



# Mental Health Interventions in the Workplace and Work Outcomes: A Best-Evidence Synthesis of Systematic Reviews

SL Wagner<sup>1</sup>, C Koehn<sup>2</sup>, MI White<sup>3</sup>,  
HG Harder<sup>1</sup>, IZ Schultz<sup>4</sup>,  
K Williams-Whitt<sup>5</sup>, O Warje<sup>3</sup>,  
CE Dionne<sup>6</sup>, M Koehoorn<sup>7</sup>,  
R Pasca<sup>1</sup>, V Hsu<sup>8</sup>, L McGuire<sup>9</sup>, W Schulz<sup>10</sup>,  
D Kube<sup>11</sup>, MD Wright<sup>12</sup>

## Abstract

**Background:** Mental health issues in the workplace are a growing concern among organizations and policymakers, but it remains unclear what interventions are effective in preventing mental health problems and their associated organizational consequences. This synthesis reports on workplace mental health interventions that impact absenteeism, productivity and financial outcomes.

**Objective:** To determine the level of evidence supporting mental health interventions as valuable to work outcomes.

**Methods:** Databases were searched for systematic reviews between 2000 and 2012: Medline, EMBASE, the Cochrane Database of Systematic Reviews, DARE, CINAHL, PsycINFO and TRIP. Grey literature searches included *health-evidence.ca*, Rehab+, National Rehabilitation Information Center (NARIC), and Institute for Work and Health. The assessment of articles for inclusion criteria and methodological quality was conducted independently by two or more researchers, with differences resolved through consensus.

**Results:** The search resulted in 3363 titles, of which 3248 were excluded following title/abstract review, with 115 articles retrieved for full-text review. 14 articles finally met the inclusion criteria and are summarized in this synthesis.

**Conclusion:** There is moderate evidence for the effectiveness of workplace mental health interventions on improved workplace outcomes. Certain types of programs, such as those incorporating both mental and physical health interventions, multicomponent mental health and/or psychosocial interventions, and exposure *in vivo* containing interventions for particular anxiety disorders had a greater level of research evidence to support their effectiveness.

**Keywords:** Mental health; Workplace; Outcome assessment (Health care); Health care costs; Efficiency; Presenteeism; Absenteeism; Review [Publication type]; Social support; Anxiety disorders; Risk factors

<sup>1</sup>School of Health Sciences, University of Northern British Columbia, Prince George, BC, Canada

<sup>2</sup>School of Education, Counselling Specialization, University of Northern British Columbia; Prince George, Canada

<sup>3</sup>Research Associate, Canadian Institute for the Relief of Pain and



Correspondence to  
Shannon L. Wagner,  
PhD, School of Health  
Sciences, University  
of Northern British Co-  
lumbia, 3333 University  
Way, Prince George,  
BC, V2N4Z9, Canada  
E-mail: wagners@  
unbc.ca

Received: May 20, 2015  
Accepted: Oct 28, 2015

Cite this article as: Wagner SL, Koehn C, White MI, et al. Mental health interventions in the workplace and work outcomes: A best-evidence synthesis of systematic reviews. *Int J Occup Environ Med* 2016;**7**:1-14.

Disability, Vancouver, Canada

<sup>4</sup>Department of Educational and Counseling Psychology and Special Education, University of British Columbia, Vancouver, Canada

<sup>5</sup>Faculty of Management, University of Lethbridge, Lethbridge, AB, Canada

<sup>6</sup>Département de réadaptation, Faculté de Médecine, Université Laval, Québec City, QC, Canada

<sup>7</sup>School of Population and Public Health, University of British Columbia, Vancouver, BC, Canada

<sup>8</sup>BC Construction Safety Alliance, New Westminster, BC, Canada

<sup>9</sup>The FIOSA-MIOSA Safety Alliance of BC, Chilliwack, BC, Canada

<sup>10</sup>Retired formerly Healthcare Benefit Trust, Vancouver, Canada

<sup>11</sup>Stantec Consulting, Markham, ON, Canada

<sup>12</sup>Apex Information, Vancouver, BC, Canada

## Introduction

**M**ental health in the workplace has become a hot topic in medical literature. Increasing human and financial costs, as well as changing and more stringent legislative requirements are pushing employers to recognize the need to become knowledgeable about workplace mental health and establish policies and procedures that are congruent with best-evidence. Despite growing interest, and recognition and regulation of the need to address mental health in the workplace, there has been insufficient guidance on the current state of research literature and its application to real world challenges. Employers and organizations face ever-increasing financial pressure that often requires clear cost-benefits in order to justify expenditure on mental health interventions. Furthermore, stakeholders participating in this synthesis reported that they feel unsure about how, when, why, and what types of mental health interventions are necessary.

From the perspective of economic burden to society, identifying effective interventions for workplace mental health is vital. In 2001, the World Health Organization (WHO) estimated that mental health constituted 12% of illness and disability worldwide.<sup>1</sup> Greenburg, *et al*,<sup>2</sup> estimated the US societal costs of major depressive disorder alone as US\$ 83.1 billion annually, while Kessler, *et al*,<sup>3</sup> suggested that depression leads to 27.2 lost days per depressed worker per year in the US, not counting the staggering costs of depression-related presenteeism. Further, Birnbaum, *et al*,<sup>4</sup> found that depression was significantly related to increased disability, absenteeism and lost productivity.

