Eastern African Journal of Humanities and Social Sciences
Vol. 5 No. 1 (2026): ISSN (Online): 2958-4558
DOI: https://doi.org/10.58721/eajhss.v5i1.1573
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Article History

Received: 14.10.2025
Revised: 12.03.2026
Accepted: 19.03.2026
Published: 23.03.2026

Keywords

Awareness
Esophageal cancer
Rural communities
Screening

How to cite:

Matanzima, N., Tshifhumulo, R., Sharpley, N., & Ndebia, E. J. (2026). Esophageal Cancer Awareness and Screening in the Amathole, Buffalo City, and O.R. Tambo Districts of the Eastern Cape, South Africa.. *Eastern African Journal of Humanities and Social Sciences, 5*(1), 205-214.

Abstract

This study assessed levels of awareness regarding esophageal cancer symptoms, risk factors, and screening services among residents and healthcare users in the Amathole, Buffalo City, and O.R. Tambo districts of the Eastern Cape Province, South Africa. A cross-sectional survey design was employed, with self-administered questionnaires administered to 150 participants (100 female, 50 male) recruited from healthcare facilities in these three predominantly rural districts. Questionnaires were available in English and IsiXhosa, and data were analysed using the Statistical Package for the Social Sciences (SPSS). Findings reveal a critically low level of awareness: the majority of participants had not previously encountered the term "esophageal cancer," and large proportions across all three districts reported not knowing about screening methods or whether community members utilised them. Recognised symptoms included pain on swallowing, weight loss, vomiting of blood, and loss of appetite, while identified risk factors encompassed tobacco smoking, heavy alcohol consumption, and, to a lesser extent, dietary practices. A substantial proportion of participants preferred traditional healers as their first point of care. These findings underscore significant gaps in community health literacy and the absence of structured programmes for esophageal cancer awareness and early detection in the rural Eastern Cape. The study recommends targeted community health education campaigns, integration of esophageal cancer awareness into existing screening platforms, and culturally sensitive outreach that engages traditional healing practitioners as partners in early detection.

Introduction

The burden of esophageal cancer in South Africa is notably high, particularly in the Eastern Cape Province, with rural areas such as Transkei reporting especially elevated incidence rates (Alaouna, Somdyala, Bradshaw and Dhansay et al).

Esophageal cancer in this region is most frequently diagnosed at an advanced stage, when curative options are limited, and prognosis is poor. This pattern of late-stage presentation is driven by a confluence of factors, including low community awareness of early warning signs, limited access to diagnostic and specialist services, and socioeconomic constraints that delay health-seeking

behaviour. Cultural practices, specifically the tendency to consult traditional healers prior to engaging formal healthcare services, further compound diagnostic delays (Govender et al., 2017). The disease thus imposes a disproportionate burden on already marginalised rural communities, where health infrastructure is least equipped to manage it.

Despite the well-established epidemiological burden, research into community-level awareness of esophageal cancer and the utilisation of screening services in the Eastern Cape remains sparse. This study addresses that gap by systematically documenting awareness levels, prevention methods, perceived symptoms, known risk factors, and screening behaviours among healthcare users in three Eastern Cape districts: Amathole, Buffalo City, and O.R. Tambo.

Awareness Gaps and Symptom Recognition

Community awareness of early esophageal cancer symptoms is widely documented as insufficient, a deficit that directly contributes to late presentation and diminished treatment prospects. Poor recognition of alarm symptoms particularly progressive dysphagia, unexplained weight loss, and haematemesis delays care-seeking and narrows the window for curative intervention. Health education and community-based awareness campaigns have been specifically recommended as mechanisms to improve symptom recognition and encourage earlier engagement with health services (Govender et al., 2017).

A study conducted in rural Kilimanjaro, Tanzania (Kasasi & Mayogu, 2016) demonstrated markedly low awareness of esophageal cancer prevention (47%) and screening (70%) compared with findings from Bomet, Kenya, which recorded 62% and 86% respectively (Duron et al., 2013). This disparity was attributed to low literacy levels and pervasive traditional beliefs, including attribution of illness to malevolent spirits and witchcraft. Only a small proportion of respondents in the Kilimanjaro study identified dysphagia as a cardinal symptom, compared with 79% in the Bomet study, suggesting that cultural context profoundly shapes symptom interpretation and the decision to seek medical care (Kasasi & Mayogu, 2016).

Socioeconomic and Health Systems Barriers

Socioeconomic factors present formidable obstacles to timely esophageal cancer diagnosis and management. Patients frequently cite financial constraints, geographic distance from health facilities, and limited access to specialist services as critical barriers to care-seeking and referral (Govender et al., 2017). These structural inequities are particularly acute in the rural Eastern Cape, where poverty rates are high, and healthcare infrastructure remains underdeveloped.

