A Systematic Review of Workplace Mental Health Promotion Interventions

By

Jessica Mackenzie

University of Prince Edward Island

A Signature Project Submitted to
the University of Prince Edward Island, Charlottetown, P.E.I.
in Partial Fulfillment of the Requirements for
the Master of Business Administration

April 4, 2014, Charlottetown, P.E.I.

© Jessica Mackenzie

Advisor: Dr. Blake Jelley
UPEI School of Business

Second Reader: Dr. Don Wagner
UPEI School of Business
Title of Signature Project: A Systematic Review of Workplace Mental Health Promotion Interventions.

Name of Author: Jessica MacKenzie

Department: School of Business

Degree: Master of Business Administration Year: 2014

Name of Supervisor(s): Blake Jelley

In presenting this signature project report in partial fulfilment of the requirements for a Master of Business Administration degree from the University of Prince Edward Island, the author has agreed that the Robertson Library, University of Prince Edward Island, may make this signature project freely available for inspection and gives permission to add an electronic version of the signature project to the Digital Repository at the University of Prince Edward Island. Moreover the author further agrees that permission for extensive copying of this signature project report for scholarly purposes may be granted by the professor or professors who supervised the author’s project work, or, in their absence, by the Dean of the School of Business. It is understood that any copying or publication or use of this signature project report or parts thereof for financial gain shall not be allowed without the author’s written permission. It is also understood that due recognition shall be given to the author and to the University of Prince Edward Island in any scholarly use which may be made of any material in the author’s report.

Address: UPEI School of Business
550 University Avenue
Charlottetown, PE C1A 4P3
Abstract

Mental health has been a hot topic in the media, with campaigns such as Bell’s “Let’s Talk” generating hundreds of millions of twitter impressions and high profile leaders such as Senator Romeo Delaire speaking publically about their experiences. Mental health issues in the workplace have become a growing concern and in 2013 the National Standard of Canada for Psychological Health and Safety in the Workplace was introduced. There appears to be growing interest in, and need for, research on programs promoting mental health in the workforce. The purpose of this study is to assess the current evidence on workplace mental health promotion interventions in order to guide evidence-based practice and direct future research on the topic. A systematic review of studies published between January 2006 and February 2014 was conducted and 12 studies were identified which met all inclusion criteria. Those studies reported use of a variety of interventions including cognitive behavioral therapy, mindfulness training, positive psychology techniques, exercise and life coaching. Most interventions were found to be effective in improving mental health outcomes in the short term, with none evaluating long-term effects. Few assessed work specific outcomes. Several points of interest for program implementation as well as the findings of this study in comparison with those of other recent and related systematic reviews are explored in the discussion.
Acknowledgements

Thank you to my advisor Dr. Blake Jelley for his attention to my research and his guidance throughout the completion of this signature project. Thank you also to Dr. Don Wagner for his continuous support throughout the entire signature project process. To the entire Masters of Business Administration faculty and my talented classmates, thank you for contributing to my wonderful and worthwhile learning experience in this challenging program.

To my fiancé Michael Walker, I am grateful for your constant support, kind understanding and your never-ending patience. To my mother, Janice Mackenzie, thank you for the steady stream of positive support and homemade baking, both of which kept me nourished throughout program. To my father Kenneth Mackenzie for inspiring me with his own entrepreneurial spirit and motivating me to continue my education through years forced labour on the family farm. Thank you to my amazing siblings Jenelle Mackenzie and James Mackenzie, who encourage me to go further in order to simply keep up with them.

Thank you to all of my friends, in-laws, colleagues and extended family members, for your tremendous support throughout the program. Finally, thank you to my classmate, cousin and friend, Cassie Mackenzie, for providing me with a constant support line, an understanding ear to vent to and essential comedic relief throughout the last two years.
Table of Contents

Abstract......................................................................................................................................................... ii

Acknowledgements ................................................................................................................................. iii

Introduction.................................................................................................................................................. 1
  Background................................................................................................................................................ 1
  Overview.................................................................................................................................................. 3
  Connecting Work and Mental Health................................................................................................. 4
  The Importance of Employee Mental Health for Organizations ........................................ 7
  Current Evidence on Employee Mental Health Promotion ................................................. 9
  Research Purpose and Questions ................................................................................................. 13

Methodology........................................................................................................................................... 13
  Research Approach & Design........................................................................................................... 13
    Figure 1: Search Strategy............................................................................................................... 14
    Figure 2: Article Selection Process............................................................................................ 16

Findings...................................................................................................................................................... 17
  Results: Table 1................................................................................................................................... 18

Discussion and Conclusion.................................................................................................................. 25
  Implications.......................................................................................................................................... 27
  Limitations.......................................................................................................................................... 28
  Future Research............................................................................................................................... 29
  Conclusions....................................................................................................................................... 31

References............................................................................................................................................... 32
Introduction

Each week in Canada, over 500,000 employees will be absent from the workplace due to mental health concerns (Canadian Mental Health Commission [CMHC], 2013). The Canadian economy loses an estimated $51 billion each year due to mental health related costs (CMHC, 2013). These statistics indicate that the effects of mental illness are not just devastating to those who are personally affected, but to employers and the larger economy as well.

Although the devastating effects of mental health are not new, we are just now beginning to understand the role of the workplace and occupational stress associated with mental health outcomes. Mental health is currently a popular topic in both public media and the research community. Canadians have come a long way since the days when those who suffered from mental illness were removed from society, but there is still a strong stigma attached to and lack of understanding of mental illness. The Canadian Medical Association recently shared research indicating that two in three people with mental illness suffer in silence fearing judgment and rejection (Bell, 2013). This traditional suffering in silence may have contributed to the fact that little research was conducted on the topic of workplace mental health promotion until recently. There is now finally some forward momentum in policies regarding mental health and the acknowledgement of an organization’s role in mental health promotion for workers.

A portion of the new forward momentum on the Canadian forefront was created by the awareness brought by the “Let’s Talk” campaign launched by Bell Canada in 2010, which advocates the need to bring mental health concerns into the open (Bell, 2013). Spokesperson Clara Hughes, who won multiple medals in both the summer and
winter Olympic Games, has been very open about her personal struggles with depression in an effort to encourage open dialogue and decrease stigma surrounding mental health issues. Another high profile proponent is Canadian Senator Romeo Dalaire, who was a highly ranked military official and the recipient of numerous honors including the Order of Canada and the Pearson Peace Prize. Senator Delaire has been open about his battle with Post Traumatic Stress Disorder after he saw hundreds of thousands of people slaughtered when he commanded the United Nations Assistance Mission for Rwanda. He has since become strong advocate of mental health issues for veterans. Their messages and experiences support the understanding that both genetic and environmental factors influence mental health.

Another important, international voice for mental health reform and research was that of the World Health Organization (WHO). The WHO has noted the importance of an intersectoral approach to promote mental health and specifically indicates the inclusion of the business community.

