Men's Mental Health Promotion Interventions: A Scoping Review

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Abstract

There is an increasing need for mental health promotion strategies that effectively engage men. Although researchers have examined the effectiveness of diverse mental wellness interventions in male-dominated industries, and reviewed suicide prevention, early intervention, and health promotion interventions for boys and men, few have focused on sex-specific program effects. The purpose of this review was to (a) extend the previous reviews to examine the effectiveness of mental health promotion programs in males, and (b) evaluate the integration of gender-specific influences in the content and delivery of men's mental health promotion programs. A search of MEDLINE, CINAHL, PsycINFO, and EMBASE databases for articles published between January 2006 and December 2016 was conducted. Findings from the 25 included studies indicated that a variety of strategies offered within (9 studies) and outside (16 studies) the workplace show promise for promoting men's mental health. Although stress was a common area of focus (14 studies), the majority of studies targeted multiple outcomes, including some indicators of positive well-being such as self-efficacy, resilience, self-esteem, work performance, and happiness/quality of life. The majority of programs were offered to both men and women, and six studies explicitly integrated gender-related influences in male-specific programs in ways that recognized men's interests and preferences.

Keywords

nental health, men, masculine, health promotion, well-being

Many men are reticent to access professional mental health services and/or seek help for psychological problems (Coen, Oliffe, Johnson, & Kelly, 2013; Smith, Braunack-Mayer, & Wittert, 2006). As such, interventions delivered in settings where men gather, including the workplace, hold promise for promoting mental health among men (Robertson et al., 2015). Workplace and community-based mental health interventions vary in focus from suicide prevention and reducing depression/anxiety (Gullestrup, Lequertier, & Martin, 2011; Ogrodniczuk, Oliffe, Kuhl, & Gross, 2016; Robertson et al., 2015; Roche et al., 2016) to the promotion of "mental fitness," which denotes strength (e.g., social support, purpose), flexibility (e.g., mindfulness, positive emotions), and endurance (e.g., resilience, self-efficacy) (Robinson & Oades, 2016). Although researchers have examined the effectiveness of diverse mental health interventions to address anxiety and depression in general (Martin, Sanderson, & Cocker, 2009) and reviews are

available summarizing the evidence for positive psychology interventions in particular (Meyers, van Woerkom, & Bakker, 2013) as well as for diverse populations including employees (Ravalier, Wegrzynek, & Lawton, 2016),

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few have focused on sex-specific program effects or considered the influence of gender-related factors.

One exception has been Lee, Roche, Duraisingam, Fischer, and Cameron (2014), who examined workplace-based interventions in male-dominated industries (e.g., manufacturing, industrial chemical plant, assembly line, and construction workers). In a search of published literature between 1990 and 2012, the authors identified five studies examining interventions for addressing anxiety and depression among working men. The intervention strategies aimed at improving mental health literacy and education in both employees and managers, improving access to treatment, increasing social support, and addressing workload issues were reported to be effective for supporting mental health in the workplace. Robertson et al. (2015) also conducted a comprehensive review of studies (from 2009 to June 2014) examining the effectiveness of interventions for promoting mental health in boys and men more specifically; however, the focus was on suicide prevention, early intervention, and health promotion. They reported that several interventions showed promise for promoting help seeking, and reducing the stigma related to mental illness among boys and men, especially when using a gender-sensitive approach. According to the World Health Organization (World Health Organization, 2007), gender-sensitive programs are those "that recognize the specific needs and realities of men based on the social construction of gender roles" (p. 4). Although promising modes of delivering programs to men were highlighted (e.g., workplace-based, the internet, school-based) by Robertson et al., (2015), still lacking is an examination of gender-sensitive interventions that promote mental health among men. Furthermore, the workplace in particular can be considered an ideal setting to engage men. In 2014, 69% of American men 16 years and older were employed (United States Department of Labor, 2015), suggesting that through the workplace a high proportion of men (who may not otherwise be motivated to seek support for mental health) could be reached with a well-designed program that was acceptable to men.

With the goal of providing a foundation for strengthening workplace-based men's mental health promotion programs, we examined studies evaluating interventions designed to reduce stress and promote mental health that have been conducted solely with men or in mixed groups (where data are disaggregated by sex). The research question guiding this review was: What are the principles informing and patterns underpinning men's mental health promotion programs? Our intention was therefore to

1. extend the reviews undertaken by Lee et al. (2014) and Robertson et al. (2015) concerning the effectiveness of mental health promotion programs for men, and
2. evaluate the integration of sex- and gender-related influences in the content, design, and delivery of these men's mental health promotion programs.

Methods

A scoping review was appropriate because of the exploratory nature of the research goals. Scoping reviews work as a means to summarize research findings drawn from existing literature with the aim to make recommendations and identify research gaps. The current scoping review focused on identifying broad patterns and mapping approaches to promoting men's mental health (Armstrong, Hall, Doyle, & Waters, 2011; Levac, Colquhoun, & O'Brien, 2010; Rumrill, Fitzgerald, & Merchant, 2010) in order to offer recommendations for advancing men's mental wellness in the workplace and directions for future research. Although reporting guidelines do not currently exist for scoping reviews (Brien, Lorenzetti, Lewis, Kennedy, & Ghali, 2010), a systematic search of the literature for interventions that promote men's mental health was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines as closely as possible. Following Arksey & O'Malley's (2005) framework for scoping reviews, the present scoping review followed five stages: (a) identifying the research question, (b) identifying studies, (c) selecting studies, (d) extracting and charting the data, and (e) collating/summarizing the results.

Information Sources and Search Strategy

The databases MEDLINE, CINAHL, PsycINFO, and EMBASE were searched using the keywords (in title or abstract): (Male OR Men OR masculin*) AND ("Mental Health" OR "Mental Well*" OR Resilience OR Stress) AND (Intervention* OR Service* OR Program* OR Project OR Evaluation OR Campaign OR Trial) AND (Educat* OR Support* OR Promot* OR Manage*) for articles published between January 1, 2006 and December 31, 2016. Relevant MeSH headings or subject terms were explored and included. See Appendix A for an example search strategy. Search limiters that were used (when available) included: English language, abstract available, published between January 2006 to December 2016, and humans (or males and adults, where available). In addition, articles identified through relevant reviews or by team members were also considered, and reference lists of included articles were examined for any additional articles potentially meeting the inclusion criteria. RefWorks was used for screening articles, removing duplicates, and tracking.

