Depression in the workplace: screening and treatment

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The Guidelines Project, an initiative of the Brazilian Medical Association, aims to combine information from the medical field in order to standardize producers to assist the reasoning and decision-making of doctors.
The information provided through this project must be assessed and criticized by the physician responsible for the conduct that will be adopted, depending on the conditions and the clinical status of each patient.

Screening depression in the occupational setting has the potential of diagnosing workers with depression symptoms in different levels of severity. Depression and its treatment have the potential of modifying occupational outcomes of functionality, productivity, absenteeism, presenteeism, return to work, work engagement, unemployment, among others. It was carried out from the systematic review of literature in the medline database, recovering 21,232 papers, 54 (figure 1 – annex I) being selected to answer the clinical questions: is it necessary to screen workers for depression? And is treatment effective and safe? The details of the methodology and the results of this guideline are exposed in annex I.

KEY POINTS

Screening depression in the occupational setting has the potential to diagnose, in impactful prevalence and with acceptable accuracy, workers with symptoms of depression at different levels of severity, knowledge about the disease and volition for adherence to treatment.

Depression and its treatment have the potential to modify occupational outcomes of functionality, productivity, absenteeism, presenteeism, return to work, work engagement, unemployment, among others.

Healthcare teams in the occupational setting have the potential to educate about depression and its treatment, promote adherence to treatment, coordinate and prescribe treatment for depression, just as it happens in studies published in the workplace or in primary care.

Periodic testing is one of the tools for implementing depression screening. Mapping and interventions by electronic means can promote adherence to screening and treatment, and optimize the distribution of educational content.

Interventions involving treatment with antide-

pressants, interventions based on cognitive behavioral therapy in person or by phone or via the web, multimodal interventions, among others, have potential of positive benefit for both depression symptoms and occupational outcomes, and are implementable in an occupational setting.

INTRODUCTION

Depression is characterized as a mood disorder that affects the way a person feels, thinks, or behaves, leading to impairment in social or occupational functioning.[1] A major depressive episode is defined by the presence of five or more of the nine major symptoms of depression over a period of two weeks[2]. The onset of depression may be triggered by biological, psychosocial or environmental factors, including risk factors present in the workplace. Those who have experienced an episode of depression before are at greater risk of having future episodes[3].

The prevalence of depression demonstrates its importance in public health in Brazil. Using data from 2013 to 2014 of the National Health Survey of IBGE, it is estimated that 9.7% of Brazilian adults present some degree of depression and 3.9% present major depression. Among adults with depression, only 27.6% were diagnosed at some point in their lives[4]. These data are consistent with a Brazilian systematic review of 2014 that estimated an annual prevalence of 8% of depression among adults and of 17% throughout life[5]. Data from the INSS[6] show the importance of mental health problems in disability, and in 2016, mental and behavioral disorders resulted in 10,376 of 212,209 urban accident-related disability pensions, 178,613 of 1,983,708 urban disability pensions and 6,423 of 207,100 rural disability pensions.

A 2017 systematic review gathered evidence of occupational risk factors with common psychiatric diseases, including depression, concluding that there is moderate-level scientific evidence from prospective studies associating high labor demand, low control, effort and reward unbalance, organizational (in)justice, low social support and violence at work with common psychiatric diseases[7]. These data are consistent with the factors perceived by workers interviewed in the National Health Survey of IBGE[8].

Because depression is potentially treatable, there has been an interest in screening patients presenting in primary care settings. The United States Preventive Services Task Force recommends universal screening where there is support to ensure adequate follow-up[9]. However, this study specifically analyzed clinical outcomes.

In view of the epidemiological importance, pertinence of occupational risk factors and the presence of impact on absenteeism and disability, this guideline seeks to evaluate the scientific evidences that demonstrate the consistency and the effectiveness of the screening of depression in a workplace focused on the modification of occupational outcomes.