“National mental health policies should not be solely concerned with mental disorders, but should also recognize and address the broader issues which promote mental health. This includes mainstreaming mental health promotion into policies and programmes in government and business sectors including education, labour, justice, transport, environment, housing, and welfare, as well as the health sector.” (WHO, 2010)

The Mental Health Commission of Canada (MHCC) has been working to support businesses in building a mentally healthy workforce. In 2013, the Canadian Standards Association in partnership with MHCC created a set of voluntary standards available free
of charge titled the *National Standard of Canada for Psychological Health and Safety in the Workplace*. This standard provides guidelines for a broad and systematic approach for implementation by Canadian organizations and has been championed by corporations such as General Electric Canada and the Eastern Toronto General Hospital. Beyond providing an action framework for Canadian organizations, the national standard is also a trailblazing example for other countries. The guide provides insight into mental health promotion measures and under the category of preventative and protective measures it recommends, among other things, elimination of hazards or implementation of controls to reduce the risks related to hazards that cannot be eliminated (Canadian Standards Association, 2013). The new guide provides general insights into organizational changes and management processes, but provides little in the area of applied interventions and programming.

With a new and strengthened focus on mental health in the workplace, the intent of this paper is to shed light on the current evidence-based preventative measures for building a mentally healthy workforce. This report first describes the current literature connecting the workplace and employee mental health, then establishes the importance of employee mental health for organizations, and finally summarizes some recent research on preventative workplace interventions. A summary and statement of the research purpose and questions are presented at the end of the introduction section. The method section details the procedures used to conduct this systematic review. The findings of the systematic analysis are then outlined using the framework of Corbiere, Shen, Rouleau and Dewa (2009). The signature project closes with a discussion, including the
limitations, research implications, frameworks and opportunities for future research and a brief conclusion.

**Connecting Work and Employee Mental Health**

A growing body of research has demonstrated the link between workplace factors and employee mental health. Studies, primarily using correlational or longitudinal research techniques, indicate that there is a relationship between the two. A large portion of the available research related to mental health outcomes for workers fell into three categories, job strain, social support at work and levels of control.

*Job Strain*

Large scale longitudinal studies have indicated a link between high levels of job strain and depression (Blackmore et al., 2007; Smith and Bielecky, 2012). A UK Study indicated that repeated job strain was associated with increased risk of Major Depressive Disorder (MDD) and remained associated with MDD after adjustment for earlier psychological distress (Stansfeld, Shipley, Head, & Fuhrer 2012). Smith and Bielecky (2012) found that increased psychological demands at work were significantly linked to increased likelihood of depression in the following two years and, highlighting the independent role of job strain, the authors noted that the risk remained statistically significant after adjustment for age, gender, marital status, presence of children, level of education, chronic health conditions, sub-clinical depression when work conditions were initially assessed, family history of depression, and personal history of depression. An additional study provided evidence that workplace factors contribute independently to psychological distress as results indicated that family structure, social network outside the workplace and the personality of the employee do not moderate the influence of the
workplace, with the exception of strained marital relations (Marchand, Demers, & Durand, 2006). Another interesting finding from their study was that occupations accounted for only 1.6% of the variation.

A cross sectional study indicated that respondents in the highest category of perceived work stress had higher odds of being treated for an emotional or mental-health problem in the past 12 months and the authors also noted that, compared to their non-stressed counterparts, these high-stress respondents had higher odds of being diagnosed for mood and anxiety disorders (Szeto & Dobson, 2013).

An Austrian study of university professors indicated a unique “doubled edged sword” or two-way relationship, as they noted that mental health conditions contributed to burnout at work and that burnout at work contributed to mental health conditions (Jaber & Alzoubi, 2012). A different study concluded that job insecurity, low control and low social support at work, weekend work hours, job-related life events and dissatisfaction with work and with boss were all independent mental health risk factors (Kopp, Stauder, Purebl & Skrabski, 2008). In addition, Kopp and colleagues found that a cluster stressful work related psychosocial conditions accounted for a substantial part of variation in self-reported mental and physical health. A qualitative study by Trudel et al. (2009) found similar results as it stated that workers feeling the crunch of increased demands and job stress reported feeling “powerless”, “dehumanized”, “mentally worn-out”, “useless” and “exhausted”. Highlighting the positive side of work, one study found that for those with mental health diagnoses, healthy environments which provide meaningful work and a variety of nonmedical interventions offer more lasting health results than medical treatment alone (Nikelly, 2001).
Studies have also indicated gender differences in the relationship between job strain and stress, with women experiencing more stress associated with job strain and more familial stress (Blackmore et al., 2007; Sirajunisa & Panchanatham, 2010). In cultural comparisons, research by Pasca and Wagner (2012) indicated that in aspects related to stress and the workplace Canadian born and non-Canadian born worker’s experiences were more similar that different.

**Perceived Levels of Control**

The key role of feelings of control or decision authority in the workplace has been highlighted in the literature. Recent research found level of job control to be an independent factor predicting self-reported physical and mental health (Blackmore et al., 2007; Kopp et al., 2008). One study found the link between low job control and stress was stronger in women (Blackmore et al., 2007). Another study indicated that exposure to employee involvement in management practices was linked to lower perceived work stress, greater sense of coherence, and less depression, which highlights the link between management practices and employee outcomes (Mackie et al., 2001). A recent study also found that a lack of job control increased exhaustion and depersonalization at work and that increased feelings of job control had a buffering effect on other job stressors (Day, Sibley, Scott, Tallon & Ackroyd-Stolarz, 2009). In contrast, research by Marchand et al. (2006) found that over time, greater decision authority actually increased distress, and another longitudinal study by Smith and Bilecky (2012) did not find any significant relationship between depression and greater job control.
Social Support at Work

The roles of team efficacy and social support have also been highlighted in literature on the topic of mental health at work. Low levels of social support at work have been associated with increased risk of depression (Blackmore et al, 2007, Rodwell & Martin, 2013, Stansfeld et al., 2012). A study emphasizing the importance of social support in workplace mental health indicated that social capital is strongly linked to subjective well-being through many independent channels and in several different forms. Among the independent contributors were workplace ties, which were linked to happiness and life satisfaction, both directly and through their respective impact on health (Helliwell & Putnam, 2004). Another study indicated that team efficacy and support buffered some other stressor-burnout relations including job strain (Day et al., 2009). In addition to peer social support, research by Rodwell and Martin (2013) assessed the key role of supervisor support. Rodwell and Martin reported significant links and buffering effects between supervisor support and work attitudes, depression, well-being, and job satisfaction.

Finally, a US study suggested a framework based on the inclusion of social factors in assessing work health and indicated three patterns developed based on the processes of social health: building camaraderie with peers, communicating with superiors, and reconnecting with family (Farrell & Geist-Martin, 2005).

The Importance of Employee Mental Health for Organizations

There is a growing body of evidence indicating positive outcomes for organizations which are associated with mentally healthy employees and implementation of mental health promotion programs. The fiscal and performance costs of employee mental health issues are probably the most well documented areas of impact for
organizations. Results from a recent UK study demonstrated that a quarter workers surveyed would describe their mental health status as moderate or poor and that 90% of respondents who identified as having “poor mental health” reported that this affects their performance at work (Paton, 2009). Another study reviewed the literature on mental health and productivity and found a link between mental health conditions and absenteeism and presenteeism. However, this study also noted that that appropriate programs and accommodations had the potential to make improvements in both of these areas (Burton, Schultz, Chen, & Edington, 2008). Additional research on the effects of workplace interventions on some of the common symptoms of mental health issues, impaired sleep and cognitive functioning, indicated significant improvements in both areas for employees (Willert et al., 2010). Another study indicated that preventative programming for mental health can have a positive impact on tackling stress in the workplace by building resilience and giving employees skills to approach future issues (Shuttleworth, 2004).

