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Engaging Men in Chronic Disease Prevention and Management Programs: A Scoping Review

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Abstract

Chronic disease has become one of the largest health burdens facing the developed world. Men are at a higher risk of being diagnosed with chronic disease than women. Although lifestyle interventions have been shown to reduce the risk of chronic disease in participants, men are often underrepresented in such programs. The purpose of this study was to explore the individual-level and program-specific factors that affect male participation rates in chronic disease prevention and management (CDPM) programs. A scoping review methodology was selected, and 25 studies met the criteria for inclusion in the review. Results showed that traditional group-based programs that focused on topics such as nutrition and physical activity were often seen by men as inherently feminine, which served as a barrier for participation. Program-specific factors that attracted men to participate in interventions included a group component with like-minded men, the use of humor in the delivery of health information, the inclusion of both nutrition and physical activity components, and the presence of some manner of competition. A past negative health event, personal concern for health status, and motivation to improve physical appearance were cited by men as facilitators to CDPM program participation. Gaps in the research are identified, and results of this study can be used to inform the development of CDPM programs that will improve the engagement and participation of men.

Keywords

health promotion and disease prevention, men's health programs, preventive medicine, population-based, men's health interventions

Introduction

Within the 21st century, chronic disease has cemented itself as one of the most burdensome health issues facing the world today. According to the World Health Organization (2014), in 2012 there were 38 million deaths due to non-communicable diseases globally, more than all other causes combined. Approximately, 42% of all deaths attributable to noncommunicative diseases occurred in individuals younger than 70 years (World Health Organization, 2014).

As the population of developed countries around the world continues to age, chronic disease is becoming increasingly prevalent. Four out of five Canadians older than 25 years are at risk for developing a chronic disease, with three out of five living with one or more (Public Health Agency of Canada, 2013). Approximately 51% of Americans have a chronic condition, with 26% suffering from two or more (Bauer, Briss, Goodman, & Bowman, 2014). This accounts for over 75% of health care spending in the United States (Centers for Disease Control and Prevention, 2009).

In developed countries, men experience chronic disease at a significantly higher rate than women. White and Cash (2004) examined the state of men's health in 17 Western European countries and reported that men ($n =$ approximately 19,050,000; age ranges: 1-14 = 18.5%, 15-64 = ~68%, 65+ = ~13%) were at a greater risk than women of developing nearly every major chronic disease, including lung cancer, liver disease, heart disease, and stroke. The prevalence of obesity, a risk factor for many chronic conditions, including some cancers, cardiovascular disease, hypertension, and type 2 diabetes (Morgan, Lubans, et al., 2011), is higher in Canadian men than women older than 18 years (20.1% vs. 17.4%; Statistics Canada, 2010). Males older than 20 years are

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also more likely to be overweight or obese than females in the United States (71.6% vs. 66.5%; Ogden, Carroll, Kit, & Flegal, 2014).

Furthermore, minority men experience especially high levels of chronic disease. For example, when compared to White American males, African American males have higher rates of chronic disease, including cardiovascular disease, diabetes, and cancer, and experience higher mortality rates due to cancer, heart disease, and stroke (Griffith, Allen, Johnson-Lawrence, & Langford, 2014; Linnan et al., 2011).

A number of factors have been highlighted that might contribute to these disparities. In general, men have poorer outcomes on most measures of health compared to women (e.g., Graves, 2001; Seeman, Singer, Wilkinson, & McEwen, 2001); are less knowledgeable about health in general, as well as specific diseases and their personal risk factors (e.g., Courtenay, 2000); are less likely to access, interpret, and apply information to maintain and improve their health (e.g., Australian Institute of Health and Welfare, 2008; Galadas, Cheater, & Marshall, 2005); and tend to possess low levels of health literacy (Singleton, 2008). Men are more likely than women to engage in behaviors that increase the risk of chronic disease, including smoking and insufficient fruit and vegetable consumption (Eguchi et al., 2012). Furthermore, African American men have lower levels of leisure-time physical activity than their White counterparts (Griffith et al., 2014).

