

# Review. Scand J Work Environ Health.

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Effectiveness of psychological and educational interventions for the prevention of depression in the workplace: A systematic review and meta-analysis

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1. *Supplementary tables 1 and 2*
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**Tabla S1.** Search Strategies

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| <b>PubMed</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| ("depressive disorder" OR "major depressive disorder" OR depress* OR "depression") AND ("job" OR "employment" OR "work*" OR "work place" OR "business*" OR "occupational stress" OR "occupational health" OR "occupational exposure" OR "occupational health services" OR "occupational medicine" OR "occupational safety" OR "occupational psychology" OR "occupational neurosis" OR "manage*" OR "industrial psychology" OR "professional corporations" OR "work related illnesses" OR "organizational behaviour" OR "industrial psychology" OR "working conditions") AND ("occupational intervention*" OR "occupational therap*" OR "occupational stress" OR "stress management" OR "stress inoculation training" OR "resilience" OR "resilience training" OR "self efficacy" OR "resilience, psychological" OR "health promotion" OR "exposure therapy") AND (prevent* OR incidence) AND ("effectiveness" OR "trial" OR "controlled trial" OR "randomi*" OR "intervention" OR "efficacy")                                                                                         |
| <b>Embase</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| ('depression'/exp OR 'depression' OR 'depressive disorder'/exp OR 'depressive disorder' OR 'major depressive disorder'/exp OR 'major depressive disorder' OR 'depress*') AND ('job'/exp OR 'job' OR 'employment'/exp OR 'employment' OR 'work*'/exp OR 'work*' OR 'work place'/exp OR 'work place' OR 'business*'/exp OR 'business*' OR 'occupational stress'/exp OR 'occupational stress' OR 'occupational health'/exp OR 'occupational health' OR 'occupational exposure'/exp OR 'occupational exposure' OR 'occupational health services'/exp OR 'occupational health services' OR 'occupational medicine'/exp OR 'occupational medicine' OR 'occupational safety'/exp OR 'occupational safety' OR 'occupational psychology'/exp OR 'occupational psychology' OR 'occupational neurosis'/exp OR 'occupational neurosis' OR 'manage*'/exp OR 'manage*' OR 'industrial psychology'/exp OR 'industrial psychology' OR 'professional corporations'/exp OR 'professional corporations' OR 'work related illnesses'/exp OR 'work related illnesses' OR 'organizational behaviour'/exp OR |

'organizational behaviour' OR 'industrial psychology'/exp OR 'industrial psychology' OR 'working conditions'/exp OR 'working conditions') AND (occupational intervention\* OR occupational therap\* OR occupational stress OR stress management OR stress inoculation training OR resilience OR resilience training OR self efficacy OR resilience, psychological OR health promotion OR exposure therapy) AND (prevent\* OR incidence) AND ('effectiveness' OR 'trial' OR 'controlled trial' OR 'randomi\*' OR 'intervention' OR 'efficacy')

## **CENTRAL**

("depression":ti,ab,kw or "depressive disorder":ti,ab,kw or "major depressive disorder":ti,ab,kw or depress\*:ti,ab,kw) AND (job:ti,ab,kw or employment:ti,ab,kw or work\*:ti,ab,kw or work place:ti,ab,kw or business\*:ti,ab,kw or occupational stress:ti,ab,kw or occupational health:ti,ab,kw or occupational exposure:ti,ab,kw or occupational health services:ti,ab,kw or occupational medicine:ti,ab,kw or occupational safety:ti,ab,kw or occupational psychology:ti,ab,kw or occupational neurosis:ti,ab,kw or manage\*:ti,ab,kw or industrial psychology:ti,ab,kw or professional corporations:ti,ab,kw or work related illnesses:ti,ab,kw or organizational behaviour:ti,ab,kw or industrial psychology:ti,ab,kw or working conditions:ti,ab,kw) AND (occupational intervention\*:ti,ab,kw or occupational therap\*:ti,ab,kw or occupational stress:ti,ab,kw or stress management:ti,ab,kw or stress inoculation training:ti,ab,kw or resilience:ti,ab,kw or resilience training:ti,ab,kw or self efficacy:ti,ab,kw or resilience, psychological:ti,ab,kw or health promotion:ti,ab,kw or exposure therapy:ti,ab,kw) AND (prevent\*:ti,ab,kw or incidence:ti,ab,kw) AND (effectiveness:ti,ab,kw or trial:ti,ab,kw or controlled trial:ti,ab,kw or randomi\*:ti,ab,kw or intervention:ti,ab,kw or efficacy:ti,ab,kw)