In addition to addressing performance and productivity concerns, research indicates that programs which are targeted at improving employee mental health can also increase employee job satisfaction (Ueda & Nino, 2012). A recent study also supported positive outcomes associated with participation in Workplace Health Promotion(WHP) programs as their research reported that employees “felt appreciated” by their employer and “more connected” socially to supervisors and peers (No’hammer, Schusterschitz & Stummer, 2013). Results of additional research, which focused on employee health attributions, indicated that even after controlling for demographics, work climate variables, and mental distress, work-related health-problem attributions were linked to
lower levels of job satisfaction and organizational commitment as well as higher levels of turnover intention (Göransson, Näswall & Sverke, 2009). Evidence suggests that investing money into mental health prevention programs does not just benefit the individuals, or alleviate potential healthcare costs, but can have additional positive organizational outcomes.

**Current Evidence on Employee Mental Health Promotion**

While several studies on workplace interventions have emerged in the past two decades, much of the research has been spread across a wide variety of intervention types and there are methodological concerns with many studies. A review of workplace disability prevention literature for workers with common mental health conditions found moderate evidence that psychological interventions, primarily cognitive-behavioral therapy (CBT), improved work functioning, quality of life, and economic outcomes (Pomaki, Franche, Murray, Khushrushahi & Lampinen, 2012). The authors also noted that workplace-based high-intensity psychological interventions were most effective at improving work functioning and quality of life, and in reducing costs. While this study was conducted within a population of already clinically diagnosed patients the results provide some insight for preventative programming.

Providing additional support for CBT effectiveness was a large meta-analysis by Richardson and Rothstein (2008) which examined experimental studies representing a large number of interventions and found a significant medium to large overall weighted effect for CBT. Interestingly, the authors noted intervention type played a moderating role and results suggested that CBT programs produced larger effects than other interventions, except when CBT was combined with other interventions (Richardson &
Rothstien, 2008). They also noted that organizational interventions were scarce and that relaxation interventions were most frequently used.

Results from the systematic review completed by Corbière et al. (2009) assessed journal articles on preventative mental health interventions from 2001-2006. The authors analysed 24 studies on interventions regarding mental health issues in organizations and found the most frequently researched interventions used skills training. They also noted that studies which used a combination of individual-, group- and organization-level interventions brought more significant results and that cognitive based interventions were effective.

De Vente, Kamphuis, Emmelkamp, and Blonk (2008) reported contrasting findings in regards to cognitive behavioral treatments (CBT). Their study on the effectiveness of a CBT program on individuals currently on sick leave due to clinical work stress found CBT to be ineffective in this case, although they noted it was slightly more effective among those with lower level complaints of depressive symptoms.

A literature review assessing burnout interventions found 80% of all programs were effective, and although the majority of interventions were only person directed and focussed on short term outcomes (Plaumann & Walter, 2010). Among studies which also included organizational interventions, in addition to person directed interventions, long term effects (12 months or more) were documented (Plaumann & Walter, 2010).

A longitudinal study of depression and absenteeism in workers indicated that those who were free of depression, but absent for sickness, during the observation period were significantly more likely to experience depression at the three year follow up than those who were not absent for sickness (Melchior et al., 2009). Adding to the impact of this
study is the fact that these significant findings controlled for baseline age, gender, marital status, occupational grade, tobacco smoking status, alcohol consumption, sub-threshold depressive symptoms, and work stress. This study not only highlights the need for intervention but also indicates that employers could potentially target employees with high numbers of sick days for preventative interventions.

There are several emerging techniques for interventions which promote mental health of employees including the use of emotional intelligence, yoga and participatory research. Research by Tsaousis (2002) indicated that emotional intelligence provided a buffering factor for stress at work as their findings showed that high scorers in overall EI suffered less stress related to occupational environment. Ganpat and Nagendra (2011) completed a study on the effects of a five-week residential yoga and meditation treatment on stressed white color workers and noted a significant decrease in somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression. Researchers also examined collaborative interventions including Participatory Action Research (PAR) and found inconclusive results. The results of a recent study indicated that PAR provided an opportunity to implement an innovative strategy sensitive to the workplace situation (McVicar et al., 2013). Engagement on many levels must be present for successful programs and rigorous evaluation processes must be set in place to provide support for program commitment.

Another study which examined the key role of intervention implementation in advancing knowledge and practice in mental health promotion. Authors noted little research on program implementation had been done to date and stated that there is need for evidence-based practice and policy guidelines concerning the critical factors needed
to ensure the implementation of successful programmes across a range of cultural and economic settings (Barry, Domitrovic, & Lara, 2005).

Most of the literature available on effective interventions was published in the last 15 years. The literature indicates a large variation in intervention types, contrasting findings in some areas and frequent use of self-report measures which has made establishing evidence-based recommendations difficult.

**Summary**

While the current literature provides some insight into the link between workplace factors and employee mental health, it is clear that more resources must be allocated to this area in order to build knowledge of evidence-based preventative practices. Businesses, as an integral part of the intersectoral strategy outlined by the WHO, must take an active role in mental health promotion. Employers and managers play key roles in employee mental health promotion as they often have the means to include employees in decisions, manage workloads and promote a positive and socially supportive atmosphere. Investment in individual as well as organizational changes can have positive results for the business’s bottom line both in terms of reduced disability costs and increased productivity. With the recent release of the voluntary standard, *National Standard of Canada for Psychological Health and Safety in the Workplace* (Canadian Standard Group, 2013), and undeniably, the high costs associated with mental health issues at work, preventing mental illness should be a major concern for employers. A systematic review of the literature, synthesizing the results of recent studies, will provide insight and add to this new body of evidence seeking to promote mental health in the workplace.
Research Purpose and Questions

Amidst a sea of research connecting workplace stressors to mental illness and studies outlining the financial and non-financial costs associated with mental health issues, there is a real need for focus in the area of prevention. With current research implicating shocking numbers of workplace-influenced mental health complications and devastating, yet potentially preventable, outcomes for both organizations and individuals, this research was conducted in order to gain a clearer understanding of the current evidence on mental health promotion initiatives. The present systematic review sought to investigate the following research questions. What is the nature of current interventions for mental health promotion and mental illness prevention in the workplace? To what extent are those interventions or programs effective? What is the current state of knowledge in this area and where might gaps in knowledge exist?

Method

Extending the framework and approach of Corbiere et al. (2009), this study analyzed studies on preventative interventions at work published between January 2006 and February 2014. It is anticipated that the recent press surrounding mental health concerns will have set the stage for more studies examining workplace preventative measures and that a systematic review of the literature from the past eight years will reveal much information which will be useful to academics and practitioners looking to improve mental health in the workplace and, in turn, the bottom line for organizations. As discussed in more depth below, a systematic review was completed in order to select and assess pertinent studies which met the inclusion criteria. The systematic review included
the development and implementation of a search strategy, followed by several rounds of article screening.

**Research Approach and Design**

**Search Strategy for Identification of Studies**

Multiple databases were searched to identify peer reviewed publications from 2006 to 2014 inclusive. The primary search engines used to locate the peer-reviewed articles were; Proquest Research Library, ABI/Inform Global (Proquest), Business Source Elite, Science Direct and Psych-Info. The reference sections of relevant articles were hand-searched for additional pertinent studies. A summary of the search strategy appears in Figure 1.