Even upon initial presentation, systemic inefficiencies within the health system compound delays. Referral bottlenecks extended waiting periods for diagnostic procedures such as endoscopy, and inconsistent care pathways between primary and tertiary levels of care create further obstacles to timely diagnosis (Govender et al., 2017). Socioeconomic disparities also manifest in differential access to health information: patients in lower socioeconomic groups are significantly less likely to understand treatment options (61.9% versus 83.8%), to seek second opinions from specialists (23.8% versus 65.8%), or to maintain confidence in their treating physicians over the course of illness (Orringer et al., 2007; Launay et al., 2012).

Importantly, patients from lower socioeconomic groups experience markedly higher rates of employment disruption during treatment (33.3% versus 2.6%) and greater cumulative financial pressure throughout the care trajectory (Launay et al., 2012). These findings underscore the intersection of poverty and cancer outcomes, wherein disadvantage operates through multiple pathways simultaneously.

Theoretical Framework

This study is grounded in the Health Belief Model (HBM), originally formulated by Rosenstock (1966) and subsequently refined by Becker and Maiman (1975). The HBM posits that individuals' health-related decisions, including whether to participate in preventive screening or to seek treatment, are shaped by their subjective perceptions of susceptibility to a condition, the severity of that condition, the perceived benefits of acting and the perceived barriers to doing so. A fifth construct, the concept of "cues to action", internal or external stimuli that trigger health behaviour, further mediates behavioural intentions.

Applied to the present study, the HBM offers a coherent explanatory framework for the observed patterns of non-engagement with esophageal cancer screening. Community members who do not perceive themselves as being at risk of esophageal cancer are unlikely to initiate care-seeking behaviour. Similarly, individuals who interpret symptoms such as dysphagia as minor or culturally explicable are disinclined to pursue biomedical evaluation. Conversely, where communities believe that early detection improves survival, screening uptake is expected to be higher. The cultural practice of consulting traditional healers first may reflect low perceived barriers within a familiar system of care, rather than outright rejection of biomedical services. Understanding these perceptual dynamics is essential to designing effective health communication interventions.

Methodology

This study employed a descriptive cross-sectional survey design to assess awareness of and behaviours regarding esophageal cancer screening among healthcare users in three Eastern Cape districts: Amathole, Buffalo City, and O.R. Tambo. These districts were selected based on their predominantly rural character and the documented high incidence of esophageal cancer in the former Transkei region, within which they are situated. A cross-sectional approach was appropriate given the study's aim of capturing awareness levels at a single point in time across a geographically dispersed population.

The study population comprised patients attending public healthcare facilities in each of the three districts at the time of data collection, as well as willing members of healthcare centre staff. A convenience sampling approach was adopted, yielding a total sample of 150 participants to ensure the was decent or enough representation. Each district had 50 participants meaning that the 150 was divided by three this allowed comparison between districts and ensured balance in presentation. Both males and females were included, as esophageal cancer affects both sexes, and participants ranged across youth and adult age groups.

Eligible participants included adults and youth of both sexes who were resident within the respective district at the time of the study, who were present at the healthcare facility either as patients or as staff, and who were willing and able to provide informed consent. Participants who were too ill to engage meaningfully with the questionnaire were excluded, as were staff members engaged in patient care duties at the time of data collection and visitors whose emotional distress precluded participation.

Data were collected using a self-designed structured questionnaire, which was divided into three sections and addressed the objectives of the study. It consisted of closed-ended questions and open-ended questions, allowing respondents to provide additional information which they might have. A pilot study was first conducted to ten participants, the purpose was to test the validity of the questionnaire after the final study was conducted which excluded those who were in the pilot study as they were testing the study. Questionnaires were made available in both English and IsiXhosa, with the researcher conducting back-translation to verify accuracy of the IsiXhosa version. Each participant completed the questionnaire independently, with sessions lasting approximately 15 to

20 minutes. Participants were briefed on the study's purpose and the voluntary nature of their participation prior to completing the study. The Walter Sisulu university granted ethical approval for the study and there was also approval from the Eastern Cape department of health to collect data from the three health care centres and they were informed about the visit and a letter was provided to the health care centres. Informed consent was obtained from all the participants and confidentiality was maintained throughout the research process. The study was conducted for a period of 2 years, the research topic was refined in a month then proposal approved in 3 months after developed, ethical approval took 6 months then questionnaire a month. The three districts were visited in a space of 3 months, data analysis took 3 months then the remaining months were for report writing. Quantitative data were captured and analysed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics — frequencies, percentages, and cumulative percentages — were computed for all variables. Results are presented in frequency distribution tables disaggregated by district to facilitate cross-district comparisons.