## **PsycINFO**

ab(depressive disorder OR major depressive disorder OR depress\* OR depression) AND ab(job OR employment OR work\* OR work place OR business\* OR occupational stress OR occupational health OR occupational exposure OR occupational health services OR occupational medicine OR occupational safety OR occupational psychology OR occupational neurosis OR manage\* OR industrial psychology OR professional corporations OR work related illnesses OR organizational behaviour OR industrial psychology OR working conditions) AND (occupational intervention\* OR occupational therap\* OR occupational stress OR stress management OR stress inoculation training OR resilience OR resilience training OR self efficacy OR resilience, psychological OR health promotion OR exposure therapy) AND ab((prevent\* OR incidence)) AND (effectiveness OR trial OR (controlled AND trial) OR randomi\* OR intervention OR efficacy)

## **CIS-DOC**

depression AND prevent\*

## **Open Grey**

(depression OR depressive disorder OR major depressive disorder OR depress\*) AND ("job" OR "employment" OR "work\*" OR "work place" OR "business\*" OR "occupational stress" OR "occupational health" OR "occupational exposure" OR "occupational health services" OR "occupational medicine" OR "occupational safety" OR "occupational psychology" OR "occupational neurosis" OR "manage\*" OR "industrial psychology" OR "professional corporations" OR "work related illnesses" OR "organizational behaviour" OR "industrial psychology" OR "working conditions") AND (prevent\* OR incidence) AND (effectiveness OR trial OR (controlled AND trial) OR randomi\* OR intervention OR efficacy)

**Table S2.** Excluded articles and reasons for exclusion.

| Study                                                                                                                                                                                                                                        | Reasons for exclusion                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Bae, J. Y. y Panuncio, R. L. (2008). Effectiveness of a Web-based Intervention for Depressive Symptoms Management. <i>Journal of Korean Society of Medical Informatics</i> ,14(3), 231-238.                                                  | Participants were not recruited in the workplace             |
| Barlow,J., Wright, C. y Kroll,T. (2001). Overcoming perceived barriers to employment among people with arthritis. <i>Journal of Health Psychology</i> ,6(2), 205-216.                                                                        | Participants were not recruited in the workplace             |
| Bergerman, L., Corabian, P. y Harstall, C. (2009). Effectiveness of organizational interventions for the prevention of stress in the workplace. <i>Edmonton, Alberta: Institute of Health Economics (IHE)</i> .                              | The design used was not a randomized controlled trial        |
| Bethge, M., Herbold, D., Trowitzsch, L. y Jacobi, C. (2010). Return to work following work-related orthopaedic rehabilitation: A cluster randomized trial. <i>Die Rehabilitation</i> , 49(1), 2-12.                                          | Participants were not recruited in the workplace             |
| Biglan, A., Layton, G. L., Jones, L. B., Hankins, M. y Rusby, J. C. (2013). The value of workshops on psychological flexibility for early childhood special education staff. <i>Topics in Early Childhood Special Education</i> , 1, 32 (4). | Participants depressed at baseline were not excluded         |
| Billings, D. W., Cook, R. F., Hendrickson, A. y Dove, D. C. (2008). A web-based approach to managing stress and mood disorders in the workforce. <i>Journal of Occupational and Environmental Medicine</i> ,50(8), 960-968.                  | Did not exclude all participants with depression at baseline |