The focus on chronic disease prevention in men has traditionally been surpassed by that directed toward women. In a 2012 review of gender prevalence in weight management programs ($n = 244$ studies with a total of 95,207 participants), Pagoto et al. reported that while 32% of weight loss interventions included female samples, only 5% targeted men exclusively. When examining all 244 weight loss interventions included in the review, Pagoto et al. (2012) identified that mixed-gender participant samples were on average only 27% male. This is unfortunate, given the evidence that interventions seeking to alter the lifestyle-related determinants of chronic disease (e.g., physical inactivity, unhealthy eating, and obesity) can successfully reduce the risk of such a diagnosis (Bucksch & Schlicht, 2006; Loader, 2010; Nunan, Mahtani, Roberts, & Heneghan, 2013).

In a study exploring the motivations for participating in weight loss programs in men with overweight and obesity, Wolfe and Smith (2002) reported that health problems and the desire to increase attractiveness were cited by over half of participants (total $n = 72$) as a primary motivator for losing weight. In a study that used semistructured interviews, Wirth, James, Fafard, and Ochipa (2014) reported that many men felt that weight loss programs were inherently feminine, which this was a barrier

for enrolling in an intervention. As discussed by Gibbs (2008), increasing age might be a factor that reduces men's preoccupations with the perceived femininity of chronic disease prevention and management (CDPM) programs as a barrier to participation. Specifically, while exploring men's experiences of arthritis management programs, Gibbs (2008) reported that for many of the men interviewed, "there are protective factors associated with aging that lessen the constraints imposed by dominant social constructions of masculinity" (p. 80). In an earlier work along the same lines, Gibbs (2007) reported that for men who identified being "currently employed," work functioned as both an inhibitor and a motivator for engaging in arthritis self-management programs. Time and energy constraints associated with work served as a barrier for participation in self-management programs, but conversely, if these interventions were framed as improving performance at work, men seemed to view them more favorably.

Clearly, given (1) men's heightened risk for the development of certain chronic diseases (White & Cash, 2004); (2) the effectiveness of lifestyle programs in various populations, including men (e.g., Bucksch & Schlicht, 2006; Loader, 2010; Nunan et al., 2013); and (3) the typically low participation rates of men in such programs (e.g., Lerman & Shermer, 1996; Pagoto et al., 2012), an exploration of CDPM programs targeting men, as well as the motivators and barriers related to men's participating in such programs, is timely. The purpose of the current study is to conduct a scoping review to map the existing literature on both individual-level and program-specific barriers and facilitators affecting the participation of men in CDPM programs. For the purposes of this study, CDPM programs were operationalized as interventions that sought either (1) to modify the lifestyle factors associated with an increased risk for chronic disease or (2) to reduce the burden of an existing chronic disease.

Method

According to Arksey and O'Malley (2005), reasons for undertaking a scoping review include (1) examining the range of an area of research and (2) determining gaps in the literature. The scoping review methodology advanced by Arksey and O'Malley was used for the present study and included five stages: (1) identifying the research question, (2) identifying relevant studies, (3) selecting the studies, (4) charting the data, and (5) collating, summarizing, and reporting the results.

Sixteen databases were searched (AMED, Medline, CONAHL, Cochrane Library, EMBASE, Native Health Databases, Physical Education Index, PubMed, Scopus, SocINDEX, SPORTDiscus, Health and Psychosocial Instruments, Proquest Nursing and Allied Health Source,