Results

The study enrolled 150 participants, of whom 100 (65.8%) were female and 50 (32.9%) were male. The modal age group was 35-39 years, comprising 55 participants (36.2%). Older age groups were progressively underrepresented, with age groups from 80 years upward each accounting for 2 participants (1.3% each). The demographic profile reflects the age and gender composition of users of public healthcare facilities in the rural Eastern Cape.

Cancer Management Approaches

Participants were asked how esophageal cancer is managed in their communities. In Buffalo City, 13.33% reported using medical professional support, 4.67% reported using traditional support, 1.33% reported using both modalities, and 16.00% reported not knowing. In Amathole, 8.67% reported medical management, 2.67% reported traditional management, 2.00% reported a combination of both, and 10.67% did not know. In O.R. Tambo, 12.67% reported medical management, 4.00% traditional management, 5.33% a combination, and 18.67% reported not knowing. Across all three districts, a substantial proportion of participants reported being unaware of any management approach, indicating limited familiarity with the disease.

Symptom Recognition

Participants demonstrated variable and incomplete recognition of esophageal cancer symptoms. In Buffalo City, pain on swallowing was reported by 10.00% of participants, weight loss by 2.67%, vomiting blood by 2.00%, and coughing by 4.00%, while 14.67% reported not knowing any symptoms. In Amathole, sore throat was cited by 6.00%, loss of appetite by 2.00%, pain when swallowing by 12.00%, and weight loss by 2.67%, with 10.67% reporting no knowledge. In O.R. Tambo, sore throat was identified in 5.33%, weight loss in 1.33%, coughing in 3.33%, and loss of appetite in 4.67%, while 18.67% were unable to identify any symptom. These figures indicate that the cardinal symptoms of esophageal cancer remain largely unrecognised across all three communities.

Risk Factor Knowledge

Knowledge of esophageal cancer risk factors was similarly fragmented. In Buffalo City, tobacco smoking was identified by 4.67% of participants, heavy alcohol consumption by 6.00%, obesity by 1.33%, and genetics by 2.67%, with 18.67% reporting no knowledge of any risk factor. In Amathole, overconsumption of meat was cited by 3.33%, environmental smoke by 1.33%, tobacco smoking by 7.33%, and alcohol by 8.00%, with 13.33% expressing no knowledge. In O.R. Tambo, genetics was cited at 1.33%, consumption of hot food and beverages at 0.67%, alcohol at 6.67%, and tobacco at

5.33%. The fragmented and inconsistent nature of risk factor knowledge across districts reflects the absence of systematic health education on esophageal cancer.

Awareness of Screening Methods

Table I presents participants' responses to the question of whether they were aware of screening methods for esophageal cancer.

Table I: Knowledge of Esophageal Cancer Screening Methods by District

Response	Frequency	Percent	Valid Percent	Cumulative Percent
'Yes' Buffalo City	8	5.3	5.3	5.3
'No' Buffalo City	15	9.9	10.0	15.3
'I don't know' Buffalo City	27	17.9	18.0	33.3
'Yes' Amathole	4	2.6	2.7	36.0
'No' Amathole	21	13.9	14.0	50.0
'I don't know' Amathole	25	16.6	16.7	66.7
'Yes' O.R. Tambo	5	3.3	3.3	70.0
'No' O.R. Tambo	15	9.9	10.0	80.0
'I don't know' O.R. Tambo	30	19.9	20.0	100.0
Total	150	100.0	100.0	

Across all three districts, awareness of esophageal cancer screening methods was markedly low. In Buffalo City, only 5.3% of participants reported awareness of screening methods, 9.9% explicitly denied any awareness, and 17.9% reported not knowing. In Amathole, 2.6% reported awareness, 13.9% denied it, and 16.6% did not know. In O.R. Tambo, 3.3% reported awareness, 9.9% denied it, and 19.9% reported not knowing. Among participants with some knowledge, upper gastrointestinal endoscopy ("upper GI scope") and radiological scanning were the most frequently cited methods, alongside family history-taking. However, the overwhelming majority across all districts — approximately 29–31% — indicated no knowledge of any diagnostic method.

Community Screening Utilisation

Table II presents participants' reports of whether community members in their district attend esophageal cancer screening.