Eligibility Criteria and Study Selection

The following criteria were used to identify articles for this review. All study designs were included (e.g., randomized-controlled trial [RCT], pre-post, quasi-experimental, etc.) provided they met the following: (a) the intervention was concerned with mental health. This could be prevention/promotion, stress management, or stigma reduction, but had to be an intervention in the sense that it included a program designed to promote mental health (as opposed to testing the effect of controlled conditions on mental health outcomes), (b) included only male participants or data that were disaggregated by sex, (c) all participants were aged 18 or older, and (d) at least one of the outcomes of the study was a self-reported indicator of mental health or a biomarker related to mental health or stress reduction (e.g., cortisol). Articles that included evaluations of both mental and physical health were included, provided they met the aforementioned criteria. Only articles published in English were considered. Additionally, articles with participants who were solely 65 years and older were excluded as were patient populations, such as participants with psychosis, schizophrenia, bipolar disorder, dementia, or another chronic mental illnesses. Interventions with populations "at-risk" for anxiety or depression were considered for inclusion. Only peer-reviewed empirical publications (i.e., no editorials, expert opinion, discussion papers) were included.

One research assistant completed the initial search and the lead author (CS) oversaw the process to ensure the search strategies and exclusion criteria were consistently followed. A second research assistant independently reviewed the articles identified for full text review in the original search. The percent agreement with the first research assistant was 89.31%, Cohen's Kappa = .603, characterized as moderate (Landis & Koch, 1977). Disagreements were discussed with the lead author (CS) to determine the articles for inclusion in the current review.

The initial search yielded a total of 11,201 articles and resulted in 8,114 articles after duplicates were removed using RefWorks. Title and abstracts were screened to identify articles that potentially met the inclusion criteria. In total, 160 articles were identified for further assessment, and the full texts of these articles were reviewed. After excluding articles that did not meet the inclusion criteria (e.g., did not report results separated by sex), 25 articles were identified for inclusion. A flow diagram summarizing article inclusion/exclusion is provided (Figure 1).

Data Extraction and Summary of Findings

Relevant information from each study, including country, sample, study design, focus of intervention, outcomes, and findings was extracted by the lead author (CS). Table 1 includes a summary of all included articles. The findings are summarized below organized according to focus of intervention and outcomes targeted, workplace-based interventions, and gender-sensitive programs.

Findings

Of the 25 studies included in this review, 17 were quantitative (10 RCTs, 2 controlled trials, 4 pre-post comparisons, and 1 repeated cross-sectional survey), 4 were qualitative (3 interview and 1 descriptive study) and 4 included both quantitative and qualitative study designs (all pre-post with follow-up interviews). Studies were conducted in a number of countries, including the United States ($n = 7$), Japan ($n = 4$), Australia ($n = 3$), UK ($n = 3$), Germany ($n = 2$), Ireland ($n = 2$), Brazil ($n = 1$), Finland ($n = 1$), Italy ($n = 1$), and Korea ($n = 1$). The 25 studies involved a total of 4,010 male participants (sample sizes from 6 to 956). In the majority of studies ($n = 15$, 60%) researchers evaluated programs that were offered to both men and women, and 10 studies had male-only samples. Six studies included interventions that were deliberately aimed at men both in terms of the design and delivery. The primary outcome of interest in the current review was the promotion of men's mental health. Among the 25 studies meeting the inclusion criteria, 22 (92%) reported significant positive changes in men's mental wellness and three (Abbott, Klein, Hamilton, & Rosenthal, 2009; Jarman, Martin, Venn, Otahal, & Sanderson, 2015; Kobayashi, Kaneyoshi, Yokota, & Kawakami, 2008) reported no changes. All three of the interventions deemed to be ineffective for men involved workplace-based programs.

Focus of Intervention and Primary Outcomes Targeted

The 25 articles covered a diverse array of interventions that aimed to promote mental health—from yoga (Bilderbeck, Farias, Brazil, Jakobowitz, & Wikholm, 2013) and supervised fitness (Battaglia et al., 2015) with prison populations to stress management workshops with management employees (Limm et al., 2011). Yet, the majority of interventions had more than one focus, making it difficult to separate what components of the effective interventions were most acceptable to men. For example, researchers in one study described a cardiac lifestyle intervention program that included stress management education, supervised exercise, cooking demonstrations, and social support components (Daubenmier et al., 2007). Notable exceptions included a focused brief intervention for the treatment of depressed mood amongst a university student sample including men and women
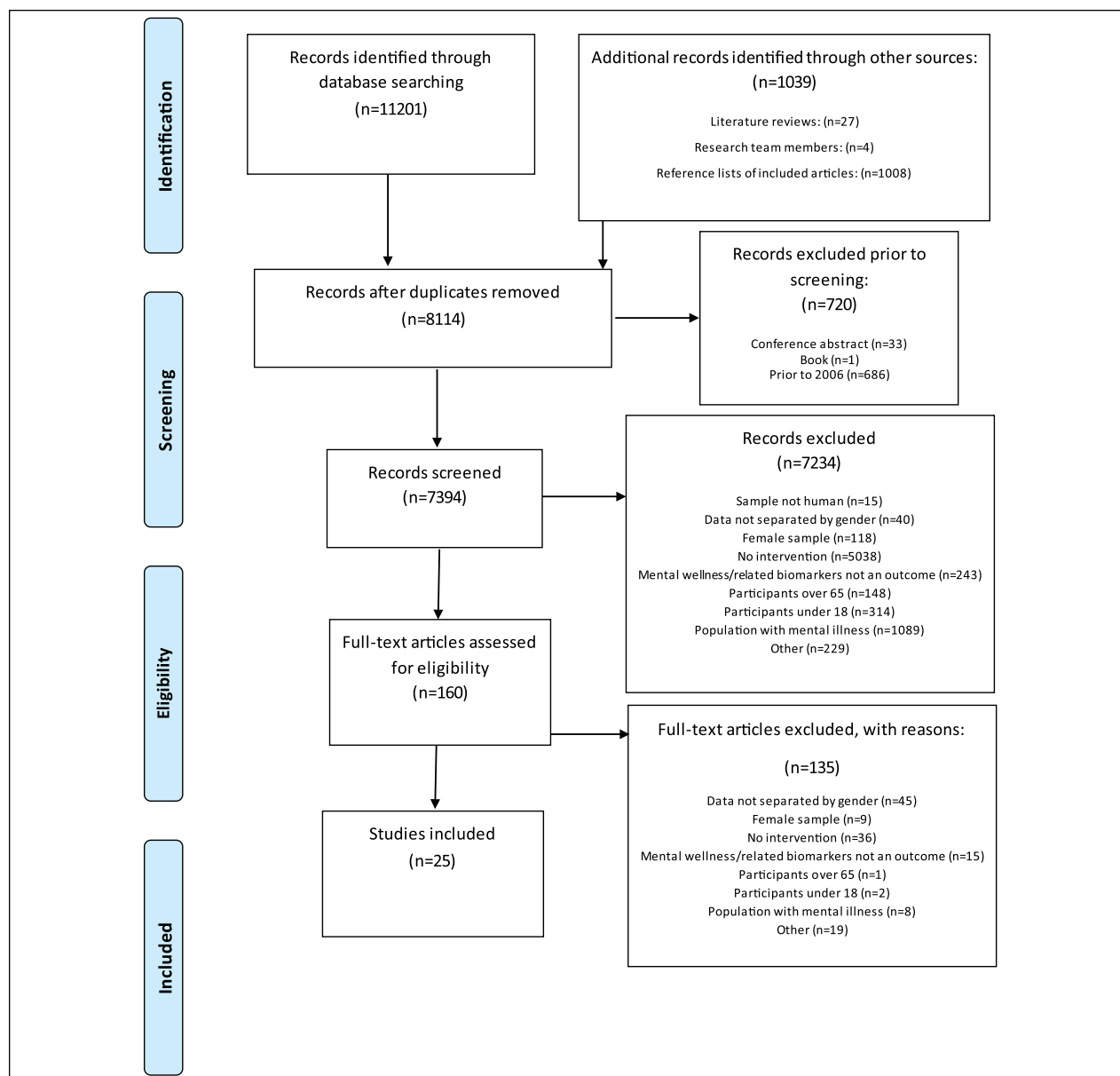
Figure 1. Flow diagram of articles identified and excluded according to PRISMA guidelines.