Pubget, Dissertations and Thesis's, and PsychINFO). Search terms included combinations of the following: men, male, diet, physical activity, exercise, behavior change, chronic disease, obesity, diabetes, program, intervention, barrier, enabler, facilitator, and engagement. The initial literature search produced a total of 3,482 potential studies. Titles and, if necessary, abstracts were examined to identify articles that were relevant to the research question. A total of 3,329 studies were excluded based on title or abstract examination, leaving 153 potential studies. After the removal of 25 duplicates, the total number of studies included for full-text review was 128. At this point, inclusion criteria were developed to eliminate studies that did not address the research question. Inclusion criteria were developed post hoc based on the methodological framework advanced by Arksey and O'Malley (2005). The primary inclusion criterion was that studies examined barriers and/or facilitators related to CPDM program participation in men in programs that included but were not necessarily designed for males only. A chronic disease *prevention* program was operationalized as an intervention that attempted to alter the lifestyle determinants of chronic disease for the purpose of preventing a subsequent diagnosis. Relevant interventions could include weight loss interventions or healthy eating promotion campaigns. Chronic disease *management* programs were operationalized as interventions that helped individuals who were previously diagnosed with a chronic disease reduce the burden associated with the illness(es). Several studies that were identified in the database search included an examination of the potential program preferences of men for the purpose of guiding future intervention design; these studies were also included. The country in which the study was completed was not considered as an inclusion criterion so as to ensure that as much literature was gathered as possible without restrictions based on geographical location. The 128 articles that were included through relevant title or abstract review were read in full by the primary author. Twenty studies from the database search met the inclusion criteria. An additional six studies were identified by searching the reference lists of studies included from the database search. Thus, a total of 26 articles were included in the review (indicated with an asterisk in the reference list). To map the existing literature related to the participation of men in CDPM programs, factors that affected program engagement were organized into two broad categories: "pull factors" and "push factors." As described by Hunt, Gray, et al. (2014), push factors include psychosocial characteristics and past experiences that motivate men to consider participating in a health promotion program, while pull factors include program features and recruitment materials that draw men to participate.

Results

Push Factors

Push factors influence whether men will be receptive to program recruitment materials and will consider enrolling in the program itself (Hunt, Gray, et al., 2014). Two of the studies included in this review noted the importance of experiencing a past negative health event in precipitating men's enrolment in CDPM programs. When conducting post-program focus groups with men ($n = 16$) that had participated in a group-based weight management program, Gray et al. (2009) reported that many of the men had joined because of a previous diagnosis of obesity or other health condition. In post-program interviews exploring the engagement of male participants in a male-only, online-mediated weight loss program, Morgan, Warren, Lubans, Collins, and Callister (2011) reported that many of the men interviewed (total $n = 18$) had experienced a recent health "scare" that prompted them to take action.

In the studies that explored men's reasons for joining CDPM programs, health benefits and improving physical appearance were often cited. Morgan, Warren, et al. (2011) reported that improving personal appearance was a commonly referenced precipitating factor to program participation and was generally reported more by younger participants. Furthermore, in an exploration of reasons for seeking weight loss in overweight but otherwise healthy men ($n = 91$; $M_{age} = 41.0$), Hankey, Leslie, and Lean (2002) identified that younger men (aged 30-40 years) were more likely to cite improving physical appearance as the most important motivator for engaging in health promotion programs, while older men (aged 40-55 years) most commonly cited improving health.

Gibbs (2007) reported that men with arthritis who were able to fulfill their expected roles at work and at home were unlikely to view themselves as needing to improve their fitness. Through semistructured interviews examining men's barriers to arthritis self-management programs ($n = 17$), Gibbs also reported that many men would only consider self-management programs if their condition progressed to the point that the men could no longer work. While decreased performance at work may be a positive pushing factor toward program engagement, work was also reported in two studies as a barrier to engagement. Gibbs reported that work commitments could trump personal health, and energy and time outside of work were often not sufficient to encourage health-promoting activities. Gibbs also discussed the fact that the negative influence of work on engagement in CDPM programs is strongest in midlife when work commitments are greatest. This finding is underscored in a later related work by Gibbs (2008), in which it was reported that men

were more likely to enroll in CDDM programs after retirement, when work commitments subsided.

