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Appendix 1. Detailed overview of the search strategy for PubMed and Scopus

	PubMed	Scopus
Population: cancer patients & survivors	("patient*"[MeSH Terms] OR "Survivors"[MeSH Terms] OR "Palliative Care"[MeSH Terms]) AND ("Neoplasms"[MeSH Terms] OR "Carcinoma"[MeSH Terms] OR "post-cancer"[Title/Abstract] OR "postcancer"[Title/Abstract])	((TITLE-ABS-KEY ("tumor*")) OR (TITLE-ABS-KEY ("neoplasm*")) OR (TITLE-ABS-KEY ("neoplasia*")) OR (TITLE-ABS-KEY ("cancer*")) OR (TITLE-ABS-KEY ("malignanc*")) OR (TITLE-ABS-KEY ("carcinoma*")) OR (TITLE-ABS-KEY ("postcancer")) OR (TITLE-ABS-KEY ("post-cancer"))) AND ((TITLE-ABS-KEY ("palliative care")) OR (TITLE-ABS-KEY ("palliative treatment*")) OR (TITLE-ABS-KEY ("palliative therap*")) OR (TITLE-ABS-KEY ("palliative surger*")) OR (TITLE-ABS-KEY ("palliative supportive care*")) OR (TITLE-ABS-KEY ("survivor*")) OR (TITLE-ABS-KEY ("patient*")))
Exposure: psychometric properties	AND ("instrument*"[Title/Abstract] OR "questionnaire*"[Title/Abstract] OR "measur*"[Title/Abstract] OR "rating*"[Title/Abstract] OR "computer*"[Title/Abstract] OR "digital*"[Title/Abstract] OR "computer-adaptive test*"[Title/Abstract] OR "computer adaptive test*"[Title/Abstract] OR "computer adaptive"[Title/Abstract] OR "computer-adaptive"[Title/Abstract] OR "computerized adaptive test*"[Title/Abstract] OR "computerised adaptive test*"[Title/Abstract] OR "CAT"[Title/Abstract]) AND ("chronbach*"[Title/Abstract] OR "cronbach*"[Title/Abstract] OR "psychometric properties"[Title/Abstract] OR "psychometr*"[Title/Abstract] OR "factor analysis"[Title/Abstract] OR "develop*"[Title/Abstract] OR "reliab*"[Title/Abstract] OR "valid*"[Title/Abstract] OR "translat*"[Title/Abstract] OR "cross-cultural"[Title/Abstract] OR "minimal clinically important difference*"[Title/Abstract] OR "minimal important change*"[Title/Abstract] OR "minimal important difference*"[Title/Abstract] OR "clinically meaningful change*"[Title/Abstract] OR "clinically meaningful difference*"[Title/Abstract] OR "responsiveness"[Title/Abstract])	AND ((TITLE-ABS-KEY ("questionnaire")) OR (TITLE-ABS-KEY ("questionnaires")) OR (TITLE-ABS-KEY ("instrument")) OR (TITLE-ABS-KEY ("instruments")) OR (TITLE-ABS-KEY ("rating")) OR (TITLE-ABS-KEY ("outcome measure")) OR (TITLE-ABS-KEY ("outcome measures")) OR (TITLE-ABS-KEY ("measurement tool")) OR (TITLE-ABS-KEY ("measurement tools")) OR (TITLE-ABS-KEY ("computer-based")) OR (TITLE-ABS-KEY ("digital")) OR (TITLE-ABS-KEY ("computer adaptive test*")) OR (TITLE-ABS-KEY ("computer-adaptive test*")) OR (TITLE-ABS-KEY ("computer-adaptive")) OR (TITLE-ABS-KEY ("computer adaptive")) OR (TITLE-ABS-KEY ("computerized adaptive test*")) OR (TITLE-ABS-KEY ("computerised adaptive test*")) OR (TITLE-ABS-KEY ("cat"))) AND (TITLE-ABS-KEY ("chronbach*")) OR (TITLE-ABS-KEY ("cronbach*")) OR (TITLE-ABS-KEY ("psychometric properties")) OR (TITLE-ABS-KEY ("psychometric analysis")) OR (TITLE-ABS-KEY ("psychometric evaluation")) OR (TITLE-ABS-KEY ("psychometric characteristics")) OR (TITLE-ABS-KEY ("factor analysis")) OR (TITLE-ABS-KEY ("reliability")) OR (TITLE-ABS-KEY ("reliable")) OR (TITLE-ABS-KEY ("validity")) OR (TITLE-ABS-KEY ("valid")) OR (TITLE-ABS-KEY ("validation")) OR (TITLE-ABS-KEY ("minimal clinically important difference*")) OR (TITLE-ABS-KEY ("clinically meaningful change*")) OR (TITLE-ABS-KEY ("clinically meaningful difference*")) OR (TITLE-ABS-KEY ("responsiveness")) OR (TITLE-ABS-KEY ("minimal important change*")) OR (TITLE-ABS-KEY ("minimal important difference*")) OR (TITLE-ABS-KEY ("translation")) OR (TITLE-ABS-KEY ("translated")) OR (TITLE-ABS-KEY ("cross-cultural")) OR (TITLE-ABS-KEY ("development")))
Outcome: Health-related Quality of Life	AND ("quality of life"[MeSH Terms] OR "perceived health"[Text Word] OR "health status"[Text Word] OR "life satisfaction"[Text Word] OR "well-being"[Text Word] OR "wellbeing"[Text Word] OR "patient reported outcome measures"[MeSH Terms])	AND (TITLE-ABS-KEY ("quality of life")) OR (TITLE-ABS-KEY ("life quality")) OR (TITLE-ABS-KEY ("patient-reported outcome*")) OR (TITLE-ABS-KEY ("hrqol")) OR (TITLE-ABS-KEY ("patient reported outcome*")) OR (TITLE-ABS-KEY ("perceived health")) OR (TITLE-ABS-KEY ("health status")) OR (TITLE-ABS-KEY ("well-being")) OR (TITLE-ABS-KEY ("wellbeing"))
Exclusion string Terwee et al. 2009 + English filter	AND (english[Filter]) NOT (''addresses''[Publication Type] OR ''biography''[Publication Type] OR ''case reports''[Publication Type] OR ''comment''[Publication Type] OR ''directory''[Publication Type] OR ''editorial''[Publication Type] OR ''festschrift''[Publication Type] OR ''interview''[Publication Type] OR ''lectures''[Publication Type] OR ''legal cases''[Publication Type] OR ''legislation''[Publication Type] OR ''letter''[Publication Type] OR ''news''[Publication Type] OR ''newspaper article''[Publication Type] OR ''patient education handout''[Publication Type] OR ''popular works''[Publication Type] OR ''congresses''[Publication Type] OR ''consensus development conference''[Publication Type] OR ''consensus development conference, nih''[Publication Type] OR ''practice guideline''[Publication Type]) NOT (''animals''[MeSH Terms] NOT ''humans''[MeSH	AND (LIMIT TO (LANGUAGE , "english")) AND (EXCLUDE (DOCTYPE , "le") OR EXCLUDE (DOCTYPE , "ed")) AND (EXCLUDE (DOCTYPE , "cp"))