(Geisner, Neighbors, & Larimer, 2006), and behavioral/psycho-education sessions for men with chronic occupational stress (Nickel et al., 2007). The most common theme across the 25 studies was the inclusion of stress management techniques in some form, with 14 studies focusing at least in part on stress reduction (Bilderbeck et al., 2013; Bormann et al., 2006; Bughi, Sumcad, & Bughi, 2006; Daubenmier et al., 2007; Hirokawa, Taniguchi, Tsuchiya, & Kawakami, 2012; Jarman et al., 2015; Kim, Lee, Kim, Noh, & Lee, 2016; Kobayashi et al., 2008; Limm et al., 2011; Mattila, Elo, Kuosma, & Kylä-Setälä, 2006; Nickel et al., 2007; Primack, Addis, Syzdek, & Miller, 2010; Umanodan et al., 2009; Weltman,

Lamon, Freedy, & Chartrand, 2014). A basis in cognitive or cognitive-behavioral therapy (CBT) techniques was another common theme, with eight studies using this approach to varying degrees to inform interventions (Abbott et al., 2009; Kim et al., 2016; Limm et al., 2011; McArdle, McGale, & Gaffney, 2012; McGale, McArdle, & Gaffney, 2011; Primack et al., 2010; Robinson, Robertson, Steen, Raine, & Day, 2015; Umanodan et al., 2009); however, other researchers also used similar techniques [e.g., deep diagrammatic breathing and self-control relaxation (Bughi et al., 2006)] and brief intervention for depressed mood (Geisner et al., 2006), without explicitly describing their intervention as having a CBT basis.

Table 1. Summary of Included Articles.

Author (year); country	Study design	Male-centered design?	Workplace-based?	Sample (% men)	Number of male participants	Intervention	Outcome measures	Main Findings
Abbott et al. (2009) Australia	RCT	No	Yes	Industrial sales managers (87% men)	46	Resilience Online (ROL): Online resilience training based on cognitive therapy (self-paced over a 10-week period)	Work performance, happiness/quality of life, distress	Participants found the program to be enjoyable, but it did not improve work performance, happiness, or lower distress relative to a control group
Ando (2011) Japan	Pre-post assessment intervention group compared to control, but not randomized	No	No	University students (38% men)	85	Intervention based on the Successful Self Program: Prevention intervention to promote self-understanding and interpersonal interaction. Students in the intervention received 11 weekly sessions (90 min each) as part of a university credit class. Each class included a lecture on adolescence followed by introduction of a skill and worksheets to practice skills and problem solving in groups. The control group included students enrolled in a class with only lectures on adolescent psychosocial development	Self-efficacy, anxiety, self-control	Male university students in the intervention increased self-efficacy from Time1 to Time 2, although those in the control group did not. Male students in both groups decreased tension/anxiety, and increased anger/hostility
Battaglia et al. (2015) Italy	RCT	No	No	Prison population (100% men)	64	Cardiovascular plus resistance training (CRT) and High-intensity strength training (HIST) exercise: 9 months of supervised fitness training twice a week for 1 hr	Psychological well-being (depression, anxiety, etc.)	Both exercise programs had significant positive effects on inmates' well-being relative to controls and the cardiovascular and resistance program was more effective
Bilderbeck et al. (2013) UK	RCT	No	No	Prison population (95% men)	155	Yoga: 10-weeks (once a week for 2 hrs) of yoga classes, including relaxation training (e.g., breathing methods)	Impulsiveness, positive and negative affect, perceived stress, psychological distress, and behavioral response inhibition (Go/No-Go task)	The yoga treatment group displayed increased positive emotion, lower perceived stress, lower psychological stress, and improved performance on the cognitive-behavioral task at follow-up compared to the control group
Bormann et al. (2006) United States	Qualitative (interview following a 5-week mantram training program)	No	No	Veterans and hospital employees (Veterans sample was 97% men)	29	Mantram program: A 5-week course (1.5 hrs per week) involving group training with mantram repetition (i.e., silently repeating a word or phrase to relax) developed by the US Veterans Administration	Self-reported usefulness of mantram training for stress management	Overall, the group of men (veterans) found mantram training to be an acceptable and useful technique for managing stress
Bughi et al. (2006) United States	Pre-post	No	No	Medical students (55% men)	57	Brief Behavioral Intervention Program (BBIP): One lecture on stress emphasizing stress relieving techniques and group demonstration (deep diaphragmatic breathing, self-control relaxation, walking mediation). Students were instructed to apply the methods 3–4 times a day for the rest of their one-month rotation	Anxiety, stress, and positive well-being (general well-being scale)	Anxiety was lower and positive well-being was higher following the Brief Behavioral Intervention Program
Cooper et al. (2015) UK	Descriptive pilot project	Yes	No	Participants recruited from the community (87% men)	54	Adapted Boot Room project: A one-time session that included motivational interviewing and brief intervention; attracting men through sport; removing stigma by having former players discuss their mental preparation and how they dealt with the ups and downs of winning and losing	Number of men who attended sessions, number of referrals to services, open-ended feedback about session	Number attending sessions (54 men, and 8 women) exceeded expectations, and in general the group displayed symptoms of depression. Seven followed up to access support services. Attendees' open-ended responses indicated the session was well-received/acceptable to men