Health-related knowledge was also identified as a potential determinant of participation in CDDM programs. In a study comparing men who participated with those who did not ($n = 178$; age range: 35-60 years), Naslund, Fredrikson, Hellenius, and de Faire (1994) reported that nonparticipating men were significantly less likely to believe that a link existed between diet and health. These men regarded the effects of stroke and myocardial infarction as less serious, and they were less likely than those who participated in the program to rate the avoidance of animal food or food additives as important in relation to health.

Six of the studies included in this review explored the effects of masculinity on health and perceptions of CDDM programs. Gray et al. (2013) reported that men may be less aware of their overweight status because they associated increased body size with muscularity and masculinity. Coles et al. (2010), Du Plessis, Cronin, Corney, and Green (2013), and Gibbs (2008) all discussed hegemonic (dominant) masculinity and the importance it places on independence and control, which can negatively affect health-seeking behaviors. In turn, a lack of health-seeking behaviors can be a barrier to health program uptake. Finally, a number of studies have explored the effects of masculinity on men's perceptions of health promotion programs. Four studies that were included in this review qualitatively explored men's perceptions of weight loss programs (Gray et al., 2013; Hunt, Gray, et al., 2014; Wirth et al., 2014) and health promotion programs in general (Coles et al., 2010); generally, these researchers reported that many men felt that these programs were inherently feminine. For example, the alteration of healthy lifestyles was viewed by some men as a behavior reserved for women, whereas men reported waiting until a physical symptom was present before considering their health (Coles et al., 2010).

Pull Factors

As described by Hunt, Gray, et al. (2014), pull factors include recruitment strategies and program characteristics that attract men to participate in CDDM programs. Many of the studies included in the review included an intervention component (see Table 1). Program characteristics—among other factors—can include the setting(s) in which the program takes place, who the program is targeted at, and the content of the program itself. As such, the discussion below is divided accordingly.

Program Settings. In two studies, the workplace was identified as an attractive setting for chronic disease prevention programs. When asked in focus groups about their

setting preference for a health promotion program, many Australian men (total $n = 39$; age range: 45-65 years) indicated they would be most interested in a program conducted in the workplace (Burton, Walsh, & Brown, 2008). Coles et al. (2010) also reported that many health promotion programs targeted at men have been set in the work environment or have provided work-friendly hours. Morgan, Collins, et al. (2011) examined the efficacy of a workplace-based weight loss program (including an online component) for Australian shift workers ($n = 110$; $M_{age} = 44.4$, $SD_{age} = 8.6$). The men in the intervention condition experienced significant decreases in body weight, waist circumference, and blood pressure compared with a control group.

In an interview-based examination of African American men's ($n = 49$; age range: 45-88 years) recommended strategies for designing health interventions, Hooker, Wilcox, Rheame, Burroughs, and Friedman (2011) reported that the most preferred setting for a physical activity intervention was a gym or a recreation center. The church and outdoor parks were also mentioned by participants as attractive settings. Interestingly, Linnan et al. (2011) explored the feasibility of communicating health information and conducting a physical activity competition among African American men in barber-shops ($n = 90$; $M_{age} = 35.0$, $SD_{age} = 12.0$). A total of 100% of owners that were asked to conduct this intervention in their barber-shops agreed, and 81% of African American men that were asked to participate in the program agreed to do so, highlighting the potential of this unique setting as an appropriate setting for the delivery of health promotion programs among this population. Additionally, the majority of participants indicated that they would be interested in learning more about health-related topics, such as "getting more exercise" (70%), "eating more healthfully" (67%), "heart disease/stroke" (64%), and "diabetes" (64%; Linnan et al., 2011).

