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Title	Promoting men's awareness, self-examination, and help-seeking for testicular disorders: a systematic review of interventions [version 2; referees: 2 approved]
Authors	Saab, Mohamad M.;Davoren, Martin P.;Murphy, Aileen;Murphy, David;Cooke, Eoghan;Landers, Margaret;Fitzgerald, Serena M.;Richardson, Noel;Rovito, Michael;Von Wagner, Christian
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University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

Systematic review

1. * Review title.

Give the working title of the review, for example the one used for obtaining funding. Ideally the title should state succinctly the interventions or exposures being reviewed and the associated health or social problems. Where appropriate, the title should use the PI(E)COS structure to contain information on the Participants, Intervention (or Exposure) and Comparison groups, the Outcomes to be measured and Study designs to be included.

Promoting men’s awareness, self-examination, and help-seeking for testicular disorders: a systematic review of interventions

36 words remaining

2. Original language title.

For reviews in languages other than English, this field should be used to enter the title in the language of the review. This will be displayed together with the English language title.

50 words remaining

3. * Anticipated or actual start date.

Give the date when the systematic review commenced, or is expected to commence.

12/04/2018

4. * Anticipated completion date.

Give the date by which the review is expected to be completed.

06/07/2018

5. * Stage of review at time of this submission.

Indicate the stage of progress of the review by ticking the relevant Started and Completed boxes. Additional information may be added in the free text box provided.
Please note: Reviews that have progressed beyond the point of completing data extraction at the time of initial registration are not eligible for inclusion in PROSPERO. Should evidence of incorrect status and/or completion date being supplied at the time of submission come to light, the content of the PROSPERO record will be removed leaving only the title and named contact details and a statement that inaccuracies in the stage of the review date had been identified.
This field should be updated when any amendments are made to a published record and on completion and publication of the review.

The review has not yet started: No

Review stage	Started	Completed
Preliminary searches	Yes	Yes
Piloting of the study selection process	Yes	Yes
Formal screening of search results against eligibility criteria	Yes	Yes
Data extraction	Yes	Yes
Risk of bias (quality) assessment	Yes	Yes
Data analysis	Yes	Yes

Provide any other relevant information about the stage of the review here (e.g. Funded proposal, protocol not yet finalised).
Review completed

Review completed

6. * Named contact.

The named contact acts as the guarantor for the accuracy of the information presented in the register record.

Mohamad Saab

Email salutation (e.g. "Dr Smith" or "Joanne") for correspondence:

Dr Saab

7. * Named contact email.

Give the electronic mail address of the named contact.

msaab@ucc.ie

8. Named contact address

Give the full postal address for the named contact.

Mohamad Saab, School of Nursing and Midwifery
College Road
Cork, Ireland
T12 AK54

9. Named contact phone number.

Give the telephone number for the named contact, including international dialling code.

+353831892968

10. * Organisational affiliation of the review.

Full title of the organisational affiliations for this review and website address if available. This field may be completed as 'None' if the review is not affiliated to any organisation.

University College Cork

Organisation web address:

https://www.ucc.ie/en/nursingmidwifery/

11. Review team members and their organisational affiliations.

Give the title, first name, last name and the organisational affiliations of each member of the review team. Affiliation refers to groups or organisations to which review team members belong.

Dr Mohamad Saab. University College Cork
Dr Martin Davoren. University College Cork
Dr Aileen Murphy. University College Cork
Mr David Murphy. University College Cork
Mr Eoghan Cooke. University College Cork
Dr Margaret Landers. University College Cork
Dr Serena Fitzgerald. University College Cork
Dr Noel Richardson. Institute of Technology Carlow
Dr Michael Rovito. University of Central Florida
Dr Christian Von Wagner. University College London
Dr Mike Murphy. University College Cork
Dr Darren Dahly. University College Cork
Professor Josephine Hegarty. University College Cork

12. * Funding sources/sponsors.

Give details of the individuals, organizations, groups or other legal entities who take responsibility for initiating, managing, sponsoring and/or financing the review. Include any unique identification numbers assigned to the review by the individuals or bodies listed.

Funding application in progress.

13. * Conflicts of interest.

List any conditions that could lead to actual or perceived undue influence on judgements concerning the main topic investigated in the review.

None

14. Collaborators.

Give the name and affiliation of any individuals or organisations who are working on the review but who are not listed as review team members.