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| Bolier, L., Ketelaar, S. M., Nieuwenhuijsen, K., Smeets, O., Gärtner, F. R. y Sluiter, J. K. (2014). Workplace mental health promotion online to enhance well-being of nurses and allied health professionals: A cluster-randomized controlled trial. <i>Internet Interventions</i> , 1(4), 196-204.                                    | Participants depressed at baseline were not excluded                                                           |
| Dalgaard, L., Eskildsen, A., Carstensen, O., Willert, M. V., Andersen, J. H. y Glasscock, D. J. (2014). Changes in self-reported sleep and cognitive failures: A randomized controlled trial of a stress management intervention. <i>Scandinavian Journal of Work Environment and Health</i> , 40(6), 569-581.                          | Primary or secondary outcome was not the incidence of depression or the reduction of depressive symptomatology |
| Deitz, D., Cook, R. F., Hersch, R. K. y Leaf, S. (2014). Heart Healthy Online: An Innovative Approach to Risk Reduction in the Workplace. <i>Journal of Occupational and Environmental Medicine / American College of Occupational and Environmental Medicine</i> , 56(5), 547-553.                                                     | Participants depressed at baseline were not excluded                                                           |
| Dojka, E. y Pajak, A. (2003). Depression and perceived general control, effort and reward at work, in men and women at age 45-64, residents of Cracow. <i>Przegląd Lekarski</i> , 60(6), 395-399.                                                                                                                                       | The design used was not a randomized controlled trial                                                          |
| Ebert, D. D., Heber, E., Berking, M., Riper, H., Cuijpers, P., Funk, B., et al. (2016). Self-guided internet-based and mobile-based stress management for employees: Results of a randomised controlled trial. <i>Occupational and Environmental Medicine</i> , 73(5), 315-323.                                                         | Participants depressed at baseline were not excluded                                                           |
| Edward, K. L. y Munro, I. (2008). Depression and other mental illnesses in the context of workplace efficacy. <i>Journal of Psychiatric and Mental Health Nursing</i> , 15(7), 605-611.                                                                                                                                                 | The design used was not a randomized controlled trial                                                          |
| Elliot, D. L., Goldberg, L., Duncan, T. E., Kuehl, K. S., Moe, E. L., Breger, R. K., et al. (2004). The PHLAME firefighters' study: Feasibility and findings. <i>American Journal of Health Behavior</i> , 28(1), 13-23.                                                                                                                | Participants depressed at baseline were not excluded                                                           |
| Geraedts, A. S., Kleiboer, A. M., Twisk, J., Wiezer, N. M., van Mechelen, W. y Cuijpers, P. (2014). Long-term results of a web-based guided self-help intervention for employees with depressive symptoms: Randomized controlled trial. <i>Journal of Medical Internet Research</i> , 16(7), e168.                                      | Did not exclude all participants with depression at baseline                                                   |
| Herr, R.M., Barrech, A., Riedel, N., Gundel, H., Angerer, P. y Li, J. (2018). Long-Term Effectiveness of Stress Management at Work: Effects of the Changes in Perceived Stress Reactivity on Mental Health and Sleep Problems Seven Years Later. <i>International Journal of Environmental Research and Public Health</i> , 15(2), 255. | Participants depressed at baseline were not excluded                                                           |
| Hersch, R. K., Cook, R. F., Deitz, D. K., Kaplan, S., Hughes, D., Friesen, M. A., et al. (2016). Reducing nurses' stress: A randomized controlled trial of a web-                                                                                                                                                                       | Primary or secondary outcome was not the incidence of depression or                                            |