Workplace stakeholders report that despite best efforts to improve workplace mental health through meaningful intervention, they remain unsure of the type of

mental health intervention that should be used in the workplace and also of how to interpret available evidence to determine the answers to this question. In discussion with stakeholders we, and others, have learned that there are many barriers for practitioners interested in using research evidence to inform decision-making.<sup>5,6</sup> These barriers include the need for specialized knowledge to adequately search the research literature, the cost for accessing research papers, the expertise needed to critically appraise the scientific merit of primary studies or systematic reviews, and difficulty in accurately interpreting the research findings.<sup>7-12</sup> Even for experienced researchers and mental health clinicians, the literature is often difficult to interpret and lacks direct, clear, easily-made conclusions about recommended best-evidence interventions.<sup>13</sup> The purpose of this synthesis was to provide an appraisal and summary of evidence, through a best-evidence synthesis of high-quality systematic reviews, which would assess the overall value of mental health workplace interventions as they relate to increased work productivity, decreased organizational costs, or reduced absenteeism. The end goal was to provide useful advice to workplace stakeholders about the value of workplace mental health interventions as they relate to work outcomes.

## Materials and Methods

This best-evidence synthesis of systematic reviews is part of a larger synthesis appraising and summarizing workplace interventions to address previously identified modifiable risk factors of work absence across health conditions.<sup>14,15</sup> This paper reports on mental health interventions in the workplace that address worker absenteeism, productivity and economic outcomes.

Given the scope of this review address-

ing different mental health concerns, outcome measures, study designs and levels of reporting, a meta-analysis was determined to be unfeasible and a best-evidence synthesis approach was chosen as the method of critical appraisal.<sup>16,17</sup> This approach involves a systematic critical appraisal based on the quality, quantity and consistency of available evidence.<sup>18</sup> In our summaries of the systematic reviews included, the strength of the effect is reported when available; however, due to variability in study designs and analyses, no overarching effect size can be calculated for mental health interventions as a whole. Therefore, for the purpose of this review the terms “strong,” “moderate,” and “limited” were used to speak specifically to the “level and consistency of evidence” and do not refer to the “strength of the intervention effect” on the outcomes of interest (absence, productivity and financial impact; Table 1). As the focus of this meta-synthesis was primarily on work outcomes, the study by design did not consider reviews that focused on clinical outcomes alone.

This review was conducted by an academic-community partnership (ACP) made up of a collaborative team of researchers and stakeholders, where communication and consultation were sought at every step of the research process, including the purpose of the review, search terms, inclusion and exclusion criteria, data abstraction framework, results and manuscript preparation. Consultation was carried out through meetings in person or through virtual meetings, as well as review and reflection via e-mail. The ACP aimed to ensure that the resulting report was relevant to all stakeholders involved.

The review followed the procedures outlined in the PRISMA Statement,<sup>19</sup> and the Institute of Medicine's Standards for Systematic Reviews.<sup>20</sup> This involved developing a search strategy with researchers and stakeholders, in consultation with two

**Table 1:** Level of evidentiary support across systematic reviews. For syntheses with limited number of studies, we looked at the high-, moderate-, and low-quality reviews, and the original methodological review tool for making conclusions about strength of evidence.

**STRONG:** (over 70% effect positive—*eg*, 5/7 positive) AND  
A minimum of 3 strong evidence OR  
A minimum of 2 strong AND 2 moderate evidence

**MODERATE:** (between 60% and 69% effect positive—*eg*, 3/5 positive) AND  
A minimum of 1 strong AND 2 moderate evidence OR  
A minimum of 3 moderate evidence

**LIMITED:** (50%–59% effect positive) AND  
A minimum of 1 moderate and 2 weak/limited evidence OR  
A minimum of 3 weak/limited evidence

**INCONSISTENT:** (50% or less of a positive effect) AND Does not meet above criteria.

**INSUFFICIENT:** Information is not inconsistent but does not meet the criteria for weak evidence.

librarians associated with the project and subsequently with review by an external librarian. Prior to project search activities, we pilot-tested the search strategy for relevance and refinement of search terms. Two or more independent reviewers assessed titles for relevance; disagreements regarding title review led to an abstract review. Disagreements about and/or insufficient information (*eg*, lack of abstract or insufficient detail in the abstract) at the level of the abstract, resulted in article being retrieved for in-depth review. All retrieved articles were reviewed independently by two reviewers, with any disagreements being referred to a third independent review. The ACP team also pilot-tested and refined the data abstraction table to ensure stakeholder relevance and comprehensiveness. Stakeholders participated in the creation of a final report relevant to respective organizational contexts.

### Search Strategy

The original search strategy was writ-

For more information on search strategy see the online version of the article.

**TAKE-HOME MESSAGE**

- Our synthesis found that there is overall moderate evidence for the value of mental health interventions as they relate to workplace outcomes.
- We found the greatest support for workplace mental health interventions that included aspects intended to improve both mental and physical health together, multicomponent mental health and/or psychosocial interventions, and exposure *in vivo* containing interventions for particular anxiety disorders.
- We concluded that positive workplace outcomes result when workplaces provide high-intensity mental health intervention, access to clinical treatment, and support in navigating disability management programs.

ten by an information specialist and then subsequently reviewed by an information specialist peer. MeSH terms were also reviewed by external librarians to ensure the sensitivity and specificity of the search. Databases searched included Medline, EMBASE, the Cochrane Database of Systematic Reviews, DARE, CINAHL, PsycINFO and TRIP. Grey literature database searches included *health-evidence.ca*, Rehab+, National Rehabilitation Information Center (NARIC), and Institute for Work and Health (IWH). Experts were asked to suggest relevant reviews for this study, and reference lists of included articles were hand-searched.