15. * Review question.

State the question(s) to be addressed by the review, clearly and precisely. Review questions may be specific or broad. It may be appropriate to break very broad questions down into a series of related more specific questions. Questions may be framed or refined using PI(E)COS where relevant.

The aim of this systematic review is to evaluate the effectiveness of experimental studies, and the findings of structured reviews of experimental studies promoting men’s knowledge and awareness of testicular disorders and/or self-examination, behaviors and/or intentions to examine their testes, and help-seeking behaviors and/or intentions for testicular symptoms.

202 words remaining

16. * Searches.

Give details of the sources to be searched, search dates (from and to), and any restrictions (e.g. language or publication period). The full search strategy is not required, but may be supplied as a link or attachment.

The following electronic databases were searched: Academic Search Complete, MEDLINE, CINAHL, PsycINFO, ERIC, and The Cochrane Library. Moreover, eligible studies were sought from trial registries including the World Health Organization's International Clinical Trials Registry Platform (ICTRP) and ClinicalTrials.gov. The grey literature (i.e. the Grey Literature Report and OpenGrey) and reference lists of eligible papers were reviewed to identify potentially eligible studies. The search was limited to papers published in English between November 2014 and April 2018.

The following keywords were searched on title and abstract using Boolean operators: “testicular disease*”

OR “testicular disorder*” OR “testicular cancer” OR “testicular neoplas*” OR “testicular tumor*” OR “testicular tumour*” OR “testicular malignan*” OR “benign testicular disorder*” OR “benign testicular disease*” OR “testicular torsion” OR epididymitis OR orchitis OR epididymo-orchitis OR hydrocele OR varicocele OR spermatocele OR “testicular symptom*” OR “testicular pain” OR “testicular lump*” OR “testicular swelling” OR “scrot* symptom*” OR “scrot* pain” OR “scrot* lump*” OR “scrot* swelling” AND knowledge OR awareness OR practice* OR self-exam* OR “self exam*” OR feel* OR screen* OR “early detect*” OR help-seeking OR “help seeking” OR “help-seeking intention*” OR “help seeking intention*” OR “help-seeking behavior*” OR “help-seeking behaviour*” OR “help seeking behavior” OR “help seeking behaviour” AND intervention* OR inform* OR educat* OR “health education” OR “health promotion” OR trial* OR experiment* OR stud* OR program*

79 words remaining

17. URL to search strategy.

Give a link to the search strategy or an example of a search strategy for a specific database if available (including the keywords that will be used in the search strategies).

Alternatively, upload your search strategy to CRD in pdf format. Please note that by doing so you are consenting to the file being made publicly accessible.

Yes I give permission for this file to be made publicly available

18. * Condition or domain being studied.

Give a short description of the disease, condition or healthcare domain being studied. This could include health and wellbeing outcomes.

Testicular cancer is the most common solid tumour among men aged 18 to 50 years (National Cancer Registry Ireland 2017). Benign testicular disorders, such as epididymitis, orchitis, and testicular torsion can be life threatening if not diagnosed and treated promptly (Centers for Disease Control and Prevention 2015, Bayne et al. 2017). Evidence from a number of studies suggests that men’s awareness of testicular disorders is lacking (Saab et al. 2016a, 2016c). Moreover, men’s intentions to feel their testes and to seek help for testicular symptoms were found to be suboptimal (Saab et al. 2017). Two systematic reviews (Rovito et al. 2015, Saab et al. 2016b) and one integrative review (Saab et al. 2016a) synthesised and critically appraised evidence from studies aimed at promoting men’s knowledge and awareness of testicular disorders as well as promoting behaviours/intentions to perform testicular self-examination and/or seek help for testicular symptoms. The present review builds upon the search, screening, and output from these reviews.