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Terms])

Appendix 2. List of European and associated countries

European and associated countries		
Albania	Germany	North-Macedonia
Andorra	Greece	Norway
Armenia	Hungary	Portugal
Austria	Iceland	Romania
Azerbaijan	Ireland	Russia
Belarus	Italy	San Marino
Belgium	Kazakhstan	Serbia
Bulgaria	Latvia	Slovenia
Croatia	Liechtenstein	Slovakia
Cyprus	Lithuania	Spain
Czechia	Luxembourg	Sweden
Denmark	Malta	Switzerland
Estonia	Moldavia	Turkey
Finland	Monaco	Ukraine
France	Montenegro	United Kingdom
Georgia	Netherlands	Vatican City

Appendix 3. Additional search strategy for European validation papers

1. STEP 1:

- Define entry terms for the SPECIFIC QUESTIONNAIRE:
    o Full name (make sure to enter all the different spelling options)
    o Acronym (make sure to enter all the different spelling options)

Example:

EORTC-QLQ-C30	"European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Core 30"
	EORTC-QLQ-C30
	EORTC QLQ-C30
	EORTC QLQ C30
	QLQ C30

- Combine all the entry terms with OR-function:
    o ("European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Core 30") OR (eortc-qlq-c30)) OR (eortc qlq-c30)) OR (eortc qlq c30)) OR (qlq c30)

2. STEP 2:

- Enter search string for POPULATION:
    o ("patient*"[MeSH Terms] OR "Survivors"[MeSH Terms] OR "Palliative Care"[MeSH Terms]) AND ("Neoplasms"[MeSH Terms] OR "Carcinoma"[MeSH Terms] OR "post-cancer"[Title/Abstract] OR "postcancer"[Title/Abstract])
- Enter search string for PSYCHOMETRIC PROPERTIES:
    o ("instrument*"[Title/Abstract] OR "questionnaire*"[Title/Abstract] OR "measur*"[Title/Abstract] OR "rating*"[Title/Abstract] OR "computer*"[Title/Abstract] OR "digital*"[Title/Abstract] OR "computer-adaptive test*"[Title/Abstract] OR "computer adaptive test*"[Title/Abstract] OR "computer adaptive"[Title/Abstract] OR "computer-adaptive"[Title/Abstract] OR "computerized adaptive test*"[Title/Abstract] OR "computerised adaptive test*"[Title/Abstract] OR "CAT"[Title/Abstract]) AND ("chronbach*"[Title/Abstract] OR "cronbach*"[Title/Abstract] OR "psychometric properties"[Title/Abstract] OR "psychometr*"[Title/Abstract] OR "factor analysis"[Title/Abstract] OR "develop*"[Title/Abstract] OR "reliab*"[Title/Abstract] OR "valid*"[Title/Abstract] OR "translat*"[Title/Abstract] OR "cross-cultural"[Title/Abstract] OR "minimal clinically important difference*"[Title/Abstract] OR "minimal important change*"[Title/Abstract] OR "minimal important difference*"[Title/Abstract] OR "clinically meaningful change*"[Title/Abstract] OR "clinically meaningful difference*"[Title/Abstract] OR "responsiveness"[Title/Abstract])