**Inclusion/Exclusion Criteria**

Systematic reviews on interventions in, or managed by, the workplace that focused on the adult population (15+ years) in a work-focused population (working or trying to work) were included in this study. Articles were included if they were published between January 1, 2000 and September 2012 (search initiated in September 2012). As these were systematic reviews, we limited the search strategy to reduce overlaps

as some of the included reviews covered articles from earlier publication dates. Both quantitative (including both meta-analytic and non-meta-analytic results) and qualitative literature were included, as long as one of the specific outcomes of interest (absenteeism, productivity, and cost) was considered and a previously demonstrated risk or protective factor for work absence was addressed. Exclusion criteria included reviews focused on severe or rare physical or mental conditions and/or specific populations that would be difficult to generalize to other occupations (*eg*, firefighters, police). Two reviewers independently assessed the full-text of articles against these criteria.

**Quality Assessment**

Quality assessment forms were developed for this study using a modified version of the *health-evidence.ca* quality assessment tool, which focuses on knowledge translation for public health nursing, as well as the EBM Glasgow Checklist for Systematic Reviews and the AMSTAR methodological quality guidelines.<sup>21,22</sup> Stakeholders were involved in the review and refinement of the quality assessment form, and consensus was reached among all parties as to the items included and any changes made in questions or scoring. Other questions addressed during the methodological review included strengths and weaknesses of research design, implementation recommendation from authors and reviewers, relevance to small employers, and whether or not the systematic review met the inclusion/exclusion criteria for this study. The methodological review template included 18 questions with numerical quality scores created based on 10 questions (Table 2). Categories of methodological quality were developed based on the percent of the total quality rating reached. Studies were considered “high quality” if they scored 85% or over, “medium quality” between 75%

**Table 2:** Methodological quality criteria and quality score

Citation	Year	Clearly focused question?	Inclusion/exclusion	Comprehensive	Number of search strategies	Number of years	Methodological quality	Methods weighting	Strength of evidence	Congruence data & author interpretation	COI	Quality Score	Percent
Aas	2011	0	1	1	2	1	1	2	2	1	1	12	92%
Carroll	2010	1	1	1	2	1	1	1	2	1	1	12	92%
Corbiere	2006	1	1	1	2	1	1	2	2	1	1	13	100%
Corbiere	2009	1	1	1	2	0	1	2	2	1	1	12	92%
Czabala	2011	1	1	1	2	1	1	2	2	1	1	13	100%
Dick	2011	1	1	1	2	1	1	2	1	1	1	12	92%
Furlan	2012	1	1	1	1	1	1	2	2	1	1	12	92%
Noordick	2010	1	1	1	1	1	1	2	2	1	1	12	92%
Palmer	2012	1	1	1	1	1	1	2	2	1	1	12	92%
Pomaki	2012	1	1	1	2	0	1	2	2	1	1	12	92%
Richardson	2008	1	1	1	1	1	1	2	2	1	1	12	92%
Tompa	2008	1	1	0	1	1	1	2	2	1	1	11	85%
Tveito	2004	1	1	0	2	1	1	2	2	1	1	12	92%
van der Klink	2001	1	1	1	1	1	1	2	1	1	1	11	85%

and 84%, and “low quality” between 50% and 74%. Studies scoring under 50% were removed from the review. For the mental health interventions component of the larger study, only high-quality studies were included.

### Data Abstraction

Data abstraction forms were developed and reviewed by researchers in collaboration with stakeholders. These forms were then pilot-tested and discussed by the ACP team to ensure all relevant findings were captured. Included reviews were categorized by the different factors that were found to be associated with work absence. These categorizations were discussed by the ACP team, leading to changes in where review articles were placed. Articles were divided into meaningful categories based on factors. This best evidence synthesis describes the factors of psychological interventions in, or managed by, the workplace.

## Results

### Data Treatment

Systematic reviews were evaluated for methodological quality, categorized according to risk factors identified in our prior study,<sup>23</sup> and then examined for the level of evidence as reported by the author(s) of each respective review. For reviews in which the author(s) did not specify a level of evidence but suggested positive outcomes, a ranking of limited evidence was assigned.

The comprehensive search resulted in 3363 titles (duplicates were removed) which were uploaded into RefWorks® for review (Fig 1). An initial title review was completed by two team members in order to determine relevance to the review; as a result, 115 articles were selected for full-text review. Of the 115 full-text articles that

were reviewed, 48 were excluded because they did not address work absence, productivity or financial outcomes; 32 were excluded because the interventions did not target mental health factors; and 21 were excluded for other reasons such as not being managed by the workplace (Table 3). In total, 14 high-quality systematic reviews were found to specifically address workplace mental health intervention and outcomes related to increased productivity, decreased costs, or reduced absenteeism.

