

# Methods of screening for knee osteoarthritis: a systematic review

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# Overview

- Burden of osteoarthritis (OA)
  - On society: top 10 causes of disability-adjusted life years in the older age groups (1)
  - On individuals: limits movement, impairs ability to perform activities of daily living and affects lifestyle



(1) Ministry of Health, Singapore, Singapore Burden of Disease Study 2010. Available at: [https://www.moh.gov.sg/content/dam/moh\\_web/Publications/Reports/2014/Singapore%20Burden%20of%20Disease%20Study%202010%20Report\\_v3.pdf](https://www.moh.gov.sg/content/dam/moh_web/Publications/Reports/2014/Singapore%20Burden%20of%20Disease%20Study%202010%20Report_v3.pdf). Accessed September 9, 2017

Figure 1: American Academy of Orthopaedic Surgeons. Arthritis of the Knee. 2014 [cited 14 September 2017]. Available from: <http://orthoinfo.aaos.org/topic.cfm?topic=a00212>

# Overview

- Screening for OA
  - Questionnaire is the dominant modality (2)
  - Early detection can influence management and reduce the OA burden

## Questionnaire to Identify Knee Symptoms: Development of a Tool to Identify Early Experiences Consistent With Knee Osteoarthritis

Jessica M. Clark, Bert M. Chesworth, Mark Speechley, Robert J. Petrella, Monica R. Maly

## Development of the Thai Knee OsteoArthritis Screening Questionnaire (Thai-KOA-SQ) in Kanleung Sub-District, Nakronpanom Province

Bhuddhipong Satayavongthip PhD\*,  
Parimoke Kerdchantuk PhD\*\*, Rodchares Hanrinth MSc\*\*,  
Theerasak Methieng Pharm D\*\*, Phuwipol Khunpimul Pharm D\*\*

## Development of the Knee OA Pre-Screening Questionnaire

Flavia YÁZIGI,<sup>1</sup> Filomena CARNIDE,<sup>1</sup> Margarida ESPANHA<sup>1</sup> and Miguel SOUSA<sup>2</sup>

<sup>1</sup>Univ Lisboa, Fac Motricidade Humana, CIPER, LBMF, P-1499-002 and <sup>2</sup>Portuguese Institute of Rheumatology, Lisbon, Portugal

(2) Quintana JM, Arostegui I, Escobar A, Lafuente I, Arenaza JC, Garcia I, et al. Validation of a screening questionnaire for hip and knee osteoarthritis in old people. BMC Musculoskeletal Disorders. 2007;8:84

# Project Aims

1. Identify tools/ methods used to screen for knee OA
2. Characterise these tools
3. Critique the development of tools used in screening for knee OA
4. Propose a recommendation for knee OA screening that can be used in Singapore

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# Methods

- Literature search on two databases: Medline (Ovid) and Embase (Ovid)
- Study selection by both authors

MeSH Heading
Osteoarthritis , knee
Screening <ol style="list-style-type: none"> <li>1. Mass screening, sensitivity and specificity</li> <li>2. Medical history taking</li> <li>3. Physical examination</li> <li>4. Clinical laboratory techniques</li> <li>5. Diagnostic imaging</li> </ol>
Methods <ol style="list-style-type: none"> <li>1. Epidemiologic methods or epidemiologic monitoring</li> <li>2. "Surveys and questionnaires" - health surveys, self report</li> </ol>

