region using an online questionnaire distributed via Google Forms. A minimum sample size of 385 participants was targeted and selected through convenience sampling. The questionnaire assessed sociodemographic data, awareness of esophageal cancer, its symptoms, risk factors, and screening practices.

Results: Among 494 participants, 256 (51.8%) were aged 20-30 years, and 336 (68.0%) were females. Most held a bachelor's degree (n=325, 65.8%). Only 18 (3.6%) reported a family history of esophageal cancer and 10 (2.0%) had been diagnosed with the disease. Awareness of esophageal cancer was low, with 217 (43.9%) having heard about it. The most recognized symptom was difficulty swallowing (n=316, 64.0%) and the top risk factor was smoking (n=406, 82.2%). Only 174 (35.2%) were aware of the screening program. Knowledge levels varied by age, education, and information source, with the medical field being the most reliable source of good knowledge (n=85, 67.5%).

Conclusion: There was a notable gap in public awareness of esophageal cancer symptoms and screening practices. Enhancing educational efforts and screening accessibility is crucial to address this growing health concern effectively.

Keywords: esophageal cancer, general population, risk factors, early detection, screening methods.

Introduction

Esophageal cancer is a malignant tumor that affects the esophagus, which is the muscular tube linking the throat to the stomach. It is a highly aggressive form of cancer, often diagnosed at advanced stages, which

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contributes to its high morbidity and mortality rates [1,2]. Its incidence and mortality rates vary across regions, with notable differences in risk factors, demographics, and healthcare infrastructure. So, esophageal cancer is increasingly recognized as a major global health issue, and its incidence has been steadily increasing in various regions, including Saudi Arabia [3,4,5]. In Saudi Arabia, the burden of esophageal cancer has been on the rise, necessitating a better understanding of the public's knowledge, attitude, and practice towards this disease. Exploring the awareness and behaviors of individuals residing in the Makkah region can provide valuable insights into the overall public health landscape and help tailor specific interventions to address the challenges faced in this region. Studies conducted in Saudi Arabia have highlighted various risk factors associated with esophageal cancer, including tobacco smoking, alcohol consumption, poor diet, obesity, and gastroesophageal reflux disease (GERD). However, limited research has focused on assessing the public's understanding of these risk factors and their knowledge of esophageal cancer symptoms, screening methods, and treatment options [6]. Understanding the level of awareness and perception among the population is essential for promoting early detection, encouraging healthy lifestyle choices, and improving treatment outcomes [7]. This research seeks to bridge the knowledge gap by investigating the public's knowledge, attitude, and practice toward esophageal cancer in the Makkah region, Saudi Arabia. By conducting survey among a representative sample of individuals, this study aims to assess their awareness of risk factors, symptoms, and available screening methods.

Methods

A cross-sectional study involved the general public of Makkah region, Saudi Arabia. Data was collected from July to September 2024. An online questionnaire was given to the participants through Google Forms. The sample size was calculated using Raosoft, a sample size calculator, considering a confidence level of 95%. A minimum sample size of 385 participants was targeted. The questionnaire assessed demographic data, knowledge about esophageal cancer, attitudes, and screening practices. The study received ethical approval From BIOMEDICAL RESEARCH ETHICS COMMITTEE in Umm Al-Qura University Institutional Review Board (HAPO-02-K-012-2024-05-2143).

Data analysis: The collected data were reviewed and analyzed using SPSS version 29 (IBM Corp., 2022). All statistical tests were two-tailed, with a significance level set at $p \leq 0.05$. To assess knowledge levels, an overall score was calculated by assigning 1 point for each correct answer and 0 for incorrect or missing responses. Participants scoring below 60% of the total possible points were classified as having poor knowledge, while those scoring 60% or higher were considered to have good knowledge. Descriptive statistics were used to summarize the data. To explore associations between variables, cross-tabulation was performed using the Pearson Chi-square test for larger datasets and the exact probability test for smaller frequency distributions.

