



# Return on Investment: Prevention in mental health

## Face to Face Psychological Workplace Interventions for Depression Prevention

### Background

Mental illnesses are amongst the top 10 health conditions generating health related costs to employers (1-3). Depression is ranked as the second most expensive mental illness affecting workplaces, with costs arising due to work impairment, disability and absences from work (4-7). In Australia, the 2007 societal cost of depression in the workforce was estimated at \$12.6 billion over one year, and \$213.5 billion over the lifetime of the Australian population. The estimated impact of mild depression in Australia is a decrease of 3.9% in labour productivity, rising to 9.2% for severe depression (8). The costs associated with depression in the workplace were largely attributable to absence from work, not fully functioning at work and job turnover as opposed to healthcare costs (5, 6). This economic burden highlights the importance of mental health prevention and promotion in the workplace, as emphasised in a 2018 report published by Mental Health Australia and KPMG (9).

### Intervention modelled

The intervention modelled is a workplace Cognitive Behavioural Therapy (CBT) intervention offered to all employees in large sized businesses (over 200 employees) with permanent or fixed term contracts, regardless of whether or not they are showing signs of depression or stress. Note that no studies have evaluated such interventions in smaller (under 200 employees) workplace settings.

The intervention is designed as a CBT stress management program that addresses the needs of individual employees as well as providing strategies focusing on workplace stressors. The intervention is delivered in groups of 5 to 20 employees over three to four half day workshops in the course of one or two weeks (10, 11). An intervention of this type is considered to be a 'universal' intervention as it is offered to all employees, not just those with particular risk factors for mental illness.

Each workshop is delivered by two people, including one from occupational health services (OHS) and/or one from human resources (HR) who have previously been trained in the intervention by a psychologist. The content of the CBT sessions is tailored to the specific needs of the group and can include topics such as how to better deal with different sources of stress, including work overload, social conflicts, failure at work, as well as general enhancement of career management skills (10, 12). The extent to which such interventions are routinely offered in Australian businesses is not known.

The primary outcome of this evaluation is the return on investment (ROI) ratio. This ratio includes the cost of the intervention in relation to any cost savings (both healthcare cost savings and the monetary value of avoiding absences from work, staff not functioning fully at work and staff turnover). Cost effective interventions using this decision criterion have a ROI greater than \$1, this means that the cost savings are greater than the costs of the intervention e.g. a ROI of \$1.50 means that for every \$1 invested \$1.50 will be gained.

### Assumptions

To model the intervention costs, two assumptions were made. Firstly, it was assumed that trained staff (e.g. psychologists) and the necessary infrastructure are already available to deliver the intervention.

Secondly, it was assumed that the implementation of the intervention would be as described in the published studies, although some studies were conducted under ideal conditions that may or may not reflect real life conditions. The costs of the intervention included in this study were calculated by adding costs of staff training and costs to deliver CBT to participants.

**Set up costs for the employer.** It was assumed that each company had two staff (from OHS and/or HR) that attended four full day workshops (i.e. 32 hours) with a psychologist in order to be able to deliver the intervention within their own workplaces. Costs to deliver the intervention were calculated assigning the labour costs of the staff delivering the CBT. The average total hours of a course of CBT was calculated as 13.4 hours per group. It is noted that the modelling does not include the cost of staff time while attending the workshop. Cost savings in this study included healthcare service costs, costs due to being absent from work or not fully functioning while working, and job turnover costs associated with depression treatment reported by Cocker et al. (5). The total annual societal costs of a depression case was estimated at \$10,129 (5). In other words, avoiding one case of depression would result in \$10,129 saved<sup>1</sup>.

The scientific evidence that was evaluated for the current study<sup>2</sup> found that up to one year after the intervention was delivered to employees, the risk of developing depression was reduced by 9% compared to no intervention. There are unfortunately no studies that evaluate whether this reduction is maintained for longer than one year. Therefore, as is conventional in other economic evaluations, modelling of this intervention assumes no ongoing effect of the intervention after one year (although this assumption was varied in a sensitivity analysis).

<sup>1</sup>The cost was reported in 2007 dollars which has been inflated to 2016 prices.

<sup>2</sup>Further details of the evidence summary for CBT in the workplace are available in the technical report describing this work.