### Description of Studies

#### Moderate/Positive Evidence

Aas, *et al*,<sup>24</sup> completed a review of 10 studies; however, only a single of these studies was relevant to our review. The single relevant study considered workers who were currently both absent from work, as well as those who were present at work. These authors reported moderate quality evidence for reduced sick listings during the intermediate-term only (not significant for the short- or long-term) in the presence of a four-component workplace intervention which included mental health education; physical health education, relaxation and breaks; activity modification; and physical environment modifications. These authors, however, reported no evidence for benefits in sick listings when activity modification and physical environment modifications were removed, leaving only two remaining components.

Noordik, *et al*,<sup>25</sup> reviewed seven studies to examine the impact of exposure *in vivo* containing interventions on improving outcomes in employees with anxiety disorders. To be eligible for inclusion in their review, exposure *in vivo* interventions had to be a central feature of therapy, and had to be conducted on a gradual basis. Four studies focused on obsessive compulsive disorder (OCD), two studies reported on post-traumatic stress disorder (PTSD),

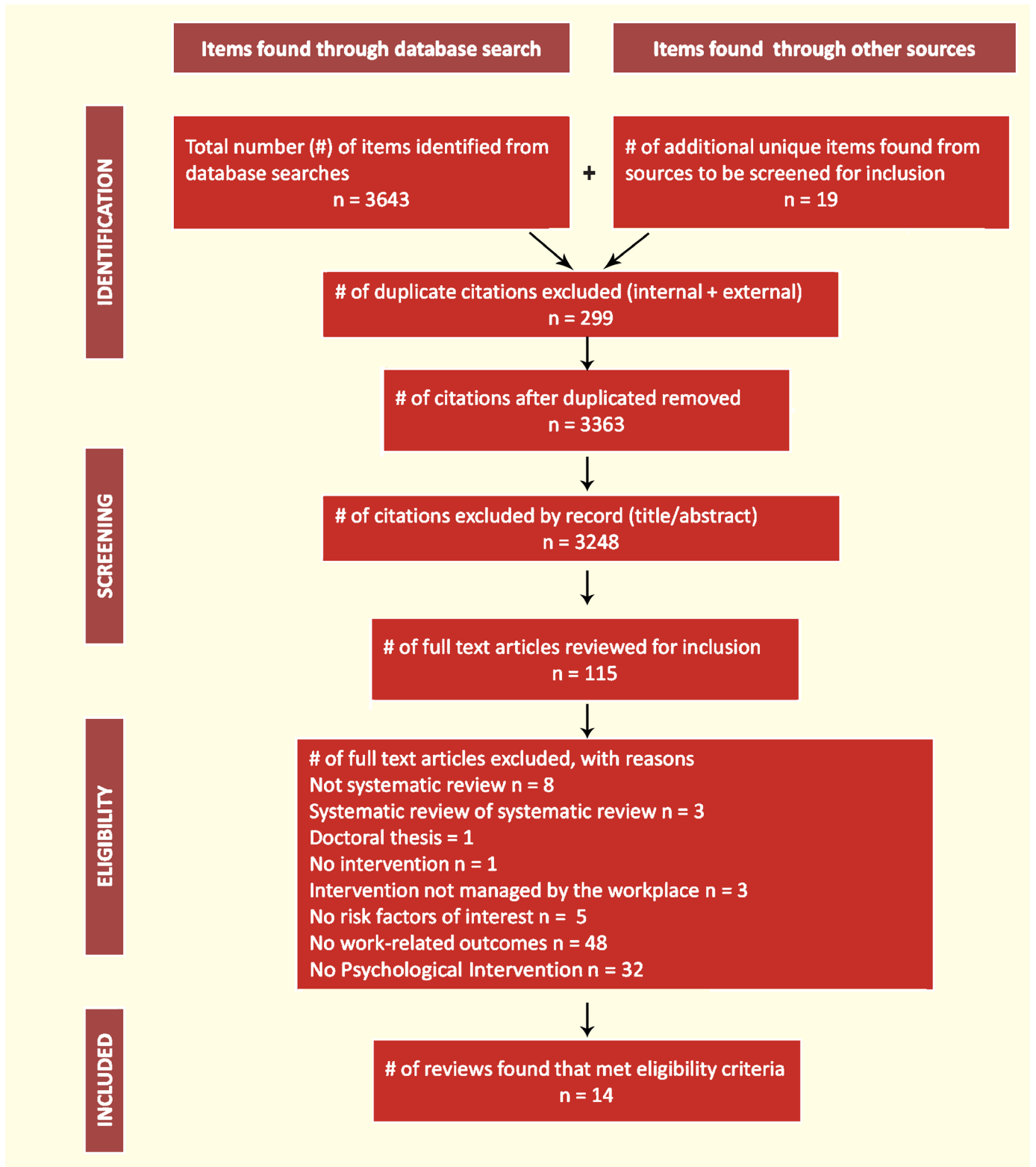


Figure 1: PRISMA diagram

**Table 3:** Characteristics of relevant studies included in the synthesis

Citation	Quality Score	Number of Studies Included	Number of Relevant Studies	Occupation/Industry
Aas, 2011	92% (High)	10	1	Kitchen workers, service managers, chefs, cooks, and kitchen aids working at least 6 hours per day; food services in schools, nurseries and nursing homes
Carroll, 2010	92% (High)	13 (12 articles)	13	Not reported
Corbière, 2006	100% (High)	14	14	Not reported
Corbière, 2009	92% (High)	24	11	Staff working with developmental disabilities, customer service representatives, industrial employees, caregivers, nurses, post office employees, dentists, orderlies, health care workers, pharmaceutical company employees; health care, customer services, municipal employees, industrial
Czabala, 2011	100% (High)	79 controlled studies	23	Mental health professionals, healthcare professionals, teachers, other white-collar workers, blue-collar workers, armed forces, various, n/r; health care, military, education, white-collar, blue-collar, other
Dick, 2011	92% (High)	28	7	Not reported
Furlan, 2012	92% (High)	12 (14 articles)	12 studies (14 articles)	Workplaces, primary care practices, occupational health services, specialty medical clinics
Noordik, 2010	92% (High)	7 articles	7 articles	Not reported
Palmer, 2012	92% (High)	42 studies	42	Not reported
Pomaki, 2012	92% (High)	7 studies (8 articles)	7 studies (8 articles)	Most mixed occupational sectors or n/r, one financial and insurance sector, one municipal police
Richardson, 2008	92% (High)	36 studies (38 articles)	11 articles	Office workers, teachers, nurses, hospital staff, factory workers, maintenance personnel, social services staff
Tompa, 2008	85% (High)	8	8	Multi-sector (system-level interventions) (4), health care (1), manufacturing and warehousing (1), mining and oil and gas extraction (1), utilities (1)
Tveito, 2004	92% (High)	28	28	Municipality, postal service, hospital, medical centres, nursing school, Finnish cooperative, mailing company, bus company, geriatric hospitals, municipal fire fighters, home care personnel, industry, nursing and environmental services, airport baggage handlers, cargo department of airline, warehouse, county, light industry, mine, workplaces
van der Klink, 2001	85% (High)	48 studies (in 45 articles)	3	Not reported



and one study examined a mixed group of OCD and phobias. They found that for OCD, exposure *in vivo* containing interventions resulted in better work-related outcomes than did medication (SSRI's [selective serotonin reuptake inhibitors]) and relaxation, but not more so than response prevention. For PTSD, the exposure *in vivo* containing interventions resulted in better work and anxiety related outcomes than a waitlist control, but were no more effective than imaginal exposure (*ie*, exposure to the anxiety-provoking object or circumstances through the use of visualization).

