

Community-based Head and Neck Cancer Screening During the COVID-19 Pandemic

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BACKGROUND

- Head and neck cancer (HNC) represents at least 4% of all cancers in the U.S., and HPV-associated cancers continue to rise.^{1,2}
- HNC disproportionately affects those of lower socioeconomic status (SES),³ for example with those who are uninsured or insured by Medicaid tending to have more advanced presentations and lower overall survival.^{4,5}
- Racial disparities also exist, with African Americans having increased HNC incidence and decreased relative 5-year survival rates.^{2, 6-7}
- There are no standardized guidelines for HNC screening, though the WHO has identified oral cancer as one that may benefit from early diagnosis.⁸
- Previous studies have reported retrospectively on free HNC screenings, though follow up has been poor with only a single study conducting follow-up phone interviews.⁹

OBJECTIVE

This study aims to summarize characteristics of participants at a free HNC screening, including risk factors and socioeconomic determinants. This study also reports significant findings of the screening, and reviews motivational factors for attendance. As the first report of a HNC screening event in the setting of COVID-19, this study additionally investigates how the pandemic influenced HNC care. This study also evaluates effects of the screening event on knowledge of HNC, both with regards to participants and medical student volunteers.

METHODS

- A community-based HNC screening was conducted by the University of Maryland Medical Center Department of Otorhinolaryngology - Head and Neck Surgery over a one-day period in 2022, as part of the B'More Healthy Expo in Baltimore, Maryland.
- The screening was conducted under the supervision of attending otolaryngologists, with assistance from medical students and residents.
- Screening participants completed a printed questionnaire including demographics, risk factors, symptoms, and impact of the COVID-19 pandemic on healthcare access, after which a focused interview and exam were conducted.
- Participants were educated on HNC signs and symptoms, as well as risk factors. Additional questions evaluated interest in smoking cessation and motivation for attendance.
- Participants were recommended for: routine follow-up with primary care physician (PCP), non-ENT referral, non-urgent ENT follow-up, or urgent ENT follow-up.
- Follow-up phone surveys were conducted six months after the screening, with attempts made to contact all participants who had provided a telephone number or email address.
- Medical student volunteers also completed a questionnaire before and after the screening, evaluating familiarity with otolaryngology and HNC.
- Descriptive statistics were performed.
- This study was approved by the University of Maryland Institutional Review Board.

RESULTS

Figure 1. Study overview with number of participants at each stage.



Table 1. Participant demographics.

Gender	n (%)
Male	25 (26.9%)
Female	57 (61.2%)
No answer	11 (11.8%)
Race/Ethnicity	
African American	65 (69.9%)
Caucasian	19 (20.4%)
Asian	2 (2.2%)
Hispanic	1 (1.0%)
Other	2 (2.2%)
No answer	6 (6.5%)
Income	
<\$10,000	21 (22.5%)
\$10,000-19,999	3 (3.2%)
\$20,000-29,999	8 (8.6%)
\$30,000-39,999	3 (3.2%)
\$40,000-49,999	17 (18.3%)
\$50,000-59,999	9 (9.7%)
\$60,000-99,999	13 (14.0%)
>\$100,000	6 (6.5%)
No answer	13 (14.0%)
Education	
Less than 12 th grade	9 (9.7%)
High school	23 (24.7%)
Undergraduate	17 (18.3%)
Graduate	20 (21.5%)
No answer	24 (25.8%)
Insurance	
Private	34 (36.6%)
Medicaid	20 (21.5%)
Medicare	12 (12.9%)
None	5 (5.4%)
No answer	22 (23.7%)

Table 2. Risk factors among screening participants.