## Results

### Cost effectiveness findings

Results are presented in Table 1. In summary, the total costs of providing the intervention, including the training of staff and the delivery of the intervention to employees, was approximately \$166M. This intervention resulted in total cost savings of \$46M to employers, based on reductions in absences from work, staff not fully functioning at work and staff turnover. For the healthcare sector, this intervention was shown to avoid costs of \$0.82M due to preventing the need for mental health services and medications. Putting the intervention cost in relation to those cost savings (both health related cost savings and productivity gains), the estimated ROI is 0.28. This means that for every \$1 invested, \$0.28 is gained, so the cost of the intervention is greater than the resulting cost savings. Putting the intervention cost together with cost saving in relation to depression case prevented, the costs were estimated to be \$27,334 for every depression case prevented.

Given that all economic modelling studies are subject to some assumptions, sensitivity analyses (“what if” analyses) were completed to test some of the assumptions built into the modelling. In the first sensitivity analysis, the assumption around the total cost savings was tested, assuming that cost savings could be up to 20% higher than first assumed. This led to an improvement of the ROI to 0.33. A second analysis examined the potential for the intervention to continue to work beyond just the first year. In this sensitivity analysis, it was assumed that the effects of the intervention would grow weaker over time, which improved the ROI to 0.52. Thirdly, if it is assumed that the intervention reduces the risk of developing depression by up to 25%, the ROI improved to 0.75. While these “what if” analyses did not result in the intervention reaching a ROI of greater than 1.00 i.e. it is not cost effective – there are other considerations for employers to consider in deciding whether to implement this intervention which are discussed below.

With regard to health effects, providing CBT to all eligible employees prevented 4,375 depression cases and resulted in a total of 1.6 million depression free days over 11 years.

**Table 1. Summary of results for the universal CBT intervention in the workplace.**

	Year 1	Year 2	Year 3	Year 4	Year 5-11	Total
<b>Intervention costs</b>	<b>\$165.55M</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>\$165.55M</b>
Cost to Government	\$7.18M	0	0	0	0	\$7.18M
Cost to Employer	\$158.37M	0	0	0	0	\$158.37M
<b>Cost saving</b>	<b>-\$18.77M</b>	<b>-\$21.21M</b>	<b>-\$3.54M</b>	<b>-\$0.78M</b>	<b>-\$1.68M</b>	<b>-\$45.98M</b>
Government	-\$0.35M	-\$0.4M	-\$0.06M	-\$0.01M	<-\$0.01M	-\$0.82M
Employer	-\$18.42M	-\$20.81M	-\$3.48M	-\$0.77M	-\$1.68M	-\$45.01M
<b>Total costs (\$ saving if negative)</b>	<b>\$146.78M</b>	<b>-\$21.21M</b>	<b>-\$3.54M</b>	<b>-\$0.78M</b>	<b>-\$1.68M</b>	<b>\$119.58M</b>
<b>ROI</b>	<b>0.11</b>	<b>0.24</b>	<b>0.26</b>	<b>0.27</b>	<b>0.28</b>	<b>0.28</b>
Depression free days	671,550	755,899	119,015	19,578	10,398	1,576,441
Depression case prevented	1,838	2,130	342	55	10	4,375
<b>Yearly cost per depression case</b>	<b>\$79,876</b>	<b>\$31,652</b>	<b>\$28,314</b>	<b>\$27,779</b>	<b>\$27,334</b>	<b>\$27,334</b>

Notes: ROI: return on investment per \$1 invested

## Implementation considerations

While evidence on cost effectiveness is the focus of this project, there are other criteria apart from cost effectiveness that can influence whether and to what degree interventions are likely to be rolled out in routine practice. These criteria are not captured in the technical cost effectiveness results but are potentially very important from a decision making context. Some of these considerations are summarised in the Table below. The colour coding of each criterion is an attempt to visually summarise whether these secondary considerations impact on the results in a positive or negative way (red = negative, amber = uncertain, green = positive). A code of 'green' implies that the secondary consideration strengthens the case for investing in the intervention. A code of 'amber' means that the secondary consideration reduces certainty in the case for investing and a code of 'red' means that these considerations do not support investment in the intervention.