References:

1. Bayne C. E., Villanueva J., Davis T. D., Pohl H. G. & Rushton H. G. (2017) Factors associated with delayed presentation and misdiagnosis of testicular torsion: a case-control study. The Journal of Pediatrics 186, 200-204.
2. Centers for Disease Control and Prevention (2015) 2015 sexually transmitted diseases treatment guidelines. Available from http://www.cdc.gov/std/tg2015/epididymitis.htm [accessed 12.4.18].
3. National Cancer Registry Ireland (2017) Cancer factsheet testis. Available from https://www.ncri.ie/sites/ncri/files/factsheets/testis.pdf [accessed 12.4.18].
4. Rovito M. J., Cavayero C., Leone J. E. & Harlin S. (2015) Interventions promoting testicular self-examination (TSE) performance: a systematic review. American Journal of Men’s Health 9(6), 506-518.
5. Saab M. M., Landers M. & Hegarty J. (2016a) Males’ awareness of benign testicular disorders: an integrative review. American Journal of Men’s Health, 1-11. doi:0.1177/1557988315626508
6. Saab M. M., Landers M. & Hegarty J. (2016b) Promoting testicular cancer awareness and screening: a systematic review of interventions. Cancer Nursing 39(6), 473-487.
7. Saab M. M., Landers M. & Hegarty J. (2016c) Testicular cancer awareness and screening practices: a systematic review. Oncology Nursing Forum 43(1), E8-E23.
8. Saab M. M., Landers M. & Hegarty J. (2017) Exploring awareness and help-seeking intentions for testicular symptoms among heterosexual, gay, and bisexual men in Ireland: a qualitative descriptive study. International Journal of Nursing Studies 67, 41-50.

170 words over

19. * Participants/population.

Give summary criteria for the participants or populations being studied by the review. The preferred format includes details of both inclusion and exclusion criteria.

Exclusion criteria: Men with a diagnosis of a testicular disorder, studies with women only, and studies where findings from men and women are indistinguishable.

165 words remaining

20. * Intervention(s), exposure(s).

Give full and clear descriptions or definitions of the nature of the interventions or the exposures to be reviewed.

Educational/health promotion intervention/program.

197 words remaining

21. * Comparator(s)/control.

Where relevant, give details of the alternatives against which the main subject/topic of the review will be compared (e.g. another intervention or a non-exposed control group). The preferred format includes details of both inclusion and exclusion criteria.

The effect of intervention compared to baseline and/or control conditions i.e. alternative intervention(s) or no intervention.

184 words remaining

22. * Types of study to be included.

Give details of the types of study (study designs) eligible for inclusion in the review. If there are no restrictions on the types of study design eligible for inclusion, or certain study types are excluded, this should be stated. The preferred format includes details of both inclusion and exclusion criteria.

Any experimental design (i.e. randomized controlled trials, non-randomized controlled trials, pre-post study design with one or more groups, and post-test only study design with one or more groups) and structured reviews of interventions (i.e. systematic and integrative reviews).

112 words remaining

23. Context.

Give summary details of the setting and other relevant characteristics which help define the inclusion or exclusion criteria.

Any context.

248 words remaining

24. * Main outcome(s).

Give the pre-specified main (most important) outcomes of the review, including details of how the outcome is defined and measured and when these measurement are made, if these are part of the review inclusion criteria.

1. Knowledge and awareness of testicular/testicular cancer.
2. Behaviours and/or intentions to examine the testes/for self-examination.
3. Help-seeking behaviours and/or intentions for testicular symptoms.

177 words remaining

Timing and effect measures

198 words remaining

25. * Additional outcome(s).

List the pre-specified additional outcomes of the review, with a similar level of detail to that required for main outcomes. Where there are no additional outcomes please state ‘None’ or ‘Not applicable’ as appropriate to the review

1. Measures of benefits, if available.
2. Measures of harms, if available.
3. Process evaluations, if available.
4. Other testicular-related measures, if available.

279 words remaining

Timing and effect measures

300 words remaining

26. Data extraction (selection and coding).

Give the procedure for selecting studies for the review and extracting data, including the number of researchers involved and how discrepancies will be resolved. List the data to be extracted.

This systematic review was conducted in accordance with the Cochrane Handbook for Systematic Reviews of Interventions (Higgins and Green 2011), and was reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist (Moher et al. 2009).

All records identified through database searching and grey literature searches were exported to a reference manager (EndNote) where duplicates were deleted. The records were then transferred to Covidence, an online screening platform used by Cochrane reviewers. Two authors (MS and JH) independently screened the records on title and abstract. Full texts of potentially eligible papers were obtained and screened further. Disagreements regarding title, abstract, and full-text screenings were resolved by consensus or a third reviewer. The study identification, screening, and selection processes with reasons for exclusion were presented using the PRISMA flow diagram (Moher et al. 2009).

