



Screening Tools For Depression In Head And Neck Cancer Patients: A Scoping Review

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Introduction

- Depression rates among head and neck cancer (HNC) patients are reported between 3.7%-50%.¹⁻⁵
- Suicide rates among HNC patients are 3 times higher than the general population.⁶
- Many screening tools have not been validated in the HNC community.

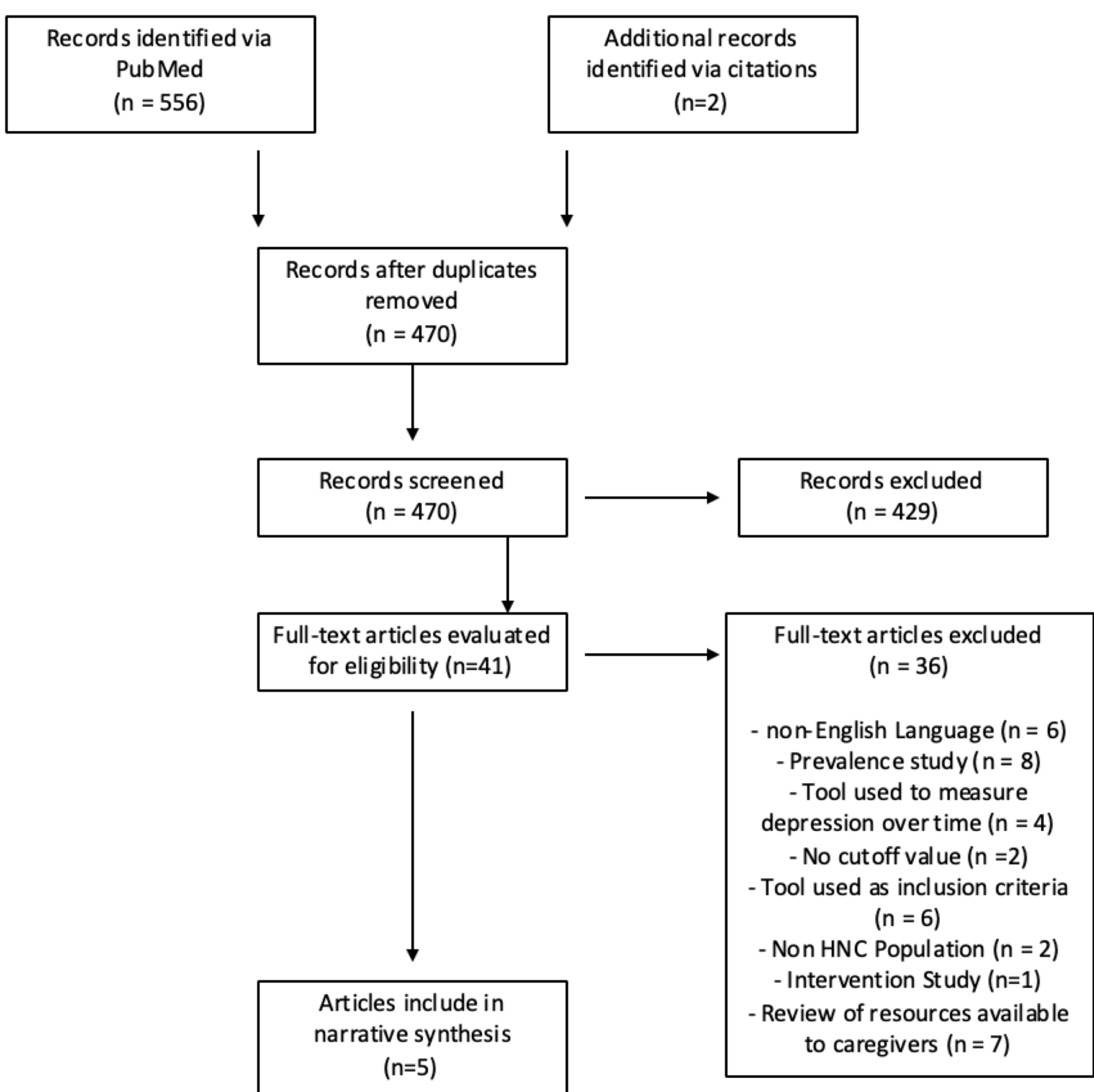
Research Question

- What are the available depression screening tools available that have been validated in the HNC population and how accurate are they at given cutoff values?

Methods and Materials

- PubMed/MEDLINE search was performed for studies published between January 1, 1950 and November 1, 2020
- Search terms included “screen(ing) OR (screening tools)” AND “depression” AND “head and neck cancer”.
- Reference lists from potentially eligible studies were evaluated for relevant citations.
- All titles and abstracts were reviewed by a single author (CP). A second reviewer (JW) screened 10% of titles and abstracts. Discrepancies were settled by consensus.
- Inclusion criteria
 - Studies describing a depression screening modality to screen for depression in HNC patients.
- Exclusion criteria
 - Thyroid studies were excluded.
 - Studies not describing validation of a screening tool in the HNC population
 - Non-English language studies were excluded.