Two research teams, who produced seven studies included in the review, examined CDDM programs that were delivered in partnership with, and often in the stadium of, professional football clubs in England and Scotland (see Table 1; Gray et al., 2011; Gray et al., 2013; Hunt, Gray, et al., 2014; Hunt, Wyke, et al., 2014; Pringle et al., 2011; Pringle et al., 2014; Robertson et al., 2013). As a part of the Football Fans in Training (FFIT) program, a weight loss program designed specifically for men ($n = 747$; age range: 35-65 years) that was delivered to fans of professional football clubs within the stadium itself ($n = 13$) in Scotland, Hunt, Gray, et al. (2014) qualitatively examined the aspects of the program that motivated men to participate. Men often cited the fact that the program was held in the stadium of a football team they supported as a major draw to participate. In fact, in an earlier feasibility study of the same FFIT program conducted

Table 1. Chronic Disease Prevention and Management Interventions.

Study	Population characteristics	Intervention groups	Results
FFIT pilot (Gray et al., 2011; Gray et al., 2013)	Randomized 103 participants Men aged 35-65 years with a BMI >27 kg/m ² $M_{\text{age}} = 47.1, SD_{\text{age}} = 8.4$	2 groups (12-week duration) 1. two-arm intervention group: one at a large, urban Scottish Premier League club and one at a smaller rural club ($n = 51$) 2. two-arm wait-list control group, received the intervention after a 4-month wait ($n = 52$)	Intervention group lost significantly more weight at 12 weeks, 6 months, and 12 months; had a significantly smaller waist circumference and body fat percentage at 12 weeks, 6 months, and 12 months; and reported significantly more total physical activity (MET minutes/week) and number of fruits and vegetables consumed per day at 12 weeks.
FFIT randomized controlled trial (Hunt, Gray, et al., 2014; Hunt, Wyke, et al., 2014)	Randomized 747 participants Men aged 35-65 years with a BMI >27 kg/m ² $M_{\text{age}} = 47.0, SD_{\text{age}} = 8.07$	2 groups (12-week duration) 1. Intervention group divided among 13 Scottish professional football clubs ($n = 374$) 2. Control group, received the intervention after a 12-month wait ($n = 374$)	Intervention group lost significantly more weight at 12 weeks and 12 months, had a significantly smaller waist circumference and body fat percentage at 12 weeks and 12 months, reported significantly more total physical activity (MET minutes/week), consumed significantly more fruits and vegetables and less alcohol at 12 weeks and 12 months, and had significantly higher self-esteem and positive affectivity scores at 12 weeks and 12 months.
Men on the Move (Griffith, Allen, Johnson-Lawrence, & Langford, 2014)	41 participants African American men aged 35 years or older $M_{\text{age}} = 53.8$; age range = 35-70	Intervention group only (10-week duration)	Compared with preintervention scores, significant increases were observed for self-reported overall health status, stress levels, and total physical activity.
Healthy Dads, Healthy Kids (Morgan, Lubans, et al., 2011)	Randomized 53 participants Overweight or obese men (BMI: 25-40 kg/m ²) with a child between the ages of 5 and 12 years $M_{\text{age}} = 40.6, SD_{\text{age}} = 7.1$	2 groups (3-month duration) 1. Intervention group ($n = 39$) 2. Control group ($n = 32$)	There was a significant between-group difference for percentage weight loss at 3 and 6 months, and a significant difference in physical activity scores in children.
SHED-IT Pilot (Morgan, Lubans, Collins, Warren, & Callister, 2009; Morgan, Warren, Lubans, Collins, & Callister, 2011)	Randomized 65 participants Men aged 18-60 years with a BMI between 25 and 37 kg/m ² $M_{\text{age}} = 35.9, SD_{\text{age}} = 11.1$	2 groups (3-month duration) 1. Intervention group participated in an information session, received self-help materials, and had access to a tracking website ($n = 34$) 2. Control group only participated in the information session and received self-help materials ($n = 31$)	Significantly more participants in the intervention group lost >5% of baseline body weight than the control group at 3 months (but not at 6 months).
Workplace POWER (Morgan, Collins, et al., 2011)	Randomized 110 participants Overweight or obese (25-40 kg/m ²) men between 18 and 65 years	2 groups (3-month duration) 1. Intervention group ($n = 65$) 2. Control group, received the intervention after 14 weeks ($n = 45$)	Intervention group displayed significantly greater levels of weight loss and physical activity levels, and lower levels of waist circumference and BMI.