Table 1. (continued)

Author (year); country	Study design	Male-centered design?	Workplace-based?	Sample (% men)	Number of male participants	Intervention	Outcome measures	Main Findings
Daubenmier et al. (2007) United States	Pre-post	No	No	Patients with coronary heart disease (66% men)	576	*Multisite Cardiac Lifestyle Intervention Program (MCLIP)*: A health insurance-based lifestyle intervention program focused on stress management, exercise, diet, and social support. Patients attended the program twice a week for 3 months, and the program included educational lectures, supervised exercise, cooking demonstrations, healthy food and social support	Many outcomes (e.g., related to exercise & diet), but the psychosocial variables were depressive symptoms, hostility, and perceived stress	The psychosocial outcomes were improved at 6 month follow-up. The authors were able to explore the contribution of the program components and found that increased stress management was associated with decreased hostility and increased exercise led to decreases in stress
Fildes et al. (2010) Australia	Qualitative (pre-, mid- and end-point interviews)	Yes	No	Unemployed men age 41–62 (100% men)	15	The *Building Healthy Men Project (BHMP)*: Participation in a men's shed with group-focused projects for 2 years	Sense of purpose, self-worth and self confidence	Men reported an increase in health and wellness (sense of purpose, self-worth and confidence) as a result of participating in the men's shed
Geisner et al. (2006) Unites States	RCT	No	No	College students at risk for depression (30% men)	53	*Brief mailed intervention for depressed mood*: Brief mailed feedback about student's depressive symptoms along with suggestions for coping	Depression, hopelessness, willingness to use coping strategies	The intervention reduced depressive symptoms and hopelessness and increased willingness to use coping strategies among men
Hirokawa et al. (2012) Japan	RCT	No	Yes	Hospital staff (30% men)	27	*Stress management program*: One, 3-hr group session focused on: Stress management, relaxation training, and assertive training	Active coping, assertive behavior, and stress reduction	Men in the intervention group showed increased assertiveness and active coping compared to those in the control group
Jarman et al. (2015) Australia	Repeated cross-sectional surveys	No	Yes	A diverse pool of public sector employees from 14 government departments (e.g., health, education, fire services) (28% men)	161	*Healthy@Work*: Comprehensive workplace health promotion program, which included mental health and well-being	Job stress (effort-reward imbalance)	Reported participation in workplace health promotion initiatives doubled between 2010 and 2013. Higher participation in workplace health promotion initiative was associated with lower effort among men
Kim et al. (2016) Korea	RCT	No	No	Distressed college students (100% men)	84	*Integrated Stress Management Program (ISMP)*: Eight, 2-hr sessions over a 4-week period focused on stress management strategies	Life stress for college students, psychological distress, ways of coping checklist, and plasma cortisol	College life stress and distress both decreased significantly. Stress coping and plasma cortisol were unchanged
Kobayashi et al. (2008) Japan	RCT	No	Yes	Large manufacturing enterprise with 45 worksites (including engineering, clerical, and research departments) (91% men)	956	*Mental Health Action Checklist for a Better Workplace Environment (MHACL)*: A checklist with 30 action items meant to improve work environments for better employee mental health was implemented as a group-based employee participation initiative	Job stress, psychological distress, sick days	No significant effect of the program among men (but it was effective for women)

Table 1. (continued)