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| based stress management program for nurses. <i>Applied Nursing Research</i> , 3,18-25.                                                                                                                                                                                                                                                                                                  | the reduction of depressive symptomatology                                                                     |
| Hirokawa, K., Taniguchi,T., Tsuchiya, M.yKawakami, N. (2012). Effects of a stress management program for hospital staffs on their coping strategies and interpersonal behaviors. <i>Industrial Health</i> , 50(6),487-498.                                                                                                                                                              | Participants depressed at baseline were not excluded                                                           |
| Hoorelbeke, K. y Koster, E. H. (2017). Internet-Delivered Cognitive Control Training as a Preventive Intervention for Remitted Depressed Patients: Evidence From a Double-Blind Randomized Controlled Trial Study. <i>Journal of Consulting and Clinical Psycholy</i> , 85(2),135-146.                                                                                                  | Participants were not recruited in the workplace                                                               |
| Imamura, K., Kawakami, N., Furukawa, T.A., Matsuyama, Y., Shimazu, A., Umanodan, R., et al. (2015). Effects of an internet-based cognitive behavioral therapy intervention on improving work engagement and other work-related outcomes: An analysis of secondary outcomes of a randomized controlled trial. <i>Journal of Occupational and Environmental Medicine</i> , 57(5), 578-84. | Primary or secondary outcome was not the incidence of depression or the reduction of depressive symptomatology |
| Johnson, J.R., Emmons, H.C., Rivard, R.L., Griffin, K.H. y Dusek, J.A. (2015). Resilience Training: A Pilot Study of a Mindfulness-Based Program with Depressed Healthcare Professionals. <i>Explore</i> , 11(6), 433-44.                                                                                                                                                               | Participants depressed at baseline were not excluded                                                           |
| Lang D. (1992). Preventing short-term strain through time-management coping. <i>Work and Stress</i> . 6 (2),169-176.                                                                                                                                                                                                                                                                    | The design used was not a randomized controlled trial                                                          |
| Lexis, M. A., Jansen, N. W., Huibers, M. J., Amelsvoort, L. G., Berkouwer, A., Tjin, A., et al. (2011). Prevention of long-term sickness absence and major depression in high-risk employees: A randomised controlled trial. <i>Occupational and Environmental Medicine</i> , 68(6), 400-407.                                                                                           | Participants depressed at baseline were not excluded                                                           |
| Li, J., Riedel, N., Barrech, A., Herr, R.M., Aust, B., Mortl, K., et al. (2017). Long-Term Effectiveness of a Stress Management Intervention at Work: A 9-Year Follow-Up Study Based on a Randomized Wait-List Controlled Trial in Male Managers. <i>BioMed Research International</i> , 2853813.                                                                                       | Participants depressed at baseline were not excluded                                                           |
| Limm, H., Gundel, H., Heinmuller, M., Marten-Mittag, B., Nater, U.M., Siegrist, J., et al. (2011). Stress management interventions in the workplace improve stress reactivity: A randomised controlled trial. <i>Occupational and Environmental Medicine</i> , 68(2),126-133.                                                                                                           | Participants depressed at baseline were not excluded                                                           |
| McCraty, R., Atkinson, M. (2012). Resilience Training Program Reduces Physiological and Psychological Stress in Police Officers. <i>Global Advances in Health and Medicine</i> ,1(5), 44-66.                                                                                                                                                                                            | Participants depressed at baseline were not excluded                                                           |
| Mealer, M., Conrad, D., Evans, J., Jooste, K., Rothbaum, B., Moss, M. (2014). A 12-week multimodal resilience training program for intensive care unit nurses:                                                                                                                                                                                                                          | Participants depressed at baseline were not excluded                                                           |