Table 2: Community Utilisation of Esophageal Cancer Screening by District

Response	Frequency	Percent	Valid Percent	Cumulative Percent
'Yes' Buffalo City	2	1.3	1.3	1.3
'No' Buffalo City	18	11.9	12.0	13.3
'I don't know' Buffalo City	30	19.9	20.0	33.3
'Yes' Amathole	4	2.6	2.7	36.0
'No' Amathole	23	15.2	15.3	51.3
'I don't know' Amathole	23	15.2	15.3	66.7
'Yes' O.R. Tambo	6	4.0	4.0	70.7
'No' O.R. Tambo	10	6.6	6.7	77.3
'I don't know' O.R. Tambo	34	22.5	22.7	100.0
Total	150	100.0	100.0	

Community engagement with esophageal cancer screening was reported as extremely limited. In Buffalo City, only 1.3% of participants reported that community members attend screening; 11.9% denied accessing screening, and 19.9% did not know. In Amathole, 2.6% reported attending community screening, 15.2% denied it, and 15.2% did not know. In O.R. Tambo, 4.0% reported community screening, 6.6% denied it, and 22.5% reported not knowing. Participants attributed the low uptake to a lack of awareness programmes, the perception that esophageal cancer is uncommon relative to other diseases, and a health-seeking culture oriented towards consultation only when symptoms become severe.

When asked where people seek care for suspected esophageal cancer symptoms, substantial proportions in all districts indicated uncertainty. In Buffalo City, 10.67% cited clinics or hospitals, 2.67% cited traditional healers, and 17.33% did not know. In Amathole, 12.00% cited hospitals or clinics, 7.33% cited traditional healers, and 10.67% did not know. In O.R. Tambo, 7.33% cited clinics or hospitals, 4.00% cited traditional healers, and 18.67% did not know. A small proportion across all districts reported remaining at home rather than seeking care.

Screening for Other Illnesses

Table 3 presents responses regarding awareness of community screening for other illnesses.

Table 3: Community Screening for Other Illnesses by District

Response	Frequency	Percent	Valid Percent	Cumulative Percent
'Yes' Buffalo City	20	13.2	13.3	13.3
'No' Buffalo City	6	4.0	4.0	17.3
'I don't know' Buffalo City	24	15.9	16.0	33.3
'Yes' Amathole	22	14.6	14.7	48.0
'No' Amathole	5	3.3	3.3	51.3
'I don't know' Amathole	23	15.2	15.3	66.7
'Yes' O.R. Tambo	18	11.9	12.0	78.7
'No' O.R. Tambo	4	2.6	2.7	81.3
'I don't know' O.R. Tambo	28	18.5	18.7	100.0
Total	150	100.0	100.0	

Community awareness of screening for other illnesses was substantially higher than for esophageal cancer. In Buffalo City, 13.2% of participants reported being aware of other disease screening, 4.0% denied awareness, and 15.9% did not know. In Amathole, 14.6% reported awareness, 3.3% denied it, and 15.2% did not know. In O.R. Tambo, 11.9% affirmed awareness, 2.6% denied it, and 18.5% did not know. Illnesses most frequently cited in the context of community screening included HIV, tuberculosis (TB), diabetes, blood pressure, and sexually transmitted infections (STIs).

Comparative Knowledge: Esophageal Cancer Versus Other Illnesses

Table 4 presents participants' assessments of whether community knowledge of other disease screening surpasses knowledge of esophageal cancer screening.

Table 4: Perceived Comparative Knowledge of Esophageal Cancer Screening Versus Other Illnesses

Response	Frequency	Percent	Valid Percent	Cumulative Percent
'Yes' Buffalo City	15	9.9	10.0	10.0
'No' Buffalo City	6	4.0	4.0	14.0
'Maybe' Buffalo City	5	3.3	3.3	17.3
'I don't know' Buffalo City	24	15.9	16.0	33.3
'Yes' Amathole	17	11.3	11.3	44.7
'No' Amathole	10	6.6	6.7	51.3
'Maybe' Amathole	7	4.6	4.7	56.0
'I don't know' Amathole	16	10.6	10.7	66.7
'Yes' O.R. Tambo	12	7.9	8.0	74.7
'No' O.R. Tambo	4	2.6	2.7	77.3
'Maybe' O.R. Tambo	4	2.6	2.7	80.0
'I don't know' O.R. Tambo	30	19.9	20.0	100.0
Total	150	100.0	100.0	

Across all three districts, participants broadly confirmed that community knowledge of HIV, TB, diabetes, and blood pressure screening exceeds knowledge of esophageal cancer screening. In Buffalo City, 9.9% agreed with this assessment, while 15.9% were unsure. In Amathole, 11.3% agreed and 10.6% did not know. In O.R. Tambo, 7.9% agreed, and 19.9% did not know. The predominant reasons offered for the superior awareness of other conditions included greater familiarity with those diseases and their treatments, the availability of health education programmes, and the simple fact that communities "do not know about esophageal cancer."

