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## Review article

## Barriers and facilitators to health screening in men: A systematic review

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## ABSTRACT

**Rationale:** Men have poorer health status and are less likely to attend health screening compared to women.

**Objective:** This systematic review presents current evidence on the barriers and facilitators to engaging men in health screening.

**Methods:** We included qualitative, quantitative and mixed-method studies identified through five electronic databases, contact with experts and reference mining. Two researchers selected and appraised the studies independently. Data extraction and synthesis were conducted using the 'best fit' framework synthesis method.

**Results:** 53 qualitative, 44 quantitative and 6 mixed-method studies were included. Factors influencing health screening uptake in men can be categorized into five domains: individual, social, health system, healthcare professional and screening procedure. The most commonly reported barriers are fear of getting the disease and low risk perception; for facilitators, they are perceived risk and benefits of screening. Male-dominant barriers include heterosexual -self-presentation, avoidance of femininity and lack of time. The partner's role is the most common male-dominant facilitator to screening.

**Conclusions:** This systematic review provides a comprehensive overview of barriers and facilitators to health screening in men including the male-dominant factors. The findings are particularly useful for clinicians, researchers and policy makers who are developing interventions and policies to increase screening uptake in men.

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## 1. Introduction

Globally, men do not live as long as women (Barford et al., 2006; WHO, 2011) and have higher mortality and morbidity rates across most of the diseases (AIHW, 2013; Bilsker et al., 2010; EC, 2011; Ng et al., 2014; White et al., 2011a). Possible explanations include men's poor health seeking behavior, lack of health knowledge, risk taking behavior as well as their reluctance to engage in health promotion activities (Addis and Mahalik, 2003; Byrnes et al., 1999; Courtenay, 2003).

Various strategies can be used to improve the status of men's health, particularly health screening. Through health screening, one can identify a disease at the early stage allowing intervention

before the disease worsens. For instance, a study on the impact of cardiovascular disease (CVD) screening reported that screening attenders have lower CVD mortality rate, all-cause mortality rate, healthcare utilization and cost compared to non-attenders (Lee et al., 2015). A one percent reduction of cardiovascular events through a preventive program across England and Wales has the potential to save at least £30 million of health services cost per year (Barton et al., 2011). Similarly, screening for colorectal cancer using faecal occult blood test (FOBT) was reported to decrease the relative risk of colorectal cancer death by 15–20%, save 3.8–8.29 quality adjusted life days per person and £1890–£2576 of healthcare cost per life year (Hewitson et al., 2007; Tappenden et al., 2004).

In spite of all the benefits of screening, screening uptake is low, particularly in men. The uptake rates of guaiac-based faecal occult blood (gFOB) test in the UK Bowel Cancer Screening Programme were lower in men across all three rounds of the biennial invitation (first round: men 53.3% vs women 61.3%; second round: men 58.0%

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vs women 63.7%; third round: men 64.1% vs women 68.2%) (Lo et al., 2015). Another study on screening uptake in Ontario showed a similar pattern where the uptake of screening was lower in men for colorectal cancer (men 55.1% vs women 61.6%), diabetes (men 61.4% vs women 72.9%) and cholesterol (men 70.3% vs women 82.4%) (Borkhoff et al., 2013). A narrative scoping review on socio-determinants of screening uptake cites nine studies that indicated men were less likely to engage health screening compared to women, particularly men who are less educated, unemployed and from low socio-economic status (Dryden et al., 2012). However, this review did not provide reasons for the low screening uptake in men.

For a screening intervention to be effective, it is important that it is tailored to the characteristics of the population, such as using a gendered approach. Masculinity attributes like avoidance of femininity, toughness and risk taking have been used to explain the difference in health screening behavior between men and women (Connell, 1987, 1995). The Madrid Statement, released by the World Health Organization (WHO) in 2001, clearly states that health policies must recognize that men and women have different needs, obstacles and opportunities in order to attain the highest standard of health (WHO, 2001). Experts have argued the importance of considering gender when developing interventions, programs and policies in recognition that men and women behave differently (Baker et al., 2014; Banks, 2004; Weller and Campbell, 2009; White et al., 2011b).