3. STEP 3:

- Combine search strings of POPULATION, PSYCHOMETRIC PROPERTIES and SPECIFIC QUESTIONNAIRE with the AND-function:
    o ((((((("European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Core 30") OR (eortc-qlq-c30)) OR (eortc qlq-c30)) OR (eortc qlq c30)) OR (qlq c30)) AND (("instrument*"[Title/Abstract] OR "questionnaire*"[Title/Abstract] OR "measur*"[Title/Abstract] OR "rating*"[Title/Abstract] OR "computer*"[Title/Abstract] OR "digital*"[Title/Abstract] OR "computer-adaptive test*"[Title/Abstract] OR "computer adaptive test*"[Title/Abstract] OR "computer adaptive"[Title/Abstract] OR "computer-

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adaptive"[Title/Abstract] OR "computerized adaptive test*"[Title/Abstract] OR "computerised adaptive test*"[Title/Abstract] OR "CAT"[Title/Abstract]) AND ("chronbach*"[Title/Abstract] OR "cronbach*"[Title/Abstract] OR "psychometric properties"[Title/Abstract] OR "psychometr*"[Title/Abstract] OR "factor analysis"[Title/Abstract] OR "develop*"[Title/Abstract] OR "reliab*"[Title/Abstract] OR "valid*"[Title/Abstract] OR "translat*"[Title/Abstract] OR "cross-cultural"[Title/Abstract] OR "minimal clinically important difference*"[Title/Abstract] OR "minimal important change*"[Title/Abstract] OR "minimal important difference*"[Title/Abstract] OR "clinically meaningful change*"[Title/Abstract] OR "clinically meaningful difference*"[Title/Abstract] OR "responsiveness"[Title/Abstract])) AND (("patient*"[MeSH Terms] OR "Survivors"[MeSH Terms] OR "Palliative Care"[MeSH Terms]) AND ("Neoplasms"[MeSH Terms] OR "Carcinoma"[MeSH Terms] OR "post-cancer"[Title/Abstract] OR "postcancer"[Title/Abstract]))

4. STEP 4:

- Find search string (which is used to gather the articles for our systematic review but remove English filter)
  - ((((("instrument*"[Title/Abstract] OR "questionnaire*"[Title/Abstract] OR "measur*"[Title/Abstract] OR "rating*"[Title/Abstract] OR "computer*"[Title/Abstract] OR "digital*"[Title/Abstract] OR "computer-adaptive test*"[Title/Abstract] OR "computer adaptive test*"[Title/Abstract] OR "computer adaptive"[Title/Abstract] OR "computer-adaptive"[Title/Abstract] OR "computerized adaptive test*"[Title/Abstract] OR "computerised adaptive test*"[Title/Abstract] OR "CAT"[Title/Abstract]) AND ("chronbach*"[Title/Abstract] OR "cronbach*"[Title/Abstract] OR "psychometric properties"[Title/Abstract] OR "psychometr*"[Title/Abstract] OR "factor analysis"[Title/Abstract] OR "develop*"[Title/Abstract] OR "reliab*"[Title/Abstract] OR "valid*"[Title/Abstract] OR "translat*"[Title/Abstract] OR "cross-cultural"[Title/Abstract] OR "minimal clinically important difference*"[Title/Abstract] OR "minimal important change*"[Title/Abstract] OR "minimal important difference*"[Title/Abstract] OR "clinically meaningful change*"[Title/Abstract] OR "clinically meaningful difference*"[Title/Abstract] OR "responsiveness"[Title/Abstract])) AND ("quality of life"[MeSH Terms] OR "perceived health"[Text Word] OR "health status"[Text Word] OR "life satisfaction"[Text Word] OR "well-being"[Text Word] OR "wellbeing"[Text Word] OR "patient reported outcome measures"[MeSH Terms])) AND (("patient*"[MeSH Terms] OR "Survivors"[MeSH Terms] OR "Palliative Care"[MeSH Terms]) AND ("Neoplasms"[MeSH Terms] OR "Carcinoma"[MeSH Terms] OR "post-cancer"[Title/Abstract] OR "postcancer"[Title/Abstract])) AND (english[Filter])) NOT (("animals"[MeSH Terms] NOT "humans"[MeSH Terms]))) NOT (((("instrument*"[Title/Abstract] OR "questionnaire*"[Title/Abstract] OR "measur*"[Title/Abstract] OR "rating*"[Title/Abstract] OR "computer*"[Title/Abstract] OR "digital*"[Title/Abstract] OR "computer-adaptive test*"[Title/Abstract] OR "computer adaptive test*"[Title/Abstract] OR "computer adaptive"[Title/Abstract] OR "computer-adaptive"[Title/Abstract] OR "computerized adaptive test*"[Title/Abstract] OR "computerised adaptive test*"[Title/Abstract] OR "CAT"[Title/Abstract]) AND ("chronbach*"[Title/Abstract] OR "cronbach*"[Title/Abstract] OR "psychometric properties"[Title/Abstract] OR "psychometr*"[Title/Abstract] OR "factor analysis"[Title/Abstract] OR "develop*"[Title/Abstract] OR "reliab*"[Title/Abstract] OR "valid*"[Title/Abstract] OR "translat*"[Title/Abstract] OR "cross-cultural"[Title/Abstract] OR "minimal clinically important difference*"[Title/Abstract] OR "minimal important change*"[Title/Abstract] OR "minimal important difference*"[Title/Abstract] OR "clinically meaningful change*"[Title/Abstract] OR "clinically meaningful difference*"[Title/Abstract] OR "responsiveness"[Title/Abstract])) AND ("quality of life"[MeSH Terms] OR "perceived health"[Text Word] OR "health status"[Text Word] OR "life satisfaction"[Text Word] OR "well-being"[Text Word] OR "wellbeing"[Text Word] OR "patient reported outcome