Figure 1: Search Strategy
Keywords for the search consisted of concept synonyms within three categories—mental health, work, and intervention. Within these categories, several related terms and synonyms were used with OR as the connector, so as to avoid excluding studies which used different phrasing. The category WORK included: “work”, “workplace”, “work-related”, “job” or “occupational”. The category MENTAL HEALTH included: “mental health”, “mental health promotion” or “stress”. The category INTERVENTION included “intervention”, “evaluation” or “prevention”. The search connected the three categories with AND to ensure at least one keyword from each category was included in the results.

Hundreds of abstracts were generated from the keywords and limiters across multiple databases, as indicated in Figure 2. Abstracts and in some cases full-text of articles were assessed to determine if the study met the inclusion criteria for the present review (discussed below). Duplicates identified within the 998 articles were removed in the abstract screening process. The vast majority of articles which were found through the literature search were excluded.

 Screening and Inclusion Criteria

Studies were screened for several qualities in order to be generalizable to most working populations. Study publication was limited to 2006 to 2014 inclusive in order to assess the most current studies, specifically those published after the completion of the systematic review by Marc Corbiere et al. in 2009.

Studies which met the criteria included some form of intervention in the workplace which was linked to mental health outcomes. The mental health outcomes did not need to be the primary focus of the interventions. Studies which examined the general work population were included, as the focus was on prevention. Thus, studies examining
interventions for workers who had pre-existing mental health issues, or who met criteria for a clinical diagnosis of a mental health condition, or who were returning to work after mental illness diagnosis were not included.

Figure 2: Article Selection Process

Articles published in peer-reviewed journals were included, and in order to ensure all applicable interventions were assessed, journal quality was not assessed as a screening requirement.
Findings

The systematic review yielded 12 articles reporting 13 separate studies on workplace interventions for promotion of employee mental health. While the studies took place in several countries including Italy, Australia, China and the Netherlands, 42% came from the United States and 25% came from Finland.

The research design varied among studies, but self-report measures were used in the majority of articles. Of the 13 different studies completed, nine used a control group and six of those nine used randomized controls. Of those which did not use a control group pre and post intervention measures were recorded.

The breakdown of participant characteristics also varied widely. While five of the studies assessed white collar workers, two assessed blue collar works, three were specific to healthcare workers and three assessed public sector employees. Average age of participants was available in seven of the thirteen studies. Where age data were available, participants were within the range of 35 to 54 years, with the sample-size weighted average of available data being 43.55 years. It was also noted in several of the included studies that those assessed had between five and 12 years of tenure in their current positions. The gender breakdown in most interventions was not equal. In the majority of cases where data were available, significantly more participants were female than male, and one study was exclusively female.

The twelve included articles are displayed in Table 1 with key areas such as intervention components, outcome measures, participant characteristics, and significant results highlighted. A key for abbreviations used Table 1 is included at the bottom of the table.
Table 1: Findings from studies of preventative interventions

<table>
<thead>
<tr>
<th>Study: (Authors, Year)</th>
<th>Purpose of the Study</th>
<th>Sample Size (country)</th>
<th>Sample Description &amp; Comparison Group</th>
<th>Components of Preventive Intervention</th>
<th>Procedures (Data Collection &amp; Analysis)</th>
<th>Outcome Measures</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bono, Glomb, Shen, Kim &amp; Koch (2013).</td>
<td>To assess the association between daily events and employee stress and health</td>
<td>N= 61 (USA)</td>
<td>Women who worked in 9 outpatient family practice clinics and had some interaction with patients</td>
<td>Control Group: None</td>
<td>Timeframe &amp; Location: 3 week</td>
<td>Several measures were assessed through the field study. Daily DPA surveys which took approximately 2 minutes to complete assessed work events. Stress was assessed through systolic blood pressure every 30 minutes for 2 hours every morning, afternoon and evening. Evening interviews for 5 minutes assessed evening health complaints, evening stress, and evening work detachment.</td>
<td>Participants who experienced more positive events than normal indicated less stress and had lower blood pressure in the evening. More negative events were associated with increased stress. Participants reported less physical and mental health complaints during the intervention period than the pre-period. Comparing outcomes on days when participants did not complete the intervention with those on days when they did complete it, we also found significant effects for evening stress and physical and mental health complaints. Greater detachment from work was experienced on intervention days. Positive workplace events were associated with greater work detachment in the evening. The association between negative events and stress and physical health was smaller on days when employees experienced more positive events.</td>
</tr>
<tr>
<td>Burton, Pakenham &amp; Brown, (2010).</td>
<td>To gather preliminary information regarding the feasibility of implementing a group psychosocial resilience training in a workplace setting &amp; assess if program would promote well being</td>
<td>N=16 (Australia)</td>
<td>University staff who volunteered and had no current mental health concerns, age range 24-50, mean age of 36.5.</td>
<td>Control Group: None</td>
<td>Timeframe &amp; Location: 13 weeks at the university of Queensland</td>
<td>Measures used to assess outcomes as outlined under &quot;Components' were: (1) Ryff’s Scales of Psychosocial Well-being, (2) CES-D, (3) DASS-21, (4) PANAS-X, (5) Actions consistency items from Valued living Questionnaire, (6) Mindful (7) Attention Awareness Scale, Acceptance and Action Questionnaire, (8) Most Social Support Survey. Self-report physical activity levels. Physical measures included height and weight, BMI and blood pressure (BP_Sys and BP_Dias). Biological data involved a fasting blood sample to measure blood glucose, total cholesterol, C-reactive protein (CRP), and cortisol.</td>
<td>Paired-tests indicated a significant difference between baseline and post intervention scores on measures of mastery, positive emotions, personal growth, mindfulness, acceptance, stress, self-acceptance, valued living, autonomy, and total cholesterol. Borderline significance was found on measures of depression. Participants reported the program to be personally helpful and enjoyable.</td>
</tr>
</tbody>
</table>