Pomaki, *et al*,<sup>26</sup> conducted a review of eight articles that examined workers either absent from, or struggling to stay at work due to common mental health conditions. Interventions included in their review were described as high-intensity (*eg*, cognitive behavioral therapy [CBT] via telephone and a psycho-educational workbook) or low intensity (*eg*, identifying reasons and generating solutions for stress; individual or group work on stress coping skills). These authors reported no positive effect for mental health interventions on work absence duration, but found moderate evidence for both high- and low-intensity mental health interventions as they related to economic outcomes, and for high-intensity interventions as they related to work productivity. Further, this review reported that work outcomes could be improved through facilitation of access to clinical treatment and/or facilitated navigation through disability management processes. The overall conclusions from this review are that, for workers with common mental health conditions, findings supported the use of interventions that include workplace-based high-intensity mental health interventions, access to clinical treatment and support in navigating disability management systems.

Tveito, Hysing, and Eriksen<sup>27</sup> looked at evidence published between 1980 and

2002 and considered 28 preventative interventions represented in 31 publications. This review concluded to moderate evidence for a reduction in sick leave as a result of mental health or psychosocial interventions to treat employees (*ie*, behavior therapy, coping skills, psychosocial evaluation, pain prevention). However, this same review found no evidence that interventions resulted in reduced costs. Similarly, these authors found no benefit in work outcomes as a result of multidisciplinary or pamphlet interventions.

#### Limited Evidence

Carroll, *et al*,<sup>28</sup> completed a systematic review of 10 articles regarding the value of workplace involvement for workers on sick leave due to musculoskeletal injury or back pain. In their review, these authors found only a single study which specifically addressed mental health intervention, a Swedish study that combined cognitive-behavioral therapy and exercise. This single study concluded to a positive effect for CBT and exercise with respect to workplace outcomes for women, but not for men.

Corbière, *et al*,<sup>29</sup> considered research published between 2001 and 2006 and conducted a review that included 24 studies looking at the value of mental health interventions in the workplace. Findings from their review suggest that skill training is the most commonly used method of overcoming harmful organizational factors and that the bulk of mental health interventions focus on secondary, instead of primary interventions. These authors also determined that for one in three of reviewed studies, interventions tended to include a combination of intervention levels (*ie*, individual, group, organizational) and that psychosocial and/or participatory research components were often included. As a general conclusion, these authors found “positive and significant” evidence for the value of mental health interven-

tions with respect to both work and mental health outcomes in employees.

Corbière and Shen<sup>30</sup> included 14 studies in their review of mental health return-to-work interventions for workers with mental and/or physical illness and injuries. It is interesting to note that the authors reported that only two of the included studies considered primary mental health issues, while the remaining studies looked at mental health difficulties secondary to a workplace-acquired physical injury. Although the authors recommended some caution in interpretation due to variability in intervention components and outcomes measured, they provided a general finding that evidence existed to suggest cognitive-behavioral interventions were more effective than treatment-as-usual in improving return-to-work rate.

Dick, *et al.*<sup>31</sup> completed a review that included 28 papers and focused on management of upper limb disorders. Mental health interventions included fear/pain avoidance, use of a psychologist, cognitive and behavioral coping techniques, progressive relaxation, and stress management. Conclusions drawn by these authors suggested that for multidisciplinary rehabilitation programs which included both physical and psychosocial components, limited evidence existed for beneficial work outcomes.