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measures"[MeSH Terms])) AND (("patient*"[MeSH Terms] OR "Survivors"[MeSH Terms] OR "Palliative Care"[MeSH Terms]) AND ("Neoplasms"[MeSH Terms] OR "Carcinoma"[MeSH Terms] OR "post-cancer"[Title/Abstract] OR "postcancer"[Title/Abstract])) AND ((address[Filter] OR biography[Filter] OR casereports[Filter] OR comment[Filter] OR congress[Filter] OR consensusdevelopmentconference[Filter] OR consensusdevelopmentconferencenih[Filter] OR directory[Filter] OR editorial[Filter] OR festschrift[Filter] OR interview[Filter] OR lecture[Filter] OR legalcase[Filter] OR legislation[Filter] OR letter[Filter] OR news[Filter] OR newspaperarticle[Filter] OR patienteducationhandout[Filter] OR practiceguideline[Filter])))

5. **STEP 5:**

- Combine search string of STEP 3 (POPULATION AND PSYCHOMETRIC PROPERTIES AND SPECIFIC QUESTIONNAIRE) and STEP 4 (ENTIRE search string) with NOT-function:
  - (((((((("European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Core 30") OR (eortc-qlq-c30)) OR (eortc qlq-c30)) OR (eortc qlq c30)) OR (qlq c30)) AND (("instrument*"[Title/Abstract] OR "questionnaire*"[Title/Abstract] OR "measur*"[Title/Abstract] OR "rating*"[Title/Abstract] OR "computer*"[Title/Abstract] OR "digital*"[Title/Abstract] OR "computer-adaptive test*"[Title/Abstract] OR "computer adaptive test*"[Title/Abstract] OR "computer adaptive"[Title/Abstract] OR "computer-adaptive"[Title/Abstract] OR "computerized adaptive test*"[Title/Abstract] OR "computerised adaptive test*"[Title/Abstract] OR "CAT"[Title/Abstract]) AND ("chronbach*"[Title/Abstract] OR "cronbach*"[Title/Abstract] OR "psychometric properties"[Title/Abstract] OR "psychometr*"[Title/Abstract] OR "factor analysis"[Title/Abstract] OR "develop*"[Title/Abstract] OR "reliab*"[Title/Abstract] OR "valid*"[Title/Abstract] OR "translat*"[Title/Abstract] OR "cross-cultural"[Title/Abstract] OR "minimal clinically important difference*"[Title/Abstract] OR "minimal important change*"[Title/Abstract] OR "minimal important difference*"[Title/Abstract] OR "clinically meaningful change*"[Title/Abstract] OR "clinically meaningful difference*"[Title/Abstract] OR "responsiveness"[Title/Abstract]))) AND (("patient*"[MeSH Terms] OR "Survivors"[MeSH Terms] OR "Palliative Care"[MeSH Terms]) AND ("Neoplasms"[MeSH Terms] OR "Carcinoma"[MeSH Terms] OR "post-cancer"[Title/Abstract] OR "postcancer"[Title/Abstract]))) NOT ((((((("instrument*"[Title/Abstract] OR "questionnaire*"[Title/Abstract] OR "measur*"[Title/Abstract] OR "rating*"[Title/Abstract] OR "computer*"[Title/Abstract] OR "digital*"[Title/Abstract] OR "computer-adaptive test*"[Title/Abstract] OR "computer adaptive test*"[Title/Abstract] OR "computer adaptive"[Title/Abstract] OR "computer-adaptive"[Title/Abstract] OR "computerized adaptive test*"[Title/Abstract] OR "computerised adaptive test*"[Title/Abstract] OR "CAT"[Title/Abstract]) AND ("chronbach*"[Title/Abstract] OR "cronbach*"[Title/Abstract] OR "psychometric properties"[Title/Abstract] OR "psychometr*"[Title/Abstract] OR "factor analysis"[Title/Abstract] OR "develop*"[Title/Abstract] OR "reliab*"[Title/Abstract] OR "valid*"[Title/Abstract] OR "translat*"[Title/Abstract] OR "cross-cultural"[Title/Abstract] OR "minimal clinically important difference*"[Title/Abstract] OR "minimal important change*"[Title/Abstract] OR "minimal important difference*"[Title/Abstract] OR "clinically meaningful change*"[Title/Abstract] OR "clinically meaningful difference*"[Title/Abstract] OR "responsiveness"[Title/Abstract])) AND ("quality of life"[MeSH Terms] OR "perceived health"[Text Word] OR "health status"[Text Word] OR "life satisfaction"[Text Word] OR "well-being"[Text Word] OR "wellbeing"[Text Word] OR "patient reported outcome measures"[MeSH Terms])) AND (("patient*"[MeSH Terms] OR "Survivors"[MeSH Terms] OR "Palliative Care"[MeSH Terms]) AND ("Neoplasms"[MeSH Terms] OR "Carcinoma"[MeSH Terms] OR "post-cancer"[Title/Abstract] OR "postcancer"[Title/Abstract])) AND (english[Filter])) NOT ((''animals''[MeSH Terms] NOT ''humans''[MeSH Terms]))) NOT (((("instrument*"[Title/Abstract] OR "questionnaire*"[Title/Abstract] OR

"measur*"[Title/Abstract] OR "rating*"[Title/Abstract] OR "computer*"[Title/Abstract] OR "digital*"[Title/Abstract] OR "computer-adaptive test*"[Title/Abstract] OR "computer adaptive test*"[Title/Abstract] OR "computer adaptive"[Title/Abstract] OR "computer-adaptive"[Title/Abstract] OR "computerized adaptive test*"[Title/Abstract] OR "computerised adaptive test*"[Title/Abstract] OR "CAT"[Title/Abstract]) AND ("chronbach*"[Title/Abstract] OR "cronbach*"[Title/Abstract] OR "psychometric properties"[Title/Abstract] OR "psychometr*"[Title/Abstract] OR "factor analysis"[Title/Abstract] OR "develop*"[Title/Abstract] OR "reliab*"[Title/Abstract] OR "valid*"[Title/Abstract] OR "translat*"[Title/Abstract] OR "cross-cultural"[Title/Abstract] OR "minimal clinically important difference*"[Title/Abstract] OR "minimal important change*"[Title/Abstract] OR "minimal important difference*"[Title/Abstract] OR "clinically meaningful change*"[Title/Abstract] OR "clinically meaningful difference*"[Title/Abstract] OR "responsiveness"[Title/Abstract])) AND ("quality of life"[MeSH Terms] OR "perceived health"[Text Word] OR "health status"[Text Word] OR "life satisfaction"[Text Word] OR "well-being"[Text Word] OR "wellbeing"[Text Word] OR "patient reported outcome measures"[MeSH Terms])) AND (("patient*"[MeSH Terms] OR "Survivors"[MeSH Terms] OR "Palliative Care"[MeSH Terms]) AND ("Neoplasms"[MeSH Terms] OR "Carcinoma"[MeSH Terms] OR "post-cancer"[Title/Abstract] OR "postcancer"[Title/Abstract])) AND ((address[Filter] OR biography[Filter] OR casereports[Filter] OR comment[Filter] OR congress[Filter] OR consensusdevelopmentconference[Filter] OR consensusdevelopmentconferencenih[Filter] OR directory[Filter] OR editorial[Filter] OR festschrift[Filter] OR interview[Filter] OR lecture[Filter] OR legalcase[Filter] OR legislation[Filter] OR letter[Filter] OR news[Filter] OR newspaperarticle[Filter] OR patienteducationhandout[Filter] OR practiceguideline[Filter]))))

6. **STEP 6: Apply "English" filter**

7. **STEP 7: Assess and screen articles for the predefined in- and exclusion criteria**

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Appendix 4. Overview of the data extraction for the PROMs measurement properties