Components: The READY program targets five key resilience protective factors that were identified from empirical literature: (1) positive emotions; (2) cognitive flexibility (e.g. acceptance), (3) life meaning, (4) social support, and (5) active coping strategies (including physical activity) Clinical psychologists conducted 11 two hour sessions. Tests were administered by independent research assistants. A battery of self-report questionnaires regarding psychosocial well-being, physical activity levels, physical health reports and socio-demographic information was recorded. Participants also self-reported on their experience in the program. |
<table>
<thead>
<tr>
<th>Study: (Authors, Year)</th>
<th>Purpose of the Study</th>
<th>Sample Size (country)</th>
<th>Sample Description &amp; Comparison Group</th>
<th>Components of Preventive Intervention</th>
<th>Procedures (Data Collection &amp; Analysis)</th>
<th>Outcome Measures</th>
<th>Significant Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butterworth, Linden, McClay, &amp; Leo (2006).</td>
<td>To investigate the effects of Motivational Interviewing-based health coaching on employees physical and mental health study</td>
<td>N=276 (USA)</td>
<td>145 employees at a medical center Control Group: Employees who self-selected control group</td>
<td>Timeframe &amp; Location: 3 month at work Theory/Approach: *Health Coaching *Motivational Interviewing Components: Health coaching intervention by trained professionals: minimum of 1 initial session (30 minutes) and two follow up contacts. Participants chose number of sessions based on needs and interest. Focus was on typical issues such as weight loss, fitness, stress &amp; nutrition. No compensation was given.</td>
<td>Participants were recruited at work with the incentive of a power bar. Employees self-selected participation or control group. Pre and post period treatment and control group were compared. Retrospective case-control design was implemented to alleviate concerns of selection bias. T-tests were used to analyse between and within-group statistics.</td>
<td>SF-12 Health Survey was used to describe participant health, two composite scores Mental Composite Score and Physical Composite Score.</td>
<td>• The treatment group improved their outcomes significantly on both the PCS and on the MCS, while the control group showed no statistically significant change on either scale.</td>
</tr>
<tr>
<td>deZeeuw, Tak, Dusseldorp &amp; Hendrickson (2010).</td>
<td>To examine the effectiveness and feasibility of a workplace exercise intervention to prevent depression</td>
<td>N=30(Netherlands)</td>
<td>14 white collar employees with minimal symptoms of depression Control Group: 13 peers on the waitlist</td>
<td>Timeframe &amp; Location: 10 week at work Theory/Approach: *Physical Exercise *Light Resistance training Components: A fitness program comprised of two supervised training sessions per week for 10 weeks. Individual programs were designed. Sessions included 10 minutes warm-up, 10 minutes power training, 1-20 minutes cardio &amp; cool down. Interventions were completed in groups of 8.</td>
<td>Employees were screened and eligible employees (scoring min 5-max 9 on PHQ) who were willing to participate were randomly assigned to intervention or control. Pre and post tests were completed and health and employee records were completed. T-tests were used to measure change</td>
<td>Depression was measure using the PHQ-9; physical measures, exercise behaviour and sick leave were measure using standard protocols, BMI was calculated, blood pressure was measured, physical activity was measured using a Dutch validated questionnaire</td>
<td>• Results showed depression scores were lower in the participants of the exercise group than in the participants of the control group.  • ANCOVA showed that the difference between the groups in average decrease in PHQ-9 depression scores approached significance, for the completers and intention-to-treat analysis, respectively, with an large effect size.  • Items of the PHQ-9 that improved significantly over time in the exercise group were as follows: ‘depressed or hopeless’, ‘sleeping problems’, ‘feeling bad about self’, and ‘concentration problems’  • 2 out of 14 participants in the exercise group experienced symptoms of depression after completion of the intervention, compared with 9 out of 13 participants in the control group</td>
</tr>
</tbody>
</table>
### Table 1 Continued: Findings from studies of preventative interventions

<table>
<thead>
<tr>
<th>Study: (Authors, Year)</th>
<th>Purpose of the Study</th>
<th>Sample Size (country)</th>
<th>Sample Description &amp; Comparison Group</th>
<th>Components of Preventive Intervention</th>
<th>Procedures (Data Collection &amp; Analysis)</th>
<th>Outcome Measures</th>
<th>Significant Findings</th>
</tr>
</thead>
</table>
| Eisen, Allen, Bollash & Pescatello (2008). | To assess differences in instructor-led vs. computer led cognitive behavioral stress-management formats | N= 288 (USA) | employees in one of three manufacturing sites within a single corporation, 134 in the in person group, 123 in computer based group, mean age 44.38, 64.7% male, 83.3% Caucasian, 74.9% college education | Timeframe & Location: At work site, one session weekly for 2 weeks. Theory/Approach: *Cognitive Behavioural Therapy* Components: One session weekly for 2 weeks which utilized a CBT Approach in 3 groups a) an intervention online from their own workspace, b) to receive the same intervention at an instructor-led workshop, c) control group measured with no interventions. Intervention groups also had homework assignments encouraging participants to practice a variety of stress reducing activities. | The opportunity was advertised electronically and through posters. Participants were randomly assigned to receive assessments conducted immediately before, immediately after, and at one-month follow up. | Demographic information was collected through a short survey. Stress was measured from indicators in the emotional health domain of the Johnson & Johnson Health Care System Insight & Health Risk Appraisal Survey. Stress pulse record was measured using subjective units of distress ratings, Skills practice frequency record was recorded by self-report checklist completion. | • Individuals in both groups reported a highly significant decrease in subjective units of distress from the beginning to the end of each session of the intervention.  
• Individuals reported experiencing a significantly greater reduction in SUDS in Session 2 than in Session 1 which indicates practice of the mini-relaxation techniques improved  
• In person group completion rates were significantly higher than for computer based groups  
• Nine significant correlations were found, eight of which were in the expected direction  
• Increased practice of skill correlated with decreased experience of stress. |
| Elo, Ervasti & Mattila, (2008). | To investigate the effects of employee participation in an organizational stress management program | N= 625 (Finland) | Employees in a public works organization, mean age of the participants 44.0 (SD 9.7), with 81% men & 87% of the respondents were blue-collar workers & 13% white-collar workers Control Group: None | Timeframe & Location: At work, 2 years Theory/Approach: *SMT* Components: Study 1: During work hours, workers were encouraged to participate in intervention sessions and feedback sessions over 2 years. | The pre & post intervention questionnaire were completed within a 2 year interval and targeted all employees. Paired Sample T-tests were used to assess the results. | Level of participation in the interventions was measured electronically through time systems, psychosocial work environment variables were analysed using the Healthy Organization Questionnaire, organizational context variables including flow of information & work climate questions were added, individual well-being variables included emotional exhaustion measured by the MBI-GS, stress symptoms, work ability measured using the WAI. Control variables were age range, gender & SES ranked by blue collar or white collar. | • Results indicated that quantitative demands and work ability decreased during the follow-up period  
• No other changes in psychosocial work environment, organizational context variables, or individual well-being variables were observed in the whole study group  
• Difference in level of participation groups approached significance in clarity of work goals.  
• ANOVA analysis suggests that active participation in all interventions improved feedback from supervisor, and flow of information.  
• Work climate deteriorated in the group of nonparticipation to interventions. |
<table>
<thead>
<tr>
<th>Study: (Authors, Year)</th>
<th>Purpose of the Study</th>
<th>Sample Size (country)</th>
<th>Sample Description &amp; Comparison Group</th>
<th>Components of Preventive Intervention</th>
<th>Procedures (Data Collection &amp; Analysis)</th>
<th>Outcome Measures</th>
<th>Significant Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Moen, P., Kelly, E. L., &amp; Lam, J. (2013).</strong></td>
<td>To theorize and test the relationship between time strain (work-time demands and control) and seven self-reported health outcomes</td>
<td>N = 550 (USA)</td>
<td>White collar employees at headquarters of a large US Midwest retail firm Control Group: Other department in which ROWE was not implemented. (characteristics were not significantly different)</td>
<td><strong>Timeframe &amp; Location:</strong> Intervention was set in place permanently <strong>Theory/Approach:</strong> <em>Personal Initiative Training</em> <em>Problem focussed coping Components:</em>* The Results Only Work Environment (ROWE), which is a shift in focus from hours spent at work to goals achieved with complete flexibility encouraged in work times and locations.</td>
<td>Surveys were completed by participants 6 months apart, before and after the implementation of an organizational intervention, the participants were not told the surveys were related to the mandatory ROWE program and consented to the study, not ROWE participation.</td>
<td>Time strain was measured by a psychological time demands scale and average hours per week worked. Time control scales, home demand scales and job control scales were also utilized. Health outcomes were measured by self-assessed health scales, MBI Emotional Exhaustion scale items were used and psychological wellbeing was assessed through several questionnaire items.</td>
<td>• Psychological time demands were related to health outcomes in the expected direction  • Time control measures were also related to health outcomes in the expected direction  • The ROWE intervention did not predict changes in psychological time demands by Wave 2, but did predict increased time control  • Statistical models revealed increases in psychological time demands and time adequacy predicted changes in positive (energy, mastery, psychological well-being, self-assessed health) and negative (emotional exhaustion, somatic symptoms, psychological distress) outcomes in expected directions – regardless of job and home demands</td>
</tr>
<tr>
<td><strong>Siu, Cooper &amp; Phillips (2013).</strong></td>
<td>To develop and validate an instrument which would decrease job-stress and burnout while improving positive emotions</td>
<td>Study 1: N= 1034 (China)</td>
<td>Study 1: Health care workers from variety of job levels run by Hong Kong Hospital Authority 87% were over 35, 79% had worked in hospitals for over 10 years, 49% nurses. Control Group: None</td>
<td><strong>Timeframe &amp; Location:</strong> Study 1: 2 day training course held in 17 separate classes on the hospital site <strong>Theory/Approach:</strong> <em>Positive Psychology Approach Components:</em>* Study 1: Training sessions with chapters on Stress and coping, managing stress, stressor-emotion model, emotion management to reduce burnout, applying positive psychology in the workplace, effective communication, &amp; recovery.</td>
<td>HR manager recruited participants and tests were voluntary, those who completed both tests were offered a free personal profile as an incentive. Pretests were administered before training and post tests were administer within 7-10 days post intervention. T tests measured change significance.</td>
<td>The 22 item MBI-HSS measured burnout, work well-being, physical and psychological symptoms were measured by Psychological Well-being Scale of An Organizational Stress Screening Tool. Five items from the WHOQOL were used to measure positive emotions.</td>
<td>• Post-training, participants scored statistically significantly lower on physical/psychological symptoms and burnout  • Post-training participants also scored significantly higher on job satisfaction and positive emotions</td>
</tr>
<tr>
<td></td>
<td>To remedy the weakness of having no control group in study 1 and demonstrate the effectiveness of the positive psychology intervention</td>
<td>Study 2: N= 98 (China)</td>
<td>Study 2: 50 Primary and Secondary Teachers, mean age 39.06, mean job tenure 13.63 years Control Group: 48 Primary and Secondary Teachers, mean age 38.09, mean job tenure 14.1 years</td>
<td>*The study components were the same as study 1 (above) but the training was extended to 2.5 days. Extra recovery topics were added to enhance participant’s recovery experiences.</td>
<td>Participants registered for the training course. 100% completed both pre &amp; post-tests. Each participant recruited another teacher to form the control group.</td>
<td>The 22 item MBI-HSS measured Burnout, work well-being, physical and psychological symptoms were measured by Psychological Well-being Scale of An Organizational Stress Screening Tool. Five items from the WHOQOL were used to measure positive emotions.</td>
<td>• Post-test, participants in the experimental group scored higher on positive emotions, lower on emotional exhaustion, and reported fewer physical/psychological symptoms than those in the control group, although differences were not statistically significant  • Teachers in the experimental group reported statistically and significantly higher scores in overall recovery, and mastery recovery experience than control group</td>
</tr>
</tbody>
</table>