Results

A total of 494 respondents completed the study in Makkah region, Saudi Arabia. Their ages ranged from 18 to over 50 years, with a mean of 26.9 years. Most participants were females (68%) and well-educated—65.8% held a bachelor's degree. Only 3.6% had a family history of esophageal cancer and 2% had been diagnosed with it (Table 1). (Table 2) indicates that 43.9% had heard about esophageal cancer. The most recognized symptoms were difficulty swallowing (64%), coughing blood (58.5%), weight loss (51.8%), throat pain (49.6%), vomiting (47%), and fatigue (40.5%). As for risk factors, the most known were smoking (82.2%), GERD (65.8%), non-steroidal anti-inflammatory drug (NSAID) use (40.1%), obesity (24.9%), and old age (22.7%). Protective behaviors identified included early detection (87%), quitting smoking (68.8%), GERD management (59.9%), and maintaining a healthy weight (40.5%). As shown in (Table 3), only 35.2% had heard about esophageal cancer screening. The participants identified GERD patients (69.6%), smokers (63.4%), those with a family history (75.1%), obese individuals (21.1%), and men over 50 (27.7%) as needing screening.

According to (Figure 1), only 32% of the participants had good knowledge, while 68% had poor awareness. Main information sources included healthcare staff (25.5%), social media (22.1%), self-reading (8.1%), and family/friends (6.5%), while 34.6% reported no clear information source (Figure 2). (Table 4) demonstrates that about half of the participants (50.8%) had experienced symptoms related to esophageal cancer, but only 0.8% underwent screening. The main reasons for not screening were lack of awareness about the disease (52.6%), fear of results (14.5%), absence of symptoms (10.8%), and financial concerns (9.6%). (Table 5) illustrates that knowledge levels vary by age and experience. Among those aged 20–30, 45.3% had good knowledge compared to only 10.7% of older participants ($p=0.001$). The participants without symptoms had higher knowledge levels (42.8%) than those with symptoms (21.5%) ($p=0.001$). Notably, 67.5% of those who received information from healthcare professionals had good knowledge compared to only 15.8% of those with no clear source ($p=0.001$). Those

Table 1: Bio-demographic characteristics of the study participants (n=494).

Bio-demographic data	No.	%
Age in years:		
< 20	76	15.4%
20-30	256	51.8%
31-40	50	10.1%
41-50	84	17.0%
> 50	28	5.7%
Gender:		
Male	158	32.0%
Female	336	68.0%
Educational level:		
Below secondary	15	3.0%
Secondary	128	25.9%
Bachelor degree	325	65.8%
Post-graduate	26	5.3%
Is there a family history of esophageal cancer?		
Yes	18	3.6%
No	476	96.4%
Have you been diagnosed with esophageal cancer?		
Yes	10	2.0%
No	484	98.0%

Table 2: Esophageal cancer knowledge and awareness of the study participants.

Esophageal cancer knowledge	No.	%
Have you heard about esophageal cancer?		
Yes	217	43.9%
No	277	56.1%

The symptoms of esophageal cancer:		
Difficulty swallowing	316	64.0%
Coughing blood	289	58.5%
Loss of weight	256	51.8%
Pain in throat	245	49.6%
Vomiting	232	47.0%
Feeling tired	200	40.5%
the risk factors for esophageal cancer:		
Smoking	406	82.2%
Having GERD	325	65.8%
Use NSAIDs	198	40.1%
Obesity	123	24.9%
Age over 50	112	22.7%
Protective factors of esophageal cancer:		
Early detection of esophageal changes	430	87.0%
Stop smoking	340	68.8%
Manage GERD	296	59.9%
Maintain a healthy weight	200	40.5%

Table 3: Esophageal cancer screening knowledge and awareness among the study participants

Esophageal cancer screening knowledge	**No.**	**%**
Have you heard about the esophageal Cancer screening program?		
Yes	174	35.2%
No	320	64.8%
Who should be screened?		
Someone has GERD	344	69.6%
Smokers	313	63.4%
Family history of esophageal cancer	371	75.1%
People who suffer from obesity	104	21.1%
Men over 50	137	27.7%