A standardised data extraction table was used to extract the following from the included studies: author(s) and year; aim(s); country and setting; participants; design and theoretical underpinning; intervention(s); outcome(s) and data collection; and findings presented according to the review questions. Data were extracted by the first author (MS) and crosschecked="checked" value="1" for accuracy by the senior author (JH) and members of the review team.

References:

1. Higgins J. P. T. & Green S. (2011) Cochrane handbook for systematic reviews of interventions. The Cochrane Collaboration. Available from www.cochrane-handbook.org [accessed 12.4.18].
2. Moher D., Liberati A., Tetzlaff J. & Altman D. G. (2009) Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. PLoS Med 6(7), 1-6.

45 words remaining

27. * Risk of bias (quality) assessment.

State whether and how risk of bias will be assessed (including the number of researchers involved and how discrepancies will be resolved), how the quality of individual studies will be assessed, and whether and how this will influence the planned synthesis.

The valid and reliable Quality Assessment Tool (QAT) developed by the Effective Public Health Practice Project (1998) was used to assess the methodological quality of the reviewed studies. This tool was recommended in the Cochrane Handbook for Systematic Reviews of Interventions (Higgins and Green 2011). The quality of the studies was judged as either Strong, Moderate, or Weak based on the following eight criteria: selection bias; study design; confounders; blinding; data collection methods; withdrawal and dropouts; intervention integrity; and analyses. Moreover, the valid and reliable AMSTAR 2 measurement tool was used to assess the methodological quality of systematic reviews (Shea et al. 2017). The domains within this tool address 16 key questions in relation to: using PICO to guide the review question and eligibility criteria; reporting on the review methods; explaining the choice of study designs; conducting the literature search; selecting and extracting data in duplicate; justifying and describing study inclusion and exclusion; assessing the risk of bias; reporting on sources of funding; conducting a meta-analysis; discussing study heterogeneity; and reporting conflict(s) of interest.

References:

1. Higgins J. P. T. & Green S. (2011) Cochrane handbook for systematic reviews of interventions. The Cochrane Collaboration. Available from www.cochrane-handbook.org [accessed 12.4.18].
2. Effective Public Health Practice Project (1998). Quality Assessment Tool for Quantitative Studies. Hamilton, ON: Effective Public Health Practice Project. Available from: https://merst.ca/ephpp/ [access 12.4.18].
3. Shea B. J., Reeves B. C., Wells G., Thuku M., Hamel C., Moran J., Moher D., Tugwell P., Welch V., Kristjansson E. & Henry D. A. (2017 AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. BMJ 358, j4008.

75 words over

28. * Strategy for data synthesis.

Give the planned general approach to synthesis, e.g. whether aggregate or individual participant data will be used and whether a quantitative or narrative (descriptive) synthesis is planned. It is acceptable to state that a quantitative synthesis will be used if the included studies are sufficiently homogenous.

A meta-analysis with summary measures of treatment effect using weighted/standard mean difference, risk/odds ratios, and 95% confidence was planned using RevMan 5, if the included studies were sufficiently

homogeneous. However, the included studies were heterogeneous in terms of intervention format, data collection, and participant allocation; therefore, findings from the reviewed studies were synthesized meta-narratively.
246 words remaining

29. * Analysis of subgroups or subsets.

Give details of any plans for the separate presentation, exploration or analysis of different types of participants (e.g. by age, disease status, ethnicity, socioeconomic status, presence or absence or co-morbidities); different types of intervention (e.g. drug dose, presence or absence of particular components of intervention); different settings (e.g. country, acute or primary care sector, professional or family care); or different types of study (e.g. randomised or non-randomised).
Analysis of subgroups or subsets was not possible due to the heterogeneity in study designs, populations, outcomes, and data collection instruments.
229 words remaining

30. * Type and method of review.

Select the type of review and the review method from the lists below. Select the health area(s) of interest for your review.