Author (year); country	Study design	Male-centered design?	Workplace-based?	Sample (% men)	Number of male participants	Intervention	Outcome measures	Main Findings
Limm et al. (2011) Germany	RCT	No	Yes	Management employees (100% men)	174	*Stress Management Intervention (SMI)*: A 2-day stress management workshop, followed by 2 sessions within the next 8 months. Included cognitive-behavioral techniques	Stress reactivity, effort-reward imbalance, anxiety and depression (self-reported), and biological stress indicators (cortisol & x-amylase)	Self-reported stress was decreased more in the intervention group compared to the control group; no difference in cortisol, but x-amylase decreased more in intervention group. Depression, anxiety, and effort-reward imbalance were in the right direction, but not statistically significant
Matt et al. (2006) Unites States	Pre-post (with additional follow-up)	No	No	Hard-to-employ persons (54% men)	614	*Support and Training Result in Valuable Employees (STRIVE)*: A 3-week program (Mon–Fri for 8 hrs per day) with in-class training to boost job-ready skills along with support services (e.g., counseling). The program aims to improve self-efficacy, self-esteem, and a sense of control	Self-efficacy, self-esteem, locus of control, depression, anxiety, and employment status	Self-efficacy, self-esteem, locus of control, and depression scores were all improved post-program. No significant change in anxiety
Mattila et al. (2006) Finland	Pre-post questionnaires and comparison to 2 control groups, as well as follow-up qualitative interviews	No	Yes	A male-dominated municipal public works department (80% men)	423	*Work conference method*: A 2-day work conference focused on improving psychosocial work environment and well-being of employees, followed by a half day follow-up session 6 months later	Psychosocial work environment (e.g., Job control, work climate, perceptions of supervisor support) and well-being (emotional exhaustion and stress)	The intervention had a positive effect on some psychosocial work variables controlling for gender, but no effect on well-being of participants. Participants expressed that the conference led to more openness, although the mandatory nature of participation was not well received
McArdle et al. (2012) Ireland	Qualitative-follow-up interviews and focus group	Yes	No	Men recruited from the community (100% men)	23	*Back of the Net (BTN)*: A 10-week community mental health promotion program with guided self-help based on CBT and exercise (football/soccer). CBT techniques were reinforced during group discussions during breaks out on the field, with a different theme each week (e.g., relation, teamwork, goal setting, etc.)	Participant feedback about the program benefits (qualitative)	Participants reported that the program was enjoyable, and that it wouldn't have worked to bring men together to discuss the weekly themes without the sport element to bring them together (though it didn't have to be football). Participants also reported greater self-efficacy and social support
McGale et al. (2011) Ireland	RCT	Yes	No	Men recruited from the community (100% men)	104	*Back of the Net (BTN)*: A 10-week (twice a week for 55 min) community mental health promotion program with guided self-help based on CBT and group exercise (football/soccer). A second group did individual, but supervised, aerobic and resistance training in a gym twice a week for 55 min for the 10 weeks, and a 3rd group (the control group) was instructed not to exercise for the 10 weeks. CBT techniques were included in the BTN group only, and consisted of a different theme each week (e.g., relation, teamwork, goal setting, etc.)	Depression, perceptions of social support, alcohol consumption, and heart rate	Both the BTN and "exercise alone" groups had decreased depression scores post intervention and at an 8-week follow-up, whereas the control group did not. Only the exercise (not the BTN) group had increased perceptions of social support
Nickel et al. (2007) Germany	RCT	No	No	Men with chronic occupational stress recruited through community advertisement (100% men)	72	*Behavioral/Psycho-educational training (BTG)*: The BTG group attended 90 min group sessions focused on stress and stress management twice a week for 8 weeks	Stress: systolic blood pressure, salivary cortisol, chronic stress, anger, and health-related quality of life	The treatment group had significantly lower blood pressure, salivary cortisol, chronic stress, and anger scores at followed up compared to the control group, as well as higher health-related quality of life

(continued)

Table 1. (continued)

Author (year); country	Study design	Male-centered design?	Workplace-based?	Sample (% men)	Number of male participants	Intervention	Outcome measures	Main Findings
Primack et al. (2010) United States	Pre-post and qualitative interviews (case study)	Yes	No	Men with depression recruited from the community (100% men)	6	The Men's Stress Workshop: An 8-week (1.5 hrs per week) group treatment involving CBT, psycho-education, and discussions of men's adherence to masculine norms, along with 2 individual sessions (an orientation and final feedback session)	Depression, social support, and self-stigma (i.e., conformity to masculine norms)	All 6 participants reported decreases in depression and increases in social support at follow-up compared to baseline. Self-stigma scores unexpectedly increased from pre-to-post workshop. Qualitative feedback suggested the men's stress workshop was an acceptable and feasible treatment for men
Robinson et al. (2015) UK	Pre-post and qualitative interviews	Yes	No	Unemployed men age 45–60 (100% men)	53	The Mind Resilience pilot programme: The resilience pilot program was implemented in 5 different locations. The program length varied from 8 weeks to 6 months, and the activities included things like football, gardening, drumming and photography (depending on the location) and CBT/Psycho-education. Some were male-only groups, and others were mixed sex groups, but this manuscript focuses solely on the data from the men	Well-being, problem solving (self-efficacy), social support	Well-being, problem solving, and social support scores all increased significantly pre-to-post intervention among men, as did an overall combined score dubbed "perceived resilience." Qualitative feedback from interviews with a subset of men (n=21) revealed aspects of the program and activities they liked
Rocha et al. (2012) Brazil	Pre-post	No	Yes	Brazilian military men (100% men)	36	Yoga Practice: The yoga practice group participated in two 60-min yoga classes per week in addition to two physical activity classes over a 6-month period. The control group attended four, 60-min physical activity classes during the same period	Depression, anxiety, and stress symptoms, short-and long-term memory (word recognition), and salivary cortisol	The yoga group had significantly decreased depression, anxiety, stress scores from baseline to follow-up and compared to the control group. In addition, the yoga group demonstrated higher performance on the memory recognition task and lower cortisol levels at follow-up compared to controls
Umanodan et al. (2009) Japan	Controlled trial, but workplaces were not randomly assigned to condition	No	Yes	Full-time employees from seven steel plants (88% men)	133	Stress Management Training (SMT): Six, 30-min multicomponent sessions focused on relaxation and stress management were delivered to employees during work time over a 6-month period (one session per month)	Stress knowledge, self-efficacy, psychological distress, physical complaints, and job performance	Employees in the stress management program had greater improvements in stress knowledge and self-efficacy compared to controls. When analyses included only employees that completed all 6 SMT sessions, improvements were also seen in distress and job performance
Weltman et al. (2014) United States	Pre-post and qualitative interviews (case study)	No	Yes	Police department personnel (officers and dispatchers) (71% men)	10	The Stress Resilience Training System (SRTS): The SRTS intervention included an initial 2-hr training session, 6 weeks of individual access to the SRTS app (including information on stress, heart rate variability biofeedback, and self-regulation techniques embedded in a game-based format), and four, 1-hr telephone coaching sessions over a 4-week period	Stress (organizational, emotional, and physical stress scales) was the primary outcome, but emotional vitality was also measured	Emotional vitality was significantly increased pre-to-post intervention, and physical stress significantly decreased. Open-ended feedback revealed that the participants were transferring the skills learned in the app to real-life (and the mentor feedback revealed that the telephone coaching assisted with this)

Note. RCT = randomized-controlled trial.

Further adding to the complexity was the fact that the majority of studies examined outcomes in a range of psychological domains and used a variety of different measures. Psychological well-being (Battaglia et al., 2015), self-stigma (Primack et al., 2010), and plasma cortisol levels (Kim et al., 2016) were just some of the many other outcomes examined in the identified articles. Bilderbeck et al. (2013) tested for reductions in mood and distress as well improvements in cognitive functioning after participation in yoga sessions. Hirokawa et al. (2012) examined the influence of a stress management program on active coping, assertive behavior, and stress reduction. Other studies included self-control and anxiety (Ando, 2011), and self-efficacy and self-esteem (Matt, Bellardita, Fischer, & Silverman, 2006) to assess outcomes. The scarcity of consistent assessment tools amongst the available literature also limited our ability to group the outcome variables that were significantly influenced by the interventions.