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| Results of a pilot study. <i>American Journal of Respiratory and Critical Care Medicine</i> ,189:A5247.                                                                                                                                                                                                                                 |                                                                                                                |
| Mealer, M., Conrad, D., Evans, J., Jooste, K., Solyntjes, J., Rothbaum, B. et al. (2014). Feasibility and acceptability of a resilience training program for intensive care unit nurses. <i>American Journal of Critical Care</i> , 23(6), e97-105.                                                                                     | Participants depressed at baseline were not excluded                                                           |
| Mino, Y., Babazono, A., Tsuda, T.yYasuda, N. (2006). Can stress management at the workplace prevent depression? A randomized controlled trial. <i>Psychotherapy and Psychosomatics</i> , 75(3),177-82.                                                                                                                                  | Participants depressed at baseline were not excluded                                                           |
| Noben, C., Smit, F., Nieuwenhuijsen, K., Ketelaar, S., Gartner, F., Boon, B., et al. (2014). Comparative cost-effectiveness of two interventions to promote work functioning by targeting mental health complaints among nurses: Pragmatic cluster randomised trial. <i>International Journal of Nursing Studies</i> , 51(10), 1321-31. | Primary or secondary outcome was not the incidence of depression or the reduction of depressive symptomatology |
| Price, R. H., Van Ryn, M.yVinokur, A. D. (1992). Impact of a preventive job search intervention on the likelihood of depression among the unemployed. <i>Journal of Health Social Behavior</i> , 33(2),158-67.                                                                                                                          | Participants were not recruited in the workplace                                                               |
| Saadat, H., Snow, D.L., Ottenheimer, S., Dai, F.yKain, Z.N. (2012). Wellness program for anesthesiology residents: A randomized, controlled trial. <i>ActaAnaesthesiologicaScandinavica</i> , 56(9), 1130-8.                                                                                                                            | Participants depressed at baseline were not excluded                                                           |
| Shimazu, A., Okada, Y., Sakamoto, M.y Miura, M. (2003). Effects of stress management program for teachers in Japan: A pilot study. <i>Journal of Occupational Health</i> , 45(4), 202-8.                                                                                                                                                | Participants depressed at baseline were not excluded                                                           |
| Saelid, G.A., Czajkowski, N.O., Holte, A., Tambs, K. y Aaro L.E. (2016). Coping With Strain (CWS) course - its effects on depressive symptoms: A four-year longitudinal randomized controlled trial. <i>Scandinavian Journal of Psychology</i> , 54(4), 321-7.                                                                          | Did not have a control group as usual care, no intervention, placebo or waiting list                           |
| Slatyer, S., Craigie, M., Heritage, B., Davis,S.y Rees, C. (2017). Evaluating the effectiveness of a brief mindful self-care and resiliency (mscr) intervention for nurses: A controlled trial. <i>Mindfulness</i> .                                                                                                                    | Participants depressed at baseline were not excluded                                                           |
| Strub, L. y Tarquinio, C. (2013). Mindfulness-Based Cognitive Therapy (MBCT) program with workers in an industrial setting: A pilot study. <i>SanteMentale au Quebec</i> , 38(1), 207-25.                                                                                                                                               | Participants depressed at baseline were not excluded                                                           |
| Toivanen, H., Helin, P. y Hanninen, O. (1993). Impact of regular relaxation training and psychosocial working factors on neck-shoulder tension and absenteeism in hospital cleaners. <i>Journal of Occupational Medicine</i> , 35(11),1123-1130.                                                                                        | Participants depressed at baseline were not excluded                                                           |

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| Tyson, O., Roberts, C. M. y Kane, R. (2009). Can implementation of a resilience program for primary school children enhance the mental health of teachers? <i>Journal of Psychologists and Counsellors in Schools</i> , 19(2), 116-130.                                  | Participants depressed at baseline were not excluded  |
| Vines, S.W. (1994). Relaxation with guided imagery: Effects on employees' psychological distress and health seeking behaviors. <i>AAOHN Journal</i> , 42(5), 206-213.                                                                                                    | The design used was not a randomized controlled trial |
| Vuori, J., Silvonen, J., Vinokur, A. D. y Price, R. H. (2002). The Tyohon Job Search Program in Finland: benefits for the unemployed with risk of depression or discouragement. <i>Journal of Occupational Health Psychology</i> , 7(1), 5-19.                           | Participants were not recruited in the workplace      |
| West, C. P., Dyrbye, L. N., Rabatin, J. T., Call, T. G., Davidson, J. H., Multari, A., et al. (2014). Intervention to promote physician well-being, job satisfaction, and professionalism: A randomized clinical trial. <i>JAMA Internal Medicine</i> , 174(4), 527-533. | Participants depressed at baseline were not excluded  |
| Wolever, R., Bobinet, K., McCabe, K., Mackenzie, E. R., Fekete, E., Kusnick, C. A., et al. (2012). Effective and Viable Mind-Body Stress Reduction in the Workplace: A Randomized Controlled Trial. <i>Journal of Occupational Health Psychology</i> , 17(2), 246-258.   | Participants depressed at baseline were not excluded  |