Measurement property	Data extracted
Development/ Content validity	- Level of analysis: scale/subscale - Methodological approach for concept elicitation, PROM design, relevance, comprehensiveness and comprehensibility
Structural validity/ Unidimensionality	- Level of analysis: scale/subscale - Statistical approach and related sample size: EFA, CFA or IRT - Final model and fit indexes: CFI, TLI, RMSEA (90%CI) SRMR or WRMR
Internal consistency	- Level of analysis: scale/subscale - Statistical approach and related sample size - Internal consistency reliability coefficients: Cronbach alpha, McDonald Omega, KR-20, SE(θ)
Cross-cultural validity/ Measurement invariance	- Level of analysis: scale/subscale - Statistical approach and related sample size - Group variable under investigation (e.g. country, age, gender,...) with its observed differences
Reliability	- Level of analysis: scale/subscale - Statistical approach and related sample size - Type of reliability: test-retest, inter-rater, intra-rater, parallel forms - Correlation coefficients: ICC, Spearman, Pearson, Kappa or weighted Kappa
Measurement error	- Level of analysis: scale/subscale - Statistical approach and related sample size - Standard Error of Measurement, Limits of Agreement, Smallest Detectable Change, Minimal Important Change
Construct validity with other PROM	- Level of analysis: scale/subscale - Statistical approach and related sample size - Comparator + formulated hypotheses - Correlation coefficients or effect sizes
Convergent/ divergent validity within PROM	- Level of analysis: scale/subscale - Statistical approach and related sample size - Formulated hypotheses - Correlation coefficients
Known-group comparison	- Level of analysis: scale/subscale - Statistical approach and related sample size - Formulated hypotheses - Group variable + defined subgroups with observed differences

Abbreviations: CFA = Confirmatory Factor Analysis; CFI = Comparative Fit Index; IRT = Item Response Theory; RMSEA = Root Mean Square Error of Approximation; SDC = Smallest Detectable Change; SRMR: Standardized Root Mean Residuals; TLI: Tucker-Lewis Index; WRMR: Weighted Root Mean Residuals

Appendix 5: Overview of adjustments made to the Risk of Bias rating of COSMIN Guidelines

Psychometric property	Criteria	Adjustment made
PROM development (Box 1)	23	Inadequate rating was removed from the response options.
	25	Adequate and doubtful rating were removed from the response options.
	26	Doubtful rating was removed and inadequate was defined as "NO or not clear (SKIP items 27-35)".
	35	Adequate and doubtful rating were removed from the response options.
Content validity (Box 2)	6	Inadequate rating was removed from the response options.
	13	Inadequate rating was removed from the response options.
	20	Inadequate rating was removed from the response options.
	25	Inadequate rating was removed from the response options.
	30	Inadequate rating was removed from the response options.
Structural validity (Box 3)	2	Adequate rating was removed from the response options.
Internal consistency (Box 4)	5	Criteria 5 was removed from the Risk of bias assessment.
Cross-cultural validity & Measurement invariance (Box 5)	4	Criteria 4 was removed from the Risk of bias assessment.
Reliability (Box 6)	1-3	Not applicable rating was added to the response options.
Measurement error (Box 7)	6	Adequate rating was removed from the response options.
Construct validity (with other PROM) (hypothesis testing) (Box 9.a)	4	Inadequate rating was removed from the response options.
	1-4	Not applicable rating was added to the response options.
Construct validity (Known-group comparison) (Box 9.b)	7	Inadequate rating was removed from the response options.
	5-7	Not applicable rating was added to the response options.
Construct validity (convergent & divergent validity)	1	Criteria 3 of Box 9.a was introduced.