This systematic review thus aims to review the existing evidence on the barriers and facilitators to engaging men in health screening. We sought to identify the most commonly reported barriers and facilitators to health screening along with those barriers and facilitators that are particularly prominent in a male population (male-dominant). We hope that identification of these factors will help in the development of effective interventions to overcome these barriers and improve screening uptake in men. However, this review did not include studies focusing on certain male populations, such as gay and aboriginal men, as there are unique factors that influence their health screening behavior which deserve separate reviews.

## 2. Methods

### 2.1. Eligibility criteria

We included qualitative, quantitative and mixed-method studies that identified men's barriers or facilitators in engaging with health screening. For inclusion, a study must clearly differentiate the barriers or facilitators between men and women. Informants could include men or women patients or healthcare professionals as long as the barriers or facilitators discussed are those for male patients. Studies included in the review investigate men who have attended for screening, as well as non-attenders. Participants could be derived from any age group and they must be asymptomatic of the disease for the screening planned in each study. We excluded studies that focused on men who were gene carriers, prisoners, disabled, drug users, in military service, homeless, immigrants, refugees as well as aboriginal and gay men. These groups of men face additional barriers when seeking healthcare and they deserve separate reviews.

We included all types of screening recommended by the United States Preventive Services Task Force (USPSTF) as well as male-specific diseases like prostate and testicular cancer screening (United States Preventive Services Task Force, 2016). We included studies on prostate cancer screening conducted before 2012 as USPSTF recommended against prostate cancer screening after that. Studies of barriers or facilitators of screening carried out as a part of

a screening program were also included in this review. We excluded genetic tests for prostate cancer and studies that focus on screening at the emergency department. Studies that used an intervention to increase screening uptake, looked solely at socio-demographic determinants or focused on physicians' screening practices were also excluded from this review.

### 2.2. Information sources and search

We searched five key databases (PubMed, Embase, CINAHL via EBSCOHost, PsycINFO via OvidSP and Web of Science) up to 23 October 2014 to identify relevant articles. We combined three main concepts (men, screening, barrier/facilitator) and a methodological filter (qualitative/survey) using keywords and subject headings from respective databases in the search. The search strategy can be found in Appendix A. We only included articles published in English. Apart from database searching, we also sourced relevant articles from men's health experts and followed up references in eligible articles.

### 2.3. Study selection and appraisal

Two researchers performed all phases of study sifting and selection independently, including screening of titles, abstracts and full-texts. In cases of doubt, the researchers were encouraged to be inclusive. Any discrepancies were resolved through discussion and consensus. All the included studies were appraised using the Mixed-Method Appraisal Tool (MMAT) which allows appraisal of the validity, reliability and generalizability of the quantitative, qualitative and mixed-method studies (Appendix B) (Pluye et al., 2011). It can also be used quickly and reliably (Pace et al., 2012). For mixed-method studies, both qualitative and quantitative components of the studies were appraised. The appraisal was conducted to report the quality of the studies and not used as a threshold for selecting studies for inclusion.

### 2.4. Data extraction and synthesis

Data extraction and synthesis were conducted based on the 'best fit' framework synthesis method which provides 'a means to test, reinforce and build on an existing published model, conceived for a potentially different but relevant population' (Carroll et al., 2013). Researchers can combine several frameworks if necessary and refine the framework by adding new themes that emerged from the data, which are not found in the initial framework.

We first identified a framework on the barriers and facilitators to screening from the studies included in this review (Garcia-Dominic et al., 2012), supplemented by two other frameworks by Christy et al. and Denberg et al., which focused on masculinity (avoidance of femininity, self-reliance, risk taking and heterosexual self-presentation) and screening procedure respectively, to form a more comprehensive meta-framework (Christy et al., 2014; Denberg et al., 2005). This meta-framework was then pilot tested by two researchers against ten studies before the final framework was decided.

Two researchers extracted the data from each included paper and coded them deductively using the meta-framework. Data that could not fit the meta-framework were coded separately under a new theme in a subsequent inductive phase. Data that were unclear or without sufficient explanation were excluded from the analysis.

Once data from all studies were extracted, the researchers compared the coding, discussed and resolved any discrepancy through consensus. The themes from the meta-framework and the newly generated themes were combined using the thematic approach to produce the final framework of barriers and facilitators

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