Discussion

The findings of this study reveal a profound and pervasive deficit in awareness of esophageal cancer across the three Eastern Cape districts examined. Most participants had not previously encountered the term esophageal cancer, and a substantial proportion were unable to identify its principal symptoms, known risk factors, or available screening modalities. These results are consistent with earlier work from sub-Saharan Africa, including studies conducted in Tanzania and Kenya, which similarly documented critically low awareness of esophageal cancer in rural populations (Kasasi & Mayogu, 2016; Duron et al., 2013).

Symptom recognition, while partial, was generally confined to pain on swallowing — the cardinal symptom of established, often advanced disease. This is clinically significant because dysphagia typically emerges at a stage when the oesophageal lumen has been substantially compromised, indicating advanced local disease. Alarm symptoms such as weight loss and haematemesis were recognised by very small minorities of participants, consistent with patterns reported by Govender et al. (2017) and suggesting that the community-level recognition of early warning signs remains critically underdeveloped in this region.

The role of traditional healers as the primary or initial point of care for many participants in these districts represents both a challenge and a potential opportunity. Traditional health practitioners hold significant social trust in rural Eastern Cape communities, and their involvement in awareness and referral pathways could serve as a culturally acceptable mechanism to improve early case detection. This is particularly relevant given the documented tendency for patients to consult traditional healers prior to seeking biomedical care, a practice that — if unaddressed — systematically delays diagnosis and treatment (Govender et al., 2017).

Comparative data across the three districts further illustrate that community engagement with screening programmes for HIV, TB, diabetes, and hypertension is markedly superior to engagement with esophageal cancer screening. This disparity reflects the sustained investment in vertical screening programmes for these conditions over decades, underpinned by national health policy, community health worker deployment, and mass media campaigns. Esophageal cancer has received no equivalent infrastructural commitment, and the resultant awareness gap is correspondingly wide.

Viewed through the lens of the Health Belief Model, these findings suggest that effective behavioural change interventions must simultaneously address perceived susceptibility (communities do not believe they are at risk), perceived severity (symptoms are attributed to benign or non-biomedical causes), perceived barriers (cost, distance, cultural preference for traditional care), and the availability of cues to action (community health education, peer experiences). A multi-component intervention strategy is indicated.

In terms of dietary and environmental risk factors, the findings confirm the importance of addressing locally prevalent exposure patterns, including tobacco use, heavy alcohol consumption, and maize-based diets contaminated with fungal toxins (Marasas et al., 1988). While smoking and alcohol were

moderately recognised risk factors, the dietary dimension — central to the aetiology of squamous cell esophageal cancer in this region — was rarely identified, suggesting a critical gap in public health messaging.

Limitations

Several limitations of this study should be acknowledged. The convenience sampling approach limits the generalisability of findings beyond the healthcare facility setting from which participants were drawn. Individuals who do not seek healthcare — potentially the most isolated and least informed community members — were not captured. The cross-sectional design precludes causal inference regarding the determinants of awareness. Additionally, questionnaire data are subject to social desirability bias, and the exclusion of very ill patients may have introduced selection effects. Future research employing community-based sampling and qualitative methods would provide richer insight into the cultural and contextual factors shaping esophageal cancer awareness and health-seeking behaviour in this region.

Conclusions

Esophageal cancer awareness in the Amathole, Buffalo City, and O.R. Tambo districts of the Eastern Cape is critically low. Most participants in this study had little or no prior knowledge of esophageal cancer, its symptoms, risk factors, or available screening methods. Community utilisation of screening services is effectively absent, in stark contrast to more established screening programmes for HIV, TB, and non-communicable diseases. The absence of structured awareness initiatives and early detection programmes in these districts means that esophageal cancer cases are routinely identified only at advanced stages when prognosis is poor and treatment options are limited.

These findings have direct implications for public health policy and practice. First, targeted community-based health education campaigns addressing esophageal cancer symptoms, risk factors, and the importance of early presentation are urgently needed. Second, esophageal cancer awareness should be integrated into existing health platforms — including those already delivering HIV, TB, and chronic disease services — to leverage established community trust and infrastructure. Third, traditional healers should be engaged as partners in awareness and referral networks, given their social standing and accessibility in rural communities. Fourth, health system strengthening efforts must address the structural barriers — including geographic distance, referral delays, and cost — that compound the effects of low awareness in preventing early diagnosis.

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