RESULTS – EVIDENCE OF SUPPORT TO THE RECOMMENDATIONS
1. Screening and prevalence of depression in workers

Table 1 (Appendix I) summarizes the methodology and results of experiences related to the mapping of depression in the working population. The selected studies illustrate the feasibility and accuracy of mapping in the occupational setting and extend the concept of mapping as a mere cross-sectional diagnostic tool, and can be extended to a prospective analysis of the intensity of symptoms in a population exposed to occupational risk factors of interest, or to primary, secondary or tertiary prevention interventions, including active workers or workers on any sickness leave. The concomitant mapping of suspicious or interest occupational risk factors may guide the design of control measures. The occupational physician can take advantage of the methodology from the studies mentioned in this guideline to implement the mapping in practice. Most of the studies follow a methodology that will reflect in occupational health programs: population mapping of symptoms of depression through a questionnaire or structured interview, stratification of the population regarding the severity of depression symptoms, mapping of demographic indicators and occupational risk factors of interest, evaluation of the association between the depression symptoms and occupational or demographic risk factors of interest, followed, finally, by the implementation of preventive or curative measures.

As an example, the Ahlin[10](B) study addressed Swedish workers aged 16-64. Study participants were followed up every two years since 2006 (n = 9,214) or 2008 (n = 9,703) or 2010 (n = 2,572) or 2014 (n = 19,388). In all, 28,672 individuals (70%) re-

sponded to at least one follow-up questionnaire by 2016, while 6,387 had responded up to six times. Basically, the participants were evaluated in relation to the presence of depressive symptoms and in relation to occupational components perceived by the workers as high demand, control, social support. In this study, the population was classified according to the severity of the depression symptoms: One group (n = 94, 1.1%) was classified as severe persistent, another group (n = 588, 9.4%) was classified as moderate persistent, and another one (n = 995, 12.6%) represented the group with subclinical to mild symptoms, thus totaling 23.1% of workers with significant depressive symptoms identified. This same study indicated that high demand, low control, and low social support in the workplace increase depressive symptoms over time. With this mapping modality, the study evaluated the association of occupational risk factors with the different severity levels of depression symptoms.

Nakamura-Taira[11](B) conducted a study with Japanese workers evaluating the relationship between the presence of depressive symptoms, perceived stress at work and beliefs about mental illness. The study sample involved 3,718 employees (2,660 men, 1,058 women). The presence of depressive symptoms totaled 10.2% of the workers analyzed. In addition, these individuals were more likely to expect depression to improve without treatment and also did not recognize useful sources of support (for example, talking to friends/family, seeing a psychiatrist, taking medication, seeing a counselor) compared with patients without depressive symptoms. In this sense, the underestimation of stress was related to the worst clarification regarding mental health.

Nieuwenhuijsen[12](B) carried out a study with Canadian workers, totalizing a sample of 2,219 employee participants analyzed, either by a questionnaire over the telephone (n = 2,145) or by a web-based survey (n = 74). Basically, the participants were evaluated in relation to the presence of depressive symptoms and presence of fatigue associated with the work activity characterized as recovery time required after work activity. In this study, 783 workers (38%) were identified with mild to severe depressive symptoms, based on the score used to screen depression. At the same time, this study identified an association between the presence of depressive symptoms and recovery time after work activity, identifying a risk

of depressive symptoms eight times greater in the group of workers with a high need for recovery than workers with less need for recovery.

Wang[13](B) carried out a study with male workers. In total, there were 841 participants, including 511 men at high risk of severe depression and 330 with low risk of severe depression. This study identified that male workers classified as high risk for depression were more likely to endorse the importance of accessing health resources online than low-risk men (83.4% vs. 75.0%, respectively; P = 0.01). Of the 17 different characteristics evaluated, the three main ones most used by high-risk men were: "information on how to improve sleep hygiene" (61.3%), "exercise practice to help reduce stress and depression symptoms" (59.5%) and "having access to quality information and resources on occupational stress issues" (57.8%). Qualitative data analysis revealed that privacy issues, disease-related stigma, ease of web tool navigation and lack of personal interaction, time and knowledge were identified as barriers to the use of mental health programs by working men who were at high risk of depression. One of the main results of this study was that 62.7% of participants who were at high risk of depression used the internet to obtain health information in the 12 months prior to the survey. In addition, more than 75% of men at high risk of depression considered that health information online is useful to help them make healthcare decisions and more than 72% would use a mental health program to deal with work-related stress. Since men often delay the search for mental health problems due to stigma and gender norms, results suggest that the privacy inherent in mental health programs makes these programs a promising tool for improving men's mental health.