Appendix 6: The 10 criteria for good content validity

		PROM development study		Content validity study		Rating of reviewers
1	+	Construct of interest is clearly described **(criterion 1 of box 1A = very good) AND** origin of construct is clear **(criterion 2 of box 1A = very good) AND** the is evidence from concept elicitation, literature or professionals that ≥85% of the items refer to construct of interest	+	Professionals rated the relevance of items for the construct of interest as sufficient **(criteria 22-26 of box 2D = very good, adequate or doubtful)** and found ≥85% of the items relevant for the construct	+	Reviewers consider ≥85% of the items relevant for the construct of interest
	-	Quality is inadequate (≥1 of the 3 (+)-criteria is not fulfilled)	-	Professionals were not involved in the content validity study OR rated <85% of the items of the PROM relevant for the construct	-	Reviewers consider <85% of the items relevant for the construct of interest
	?	No(t enough) information available to score a (+) or (-)	?	No(t enough) information available to score a (+) or (-)		
2	+	Target population of interest is clearly described **(criterion 3 of box 1A = very good) AND** representative patients were involved in the elicitation of relevant items **(criterion 5 of box 1A = very good or adequate) AND** concept elicitation was not inadequate **(criteria 6-13 of box 1A = very good, adequate or doubtful)**	+	Patients rated the relevance of items for the construct of interest as sufficient **(criteria 1-7 of box 2A = very good, adequate or doubtful)** and found ≥85% of the items relevant for them	+	Reviewers consider ≥85% of the items relevant for the population of interest
	-	Quality is inadequate (≥1 of the 3 (+)-criteria is not fulfilled)	-	Patients were not involved in the content validity study OR rated <85% of the items of the PROM relevant for them	-	Reviewers consider <85% of the items relevant for the population of interest
	?	No(t enough) information available to score a (+) or (-) OR doubtful whether study was performed in a sample representing the target population	?	No(t enough) information available to score a (+) or (-)		
3	+	The context of use of interest is clearly described **(criterion 4 of box 1A = very good)**	+	Professionals rated the relevance of items for the context of use as sufficient **(criteria 22-26 of box 2D = very good, adequate or doubtful)** and found ≥85% of the items relevant for the context of use	+	Reviewers consider ≥85% of the items relevant for the context of use of interest
	-	The context of use of interest is not clearly described **(criterion 4 of box 1A = doubtful)**	-	Professionals were not involved in the content validity study OR rated <85% of the items of the PROM relevant for the context of use	-	Reviewers consider <85% of the items relevant for the context of use of interest
	?	No(t enough) information available to score a (+) or (-)	?	No(t enough) information available to score a (+) or (-)		
4	+	A justification is provided for the response options	+	Patients or professionals rated the appropriateness of the response options as sufficient **(criteria 1-7 of box 2A or criteria 22-26 of box 2D = very good, adequate or doubtful)** and found ≥85% of the response options relevant	+	Reviewers consider ≥85% of the response options appropriate for the construct, population, and context of use of interest
	-	No justification was provided for the response options	-	Patients or professionals were not involved in the content validity study OR rated <85% of the response options of the PROM relevant	-	Reviewers consider <85% of the response options appropriate for the construct, population, and context of use of interest
	?	No(t enough) information available to score a (+) or (-)	?	No(t enough) information available to score a (+) or (-)		
5	+	A justification is provided for the recall period	+	Patients or professionals rated the appropriateness of the recall period as sufficient **(criteria 1-7 of box 2A or criteria 22-26 of box 2D = very good, adequate or doubtful)** and found the recall period relevant	+	Reviewers consider the recall period appropriate for the construct, population and context of use of interest for **≥85% of the items**.
	-	No justification is provided for the recall period	-	Patients or professionals were not involved in the content validity study OR rated the recall period for <85% of the items of the PROM relevant	-	Reviewers consider the recall period **only partially** (<85% of the items) **OR not** appropriate for the construct, population and context of use of interest.
	?	No(t enough) information available to score a (+) or (-)	?	No(t enough) information available to score a (+) or (-)		
6	+	Patients were asked about the comprehensiveness of the PROM in concept elicitation phase or cognitive interview	+	Patients or professionals were asked about the comprehensiveness of the PROM **(criteria 8-14 of box 2B or**	+	Reviewers consider the PROM **comprehensive** for the construct, population and context of use of interest for **≥85%**

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		(criteria 6-13 of box 1A or criteria 26-35 of box 1B = very good, adequate or doubtful) AND no key concepts were missing		**criteria 27-31 of box 2E = very good, adequate or doubtful) AND** no key concepts were missing		**of the items**.
	-	Quality is inadequate (≥1 of the 2 (+)-criteria is not fulfilled)	-	Patients or professionals were not involved in the content validity study OR quality is inadequate (≥1 of the 2 (+)-criteria is not fulfilled)	-	Reviewers consider the PROM **only partially** (<85% of the items) **OR not comprehensive** for the construct, population and context of use of interest comprehensive (<85% of the items)
	?	No(t enough) information available to score a (+) or (-)	?	No(t enough) information available to score a (+) or (-)		
7	+	Patients were asked about the comprehensibility of the instructions (including recall period) in cognitive interview **(criteria 16-25 of box 1B = very good, adequate or doubtful) AND** problems were adequately addressed	+	Patients were asked about the comprehensibility of the instructions (including recall period) **(criteria 15-21 of box 2C = very good, adequate or doubtful) AND** no important problems were found	+	
	-	Quality is inadequate (≥1 of the 2 (+)-criteria is not fulfilled)	-	Patients were not involved in the content validity study OR quality is inadequate (≥1 of the 2 (+)-criteria is not fulfilled)	-	
	?	No(t enough) information available to score a (+) or (-)	?	No(t enough) information available to score a (+) or (-)		
8	+	Patients were asked about the comprehensibility of the items and response options (including wording of items and response options) in cognitive interview **(criteria 16-25 of box 1B = very good, adequate or doubtful) AND** problems were adequately addressed	+	Patients were asked about the comprehensibility of the items and response options (including wording of items and response options) **(criteria 15-21 of box 2C = very good, adequate or doubtful) AND** no important problems were found for ≥85% of the items and response options	+	
	-	Quality is inadequate (≥1 of the 2 (+)-criteria is not fulfilled)	-	Patients were not involved in the content validity study OR quality is inadequate (≥1 of the 2 (+)-criteria is not fulfilled)	-	
	?	No(t enough) information available to score a (+) or (-)	?	No(t enough) information available to score a (+) or (-)		
9	+		+		+	Reviewers consider ≥85% of the items and response options appropriately worded
	-		-		-	Reviewers consider <85% of the items and response options appropriately worded
	?		?			
10	+		+		+	Reviewers consider ≥85% of the response options matching the questions
	-		-		-	Reviewers consider <85% of the response options matching the questions
	?		?			