Nevertheless, with respect to "mental fitness" seven studies focused on exercise as a positive strategy and all were reported to be effective for promoting outcomes related to mental wellness among men (Battaglia et al., 2015; Bilderbeck et al., 2013; Daubenmier et al., 2007; McArdle et al., 2012; McGale et al., 2011; Robinson et al., 2015; Rocha et al., 2012). Furthermore, three interventions were designed to improve resilience. The Stress Resilience Training System showed promise for reducing physical stress and promoting emotional vitality among a sample of police department personnel (Weltman et al., 2014). Whereas, the Resilience Online program aimed to increase work performance, happiness/quality of life, and reduce distress among sales managers (Abbott et al., 2009). Finally, the Mind Resilience Programme was reported to promote well-being, problem-solving, and social support in community-based samples (Robinson et al., 2015). As the first two interventions designed to promote resilience were workplace-based, and the third was deemed to be a gender-sensitive intervention, these three studies are discussed in more detail in the sections below.

Workplace-Based Interventions

Of the 25 studies, nine involved workplace-based interventions (Abbott et al., 2009; Hirokawa et al., 2012; Jarman et al., 2015; Kobayashi et al., 2008; Limm et al., 2011; Mattila et al., 2006; Rocha et al., 2012; Umanodan et al., 2009; Weltman et al., 2014). These programs were delivered to diverse groups—from government employees (such as hospital staff and police department personnel) to industrial sales managers and management employees. None of the workplace-based programs were deemed to be gender-sensitive. However, five of these studies were based on male-only or male-dominated samples (Kobayashi et al., 2008; Limm et al., 2011; Mattila et al., 2006; Rocha et al., 2012; Weltman et al., 2014), while four included both men and women (Abbott et al., 2009; Hirokawa et al., 2012; Jarman et al., 2015; Umanodan et al., 2009). The studies involving both sexes often appeared to be more effective (in terms of mental health outcomes) for female as opposed to male participants. For example, Jarman et al. (2015) implemented a workplace health program, Healthy@Work, which included a focus on mental health and well-being and reported that men's perceived effort-reward imbalance (a measure of workplace stress) increased over time, whereas, availability of workplace health promotion was associated with higher perceptions of reward among women in the study. The authors suggested that program effectiveness for women was tied in part to availability and sense of organizational support whereas timing of implementation during an economic downturn may have been a contributing factor to lower effectiveness measures for men, with job insecurity potentially more concerning than workplace wellness (Jarman et al., 2015). Similarly, Kobayashi et al. (2008) used a participatory approach to engage manufacturing workers in modifying their own work environment, and reported significant improvements in job satisfaction and psychological distress among women but not men. These authors suggested that men were less likely to participate in planning workshops, and that the resulting changes made through the intervention were not sufficient to influence mental health among male workers.

Overall, mental health promotion programs that were designed to influence individual behavior seemed to have more impact than those that were designed to create organizational change. One exception was a program that relied on an individual, online self-directed training, an approach which was unsuccessful at engaging men in participating to the program end (Abbott et al., 2009). These authors did not attribute men's lack of engagement to the online platform, but instead suggested that because their sample included men who were well adjusted and not distressed, they may not have been motivated to prioritize the program over competing interests, given some men cited a lack of time as their reason for not completing the program. One study that reported overwhelmingly positive results with police department personnel included 71% male participation and involved a stress resilience training system (Weltman et al., 2014). An initial 2-hr group training session was followed with six weeks of individual learning (utilizing an app and game-based format) and four 1-hr telephone mentoring sessions. Men reported that they were continuing to use the self-regulation techniques they had practiced in the game and that the support of the telephone coach assisted with

reinforcing the new skills. The combination of in-person, app-based, and telephone communication created multiple touch points for the participants. This intervention was based on previous models used with military personnel, a group involved in similar high-risk work environments, and results showed potential for sustainability, scalability, and cost effectiveness. Another intervention that successfully engaged Brazilian army men in practicing yoga twice a week for six months reported lower depression, anxiety, stress, and salivary cortisol levels compared to a physical activity control group (Rocha et al., 2012). Less successful interventions were directed at modifying the work environment (Jarman et al., 2015; Kobayashi et al., 2008).

Furthermore, mental health promotion programs that involved flexibility and were less demanding for each workplace and department were viewed favorably. For example, one stress management program that was deemed effective involved a limited commitment of time by the participants (one 3-hr group session) and utilized voluntary participation rather than being implemented as a mandatory organizational change initiative (Hirokawa et al., 2012). In another study, six stress management training sessions were delivered during work hours; however, less than half of the participants attended all of the sessions due to personnel changes and work-related demands (Umanodan et al., 2009). The program was reported to significantly improve stress-related knowledge and self-efficacy among all participants; however, significant improvements in distress and job performance were only seen in participants who attended all six sessions.

Gender-Sensitive Interventions

Among the six included studies were five examples of mental health interventions that were specifically designed for men. These included a Men's Stress Workshop involving CBT, psycho-education, and discussions of men's adherence to masculine norms (Primack et al., 2010); a Mind Resilience Programme that included football, gardening, and drumming activities along with CBT/psycho-education aimed at promoting well-being among unemployed men via positive activities, building social networks, and developing coping skills (Robinson et al., 2015); a State of Mind "Boot Room" program that delivered mental fitness messages to men via watching re-runs of classic rugby league games with former players who featured in those games (Cooper, Stringer, Howes, & Norton, 2015); Back of the Net (two studies), a team-based integrated football and psychosocial (CBT) intervention to promote mental health among young men (McArdle et al., 2012; McGale et al., 2011); and the Building Healthy Men Project that used the men's shed

model to promote mental health among socially diverse disadvantaged men including those who were unemployed (Fildes, Cass, Wallner, & Owen, 2010). A defining feature of these programs was the integration of a gender-sensitive focus (e.g., considering masculinities, masculine roles, etc.) in the design and delivery of the programs to enhance acceptability to men. This was reflected, for example, in the purposeful use of sports and other team-based activities to facilitate the delivery of mental health messages, and in garnering safe spaces and places to talk about ordinarily taboo health and illness issues. Using these familiar community contexts to create comfortable and acceptable program spaces and group-focused programs with male facilitators that harnessed peer comradery and connection engaged many men in making positive changes in their lives.

