Assessment of screening measures for endometriosis: A scoping review

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Introduction

Endometriosis: a systemic, inflammatory condition characterized by the presence of endometrial-like tissue outside the uterine cavity

- Affects **6-10% of women** of reproductive age globally
- **Common symptoms:** painful menstruation, heavy menstrual bleeding, severe pelvic pain, pain during intercourse, painful defecation, and infertility

Problem: diagnostic delays of **up to 11 years**, despite symptom onset often occurring in adolescence

- Need for surgical confirmation
- Societal normalization of women's pain
- Stigma
- Lack of awareness

Current Challenges:

- Limited availability of non-invasive methods (ultrasound, MRI) in primary care settings
- Advances in symptom-based screening tools are promising but lack consensus on quality

Objective

To identify and evaluate the measurement properties, validity, and reliability of current endometriosis screening measures for potential widespread adoption.

Methods

Search strategy: four databases (Medline, PsycINFO, Embase, CINAHL) were search from 2010 to Feb. 15th 2024

Eligibility Criteria: studies that develop or validate a screening tool for endometriosis in adults and published in English in 2010 or later

Two-stage screening: two members (RB, BR, AN) screened abstracts and full texts, and discrepancies were resolved via consensus

Data extraction: conducted by AN, verified by SL, and discrepancies were resolved via consensus

Results

Table 1: Using the COSMIN guidelines, each screener was evaluated based on whether each psychometric property met positive criteria, negative criteria, or was not reported.

Study	Patient Partners Included?	Structural Validity	Internal Consistency	Reliability	Measurement Error	Cross-Cultural Validity	Content Validity	Construct Validity	Criterion Validity
Development of a Symptom-Based, Screening Tool for Early-Stage Endometriosis in Patients with Chronic Pelvic Pain	-	?	?	?	?	?	?	?	+
A new validated screening method for endometriosis diagnosis based on patient questionnaires	-	?	?	?	?	?	?	?	+
Development of the painful periods screening tool for endometriosis	+	?	-*	?	?	?	+	?	?
Development of a prediction model to aid primary care physicians in early identification of women at high risk of developing endometriosis: cross-sectional study	+	?	-*	?	?	?	+	?	+
The ENDOPAIN 4D Questionnaire: A New Validated Tool for Assessing Pain in Endometriosis Early identification of women with endometriosis by means of a simple patient-completed questionnaire screening tool: a diagnostic study	+	?	+	-**	?	?	+	+	+
Case-control study to develop and validate a questionnaire for the secondary prevention of endometriosis.	-	?	-*	?	?	?	+	?	+
Use of the Free Endometriosis Risk Advisor App as a Non-Invasive Screening Test for Endometriosis in Patients with Chronic Pelvic Pain and/or Unexplained Infertility.	-	?	?	?	?	?	?	?	+
Predictive Model for the Non-Invasive Diagnosis of Endometriosis Based on Clinical Parameters	-	?	?	?	?	?	?	?	+
Clinical score can predict associated deep infiltrating endometriosis before surgery for an endometrioma	-	?	?	?	?	?	?	?	+
Endometriosis Index A software-derived score to predict the presence and severity of the disease	-	?	?	?	?	?	?	?	+
Machine learning algorithms as new screening approach for patients with endometriosis.	-	?	?	?	?	?	+	?	+

* Not reported despite being a self-reported measure
** reported but had a negative rating

Discussion

Future studies on endometriosis screening measures should consider:

- **Standardized Methodology for Screener Development**
- **Studies in Adolescent Populations**
- **Diverse Study Populations**
- **Differentiating Tools for Screening vs. Assessing Disease Severity**
- **Diverse Cultures and Languages**
- **Practicality in Primary Care Settings**

Literature Search

Table 2. PRISMA Diagram

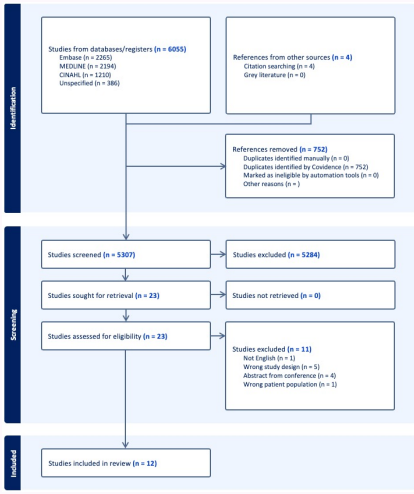

Table 3. Inter-rater reliability

	Reviewer A	Reviewer B	Cohen's Kappa
Title and Abstract Screening	BR	RB	0.66
	AN	RB	0.33
	AN	BR	0.28
Full Text Screening	RB	BR	0.92
Data Extraction	AN	SL	0.96

Conclusion

Broader Implications:

- Address diagnostic delays
- Provide evidence-based recommendations for selecting appropriate screening tools
- Enhance standardization and reliability in screening practices

Next Steps:

- Engage stakeholders
- Pilot test selected tools for practical validation

References