Table 1 Continued: Findings from studies of preventative interventions
<table>
<thead>
<tr>
<th>Study: (Authors, Year)</th>
<th>Purpose of the Study</th>
<th>Sample Size (country)</th>
<th>Sample Description &amp; Comparison Group</th>
<th>Components of Preventive Intervention</th>
<th>Procedures (Data Collection &amp; Analysis)</th>
<th>Outcome Measures</th>
<th>Significant Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sjogren Nisinen, Jarvenpaa, Ojane, Vanharanta, &amp; Malkai (2006).</td>
<td>To examine the effects of physical exercise on subjective wellbeing and psychosocial functioning among office workers</td>
<td>N=90 (Finland)</td>
<td>Office workers, mean age 45.7 years, SD 8.5, 66 women, 24 men Control Group: peers in treatment group 2 who started their intervention after completion of treatment group 1</td>
<td>Timeframe &amp; Location: 15 week intervention period in workplace gym Theory/Approach: <em>Physical Exercise</em> *light resistance Components: Light resistance training and guidance and one 15 week period of no training and no guidance. In the training period 5 weeks non-supervised training was to be performed 5 minutes per day, in the second and 3rd training was to be completed 1-2 times per day, group sessions were given on how to train on equipment.</td>
<td>Pre and post intervention assessments were made in intervention and control group. During crossover, results of group 2 were included. Linear mixed models.</td>
<td>Subjective Well-being, psychosocial functioning and general subjective well-being and monthly self-estimated recall of the preceding were self-reported using descriptive visual scales. Physical activity was measured by the weekly diary used to record training sessions including minutes spent in activity in and out of work.</td>
<td>• The active component of the intervention, light resistance training, resulted in a slight, but statistically significant, increase in subjective physical well-being • At the average training time of 5 minutes per working day the average increase during the 15-week period was 4 units on the descriptive visual scale • The physical exercise intervention had no effect on somatic symptoms, anxiety, self-confidence, mood, mental stress at work, working atmosphere, life satisfaction or meaning of life</td>
</tr>
<tr>
<td>Villani, Grassi, Cognetti, Toniolez, Cipresso, &amp; Riva (2013).</td>
<td>To test the short term effects of a self-help stress management training through mobile tools</td>
<td>N= 30 (Italy)</td>
<td>15 Tenured female Oncology nurses hospitals in Milan, Italy. Mean age 43, SD 8.8yrs, average of 22 years nursing and 9 years in oncology Control Group: 15 Peers</td>
<td>Timeframe &amp; Location: 3 months on the job Theory/Approach: *Stress Inoculation Training (SIT) Mobile SIT (M-SIT) Components: Participants watched videos with narratives according to SIT in 15 minute sessions twice weekly for 3 weeks. Muscular relaxation and Autogenic interventions were used in the skills acquisition phase. Neutral videos were played to control group.</td>
<td>Assessments took place for 3 months in preceding weeks, during interventions and post interventions. A two MANOVA was used to analyze results.</td>
<td>The MSP was used to evaluate stress levels perceived within 3 preceding months. The STAI was used to assess anxiety. Coping skills, particularly active coping and denial were evaluated using COPE questionnaire. The job content questionnaire and psychological job demand and social support at work were used to assess job related aspects.</td>
<td>• Active coping, Denial and Anxiety trait were significantly improved in pre-post intervention analysis with the experimental group • Psychological improvement of the experimental group occurred, specifically as related to: coping skills acquisition, anxiety state and anxiety trait reduction</td>
</tr>
<tr>
<td>Viuori, Toppinen-Tanner &amp; Mutanen (2012).</td>
<td>To assess a resource-building group intervention developed to enhance career management, mental health, and job retention in work organizations and investigate the impact of the intervention on immediate career management preparedness and later mental health and intentions to retire early</td>
<td>N= 290 (Finland)</td>
<td>Participants from 17 organizations who returned the initial survey were included. The mean age was 50.2 (SD = 6.47), 86% were women, 57% had higher education, and 81% worked in public sector. Control Group: Peers not receiving intervention</td>
<td>Timeframe &amp; Location: A week-long intervention in classrooms in the participating organizations Theory/Approach: <em>Skills-based Career Management</em> *Stress Management Components: The in-company training program provided employees with tools to manage their own careers. Groups of 8-15 employees participated in 5 half-day sessions focussed on enhancing career management skills. Program activities were implemented using an organization-level model with two trainers from human resources management and occupational health services.</td>
<td>The respondents were randomly assigned to either an intervention or a comparison group. Those in the intervention group were invited to group intervention workshops, whereas those in comparison group received only a pamphlet. A seven month follow up was completed.</td>
<td>Measures included demographic characteristics through surveys, career management preparedness consisting of career management self-efficacy and preparation against setbacks through designed and expert approved survey questions. Depressive symptoms were measured with the Beck Depression Inventory, exhaustion was measured with MBI-GS, Intention to retire early and integrity of intervention were assessed through survey</td>
<td>• Program significantly decreased depressive symptoms and intentions to retire early and increased mental resources among the group participants compared to control group • Mediation analyses demonstrated an increase in career management preparedness as a proximal impact of the intervention mediated the longer term mental health effects • Those whose mental health benefited most from interventions were employees with elevated levels of depression or exhaustion and younger employees • Results demonstrated the benefits of the enhancement of individual-level career management and resilience resources as career and health promotion practice in work organizations</td>
</tr>
<tr>
<td>Study: (Authors, Year)</td>
<td>Purpose of the Study</td>
<td>Sample Size (country)</td>
<td>Sample Description &amp; Comparison Group</td>
<td>Components of Preventive Intervention</td>
<td>Procedures (Data Collection &amp; Analysis)</td>
<td>Outcome Measures</td>
<td>Significant Findings</td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------------</td>
<td>-----------------------</td>
<td>--------------------------------------</td>
<td>--------------------------------------</td>
<td>-----------------------------------------</td>
<td>------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Wolever, Bobinet, McCable, Mackenzie, Fekete, Kusnick, &amp; Baime (2012).</td>
<td>To evaluate the viability and proof of concept for two mind-body workplace stress resolution programs and evaluate delivery venues</td>
<td>N= 239 (USA)</td>
<td>Employees of a national insurance carrier who scored higher than 16 on the PSS and volunteered, average age 42.9 years, 23.4 % male, most holding college, graduate or professional degree., 78.2% Caucasian. Participants with significant yoga or meditation experience were excluded. Control Group: N=47 - a control group of peers on waitlist who were assessed at the same times</td>
<td>Timeframe &amp; Location: 12 weeks at work (in classroom or online) Theory/Approach: *Mindfulness *Yoga-based Components: Randomized placement into one of four groups: 1) Therapeutic yoga: 12 weeks (12 hours) of classes &amp; half were given a DVD for extra at home practice. 2) Mindfulness Online Delivery: 12 week with and hourly session and 2 hour intensive practice sessions at week 10 in a classroom at work. 3) Mindfulness-based program: 12 week with and hourly session and 2 hour intensive practice sessions at week 10 in a classroom at work. 4) Control Group. Participants who completed the study were given $75.00 and a $75.00 massage gift certificate.</td>
<td>Assessments were made 2 weeks prior to intervention and 2 weeks post intervention completion. Repeated measures ANCOVAs were used to analyse results.</td>
<td>The primary outcome perceived stress levels as measured using the PSS. Secondary outcomes included sleep quality, as measured by the PSQI, mood and pain by the CES-D, productivity by the WLQ, mindfulness by the CAMS-R and biological measures such as blood pressure, breathing rate and heat rate.</td>
<td>• Both the mindfulness based and yoga-based programs provided effective interventions for stress levels, sleep quality and autonomic balance • Both delivery methods for mindfulness interventions had relatively equivalent results. • The mindfulness intervention produced changes in the CAMS mindfulness score, while the yoga intervention did not differ from the control group • Yoga group reported less pain post intervention</td>
</tr>
</tbody>
</table>