Tobacco use	n (%)
Current	10 (10.8%)
Previous	19 (20.4%)
Never	62 (66.6%)
No answer	2 (2.2%)
Alcohol use	
≥1 drink/day or ≥5 drinks/week	8 (8.6%)
<1 drink/day	34 (36.6%)
Never	44 (47.3%)
No answer	7 (7.5%)
HPV infection	
Personal	3 (3.2%)
Partner	1 (1.1%)
Unsure	39 (41.9%)
No answer	50 (53.8%)
HPV vaccination	
Complete	16 (17.2%)
Incomplete	58 (62.4%)
No answer	19 (20.4%)
Sun exposure	
Outdoor work	26 (28.0%)
Sunbathing	5 (5.4%)
Tanning booth	4 (4.3%)
None	52 (55.9%)
No answer	8 (8.6%)

Figure 2. Symptoms reported by screening participants.

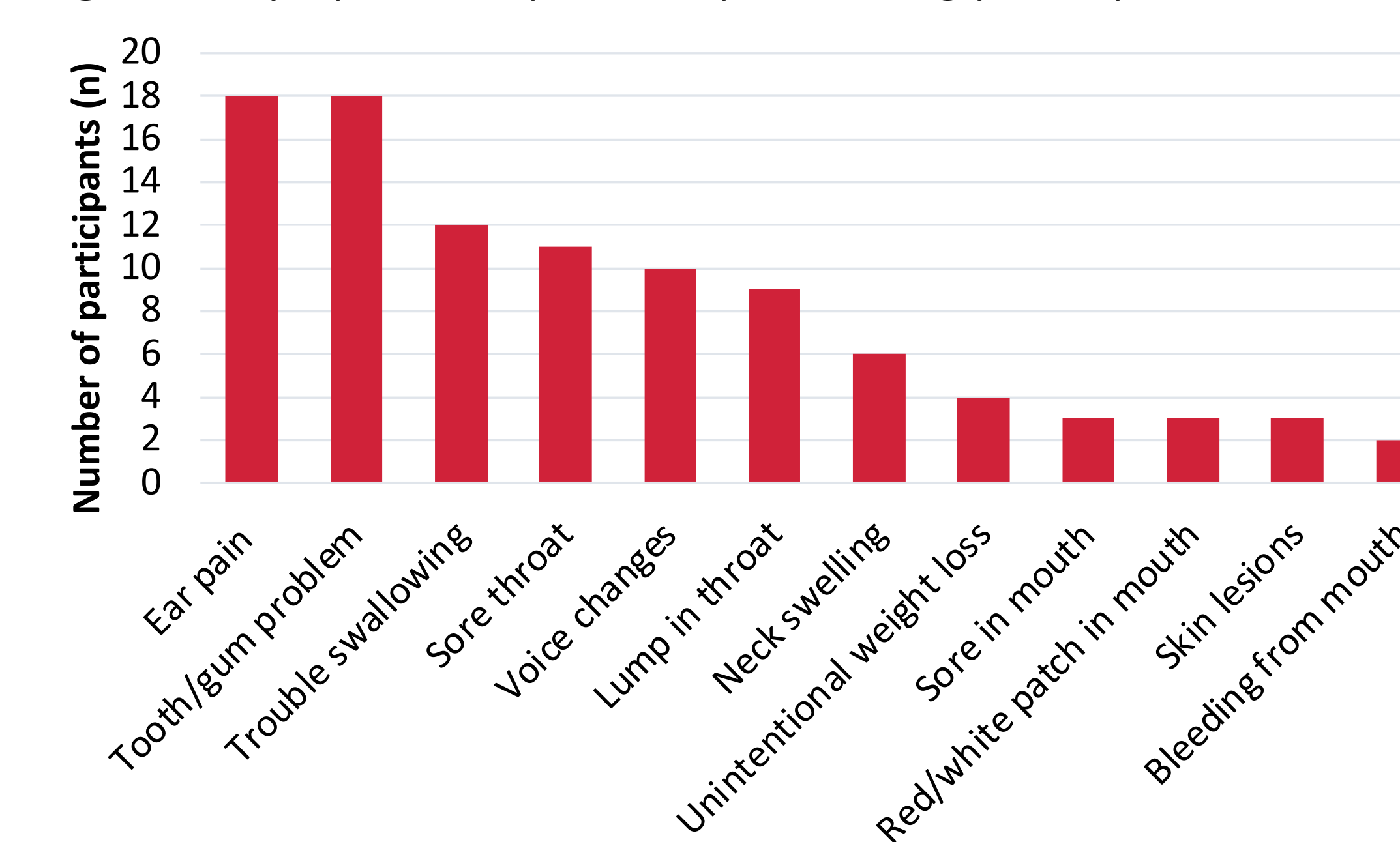


Table 3. Recommended dispositions of screening participants.