Palmer, *et al.*<sup>32</sup> reviewed 42 studies to examine the effectiveness of workplace-based or community interventions in managing sickness absence and job loss in workers with musculoskeletal conditions. They found that behavioral/cognitive interventions (including stress management and CBT) were beneficial for return-to-work factors, avoidance of job loss, and reducing the number of days of sick leave.

Tompa, *et al.*<sup>33</sup> considered eight high- and medium-quality studies that provided data about economic benefits from disability management interventions. Based

on two studies addressing mental health interventions, they found limited evidence for interventions that included a behavioral component. In one study, the intervention consisted of cognitive-behavioral therapy to manage pain and return to normal activity. Behavior interventions in the other study involved physical therapy, ergonomic education, as well as behavioral therapy with a psychologist to learn how to control pain and engage in a safe and healthy lifestyle.

#### Inconclusive/No evidence

Czabala, *et al.*<sup>34</sup> in their review of 79 studies (23 of which were relevant to our review) considered the contribution of psychological interventions to workplace outcomes. They reported a single study that suggested some value with respect to job effectiveness improvement and absenteeism reduction as a result of mental health interventions. However, in their overall summary, these authors suggested that methodological limitations and heterogeneity of studies resulted in inconclusive results.

Furlan, *et al.*<sup>35</sup> completed a review of international studies which included 10 randomized studies and two non-randomized studies. These authors considered the work outcome value of mental health interventions to manage current or remitted mild or moderate depression in the workplace and found “very low” evidence for a beneficial impact of such interventions. The authors concluded that, for primary work outcomes (*ie*, sickness absence, productivity, financial impacts) no particular mental health intervention could be recommended as effective. However, these authors remained optimistic about the benefit of mental health intervention and suggested that the paucity of studies specifically linking mental health intervention and workplace outcomes was a contributing factor to their lack of demonstrated evidence.

Richardson and Rothstein<sup>36</sup> reviewed 38 articles in order to evaluate the impact of occupational stress management programs. Only six of the reviewed articles specifically measured organizational outcomes, including four reviews that considered impacts on absenteeism and two that considered impacts on productivity. Given the lack of organization-specific outcomes, these authors stated no conclusions regarding the value of stress management programs on organizational outcomes. The primary conclusion provided by Richardson and Rothstein was that additional research is required in order for firm conclusions to be drawn regarding the organizational benefits of stress management programs.

Finally, van der Klink, *et al*<sup>37</sup> reviewed research from 1977 through 1996 and included 48 studies in a systematic review evaluating the benefits of work-related stress interventions. Similar to Richardson and Rothstein,<sup>36</sup> these authors found only four of the reviewed studies considered work outcomes specifically (in this case absenteeism), and the results suggested that with respect to absenteeism, neither cognitive nor relaxation training appeared to be successful in altering outcomes.

### Summary

In the current study, we found four reviews that provided moderate/positive evidence, six reviews that provided limited evidence, and the remaining four reviews provided either no conclusions or inconclusive results. According to our synthesis criteria, the present synthesis concluded to a moderate level evidence that mental health interventions have positive impacts on workplace outcomes (*ie*, a minimum of three high-quality reviews with moderate evidence and 60%–74% of reviews with effects in a positive direction [10/14 = 71%]).

### Discussion

The present study was intended to provide a synthesis of systematic reviews evaluating the impact of mental health interventions on workplace outcomes. Specifically, our study considered the impacts of mental health interventions on increased productivity, decreased absenteeism, and/or reduced costs. These types of workplace outcome variables tend to be a significant driver in the decision of workplace stakeholders regarding the initiation of mental health intervention in the workplace. That is, disability managers, and other individuals responsible for workplace health and safety, are often charged with the responsibility of demonstrating business value for workplace interventions. Despite this responsibility and their interest in providing both efficient and effective interventions, most workplace stakeholders remain confused about best practices for workplace mental health intervention. Systematic reviews provide excellent overviews of a specific body of literature. Using a best-evidence synthesis of systematic reviews, a general conclusion created by a large and diverse body of literature can be determined and employed by workplace stakeholders interested in demonstrating the overall value of mental health interventions in the workplace.

Using 14 high-quality systematic reviews, our synthesis found that there is overall moderate evidence for the value of mental health interventions as they relate to workplace outcomes. In particular, our synthesis of systematic reviews found the greatest support for workplace mental health interventions that included aspects intended to improve both mental and physical health together, multicomponent mental health and/or psychosocial interventions, and exposure *in vivo* containing interventions for particular anxiety disorders. In addition, our review concluded

that positive workplace outcomes result when workplaces provide high-intensity mental health intervention, access to clinical treatment, and support in navigating disability management programs.