Literature Search Flow Diagram



Results

- Five articles and seven depression screening tools were identified and included in final study.
- Screening tools discussed specifically in the context of HNC included:
 - Hospital Anxiety and Depression Scale (HADS) including total score (HADS-T) and depression subscale (HADS-D)**
 - Takes between two and five minutes to complete.
 - HADS-T scores ≥ 12 was shown to have a sensitivity, specificity, positive and negative predictive value of 100%, 95%, 0.86 and 1.00 respectively.⁷
 - HADS-D questions best guide the type of depressive mood disorder.
 - Center for Epidemiologic Studies Depression Scale (CES-D)**
 - Takes five minutes to complete.
 - Values above 16 and 17 provide reliable sensitivity (100%) for depressive symptoms in the HNC population.^{7,9}
 - Values above 17 yield specificity 85%, PPV 0.64 and NPV 1.00.⁷
 - Beck Depression Inventory (BDI)**
 - Takes 10 minutes to complete.
 - Sensitivity and specificity at a cutoff of 13 (92.0%, 90.0%).⁷
 - BDI had higher combination of sensitivity and specificity than QIDS-SR, UW-QoLv4, and DT.
 - Quick Inventory of Depressive Symptomatology-Self Report (QIDS-SR)**
 - Takes 5-10 minutes to complete.
 - A cutoff point of four provides a high sensitivity (94%) but a low specificity (43%).⁸
 - University of Washington Quality of Life Questionnaire – version 4 (UW-QoLv4)**
 - Takes 15 minutes to complete.
 - Found to have a sensitivity of 55% and specificity of 85%.¹⁰
 - Distress Thermometer (DT)**
 - Takes 3 minutes to complete.
 - Cutoff of 4 is recommended by the National Comprehensive Cancer Center guidelines as a marker of moderate-to-severe distress.
 - Mood was found to have a sensitivity and specificity of 78% and 71% respectively.¹¹

Scale Name	Study, first author	N	Patient population	Comparison Tool	Reliability	Cutoff	Sensitivity	Specificity	PPV	NPV
HADS – T	Katz ¹	60	Outpatient HNC, 38% with metastatic disease	Diagnostic Interview	-	12	1.00	.95	.86	1.00
HADS – D	Katz ⁷	60	Outpatient HNC, 38% with metastatic disease	Diagnostic Interview	-	5	1.00	.90	.69	1.00
BDI	Katz ⁷	60	Outpatient HNC, 38% with metastatic disease	Diagnostic Interview	-	13	0.92	0.90	0.69	0.98
CES – D	Katz ⁷	60	Outpatient HNC, 38% with metastatic disease	Diagnostic Interview	-	17	1.00	0.85	0.63	1.00
CES – D	Chhabria ⁹	116	Oropharyngeal and adjacent HNCs, pre-radiation	PDI, FACT-HN	$\alpha=0.85$	16	t = -15.84 p = 0.00	95% CI = -17.18, -13.33		
QIDS-SR	Panwar ⁸	125	Stage II – IV HNC	Diagnostic Interview	-	4	0.94	0.43	0.625	0.877
UW – QoLv4	Rogers ¹⁰	197	Oral/oropharyngeal SCC	HADS-T, CES-D	-	< 75	0.55	0.85	0.31	0.94
DT	Ghazali ¹¹	261	Post-treatment HNC	UW-QoLv4	-	≥ 4	0.78	0.71	0.29	0.95

Discussion

- Depression is associated with decreases in disease free survival, increased breaks during radiotherapy, increased hospital length of stay, and increase in chronic opioid use.^{12,13,14}
- The American Cancer Society Head and Neck Cancer Survivorship Guideline recommends head and neck cancer survivors should be screened for depression 3 months post treatment and at least annually thereafter.¹⁵
- Acceptable screening tools should have sufficiently high sensitivities and specificities (>85%) in addition to high positive and negative predictive values (>85%).
- HADS-T**
 - Has an acceptable sensitivity, specificity and PPVs at a cutoff score of 12.
 - Excludes questions relating to physical disorders that commonly affect HNC patients secondary to surgical and radiation treatments including dysphagia and fatigue.
 - An accurate screening tool that may correctly identify patients who may benefit from professional psychological help.
- CES-D**
 - A rapid test with acceptable sensitivity and specificity.
- BDI**
 - Recent study showed a decrease in disease-free and overall survival when using a cutoff of 14, demonstrating its utility in the HNC population.¹⁶
- QIDS-SR**
 - Suggested cutoff value may be too low.
 - While the sensitivity at this cutoff is acceptable (94%), the specificity (43%) would result in a high-false positive rate that may lead to unnecessary referrals, straining scarce resources.
 - More research into the optimal cutoff value of this test in the HNC population is warranted.
- QoL, DT and UW-QoLv4**
 - Are better at ruling out depression than identifying it.¹⁰

- Studies have shown many physicians have concerns that screening questionnaires are either too long, or too time consuming.^{17,18}

- A number of depression screening tools were not eligible for inclusion in our study because they have not been validated in HNC patients. Some examples include:
 - Zung self-rating depression scale
 - Patient Health Questionnaire – 9
 - Brief symptom inventory – 18
- These tools may offer some insight into the mental health of HNC patients, however, they potentially fail to identify concerns specific to the HNC patient population.

Conclusion

This review represents the available tools validated in HNC patients. Given the high incidence of depression in this group, coupled with data that demonstrates adverse outcomes in depressed patients, we hope this article will help clinicians determine how to screen their patients and when it is appropriate to refer to them to a mental health professional. In our review we found the HADS screening tool to be the most useful tool in screening for depression. It also has the benefit of being the least time consuming of screening tools validated for HNC survivors. Among depression screening tools used in oncology patients, there may be other tools that may be appropriate for HNC patients. More research is needed to validate the use of these tools in the HNC survivor population.

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