Recommended disposition	n (%)
Routine PCP follow up	53 (57%)
Non-ENT referral	15 (16.1%)
Non-urgent ENT follow up	13 (14.0%)
Urgent ENT follow up	3 (3.2%)

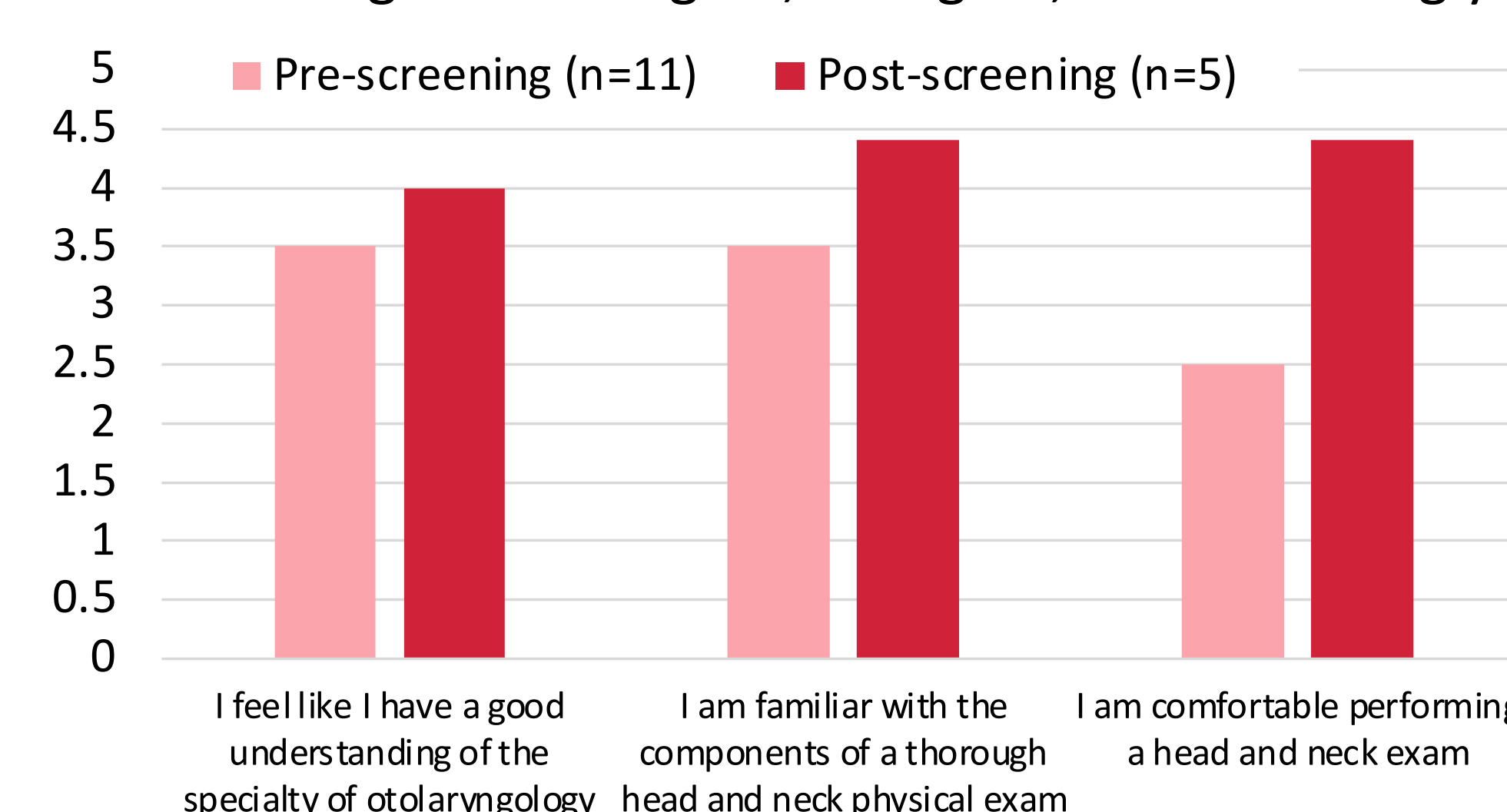
Table 4. COVID-19 related effects on participant health care utilization.