Despite the overall positive findings of the present synthesis, several weaknesses of the literature impact interpretability of the results. Specifically, research regarding workplace interventions must constantly negotiate the tension between internal and external validity. That is, the more certain we are of the relationship between the intervention and the outcome, the less generalizable to actual workplaces the research tends to be. Researchers must make this choice between internal and external validity and, regardless of the eventual selection, costs to the interpretability of the research result. Second, workplace mental health intervention is a broad term encompassing interventions as simple as pamphlets about mental health, right through to complex, multi-component interventions that include individual mental health intervention coupled with physical and psychosocial supports within the workplace. This variability leads to difficulty in drawing broad conclusions from a highly diverse body of literature. Third, large variability also exists in the literature with respect to the type of organization and the type of mental health difficulty. Studies looking at mental health intervention include all kinds of workers (*eg*, office workers, health care workers, industrial workers) in all kinds of environments, with a full gamut of mental health concerns. Some studies have looked solely at workers who are currently working, others consider workers who are off work due to sickness or disability, and some include both. Similarly, variability in the mental health issue is evident. Some studies are concerned solely with workplace stress, others consider pain-related mental health concerns, and still others look at clinical

diagnoses such as depression and anxiety. Finally, the literature on mental health interventions is dominated by studies concerned with mental health outcomes. Despite the discussed value of workplace mental health intervention with respect to workplace outcomes such as increased productivity, decreased costs and reduced absenteeism, most studies that we perused in the literature linked mental health interventions with improvements to mental health functioning, but did not make the link to improved workplace outcomes.

In the interest of providing workplace stakeholders with clear direction on the most supported workplace mental health interventions, additional research will be necessary. Specifically, additional high-quality research linking mental health interventions specifically to workplace outcomes would be very valuable toward further informing the business benefits of workplace mental health interventions. In particular, workplace stakeholders are often interested in reduced absenteeism (and presenteeism), decreased costs, and improved productivity—factors that are seldom directly assessed in the workplace mental health intervention literature. Further, additional research will be required before stronger conclusions can be drawn regarding the value of specific types of mental health interventions (*eg*, CBT), or the value of workplace mental health interventions for specific worker groups (*eg*, at-work *vs* off-work workers). More comprehensive and comparative research is also needed to investigate optimal features of mental health interventions, such as their frequency, duration, timing, sustainability, their longer term outcomes, and how their implementation holds up to a cost-benefits analysis over the long-term. Future research could also examine whether there are gender or cultural differences among employees regarding the impact of specific mental health interventions on

For more information on social support and supervisory quality interventions in the workplace see <http://www.theijoem.com/ijoem/index.php/ijoem/article/view/608>



work outcomes.

The current study had several potential limitations including the quality of the primary papers contributing to the included systematic reviews; our results are only as good as the results of the original studies included in our selected reviews. Selection of reviews was limited to the English language, potentially resulting in the lack of inclusion for important studies published in other languages. Similarly, although our search for related studies was comprehensive, no search is perfectly exhaustive and other studies may exist that escaped our search criteria. Finally, variability among reviews in type of intervention, type of disability, and type of outcomes all limited the clarity and preciseness of our interpretation.

## Acknowledgements

This research was supported by a competitive grant from WorkSafeBC through the FOCUS ON TOMORROW program, and Healthcare Benefits Trust, a not-for-profit health and welfare trust. Neither grantor had any editorial control over manuscripts submitted for publication. This work has been submitted as a report to the funder WorkSafeBC (2014) and was presented as an oral presentation (June 2014) at a conference in Vancouver BC put on by the Canadian Institute for the Relief of Pain and Disability.

**Conflicts of Interest:** None declared.

## References

1. WHO. The world health report 2001 - Mental Health: New Understanding, New Hope. Geneva, Switzerland: World Health Organization; **2001**.
2. Greenberg PE, Kessler RC, Birnbaum HG, *et al*. The economic burden of depression in the United States: how did it change between 1990 and 2000? *J Clin Psychiatry* 2003;**64**:1465-75.
3. Kessler RC, Akiskal HS, Ames M, *et al*. Prevalence and effects of mood disorders on work performance in a nationally representative sample of U.S. workers. *Am J Psychiatry* 2006;**163**:1561-8.
4. Birnbaum HG, Kessler RC, Kelley D, *et al*. Employer burden of mild, moderate, and severe major depressive disorder: mental health services utilization and costs, and work performance. *Depress Anxiety* 2010;**27**:78-89.
5. White MI, Kube D, Petruniak J, *et al*. Best Practices Leadership Summit on Disability Prevention. Vancouver, BC: Canadian Institute for the Relief of Pain and Disability, **2007**.
6. White MI, Richman J, Kerr S, Toro Posada S. Enhancing Stakeholders' Knowledge and Skills in Disability Prevention, Detection and Management. Vancouver, BC: Canadian Institute for the Relief of Pain and Disability, **2004**.
7. Guzman J, Yassi A, Baril R, Loisel P. Decreasing occupational injury and disability: the convergence of systems theory, knowledge transfer and action research. *Work* 2008;**30**:229-39.
8. Loisel P, Durand MJ, Baril R, *et al*. Interorganizational collaboration in occupational rehabilitation: perceptions of an interdisciplinary rehabilitation team. *J Occup Rehabil* 2005;**15**:581-90.
9. Franche RL, Baril R, Shaw W, *et al*. Workplace-based return-to-work interventions: optimizing the role of stakeholders in implementation and research. *J Occup Rehabil* 2005;**15**:525-42.
10. Loisel P, Buchbinder R, Hazard R, *et al*. Prevention of work disability due to musculoskeletal disorders: the challenge of implementing evidence. *J Occup Rehabil* 2005;**15**:507-24.
11. Frank J, Cullen K. Preventing injury, illness and disability at work. *Scand J Work Environ Health* 2006;**32**:160-7.
12. Frank J, Sinclair S, Hogg-Johnson S, *et al*. Preventing disability from work-related low-back pain. New evidence gives new hope--if we can just get all the players onside. *CMAJ* 1998;**158**:1625-31.
13. Mavros MN, Alexiou VG, Vardakas KZ, Falagas ME. Understanding of statistical terms routinely used in meta-analyses: an international survey among researchers. *PLoS One* 2013;**8**:e47229.
14. Wagner S, White M, Schultz I, *et al*. Modifiable worker risk factors contributing to workplace absence: A stakeholder-centred best-evidence synthesis of systematic reviews. *Work* 2014;**49**:541-58.