(continued)

Table 1. (continued)

Study	Population characteristics	Intervention groups	Results
PLH (Pringle et al., 2011; Pringle et al., 2014; Robertson et al., 2013)	4,020 participants All men were eligible to attend, but aimed at men aged 18 to 35 years at risk for ill health Most men (56.7%) between 18 and 34 years	Intervention group only	Significant pre–post intervention outcomes were observed for total physical activity, sitting time, fruit and vegetable consumption, alcohol consumption, and BMI.

Note. FFIT = Football Fans in Training; MET = metabolic equivalent of task; BMI = body mass index; POWER = Preventing Obesity Without Eating Like a Rabbit; PLH = Premier League Health.

by Gray et al. (2011), many participants who took part in post-pilot focus groups indicated that they would not have participated in a similar weight loss intervention if it was delivered in any other setting. Premier League Health (PLH) was a similar health promotion program delivered to fans in English premier league football clubs ($n_{\text{Clubs}} = 16$; Pringle et al., 2011; Pringle et al., 2014; Robertson et al., 2013). Similar to the studies conducted in association with FFIT, many of the men (total $n = 4,020$) who participated in PLH cited the fact that the program was delivered in a football club as a major motivating factor for initial engagement (Pringle et al., 2014). Interestingly, when examining the characteristics of men who decided to participate, Pringle et al. (2014) identified that the program drew not only fans of the football team who were located both near and far but also men who were not fans of the associated football team but for whom the delivery site was accessible. Additionally, Pringle et al. (2014) reported that many of the men who were engaged in the program were those who did not visit their physician often or at all, highlighting the potential additional importance of the program.

Program Participants. Several of the studies included in this review explored men's preferences with regard to the gender of participants in CDPM programs. In all six of the studies that addressed this issue, many men indicated that they would prefer participating in health promotion programs with other men, especially those who were similar to themselves in terms of interests and demographics (Coles et al., 2010; Gray et al., 2013; Hooker et al., 2011; Hunt, Gray, et al., 2014; Morgan, Warren, et al., 2011; Sabinsky, Toft, Raben, & Holm, 2007).

Program Components. The characteristics of the CDPM program itself are important in determining whether men will be motivated to participate. As indicated above, several studies in this review have explored men's perceptions of CDPM programs, many of which noted that men

view them as feminine (Coles et al., 2010; Gray et al., 2013; Hunt, Gray, et al., 2014; Wirth et al., 2014). In addition, in a survey of men's reasons and preferences for attempting weight loss ($n = 72$; $M_{\text{age}} = 44.99$, $SD_{\text{age}} = 11.77$), Wolfe and Smith (2002) reported that 52.8% of participants most preferred working individually with a personal trainer, while 34.7% endorsed group exercise. However, several studies noted that men were actually quite in favor of group-based programs but only if they included the ability to interact with men of similar demographic background or those with similar interests (Coles et al., 2010; Gray et al., 2009; Hooker et al., 2011).

Another CDPM program component that was viewed positively was the inclusion of physical activity components. In an evaluation of the FFIT program delivered in Scottish professional football clubs, Gray et al. (2013) reported that men were more attracted to weight loss programs that featured a physical activity component as opposed to diet content only. Additionally, Hooker et al. (2011) qualitatively examined the program preferences of African American men and reported that many men noted a preference for both nutritional education and physical activity (mostly walking and team sports) as a part of the intervention. In a qualitative assessment of participant experiences in the SHED-IT program (Morgan, Warren, et al., 2011), a male-only, technology-mediated weight loss intervention (Morgan, Lubans, Collins, Warren, & Callister, 2009), many participants communicated their support of the diet component, which was perceived as flexible, and which still allowed for treats and alcohol.