Figure 3: MeSH terms used in literature search

# Results

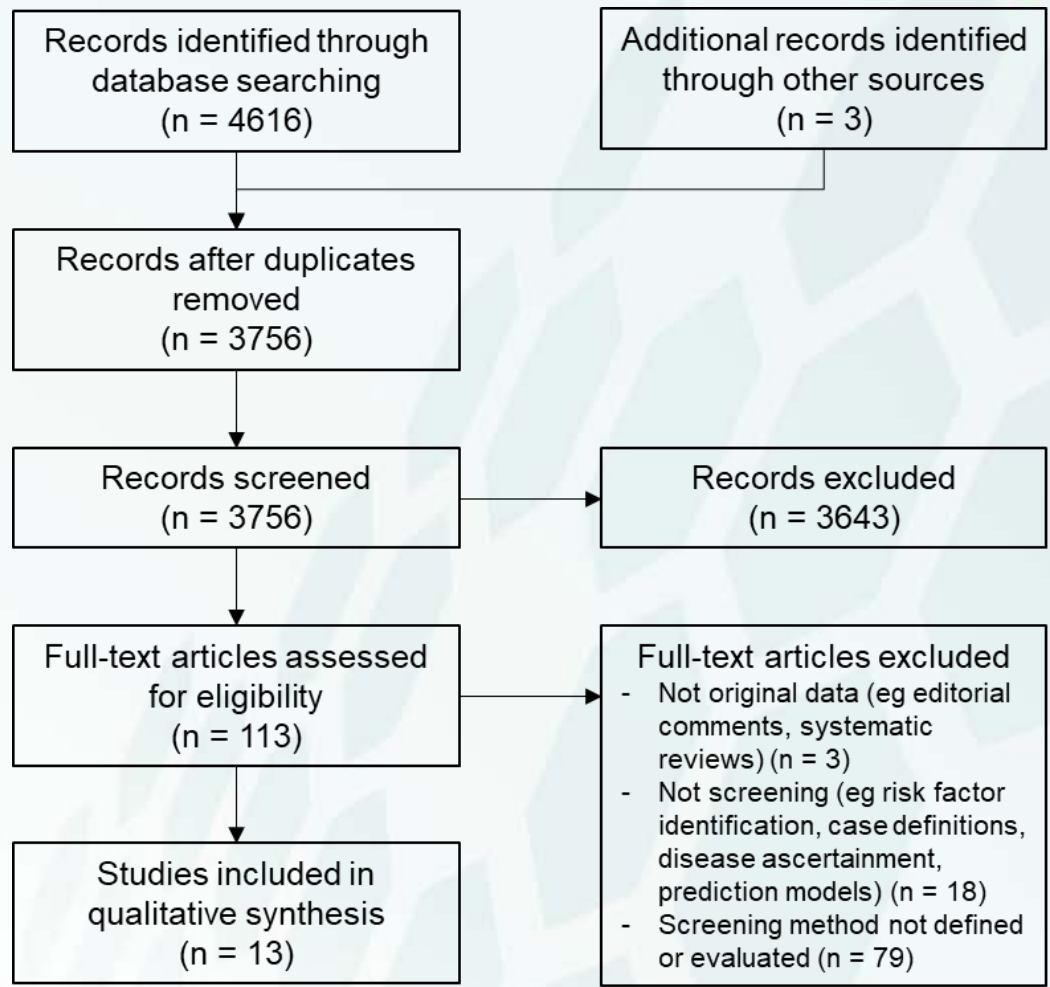


Figure 2: Flow diagram of study selection

# Findings

- All screening tools used were questionnaires
- Developed in South East Asia, Europe and North Americas
- Number of items: 3 (Thai-KOA-SQ) to 21 (PHIND-OA)
- Age range: adults  $\geq 18$  years old to older adults  $\geq 60$  years old
- Administration: self reported/ interviewer, at screening venue (66.7%), mailed (22.2%), telephone (11.1%)

# Thai Knee Osteoarthritis Screening Questionnaire (Thai-KOA-SQ)

Take this test and know your score. Find out if you might have silent OA now. Check each statement that is true for you. If a statement is not true, put a zero. Then add up all the points for a total.

	Yes	No
My age is 65 years or older.	3	0
My BMI is 30 kg/m <sup>2</sup> or more.	1	0
I have got some knee pain within 1 year ago.	5	0

If you scored 7 or more points, you have a chance of having knee OA. You should go to the hospital to let the physician confirm diagnosis

If you scored 0-6, you probably do not have knee OA now.

(3) Satayavongthip B, Kerdchantuk P, Hanrinth R, Methieng T, Khunpimul P. Development of the Thai Knee Osteoarthritis Screening Questionnaire (Thai-KOA-SQ) in Kanleung Sub-District, Nakronpanom Province. Journal of the Medical Association Thailand. 2011;94(8):947-51.

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# Knee and Hip Osteoarthritis Screening Questionnaire (KHQA-SQ)

1. During the last 12 months, have you often had knee stiffness for one month or more?
2. Has a doctor ever told you that you have osteoarthritis in one or both your knees?
3. Do you have a prosthesis in one or both your knees?
4. Have you had any surgical intervention in one or both your knees?
5. During the last 12 months, have you had stiffness in one or both your knees for one month or more?
6. During the last 12 months, have you had any of the following limitations because of pain or stiffness in one or both your knees:
  - A. Rising from a chair or toilet
  - B. Going up steps
  - C. Walking >4 blocks (500m)
7. During the last 12 months, have you often experienced any sensation or insecurity that one or both your knees failed?

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# Knee OA Pre-Screening Questionnaire (KOPS)

Dimensions (2)	Components (6)	Items (18)	Score					
Symptom	Functional pain (FP)	Walking pain	1	Risk factors	Biological risk (BR)	Age interval	6	
		Standing position	1			Menopause	1	
		Stepping pain	1			BMI classification	6	
		Chair pain	1			External risk (ER)	Lower limb injury	1
	Pain intensity – month (MP)	Last month	10				Job posture: stand position	1
		Pain intensity- year (YP)	Last year				10	Job posture: sitting position
	Signs/others symptoms (SOS)		Signs/others symptoms (SOS)		Morning stiffness	1	Job posture: squat position	1
		Position stiffness			1	Sports volume	7	
		Swelling			1			
		Creaking			1			
		Knee extension			1			
		Deformity			1			
						<b>KOPS total score</b>		<b>54</b>

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		Knee extension			1		
		Deformity			1		

(4) Yazigi F, Carnide F, Espanha M, Sousa M. Development of the Knee OA Pre-Screening Questionnaire. International Journal of Rheumatic Diseases. 2016;19(6):567-76.

# Results

- All screening tools were questionnaires
  - No radiographs as screening
  - But no single symptom can identify patients with knee OA (2)
- Different ascertainment criteria in studies
  - Under-report or over report diagnosis of knee OA (5)
  - Comparison of performance between tools is limited

(2) Quintana JM, Arostegui I, Escobar A, Lafuente I, Arenaza JC, Garcia I, et al. Validation of a screening questionnaire for hip and knee osteoarthritis in old people. BMC Musculoskeletal Disorders. 2007;8:84

(5) Szoek CEI, Dennerstein L, Wluka AE, Guthrie JR, Taffe J, Clark MS, et al. Physician diagnosed arthritis, reported arthritis and radiological non-axial osteoarthritis. Osteoarthritis and Cartilage. 2008;16(7):846-50.

# Discussion

- Screening method should
  - Be acceptable to the general population
    - Short
    - Easily understood
    - Easily administered
  - Have high level of accuracy
  - Good validity and reliability, reproducibility, criterion validity
- KOPS seems to be a useful tool

# Discussion

- Potentially useful to clinicians, public health policy makers and epidemiologists
  - To develop a screening program for knee OA
  - Need for evaluation and validation of screening questionnaires in our population







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