Three programs were based on CBT (Primack et al., 2010). Of interest though is the way that CBT was used in these programs. In the 8-week Men's Stress Workshop, CBT was modified to incorporate a gender-framework (Primack et al., 2010). For example, men were encouraged to use CBT skills in discussions to enhance their awareness of masculine norms (e.g., self-reliance, emotional control) and invited to reconfigure and expand masculine norms to increase acceptance of social support networks and approaches for revealing emotions that maintain self-presentation as masculine. The program included psycho-education, group discussion, and activities as well as homework assignments. In contrast, in the 10-week Back of the Net program, team-based exercises (i.e., football) were used to facilitate delivery of CBT strategies to men (McArdle et al., 2012; McGale et al., 2011). The program was co-facilitated by a football coach and researchers, and delivered in training sessions designed to reinforce weekly themes (e.g., identifying positive strengths, communication, team work) using a range of strategies such as drills, "conditional games," and football metaphors in half-time team talk to facilitate group discussion, skill building, and making links between sports and life.

Attentive to masculinities that could support as well as create barriers to taking up mental health programs, special efforts were made to encourage men into these programs, with varying degrees of success. For example, by using the language of sports (e.g., mental fitness) rather than social isolation or mental illness, and advertising the program in barber shops, pubs, and local shops in disadvantaged communities where men were more likely to be socially isolated, the Mind Boot Room program's recruitment targets were exceeded (Cooper et al., 2015). However, this success was not shared by all programs. The Mind Resilience projects were piloted in nine locations. In several of the pilot projects, specific activities (e.g., gardening, drumming, football) were reported to be

attractive to particular groups of men (Robinson et al., 2015). However, in two mind resilience projects recruitment challenges were attributed to an undesirable location, and perceived lack of choice and fun with the proposed activity. Challenges were also recognized related to offering programs to men under a mental health charity brand, and as a result the researchers recommended "gender-sensitive, subtle rebranding" of the program and/or partnering with men's organizations. Despite some of these challenges, overall a diverse range of depressed and/or socially isolated men in the community who were unlikely to seek other types of help were successfully recruited and engaged in these tailored programs (Robinson et al., 2015).

Evaluation of the program outcomes in these gender-sensitive mental health promotion programs were limited by small sample sizes and the range of measures and approaches used to assess outcomes. However, there were indications that the programs showed promise by engaging men and through rendering important participant changes. For example, the CBT informed programs demonstrated reduced symptoms of depression (McGale et al., 2011; Primack et al., 2010), perceptions of improved mastery, social support, positive affect and positive changes in daily behavior (McArdle et al., 2012) as well as increased social support connections (Primack et al., 2010) and well-being (Robinson et al., 2015). Men's sense of purpose, self-worth, and self-confidence were outcomes of the Building Healthy Men Project (Fildes et al., 2010). Researchers attributed these successes to a variety of factors including: opportunities within the programs for all-male support and reciprocity, activity-based or workshop program designs that were not positioned or perceived as "therapy," and the use of sport to normalize the experience of discussing the need for promoting one's mental health.

Discussion

The purpose of this scoping review was to identify strategies that could promote men's mental health with a particular interest in strategies that could be integrated into a workplace-based intervention. Overall, although some work has been done there is still limited research focusing on mental health promotion interventions aimed at men.

Although interested in mental health promotion overall, we had hoped that studies could be grouped according to the focus of the intervention and/or the focus of the intended outcomes (i.e., promoting mental fitness versus reducing stress); however, the majority of the included studies focused on multiple domains. Yet, despite this, stress was a common focus, with more than half of the studies including stress reduction as an intervention/program component. It may be more acceptable for men to engage in a program related to "stress" as opposed to one addressing anxiety or depression. Although a focus on stress reduction was common, interventions promoting mental fitness and positive well-being among men were rarely identified in the present review; notably, however, several interventions were described as resilience-based, and others focused on exercise or even yoga as positive strategies to promote well-being. In terms of recommendations for developing mental health promotion interventions for men, an approach that leverages physical health may be particularly effective with as well as appealing to men. Furthermore, given the connection between the mind and body is being increasingly recognized, great traction in the promotion of mental health might actually be made by deliberately focusing on health behaviors abstracted from mental health and illness markers.

Mental fitness has been recently defined as strength (e.g., social support, purpose), flexibility (e.g., mindfulness, positive emotions), and endurance (e.g., resilience, self-efficacy) (Robinson & Oades, 2016); yet this language does not appear to be widely used in mental health promotion. As interest in mental fitness and the promotion of positive well-being grows, more consistent use of terminology may help to identify and define these different approaches. In the initial search, many articles were reviewed that included a positive focus such as loving-kindness meditation (Cohn & Fredrickson, 2010) and gratitude (Chan, 2010), yet none of these met the inclusion criteria because they typically had a low number of men in their samples and didn't report results separately by sex. Other researchers have suggested that in addition to exercise, men do use positive strategies to prevent depression, such as helping or spending time with others (or a pet), and to a lesser extent gratitude, meditation, and mindfulness (Proudfoot et al., 2015). Thus, it is possible that these positive psychology interventions would be effective with men if these were designed and delivered in a gender-sensitive manner in order to engage more men, such as considering the use of language. That stress and resilience and fitness are acceptable terms to men is important – in the naming of programs aimed at men – as well as the contexts for which the content is "sold." For example, the Mind Well program deliberately includes language normed for men in the portal promoting mindfulness to men (http://www.mindwellu.com/portal-for-men) and the Resilience@Work Program is directed at developing resilience in emergency workers through the development of mindfulness (http://www.rawmindcoach.com/). Dynamism in language and activities in the promotion of men's mental health seems key to successes.