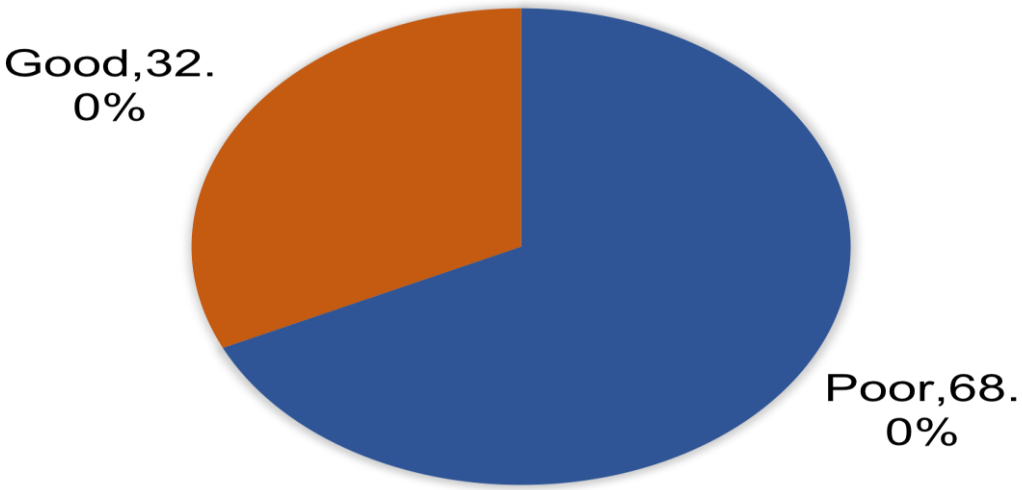

Figure 1: The overall public knowledge and awareness about esophageal cancer and its screening.

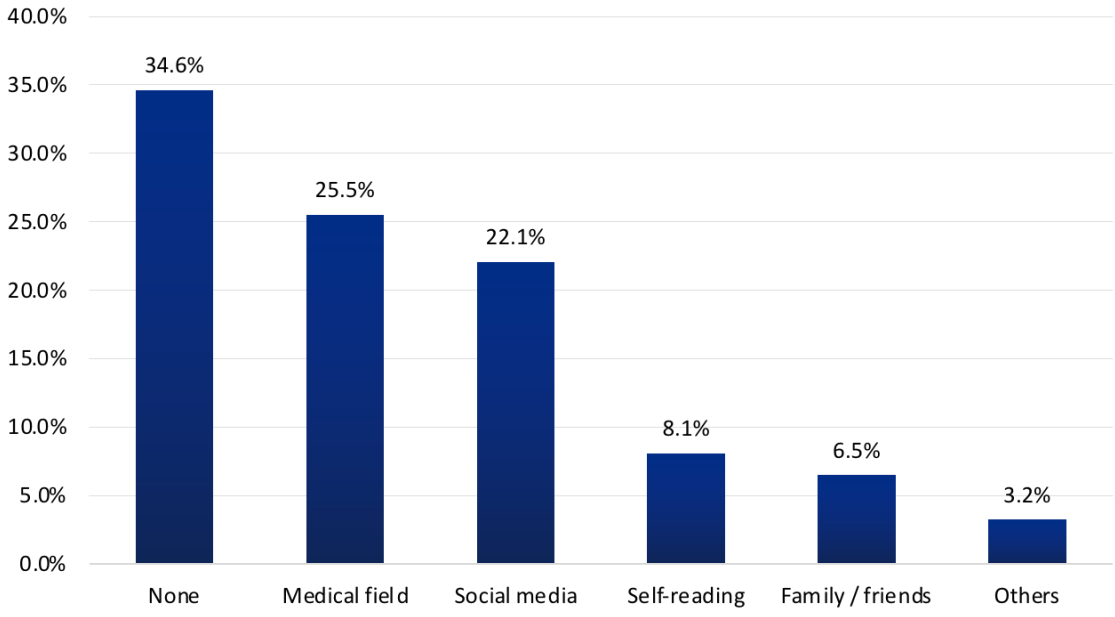

Figure 2: The source of information about esophageal cancer and screening.

Table 4: Esophageal cancer screening practice among the study participants.

Practice	No.	%
Did you experience any of EC signs?		
Yes	251	50.8%
No	243	49.2%
If yes, have you ever screened?		
Yes	2	0.8%
No	249	99.2%
If no, Why?		
I did not know that it exists	131	52.6%
Worrisome about the result	36	14.5%
Have no symptoms	27	10.8%
Financial reasons	24	9.6%
Worrisome about the complications	13	5.2%
Others	10	4.0%
No need / not diseased	8	3.2%

Table 5: Factors associated with esophageal cancer knowledge among the study participants.