Effect of the COVID-19 pandemic	n (%)
Decreased doctor's appointment availability	24 (25.8%)
Caused preference for telehealth over in-person office appointments	21 (22.6%)
Presented a barrier to health care	13 (14.0%)
Discouraged seeking health care due to fear of catching COVID-19 in public areas	10 (10.8%)
Caused financial hardship that discouraged seeking health care	8 (8.6%)

Table 5. Methods of recruitment and motivational factors for attendance.

Methods of recruitment	n (%)
TV news	30 (32.3%)
Online	2 (2.2%)
Radio	2 (2.2%)
Print flyer	1 (1.1%)
Other	47 (50.5%)
No answer	11 (11.8%)
Motivational factors for attendance	
Interest in learning more about HNC	21 (22.6%)
Concern about having HNC	17 (18.3%)
Bothersome head and neck symptoms	12 (12.9%)
Having put off seeing a doctor or dentist	11 (11.8%)
Health insurance related concerns	1 (1.1%)
Other	28 (30.1%)
No answer	19 (20.4%)

Figure 3. Medical student agreement with questionnaire statements, rated using a 5-point Likert scale, with 1 = strongly disagree, 2 = disagree, 3 = neither agree or disagree, 4 = agree, and 5 = strongly agree).



DISCUSSION

- A majority (61.2%) identified as female, although HNC is more prevalent amongst males.¹⁰
- A majority (69.9%) identified as African American, which has been associated with increased HNC incidence and decreased relative 5-year survival.^{2,6-7}
- Income and education are common surrogates for SES,¹¹ which has been associated with increased HNC incidence and decreased overall survival.³
- 32 (34.4%) reported income less than the federal poverty income level for a family of four, approximately \$30,000.
- 32 (34.4%) reported less than an undergraduate education.
- 34 (36.6%) were privately insured, however those who are uninsured or insured by Medicaid are more likely to present with advanced stage and have decreased overall survival.⁴⁻⁵
- 10 (10.8%) reported current tobacco use, while 8 (8.6%) reported at least one drink per day.
- Community-based screening events at homeless shelters or churches have been found to recruit populations with higher likelihood of being uninsured, and higher tobacco and alcohol use.¹²⁻¹³
- Many participants were recruited through media, but community-based promotions may recruit more uninsured and low-income participants.¹⁴
- Similar to prior studies, the most reported motivation for attendance was interest in learning more about HNC in 21 (22.6%) participants.^{9,12-13} 68 (73.1%) participants reported increased awareness of HNC, and 67 (72.0%) increased knowledge of HNC risk factors following screening.
- Screening may motivate behavioral risk reduction, as 9 (9.7%) reported interest in smoking cessation.
- HNC screening events may enhance medical student education, providing otolaryngology exposure and increasing familiarity with the head and neck exam.

CONCLUSIONS

- A free community-based HNC screening event was feasible even during the COVID-19 pandemic.
- Media-based promotions may not necessarily recruit those at highest risk for HNC.
- HNC screening events provide an opportunity for education of both participants and medical students, improving awareness and knowledge of HNC.

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