Supplemental material

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Appendix 7: Calculation of the overall relevance, comprehensiveness and comprehensibility rating per study

		PROM development		Content validity		Reviewer rating
Relevance rating	+	Criteria 1 and 2 are rated sufficient (+) AND ≥2 of remaining 3 items are rated sufficient (+)	+	Criteria 1 and 2 are rated sufficient (+) AND ≥2 of remaining 3 items are rated sufficient (+)	+	Criteria 1 and 2 are rated sufficient (+) AND ≥2 of remaining 3 items are rated sufficient (+)
	-	Criteria 1 and 2 are rated insufficient (-) AND ≥2 of remaining 3 items are rated insufficient (-)	-	Criteria 1 and 2 are rated insufficient (-) AND ≥2 of remaining 3 items are rated insufficient (-)	-	Criteria 1 and 2 are rated insufficient (-) AND ≥2 of remaining 3 items are rated insufficient (-)
	?	≥2 criteria are rated indeterminate (?)	?	≥2 criteria are rated indeterminate (?)		
	±	All other situations	±	All other situations	±	All other situations
Comprehensiveness rating		Rating of criterion 6		Rating of criterion 6		Rating of criterion 6
Comprehensibility rating	+	Criterion 8 = sufficient (+) AND criterion 7 = sufficient (+) or indeterminate (?)	+	Criterion 8 = sufficient (+) AND criterion 7 = sufficient (+) or indeterminate (?)	+	Criteria 9 and 10 are rated sufficient (+)
	-	Criterion 8 = insufficient (-)	-	Criterion 8 = insufficient (-)	-	Criteria 9 and 10 are rated insufficient (-)
	?	Criterion 8 = indeterminate (?)	?	Criterion 8 = indeterminate (?)		
	±	Criterion 8 = sufficient (+) AND criterion 7 = insufficient (-)	±	Criterion 8 = sufficient (+) AND criterion 7 = insufficient (-)	±	One criterion = sufficient (+) AND one criterion = insufficient (-)

Appendix 8: Calculation of the overall relevance, comprehensiveness and comprehensibility rating per PROM

PROM development	Content validity	Rating reviewer	Overall RELEVANCE COMPREHENSIVENES COMPREHENSIBILITY rating
+	+	+	+
+	+	±	+
+	+	-	+
+	-	+	±
+	-	±	±
+	-	-	-
+	?	+	+
+	?	±	±
+	?	-	±
+	±	+	±
+	±	±	±
+	±	-	±
-	+	+	+
-	+	±	±
-	+	-	±
-	-	+	-
-	-	±	-
-	-	-	-
-	?	+	±
-	?	±	±
-	?	-	-
-	±	+	±
-	±	±	±
-	±	-	±
?	+	+	+
?	+	±	±
?	+	-	±
?	-	+	±
?	-	±	±
?	-	-	-
?	?	+	+
?	?	±	±
?	?	-	-
?	±	+	±
?	±	±	±
?	±	-	±
±	+	+	+
±	+	±	+
±	+	-	±
±	-	+	±
±	-	±	-
±	-	-	-
±	?	+	±
±	?	±	±
±	?	-	±
±	±	+	±
±	±	±	±
±	±	-	-

Appendix 9: Calculation of the overall content validity rating

Overall RELEVANCE rating	Overall COMPREHENSIVENESS rating	Overall COMPREHENSIBILITY rating	Overall CONTENT VALIDITY rating
+	+	+	+
+	+	±	+
+	+	-	±
+	-	+	±
+	-	±	±
+	-	-	±
+	±	+	+
+	±	±	±
+	±	-	±
-	+	+	±
-	+	±	±
-	+	-	±
-	-	+	±
-	-	±	-
-	-	-	-
-	±	+	±
-	±	±	±
-	±	-	-
±	+	+	+
±	+	±	±
±	+	-	±
±	-	+	±
±	-	±	±
±	-	-	-
±	±	+	±
±	±	±	±
±	±	-	±