15. White M, Wagner S, Schultz IZ, *et al.* Modifiable workplace risk factors contributing to workplace absence across health conditions: A stakeholder-centered best-evidence synthesis of systematic reviews. *Work* 2013;**45**:475-92.
16. Slavin RE. Best evidence synthesis: an intelligent alternative to meta-analysis. *J Clin Epidemiol* 1995;**48**:9-18.
17. Carroll LJ, Cassidy JD, Peloso PM, *et al.* Methods for the best evidence synthesis on neck pain and its associated disorders: the Bone and Joint Decade 2000-2010 Task Force on Neck Pain and Its Associated Disorders. *Spine (Phila Pa 1976)* 2008;**33**:S33-8.
18. Franche RL, Cullen K, Clarke J, *et al.* Workplace-based return-to-work interventions: a systematic review of the quantitative literature. *Journal of Occupational Rehabilitation* 2005;**15**:607-31.
19. Moher D, Liberati A, Tetzlaff J, Altman DG. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *J Clin Epidemiol* 2009;**62**:1006-12.
20. Eden J, Levit L, Berg AL, Morton S. *Finding What Works in Health Care Standards for Systematic Reviews*. Washington DC, Institute of Medicine of the National Academies; The National Academies Press, 2011.
21. Shea BJ, Grimshaw JM, Wells GA, *et al.* Development of AMSTAR: a measurement tool to assess the methodological quality of systematic reviews. *BMC Med Res Methodol* 2007;**7**:10.
22. University of Glasgow. Critical appraisal checklist for a systematic review. 2014. Available from [www.gla.ac.uk/media/media\\_64047\\_en.pdf](http://www.gla.ac.uk/media/media_64047_en.pdf) (Accessed May 10, 2015).
23. Wagner SL, White MI, Schultz IZ, *et al.* Social support and supervisory quality interventions in the workplace: a stakeholder-centered best-evidence synthesis of systematic reviews on work outcomes. *Int J Occup Environ Med* 2015;**6**:189-204.
24. Aas RW, Tuntland H, Holte KA, *et al.* Workplace interventions for neck pain in workers. *Cochrane Database of Systematic Reviews* 2011; CD008160. doi: 10.1002/14651858.CD008160.pub2
25. Noordik E, van d, Klingen EF, *et al.* Exposure-in-vivo containing interventions to improve work functioning of workers with anxiety disorder: a systematic review. *BMC Public Health* 2010;**10**:598.
26. Pomaki G, Franche RL, Murray E, *et al.* Workplace-based work disability prevention interventions for workers with common mental health conditions: a review of the literature. *Journal of Occupational Rehabilitation* 2012;**22**:182-95.
27. Tveito TH, Hysing M, Eriksen HR. Low back pain interventions at the workplace: a systematic literature review. *Occupational Medicine (Oxford)* 2004;**54**:3-13.
28. Carroll C, Rick J, Pilgrim H, *et al.* Workplace involvement improves return to work rates among employees with back pain on long-term sick leave: a systematic review of the effectiveness and cost-effectiveness of interventions. *Disability and Rehabilitation* 2010;**32**:607-21.
29. Corbiere M, Shen J, Rouleau M, Dewa CS. A systematic review of preventive interventions regarding mental health issues in organizations. *Work* 2009;**33**:81-116.
30. Corbiere M, Shen J. A systematic review of psychological return-to-work interventions for people with mental health problems and/or physical injuries. *Canadian Journal of Community Mental Health* 2006;**25**:261-88.
31. Dick FD, Graveling RA, Munro W, *et al.* Workplace management of upper limb disorders: a systematic review. [Review]. *Occupational Medicine (Oxford)* 2011;**61**:19-25.
32. Palmer KT, Harris EC, Linaker C, *et al.* Effectiveness of community- and workplace-based interventions to manage musculoskeletal-related sickness absence and job loss: a systematic review. *Rheumatology* 2012;**51**:230-42.
33. Tompa E, de O, Dolinschi R, Irvin E. A systematic review of disability management interventions with economic evaluations. *Journal of Occupational Rehabilitation* 2008;**18**:16-26.
34. Czabala C, Charzynska K, Mroziak B. Psychosocial interventions in workplace mental health promotion: an overview. *Health Promot Int* 2011;**26** Suppl 1:i70-84.
35. Furlan AD, Gnam WH, Carnide N, *et al.* Systematic review of intervention practices for depression in the workplace. *Journal of Occupational Rehabilitation* 2012;**22**:312-21.
36. Richardson KM, Rothstein HR. Effects of occupational stress management intervention programs: a meta-analysis. *J Occup Health Psychol* 2008;**13**:69-93.
37. Van der Klink JJ, Blonk RW, Schene AH, van Dijk FJ. The benefits of interventions for work-related stress. *Am J Public Health* 2001;**91**:270-6.