Factors	Overall knowledge level				p-value
	Poor		Good		
	No.	%	No.	%	
Age in years:					
< 20	55	72.4%	21	27.6%	0.001*
20-30	140	54.7%	116	45.3%	
31-40	44	88.0%	6	12.0%	
41-50	72	85.7%	12	14.3%	
> 50	25	89.3%	3	10.7%	

Gender:					
Male	114	72.2%	44	27.8%	0.177
Female	222	66.1%	114	33.9%	
Educational level:					
Below secondary	13	86.7%	2	13.3%	
Secondary	89	69.5%	39	30.5%	0.049*
Bachelor degree	219	67.4%	106	32.6%	
Post-graduate	15	57.7%	11	42.3%	
Did you experience any of these signs?					
Yes	197	78.5%	54	21.5%	0.001*
No	139	57.2%	104	42.8%	
Have you been diagnosed with esophageal cancer?					
Yes	10	100.0%	0	0.0%	0.028*^
No	326	67.4%	158	32.6%	
Is there a family history of esophageal cancer?					
Yes	16	88.9%	2	11.1%	0.053^
No	320	67.2%	156	32.8%	
Source of information about esophageal cancer:					
Social media	80	73.4%	29	26.6%	
Medical field	41	32.5%	85	67.5%	
Family / friends	24	75.0%	8	25.0%	0.001*^
Self-reading	31	77.5%	9	22.5%	
Others	16	100.0%	0	0.0%	
None	144	84.2%	27	15.8%	

P: Pearson X^2 test ^: Exact probability test * $P < 0.05$ (significant)

diagnosed with cancer also showed significantly higher knowledge (p=0.028).

Discussion

The current study aimed to assess public knowledge and awareness about esophageal cancer and its screening methods. Insight into public awareness of esophageal cancer symptoms and their intentions to seek help is critical to develop interventions focused on reducing the patient interval [1, 2]. Al Matroudi [3] found that most esophageal cancer cases occurred in individuals under 75 years, while the lowest rates were among those aged 0–29 years, across both men and women. This study revealed that most participants were highly educated, with few having a family history or diagnosis of esophageal cancer. Only one-third had good overall knowledge, and less than half had heard about the disease. Awareness of risk factors like smoking, GERD, and old age was higher than knowledge of symptoms and screening. While, some recognized high-risk groups (e.g., GERD cases, smokers), awareness was low for others (e.g., elderly, obese). About one-third lacked a specific information source, though one-fourth cited healthcare staff. Similar findings were reported by Alanazi et al. [4]. Most participants identified smoking as a major risk factor and weight loss as a symptom of esophageal cancer. Qahtani et al. [5] study in Majma'ah city found that 49.7% believed smoking was the only risk, followed by alcohol (29.5%), family history (7%), and long-standing heartburn (3.5%), while 49% didn't know any. Difficulty swallowing was correctly identified by 31.5% as a key symptom, while 61.5% were unaware of any symptoms, consistent with findings from the current study. Also, previous, surveys [6,7] of the population of Ireland and the United Kingdom (UK) revealed an unsatisfactory knowledge level about esophageal cancer and associated symptoms, which is concordant with the current study findings. Another study showed that family history was reported a major risk factor for the development of esophageal cancer [8]. Just 7.0% of study participants selected family history as a risk factor, compared to 49.7% who selected smoking and 29.4% who selected alcohol consumption. Furthermore, a considerable portion of participants (76.6%) were aware that cancer is an abnormal cell proliferation, but just 2.1% believe it to be communicable [9]. A recent survey carried out in the UK [10] revealed a significantly greater awareness regarding esophageal cancer symptoms than those in our study (78% vs. 47% recognized difficulty swallowing as a possible cancer symptom). This is potentially attributed to the 2015 esophago-gastric 'Be Clear on Cancer' campaign [11]. This supports the potential of awareness campaigns.

Higher knowledge was linked to younger age, higher education, and information from healthcare staff. Surprisingly, those without a family history or diagnosis showed better awareness. Despite symptoms, most participants didn't seek medical help due to fear, absence of symptoms, or cost. Tentzeris et al. [6] reported better help-seeking behavior in similar cases. About 51% of individuals with dysphagia sought medical help within a week and 19% after a month. Similar to our study, other research linked negative attitudes toward esophageal cancer to delayed care-seeking behavior [12-14]. Fatalistic beliefs, such as thinking no treatment will help, may arise from negative views of the disease, triggering fear responses like denial and minimizing symptoms, which delay seeking medical help [15-19].

Conclusion

This study findings indicate limited awareness of esophageal cancer, particularly its symptoms and screening methods, though risk factors like smoking and GERD were better known. Future studies should include larger samples, interviews, and screening programs. These results can help guide policymakers and health educators in enhancing awareness and promoting early detection efforts in Makkah region.

Conflict of Interest

None

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None

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