Implementation considerations		Overall Rating
Potential secondary effects	The modelling did not include reductions in rates of psychological distress and so better health related quality of life was also not included (except for the effect on reduced depression cases). Thus, this study may underestimate the potential benefits to physical and mental health by reducing levels of stress as a result of participation in the intervention. There are also likely to be benefits to the participants' wider social network including colleagues, friends, family and carers which are not included in the results of the modelling. These benefits could include a decrease in care provided by carers and/or reduced presenteeism, which was not included in the modelling. It is noteworthy that the estimated costs for carers in Australia are substantial given the projected \$13.2 billion which would be required to replace informal mental healthcare with formal support services (13, 14). Results in this analysis may therefore be seen as conservative.	Positive
Equity	There is potential to reduce inequity of access to this type of intervention because it is delivered universally to all employees i.e. there are no barriers due to cost or role within the organisation. The intervention has been trialled on employees who have fixed term contracts or who are permanent. It is uncertain whether employees on short term contracts would be included. Given that the intervention has only been trialled in large organisations, it is also unclear how it may work if attempts were made to introduce it to small and medium sized businesses	Uncertain
Strength of evidence	The amount and the quality of evidence supporting the effectiveness of CBT based workplace interventions was limited. The current analysis is based on evidence from five studies, although follow up in these studies was only at one year. Also, few studies reported results that could be definitive as they did not give a confirmed diagnosis of depression which would clearly show the benefit (or lack of) for the intervention.	Uncertain
Acceptability	Studies reported that employees had relatively high levels of acceptability for the intervention. It is questionable whether companies would be willing to support the program over the long term, particularly since there are financial implications and the forecasted productivity gains do not appear to be large enough to offset the costs. For this reason, employer/industry acceptability may require the intervention to be positioned as part of promotion of a mentally healthy workplace with associated costs off set as part of a commitment to improved workplace mental health.	Uncertain
Feasibility	In this case, the modelling assumes that there will be sufficient staff within an organisation that could complete the required training. It does not preclude organisations hiring outside expertise but this would impact costs. Also while certain organisations meet the minimum size to be considered large, it may not be feasible in practice to deliver an intervention as a three to four day workshop, especially for shift workers or workers in the construction, mining or manufacturing industries.	Uncertain
Sustainability	Sustainability of this intervention depends on employers' willingness to support employees' use of paid time to be trained to deliver and/or complete the required sessions. Employers also need to consider how the training is delivered. In a large organisation, a once off implementation may represent less value in terms of health benefits than an annual repetition of the intervention. While this option presents greater opportunity for employee participation, it also presents greater costs. However, a repeated program is likely to present reinforcement in terms of change in workplace behaviours and attitudes, and demonstrate an ongoing commitment by the employer to staff wellbeing.	Uncertain

## Recommendations

CBT offered in the workplace to all staff, delivered by trained employees is an effective depression prevention intervention. However, the costs of this intervention cannot be offset by the improvements in employee productivity. Given there are health gains associated with the intervention, it may still be considered as a worthwhile investment in the context of promoting employee health and wellbeing, over and above productivity impacts alone.

Whether the intervention is scalable (or effective) in smaller businesses remains unclear given that it is likely to be more burdensome on smaller organisations that do not have the resources to undertake the necessary training in house, although external expertise may be contracted in. The interventions modelled in these studies were trialled in a workplace environment and should not be implemented in isolation. Such interventions should complement employers' consideration of current occupational health and safety obligations.

Furthermore, results from this modelling are based on assumptions that may not fully capture implementation issues that may occur in practice. This includes managing participation of employees who have non-traditional work patterns e.g. shift work or fly in/fly out arrangements. Further research and planning of how implementation is handled in practice is needed.

## Take home messages

For policy makers and funders, while the CBT intervention may not be a good value option when viewed in terms of strict productivity gains, it is still an effective option in depression prevention that can be offered within workplaces that match the type described in the studies (i.e. large businesses with minimum 200 employees). Recognising that mental health issues affect employees in their workplace and providing support in the workplace is likely to benefit employees and employers in the long term.

The universal nature of the intervention is non-stigmatising and there are likely to be benefits in the workplace environment arising from an increased awareness and enhanced understanding of mental health, even to those who are not at risk. In addition, there may be a reduction in workplace behaviours that contribute to poor mental health and recovery, such as unrealistic work pressure, bullying, harassment etc.

It is important for further research to maximise the benefits of preventive interventions for mental health in the workplace. Universal prevention programs are typically resource intensive and more exploration is needed to find ways to make such programs more cost effective. For example, it may be worth exploring whether the intervention could be delivered by fewer staff, or by staff employed on lower salaries, as long as this does not reduce the effectiveness of the program. Finally, any program evaluation should consider broader outcomes in addition to the number of depression cases prevented.

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