Integrating competition into program activities was also addressed in several studies. Specifically, competition-based physical activity was mentioned by men in the Griffith et al. (2014) and Hooker et al. (2011) studies as a preferred component of a healthy lifestyle intervention. Robertson et al. (2013) reported that competition could improve the program experience but could also become a negative influence on experiences if the level of competition became too high.

Financial factors were mentioned in two studies as determinants of men's participation in CDPM programs. In focus groups investigating men's program preferences, Coles et al. (2010) identified that programs that were of no cost were most appealing to men. Additionally, Wirth et al. (2014) qualitatively examined the weight loss experiences of men ($n = 20$; $M_{\text{age}} = 53$, $SD_{\text{age}} = 5.50$) for the purpose of designing weight loss messages and interventions, and reported that financial incentives, such as tax credits or participation at no cost, were perceived as facilitators to join programs for many of the men interviewed.

Last, in a process evaluation of the PLH program, Robertson et al. (2013) reported that flexibility in attendance from week to week was important for male participants. Specifically, men noted that they wanted to feel like they could "skip" program sessions without facing negative consequences.

Recruitment Materials. Eight studies in the review related directly to the effectiveness of different recruiting strategies for men in CDPM programs. In a qualitative investigation of British men's experiences with health promotion programs, Coles et al. (2010) reported that men responded favorably to some recruiting techniques and less favorably to others. Specifically, many men felt that they were underinformed about the programs that were offered in their area, and they were also dissatisfied in relation to how men were portrayed in the advertising they were exposed to: as either young, muscular, and attractive, or overweight and lazy. Instead, many men were attracted to health promotion advertising that was delivered in a straightforward and direct manner, including, for example, listing the local services or risk factors related to health. Additionally, Coles et al. identified that while some men felt that recruiting for health promotion programs in locations where men often frequent, like sports matches and bars, would be most successful; others wanted a less targeted approach to advertising. In an examination of successful recruitment strategies to a male-only, technology-mediated weight loss program, Morgan, Warren, et al. (2011) reported that participants were attracted to humor in advertising, such as having a picture of a beer glass on recruitment materials. In a weight loss program for fathers and their children ($n = 53$ fathers; $M_{\text{age}} = 40.6$, $SD_{\text{age}} = 7.1$), carried out by Morgan, Lubans, et al. (2011), the researchers reported that most participants were recruited through school newsletters. In focus groups examining of the effectiveness of the "10,000 steps per day" campaign in Australia, which promoted daily physical activity and reduced sedentary time, Burton et al. (2008) identified that men did not think the message of "10,000 steps per day" provided enough information about what the campaign was trying to achieve and how that goal could be met. Many men

suggested that a shock campaign related to a health "scare" would be a more effective strategy in motivating men to become more active.

Recruitment and advertising by word of mouth was mentioned in several studies as an important way to engage men in CDPM programs. In a process evaluation of the PLH (discussed above), Robertson et al. (2013) cited word of mouth between trusted individuals as the greatest factor facilitating engagement in the program by men. Trusted individuals could include friends who had experienced the program or significant others who could be influential as intermediaries between their male partners and programs. Robertson et al. also noted that because of the time required to advertise through a growing network of face-to-face communications, the recruitment period took longer than originally anticipated. In an examination of the pre-adoption characteristics of men participating in the same PLH program, Pringle et al. (2011) also reported that the majority of men heard about the program through word of mouth. In a subsequent study by Pringle et al. (2014), men who engaged in PLH found out about the program through friends, by visiting health services, and also through football club media, including online platforms. Related to online recruiting, Robinson and Robertson (2010) discussed the potential for the internet to be a useful place for recruitment of men because it is a forum where men could seek information in private.

