

Anxiety, Depression and Quality of Life Patient-Reported Outcome Measures in Testicular Cancer: A Systematic Review

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INTRODUCTION

- Several Patient-Reported Outcome Measures (PROMs) assessing Quality of Life (QoL), anxiety and depression are used in the multimodal treatment of testicular cancer (TCa).
- Most PROMs used have uncertain validation of their psychometric properties in a TC cohort.
- This systematic review aimed to critically evaluate and summarize the psychometric properties of all identified PROMs.

METHOD AND MATERIALS

- PubMed, EMBASE and PsycInfo were systematically searched by two independent reviewers from date of inception to December 2020.
- Evaluative studies that assessed psychometric properties of PROM tools used for measuring QoL, health-related QoL, anxiety and depression in testicular cancer patients were included
- The COSMIN updated criteria for good measurement properties were used in the analysis of PROM measurement property (PROSPERO Registration Number: CRD42020160232).

RESULTS

- 5 general and 2 testicular cancer specific PROMs were identified.
- Depression PROMs (n=2): Centre for Epidemiologic Studies Depression Scale; Hospital Anxiety and Depression Scale (HADS)
- Anxiety PROMs (n=2): HADS; Depression Anxiety Stress Scales 21
- QoL PROMs (n=4): European Organization for Research and Treatment of Cancer Quality -Testicular Cancer 27; Short Form-36 Version 2; Functional Assessment of Cancer Therapy General; Cancer Assessment for Young Adults-Testicular.
- All studies were incomplete in the validation of all nine measurement properties and the modal methodological quality was 'insufficient'.
- Internal consistency (reported using Cronbach's alpha) was the most analysed measurement property of PROM(s).

RESULTS

Figure 1: Study screening and selection; adapted from Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

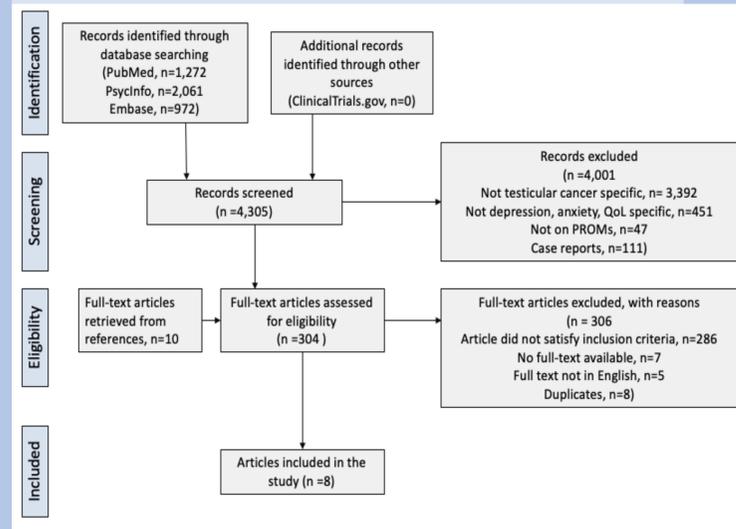


Table 2: PROM(s) validated in TCa: construct(s) measured, scoring system and sub-domains.

PROM(s) (n. of items)	Construct(s)	Scoring of items and sub-domains assessed within construct(s)
EORTC QLQ-TC26 (13)	QoL	Seven multi-item scales and six single items. Assesses treatment side effects and satisfaction, communication, sexual activity, functioning and emotional well-being, work/education, physical limitations, family problems, infertility, body image, testicular transplant satisfaction.
CAYA-T (90)	QoL	Scale item responses. Physical functioning, concentration/memory, self-care, education and work, social functioning, sexual relationships, emotional functioning (fear, preoccupation with illness, anxiety, depression).
CES-D (20)	Depression	4-point Likert scale rating symptom duration. Assesses disturbance to sleep and appetite, inattention, loneliness and social interaction, emotional disturbances.
FACT-G (7)	QoL	5-point Likert scale rating symptom severity. Assesses physical, social, emotional and functional well-being.
HADS (14)	Anxiety, depression	4-point scale rating symptom duration and severity, separate items for anxiety and depression. Assesses emotional well-being (fear, enjoyment, stress, panic) and physical well-being (self-neglect).
SF36 V2 (36)	QoL	Multi-item scales. Assesses physical health, emotional health (depression, anxiety, nervousness, fatigue, pain) and social health.
CAYA-T (90)	QoL	Scale item responses. Physical functioning, concentration/memory, self-care, education and work, social functioning, sexual relationships, emotional functioning (fear, preoccupation with illness, anxiety, depression).
DASS-21 (21)	Anxiety, depression	4-point scale, same items for anxiety and depression. Assesses emotional health, physical symptoms (mouth dryness, breathing difficulty, trembling, palpitations).

Table 1: Summary of PROM measurement properties assessed (COSMIN Criteria)

(? = indeterminate, + = sufficient, - = insufficient)
 † Scored 'sufficient' or 'insufficient' independently as internal consistency, but 'indeterminate' with structural

	PROM Instrument (no. of validation studies)	CAYA-T (1)	EORTC-QLQ TC26 (1)	CES-D (3)	FACT-G (1)	HADS-A (2)	HADS-D (2)	DASS21 (1)	SF-36 v2 (1)
Updated COSMIN Criteria for good measurement properties	Structural validity	+	+	?	?	?	?	?	?
	Internal consistency	+	-	?	?	?	?	?	?
	Reliability	+	-	?†	?†	?†	?†	?†	?†
	Measurement error	?	?	?	?	?	?	?	?
	Hypotheses testing for construct validity	+	+	?	?	?	?	?	?
	Cross-cultural validity	?	?	?	?	?	?	?	?
	Criterion validity	?	?	?	?	?	?	?	?
	Responsiveness	+	+	+	?	?	?	?	?
	Total PROM score	+	?	?	?	?	?	?	?
	GRADE Quality of Evidence	High	High	Low	Low	Low	Low	Low	Low

Abbreviations:
 CAYA-T, cancer assessment for young adults-testicular; CES-D, centre for epidemiologic studies depression scale; COSMIN, consensus-based standards for the selection of health measurement instruments; DASS-21, depression anxiety stress scales-21; EORTC QLQ-TC26, European organisation for research and treatment of cancer quality-testicular cancer 26; FACT-G, functional assessment of cancer therapy general; GRADE, grading of recommendations assessment development and evaluation; HADS-A, hospital anxiety and depression score-anxiety; HADS-D, hospital anxiety and depression score-depression; PROM, patient-reported outcome measure, SF-36V2, short form-36 version 2

CONCLUSIONS

- TCa patients often experience a complex set of psychological, social and physical morbidity.
- The Cancer Assessment for Young Adults-Testicular (CAYA-T) and European Organisation for Research and Treatment of Cancer Quality -Testicular Cancer 26 (EORTC QLQ-TC26) are the most appropriate QoL and HR-QoL PROMs for TCa patients.
- Future psychometric validation studies of depression and anxiety PROMs in a TCa cohort are recommended.

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