In terms of environment, it is reasonable to suggest that akin to men's familiarity and interest in sports and teams, the workplace provides a venue capable of fully engaging men with mental health promotion. In this

respect workplaces, perhaps especially male-dominated work spaces and places, offer unique opportunities to connect with male employees. In terms of workplace-based programs, the current findings indicated that programs targeting individual behavior changes to enhance mental health seemed to be more effective than those designed to create organizational change. This finding fits with a recent review of the literature suggesting that organizational and policy changes alone do not have as great an effect on employee behaviors as do more comprehensive programs (Kahn-Marshall & Gallant, 2012). It may also be indicative of the challenges involved in creating system wide or organizational change and how difficult it is to show results with one program. Overall, none of the workplace-based programs in the present review were gender-sensitive, and some appeared to be less effective in reaching men; thus, workplace-based programs may be more successful for engaging men if men's preferences and strengths are included in the design or delivery of these programs. For example, an Australian based program, *Mates in Construction*, has garnered widespread acceptability in reaching out to men in the workplace to advance suicide prevention efforts (Gullestrup et al., 2011). This program was designed specifically for construction workers (86% male) in consultation with industry representatives, and buy-in from employers, unions, and employer associations was considered essential for program success. The opportunity to take part in training during work hours was also thought to contribute to the acceptance of the program by the participants.

Also evident in the group-based, gender-sensitive interventions included in this review is the power of the permission of other men in norming conversations about ordinarily private health matters. In this respect, workplace health promotion programs would have to have a code of conduct (i.e., what is said in the group stays in the group) to ensure the permission to talk is authentic and without potential for discrimination and injury. In this regard, skilled facilitation is requisite to harnessing and maintaining men's talk and action toward mental health promotion (Kivari, Oliffe, Borgen, & Westwood, 2016; Oliffe & Han, 2014). In addition, the workplace can be a competitive environment for men (Hearn, 1992; Joiner, 2011; Kimmel, Hearn, & Connell, 2005; Oliffe & Han, 2014), and it may be that group-based programs may not be suitable for some environments. Bearing this in mind, the promise of emergent online programs aimed at promoting men's mental health might suffice, especially within environments where competitiveness within and between organizations is highly valued (Oliffe & Han, 2014). Yet, caution may be warranted when considering online program designs, as one study in this review (Abbott et al., 2009) had a high drop-out rate among men,

and others have reported mixed findings for the effectiveness of online programs with men (Robinson et al., 2015).

Among the 25 articles reviewed, five programs were considered to be gender-sensitive in their design and delivery. Although all were community-based, there was great variation in the design and delivery of these programs; for example, some were based on CBT and some used sport to engage men. Success in these programs was attributed to a variety of factors including: opportunities within the programs for all-male group support, activity-based or workshop program designs that are not positioned or perceived as "therapy," and using sport to normalize discussing mental health. These studies provide some beginning insights to promising approaches for recruitment of men into mental health promotion programs. Future research might also consider the diversity among men when designing interventions. One of the studies included in this review employed multiple activities (e.g., gardening, drumming, sports) to engage men (Robinson et al., 2015), highlighting the fact that men are not a homogenous group, and a single intervention approach may not be effective for all men. Furthermore, future studies that evaluate differences in intervention effectiveness between men, as distinct from male and female sex comparisons (Schofield, Connell, Walker, Wood, & Butland, 2000) might usefully inform targeted programs for sub-groups of men. For example, individual differences in positive emotion have been linked to greater increases in physical activity among men in short-term longitudinal and intervention research (Baruth et al., 2011; Seaton, Bottorff, Jones-Bricker, & Lamont, 2017).

Limitations and Future Directions

This scoping review focuses on literature within the area of men's mental health promotion, and as a result the findings are related specifically to this field. The program evaluations in these diverse mental health promotion interventions varied from randomized-controlled trials to qualitative feedback from men, and some studies were limited by small sample sizes. In addition, given the range of intervention and diversity in approaches used to assess outcomes, it remains unclear the extent to which particular components of individual interventions contributed to program success. Nevertheless, the diversity of interventions and outcomes assessed strengthen the generalizability of findings. The findings are also limited to the studies included, many of which were focused on stress and several on resilience, possibly because both stress and resilience were keywords included in our search. Conversely, depression was not a keyword in our search; instead we only included studies designed to reduce depression if they were prevention/promotion focused as opposed to treatments. A search conducted

with a treatment focus might employ different keywords and inclusion criteria and therefore include different articles. Furthermore, the systematic search strategy employed included broad search terms (e.g., "stress," "male," "intervention"), resulting in a large number of ineligible articles being retrieved; however, this was also a strength of the current review, because it ensured that we were less likely to inadvertently miss relevant articles.

Arksey and O'Malley (2005) outlined an optional sixth stage for scoping reviews, namely consulting with stakeholders to validate the study findings. Future research directed at garnering both employee and employer feedback on workplace mental wellness program ideas would help to further inform strategies for promoting mental well-being among men. In addition, many programs are not formally evaluated or written about in the literature so this stage could allow for a more comprehensive look at programs not captured here.

Conclusions

In conclusion, this review identified interventions that have been conducted with men (or that separated results by sex) so that effective stress reduction strategies and interventions designed to promote mental fitness and well-being among men could be summarized. Although relatively few interventions were found that were explicitly gender-sensitive, innovations in male-only programs that focus on masculine ideals and gender influences to engage men hold potential for men's mental health promotion.

Appendix A

Example Search Strategy

OVID Medline:

   Limits: (abstracts and English language and humans and yr="2006 - 2015") (followed by "2016")

   Database: Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R) <1946 to Jan 18, 2017>

   Search Strategy:

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1. (men or male* or masculin*).tw. (1212419)
2. masculinity/ (774)
3. 1 or 2 (1212490)
4. ("Mental Health" or "Mental Well*" or Resilience or Stress).tw. (615216)
5. Mental Health/ (25995)
6. Resilience, Psychological/ (2450)
7. Stress, Psychological/ (96790)
8. 4 or 5 or 6 or 7 (667955)
9. (Intervention* or Service* or Program* or Project or Evaluation or Campaign or Trial).tw. (2664502)
10. Voluntary Programs/ (1343)
11. Randomized Controlled Trials as Topic/ (103532)
12. 9 or 10 or 11 (2724042)
13. (Educat* or Support* or Promot* or Manage*).tw. (2898569)
14. exp Health Education/ (145227)
15. exp Health Promotion/ (62073)
16. 13 or 14 or 15 (2997563)
17. 3 and 8 and 12 and 16 (4708)
18. limit 17 to (abstracts and english language and humans and yr="2006 - 2015") (2418)
19. limit 17 to (abstracts and english language and humans and yr="2016") (190)

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