Discussion

There has been an increasing level of importance placed on exploring men's health promotion in the last decade (Smith & Robertson, 2008). This has resulted in a proliferation of CDPM programs targeting men, and thus it was timely to examine the literature on the engagement of men in such programs. This review has identified several knowledge gaps that, when explored, will have a significant effect on the prevention and management of chronic disease in men.

Hankey et al. (2002) reported that younger men cited improving physical appearance as the most prevalent reason for joining a weight loss program, while older men more often cited improving health. By altering the recruitment strategies to each potential population (i.e., focusing on appearance for younger potential participants and health for older potential participants), advertising is more likely to engage each individual's push factors and motivate them to participate. As such, more research is warranted to examine the effects of recruitment strategies on different subgroups of men. Many of the studies that were included examined men's preferences and perceptions of health promotion programs through qualitative focus groups and interviews. Further empirical research

must be conducted to paint a more comprehensive picture of the effectiveness of different strategies. Additionally, there were no studies included in the review that evaluated men's experiences of a CDPM program that was available to both men and women. It may be that program components designed specifically for men do not appeal to women; as such, additional research should be conducted to explore strategies that are preferred by both men and women in a dual-gender context.

Men in several studies indicated their preference for participating in CDPM programs with men similar to themselves in terms of demographics and/or interests (Coles et al., 2010; Gray et al., 2013; Hooker et al., 2011; Hunt, Gray, et al., 2014; Morgan, Warren, et al., 2011; Sabinsky et al., 2007). This could be related to the conflicting results reported in terms of the preferred context for these programs to be delivered within (i.e., group-based vs. individual). Wolfe and Smith (2002) reported that male participants preferred an individual as opposed to a group context when attempting to lose weight, while in three other studies men indicated that they were attracted to a group context when it was made up of men similar to themselves (Coles et al., 2010; Gray et al., 2009; Hooker et al., 2011). In a 2006 study exploring male and female university students' preferred physical activity contexts, Burke, Carron, and Eys (2006) identified that the majority of men included in the study (total $n = 198$; $M_{\text{age}} = 19.74$, $SD_{\text{age}} = 1.35$) preferred to exercise with others but not in a structured group fitness class. In addition, Beauchamp, Carron, McCutcheon, and Harper (2007) explored older and younger adults' preference for exercising in groups similar to themselves versus a dissimilar group or exercising alone. The researchers reported that both the older adults and younger adults preferred exercising with a group similar in age to themselves as opposed to a dissimilar group (i.e., a 20-year-old participating in a group mostly comprising those in their 60s and 70s). Additionally, the participants preferred exercising in a similarly aged group more than exercising individually. This preference for similarity within groups, or "contextual congruence," was also displayed in several of the studies included in this review, whereas men only preferred to participate in a group program when it was composed of similar men (Coles et al., 2010; Gray et al., 2009; Hooker et al., 2011). As such, future research into CDPM programming for men should continue to explore whether contextual congruent group programs are indeed more favorably perceived than individual offerings.

The limited number of studies included could be considered a limitation of this review. It is challenging to make broad generalizations concerning men's participation in CDPM programs based on the findings of the small sample of studies included. Additional research is warranted to increase the knowledge base in this area. Additionally, the

studies included in this review focused heavily on weight loss, physical activity, and nutrition. Although these are important factors affecting the incidence of chronic disease, there are a variety of other behavioral factors that must be considered, including smoking and alcohol consumption (Centers for Disease Control and Prevention, 2009; Public Health Agency of Canada, 2013).

This review has examined the literature available to date on engaging men in CDPM programs. It is important to highlight both "pushing" and "pulling" factors as necessary in motivating men to participate. The information discussed can be used by health promotion practitioners to better engage men in their CDPM efforts. Furthermore, gaps in the research that have been identified by this review should be addressed to further the practice of men's health promotion.

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