Volker[14](B) carried out a study in the workplace, whose sample consisted of 170 employees with work leave between 4 and 26 weeks. Basically, the purpose of this study was to validate the PHQ-9 questionnaire for depression within a population of employees on sick leave using the Mini International Neuropsychiatric Interview (Mini) as the gold standard. As a result, data from 170 employees were included in the reviews. Of the total of 170 Minis, 36 employees scored positively for depression (prevalence = 21.2%). Regarding the PHQ-9 questionnaire, a cutoff value of 10 resulted in an adequate balance between sensitivity and specificity, determining a sensitivity of 86.1%, specificity of 78.4%, positive predictive value (PPV) of

51.7%, negative predictive value (NPV) of 95.5% and accuracy of 80.0%.

Wada[15](B) carried out a study in the workplace where the CES-D (Center for Epidemiologic Studies Depression Scale) questionnaire was sent to all workers who performed the periodic health examination (2,409 individuals). Concomitantly, a version of the Mini International Neuropsychiatric Interview - Mini section that addressed the major depressive episode was administered to all workers. The percentage of participants with a CES-D score above 19 was 9.5%. Sensitivity and specificity were calculated for various CES-D scores. Sensitivity ranged from 95.1% to 85.3% and the specificity ranged from 82.2% to 93.1% in the central range of the curve. With a cutoff point of 16, which is the traditional score in the literature, the sensitivity was 95.1% and the specificity was 85.0%. The appropriate balance cutoff score for depression screening was calculated at 19. The study demonstrated the validity of the CES-D questionnaire for screening depression in working populations.

The analysis of the articles compiled in this subgroup shows relevant points about the screening and prevalence of depression among workers. The prevalence of significant depressive symptoms in workers is high from 9.5% to 38%. The main questionnaires used in the literature in the general population for screening depression may be validated for use in the working population. Screening in the working population allows contact with individuals suffering from symptoms of depression but that are not aware of the disease or do not have volition to seek medical treatment.

IMPACT OF DEPRESSION ON WORKERS

The studies mentioned in Table 2 in Annex I illustrate the high prevalence, the impact of depression on workers' health, on functionality and productivity, on presenteeism and absenteeism, being these indicators of interest in the practice of occupational medicine both for identification of the population of greater risk and evaluation of the effectiveness of interventions adopted. The instruments or questionnaires used in studies to measure the impact of depression on workers can be used in versions translated, validated and adapted, in whole or in part, in the practice of occupational medicine.

Asami[24](B) carried out an observational study with 17,820 workers in Japan. As a primary result,

labor productivity was assessed using the validated questionnaire, a six-item instrument consisting of the following metrics: loss of general work productivity (general disability estimate, which is a combination of absenteeism and presenteeism), absenteeism (percentage of work time lost due to illness in the last seven days), presenteeism (percentage of compromise suffered during work in the last seven days due to illness) and impairment of activity (percentage of health-related disability in daily activities in the last seven days). The main independent variables for this project were those based on the self-reported diagnosis of depression and the outcome of the validated questionnaire response for depression screening (PHQ-9). Among workers (n = 17,820), 3.8% were diagnosed with depression within 12 months (n = 678). Among those with a diagnosis, 51.0% (n = 346) presented PHQ-9 scores of 10 and over, while among those without diagnosis, 7.8% (n = 1336) scored 10 and over. In other words, 7.5% among workers (1,336 out of 17,820) reported that they were not diagnosed as depressed, but had PHQ-9 scores of 10 and over. Absenteeism and general analyzes of deterioration of work included 16,906 out of 17,820 workers, while presenteeism included 17,428 workers. In all measures of productivity and work activity, the greatest losses were observed among those diagnosed compared to those undiagnosed. The interaction between PHQ-9 scores and the diagnosis of depression was significant for general work impairment, presenteeism and impairment of the activity (P <0.01). The mean percentage disabilities adjusted by subgroups indicate that the effects of PHQ-9 on productivity were, in all cases, stronger in the undiagnosed than in the diagnosed group. This study demonstrated the impact of the underdiagnosed depression on the work performance of workers and, at the same time, the negative repercussion of the presence of significant depressive symptoms on presenteeism. On this item, the result of this article was corroborated by other studies selected in this guideline that analyzed the relationship between depression and presenteeism[23,26-29,33,34](B).