Type of review

Cost effectiveness
No

Diagnostic
No

Epidemiologic
No

Individual patient data (IPD) meta-analysis
No

Intervention
Yes

Meta-analysis
No

Methodology
No

Narrative synthesis
No

Network meta-analysis
No

Pre-clinical
No

Prevention
Yes

Prognostic
No

Prospective meta-analysis (PMA)
No

Review of reviews
Yes

Service delivery
No

Synthesis of qualitative studies
No

Systematic review
Yes

Other
No

Health area of the review

Alcohol/substance misuse/abuse
No

Blood and immune system
No

Cancer
Yes

Cardiovascular
No

Care of the elderly
No

Child health
No

Complementary therapies
No

Crime and justice
No

Dental
No

Digestive system
No

Ear, nose and throat
No

Education
Yes

Endocrine and metabolic disorders
No

Eye disorders
No

General interest
No

Genetics
No

Health inequalities/health equity
No

Infections and infestations
No

International development
No

Mental health and behavioural conditions
No

Musculoskeletal
No

Neurological
No

Nursing
Yes

Obstetrics and gynaecology
No

Oral health
No

Palliative care
No

Perioperative care
No

Physiotherapy
No

Pregnancy and childbirth
No

Public health (including social determinants of health)
Yes

Rehabilitation
No

Respiratory disorders
No

Service delivery
No

Skin disorders
No

Social care
No

Surgery
No

Tropical Medicine
No

Urological
Yes

Wounds, injuries and accidents
No

Violence and abuse
No

31. Language.

Select each language individually to add it to the list below, use the bin icon to remove any added in error.
English

There is not an English language summary

32. Country.

Select the country in which the review is being carried out from the drop down list. For multi-national collaborations select all the countries involved.

Ireland

33. Other registration details.

Give the name of any organisation where the systematic review title or protocol is registered (such as with The Campbell Collaboration, or The Joanna Briggs Institute) together with any unique identification number assigned. (N.B. Registration details for Cochrane protocols will be automatically entered). If extracted data

will be stored and made available through a repository such as the Systematic Review Data Repository (SRDR), details and a link should be included here. If none, leave blank.
50 words remaining

34. Reference and/or URL for published protocol.

Give the citation and link for the published protocol, if there is one

Give the link to the published protocol.

Alternatively, upload your published protocol to CRD in pdf format. Please note that by doing so you are consenting to the file being made publicly accessible.

No I do not make this file publicly available until the review is complete

Please note that the information required in the PROSPERO registration form must be completed in full even if access to a protocol is given.

35. Dissemination plans.

Give brief details of plans for communicating essential messages from the review to the appropriate audiences.

This review was accepted for publication in "HRB Open Research".

Do you intend to publish the review on completion?

Yes

36. Keywords.

Give words or phrases that best describe the review. Separate keywords with a semicolon or new line. Keywords will help users find the review in the Register (the words do not appear in the public record but are included in searches). Be as specific and precise as possible. Avoid acronyms and abbreviations unless these are in wide use.

Awareness; health promotion; help-seeking; knowledge; men's health; systematic review; testicular cancer; testicular disease; testicular disorder; testicular self-examination; and testicular symptom.

37. Details of any existing review of the same topic by the same authors.

Give details of earlier versions of the systematic review if an update of an existing review is being registered, including full bibliographic reference if possible.

Saab M. M., Landers M. & Hegarty J. (2016a) Males' awareness of benign testicular disorders: an integrative review. American Journal of Men's Health, 1-11. doi:0.1177/1557988315626508
Saab M. M., Landers M. & Hegarty J. (2016b) Promoting testicular cancer awareness and screening: a systematic review of interventions. Cancer Nursing 39(6), 473-487.
Saab M. M., Landers M. & Hegarty J. (2016c) Testicular cancer awareness and screening practices: a systematic review. Oncology Nursing Forum 43(1), E8-E23.
22 words over

38. * Current review status.

Review status should be updated when the review is completed and when it is published.
Please provide anticipated publication date

Review_Completed_published

39. Any additional information.

Provide any other information the review team feel is relevant to the registration of the review.

40. Details of final report/publication(s).

This field should be left empty until details of the completed review are available.

Saab, M. M., Davoren, M., Murphy, A., Murphy, D., Cooke, E., Landers, M., Fitzgerald, S., Richardson, N., Rovito, M., von Wagner, C., Murphy, M., Dahly D. & Hegarty, J. (2018) Promoting men's awareness, self-examination, and help-seeking for testicular disorders: A systematic review of interventions. HRB Open Research, 1, 16. doi: 10.12688/hrbopenres.12837.2

Give the link to the published review.

https://hrbopenresearch.org/articles/1-16/v2
doi: 10.12688/hrbopenres.12837.2