**Abbreviations Key**

AAQ-II = Acceptance and Action Questionnaire  
ANCOVA = Analysis of Covariance  
CAMS-R = Cognitive and Affective Mindfulness Scale - Revised  
CES-D = Center for Epidemiological Studies Depression Scale  
COPE = Coping Orientation to Problems Experienced  
DASS-21 = Depression Anxiety Stress Scale  
DPA = Daily Physical Activity Surveys  
GHQ-12 = General Health Questionnaire 12 -Item  
PANAS-X = The Positive and Negative Affect Schedule  
MAAS = Mindful Attention and Awareness Scale  
MANOVA = Multivariate Analysis of Variance  
MBCT = Mindfulness Based Cognitive Therapy  
MBSR = Mindfulness Based Stress Reduction  
MBI - GS = Maslach Burnout Inventory General Survey  
MBI-HSS = Maslach Burnout Inventory -Human Service Survey  
MSP = Measure du Stress Psychologique  
PHQ9 = Patient Health Questionnaire 9  
PSS = Perceived Stress Scale  
PSQI = Pittsburgh Sleep Quality Index  
STAI = State Trait Anxiety Inventory  
SES = Socioeconomic status  
SF-12 = Short Form Version 12  
SUDS = Subjective Units of Distress  
WAI Index = Work Ability Index  
WHOQoL = World Health Organization Quality of Life  
WLQ = Work Limitations Questionnaire
The length of intervention ranged from two days to two years. Two interventions were under a week in length, three fell into the category of 1-3 weeks, four were 10-12 weeks, two were 13-15 weeks, one was 24 weeks long and one was completed over the course of two years.

The articles assessed in this systematic review used a variety of frameworks and intervention approaches. Most commonly used was Cognitive Behavioral Therapy, which included a variety of skills and problem-based strategies for coping and stress management (N=5), followed by Coaching (N=3) which included career management sessions, personal initiative sessions and motivational interviewing sessions, and Physical Exercise (N=3) which included resistance training and yoga sessions. Two studies used Mindfulness Training as an approach and one study used Stress Inoculation. The most recent study applied Positive Psychology through positive reflection exercises.

Most interventions were delivered in person on site in groups, and very few were delivered on a one-to-one basis. A few studies included an online or mobile phone component. The majority of interventions were less than 10 weeks.

Regardless of intervention type, results indicated that 11 of the 13 interventions were effective at improving mental health outcomes at a statistically significant level, while two approached significance. Some studies also documented improvement in work outcomes including concentration, job satisfaction, clarity of work goals, flow of information and intentions to retire early. No studies documented long term outcomes (12 months or more), and only one documented medium term (6-12 month) outcomes.
The three exercise interventions demonstrated the least significant effects when it came to mental health outcomes, with one of the studies not indicating improvements in mental health outcomes and the others just bordering statistical significance.

Only one intervention focused on the results of organization focused intervention rather than an individual focused intervention. Based on their findings assessing the Results Only Work Environment (ROWE), Moen et al. (2013) indicated that increases in flexibility can benefit employee mental health.

**Discussion and Conclusion**

The purpose of this study was to systematically review the current research on workplace mental health promotion programs, published between 2006 and 2014. More specifically, the objectives of this research were to describe the current interventions in place to promote mental health, assess their effectiveness and determine where gaps in understanding and research still exist.

A total of 13 studies, from 12 articles, were identified for inclusion in the systematic review, which was less than anticipated The small number of identified studies was likely due to strict inclusion criteria, although it was interesting that six of the studies were published since 2012 which could indicate that a shift to increased research in this area is occurring.

As expected, the results of this systematic review were similar to that of the work of Corbiere et al. (2009), which informed the method of the current study. The proportion of intervention types was very similar, as was the lack of research on long term outcomes. Both reviews also noted that interventions were primarily designed to create change in
individuals, which would lead to positive mental health outcomes, rather than to change organizational factors. The effects of organization-focused interventions which may promote employee mental health such as adopting flexible work hours or altering cubicle dividers have not yet been well documented, though results of the study included in this review by Moen et. al. (2013) are promising. Also similar to the Corbiere et al. (2009) findings, this systematic review indicated that much of the research continues to focus on cognitive behavioral therapies and their efficacy continues to be strongly supported in the literature.

A new intervention in studies which emerged in the research since 2006 was mindfulness. Mindfulness training for the business community is a relatively recent phenomenon and hot topic, with many supportive business articles published in the past three years. One recent Forbes article highlighted it’s benefits and noted the recent adoption of mindfulness training programs at progressive companies such companies as Google, Apple and Proctor and Gamble (Hansen, 2012). A Harvard Business Review article discussed the important role of mindfulness practice in leadership development (George, 2012). A meta-analysis of medical studies indicates mindfulness techniques have the potential to reduce stress associated with a variety of conditions (Grossman, Niemann, Schmidt & Walach, 2004). The two studies examined in this review did indicate that mindfulness training was effective, although no medium or long term effects were assessed. In addition to claims of reducing burnout, mindfulness training proponents claim that it also improves creativity, although little evidence has been provided to date in this area.
Two other current interventions, stress inoculation as outlined in the study by Villani et al. (2013), and positive reflection as outlined in the study by Bono et al. (2013) both indicated promising results in their unique and relatively simple interventions. The Villani et al. (2013) study makes also makes use of new technology with an intervention through a mobile phone. It was interesting to note that another study in the systematic review which compared in person and on work computer stress management sessions, found that the completion rates were much higher for the face to face option, suggesting that new technologies may bring new challenges in addition to the new opportunities (Eisen et al. 2008).

Another point of interest was that several of the studies noted that increased practice, “homework” or take home assignments, increased levels of engagement and increased attendance of sessions led to more positive mental health outcomes and work outcomes for employees. This is interesting as it was noted across approaches and in various intervention types. In the study by Elo et al. (2008), results also suggested that for those who weren’t engaged in the intervention throughout the implementation process, work climate actually deteriorates. For managers implementing programs, building excitement and buy in appears to be an important component in the success and effectiveness of the intervention.

**Implications**

This research adds to a growing body of support which will guide evidence-based managers. It indicates that workplace interventions which promote employee mental health can be effective and beneficial for both employees and organizations. The study concludes that while a variety of interventions are available, cognitive based therapy
continues to be supported and more research is needed in the emerging areas of mindfulness training and positive psychology techniques in order to establish a sound base for recommending a specific approach or intervention type. It is suggested that regardless of intervention type in order to achieve best results, managers generate buy-in from employees and encourage regular attendance and practice of any applicable techniques.

**Limitations**

As was the case in many of the similar previous reviews and studies, several limitations with this research exist, and there are still gaps and debates about the direction which future research should take. Limitations of this research include the fact that few studies were available to draw from, making it difficult to assess and compare interventions, and generalize results. Systematic reviews can use a variety of methods to synthesize findings. In this instance, a single coder retrieved and interpreted the studies. No quantitative summary of effect sizes was provided, although as more research becomes available on similar interventions such a meta-analysis may follow.

Another potential limitation is that the studies analyzed used self-report measures. Although self-report measures are difficult to avoid when assessing mental health outcomes, it is acknowledged that this methodology is often called into question for concerns with validity as answers may be influenced by many external factors. An additional concern with the methodology of included studies is that the research in nearly half of the studies is correlational and thus causation is difficult to establish. With the small number of studies assessed, sound generalizable recommendations for
implementation cannot be created. Finally, an additional limitation of this research is that only publications printed in English were assessed.

**Future Research**

With a new focus on mentally healthy workplaces, there are several areas of need of increased focus and research. Despite the direct links of work stress and mental health issues and the costs of the mental health issues to employers, relatively little evidence has been established in terms of preventative measures or interventions. Seminars and supports available online appear to be dated and anecdotal, with few links to empirically supported practices. Until recently, little research was available on evidence-based interventions which could promote mental health at work. This may be because of the difficult nature of proving efficacy of programs, or resource or time constraints on the part of the employer. Often in this area of research self-report measures and pre-post intervention methods (without control groups) are used, making it difficult to unequivocally establish cause-effect relations. It is also difficult for organizations to direct funds towards preventative research as it is difficult to prove the long term effects and benefits to a business.

Giga, Cooper, and Faragher (2003) discuss the need for a somewhat standardized stress management framework which would be based on evidence and which would contain an additional customizable component for workplace-specific concerns and training. The authors stated the need for continual evaluation of program and organizational outcomes and implied that currently organizations adopt widely ranging programs to prevent and manage stress which are often one-time solutions that do not consider specific organizational requirements.
Also citing the need for a broad integrated approach were authors Karanika-Murray and Weyman (2013) who put forth a recent proposed framework, combining public health and individual approach. The authors argued that there is a need to take a broader approach and combine population health approaches with workplace-based interventions and that an evidence-based epidemiological approach will provide the best combination for workplace well-being management. In agreement with the need for a broadened, multi-faceted approach is a recent recommendation for an approach which that links organizational culture, work organization conditions, and mental health (Dextras-Gauthier et al., 2012). Their work also describes the need for a wider lens for studies of the workplace antecedents of occupational stress and psychological strain.

Bilsker (2006) noted that despite the obvious connections, there was currently little communication or collaboration between organizations and the mental health care system. Also, although new standards were introduced in 2013, research in the area of workplace mental health and particularly organizational prevention strategies is truly in its infancy.

A recent publication by Dimoff and Kelloway (2013) presents a proposed framework and agenda for future research in the area. Citing the importance of the new National Standard of Canada for Psychological Health and Safety in the Workplace the authors maintained the important pursuit of workplace mental health research in four main areas; 1) the development of theory; 2) the standardization of strategy development and evaluation; 3) the improvement of longitudinal research; and 4) the application of workplace mental health strategies in natural workplace settings.

The aforementioned frameworks discussion highlights the large scope and
diversity of approaches used in addressing mental health issues in the workplace and in general. Much of the research does suggest the need for a broad and integrated approach for best outcomes. Due to the number of approaches that can be taken, it becomes difficult to synthesize literature and create definitive evidence-based strategies. Additional research is needed in all categories before accepted and effective intervention types for the workplace can be established.

**Conclusions**

In conclusion, this systematic review of research yielded 13 studies from 12 articles which collectively provide evidence that workplace interventions for mental health promotion can be beneficial for employees and organizations in the short term. The findings highlighted the fact that the current variety of interventions and lack of studies, make creating a sound evidence base for any one program or intervention difficult and that more research is needed in this area. Cognitive based therapy continues to be one of the most researched and well supported interventions. Mindfulness training and positive psychology techniques are emerging interventions with promising results. More research is also needed to assess the long term outcomes of all interventions. Researchers and policy makers are suggesting a broadened approach to mental health promotion and organizations can play an important role in promoting and protecting the mental health of the population.
References

* denotes articles included in the systematic review


doi:10.1080/13548501003758710

doi:http://dx.doi.org.libproxy.mta.ca/10.1108/1753850810893883


doi:http://dx.doi.org.libproxy.mta.ca/10.1017/S1041610212001883