Lamichhane[18](B) conducted a prospective study in a group of registered workers for health examination at the Department of Occupational and Environmental Medicine at a university hospital who work in 23 small and medium-sized manufacturing enterprises. Thus, the analysis was carried out using data from 2,349 individuals (1,807 men and 542 women).

Depressive symptoms were measured using the Center for Epidemiological Studies Depression Scale (CES-D). The dependent variable was whether or not a worker was absent from work due to an accident or illness in the previous year. Those who answered "yes" to (1) "were absent from work due to an accident at work last year?" or (2) "were absent from work due to illness last year?" were included in the absenteeism group. The percentages of workers who scored within the reference range of depressive symptoms (CES-D ≥ 16) and were absent from work due to illness were 16.9% for men and 27.5% for women. Men and women with depressive symptoms at the beginning of the study were more likely to be absent due to the disease at follow-up. Non-adjusted models showed a significant effect of depressive symptoms in absence of disease (OR = 3.67, 95% CI 2.17-6.21 for men and 2.14, 95% CI 1.29-3.56 for women). When gross odds ratios (OR) were calculated for absence due to accidents, men with depressive symptoms showed a statistically significant OR (OR = 2.95, 95% CI, 1.41-6.18). This study demonstrated the significant impact of depression symptoms on absenteeism due to illness or accident in affected workers. The result of this article was corroborated by other studies selected in this guideline that analyzed the relationship between depression and absenteeism[19,27,28,32,34](B).

Porru[17](B) conducted a prospective study on 5,263 European workers. The mean age was 55.0 years old. The primary outcome in this study was the status in self-reported work. Work status was measured after two and four years. Depressive symptoms were defined according to the validated Euro-D scale. In this study, it was observed that individuals with significant depressive symptoms were more likely to have an impact on their work capacity from long-term leave due to social security benefits with a significant hazard ratio (HR = 2.46, 95% CI 1.68 -3.60). In all, 19% of men and 20% of women who left work being paid through social security benefits had their leave attributed to significant depressive symptoms. This study demonstrated the impact on workers of the presence of significant depressive symptoms on long-term work leave. The result of this article was corroborated by other studies that analyzed the relationship between depression and prolonged leave selected in this guideline[21,22,25,26](B).

Weaver[16](B) conducted a prospective cohort study with healthcare professionals at four academic hospitals. The analysis included 416 participants who were monitored monthly for six months. In this study, the Patient Health Questionnaire for Anxiety-Depression (PHQ-4) was used to screen anxiety and depression. Adverse safety outcomes included motor vehicle collisions, "near misses", exposures to potentially infectious materials (occupational exposures), and adverse events to patients. Positive screening for anxiety or depressive symptoms was associated with a 63% increase in the incidence of adverse safety outcomes after multivariate adjustment. Workers with anxiety or depression had 124 adverse safety outcomes with RR = 1,63 (95% CI 1.58-1.69). This study demonstrated the impact on workers of the presence of significant depressive symptoms on accidents with motor vehicles, work accidents with biological material and adverse events for patients.

Newcomb[20](B) conducted a study with 205 employees selected for depression using the nine item Patient Health Questionnaire (PHQ-9). Screening for depression was associated with an increased diagnosis of depression compared to the control group (30% versus 4%, P <0.001). There was a significant difference in the need for activity restriction in the workplace, being reduced to 97 days for the screened employees compared to 159 days for the controls (P <0.001). Thus, depression screening was associated with a lower chance of receiving temporary work restrictions with OR = 0.55 (95% CI 0.38-0.78) or permanent restrictions with OR = 0.35 (95% CI 0.23-0.52). This study demonstrated the repercussion in workers of the presence of significant depressive symptoms on the need of activity adaptation in the workplace.

Lexis[31](B) carried out an observational study that examined the relationship between the presence of significant depressive symptoms and perceived health. The study was conducted among employees working in a large bank. The screening instrument contained four questions about the results of the health complaint experience and aid in the pursuit of health behavior. Of all the employees who responded to the screening instrument, 13.3% were identified as being at high risk of sick leave in the future and 8.3% were identified as having mild to severe depressive complaints. Of the employees identified as being at high risk of sick leave, 48% reported having complaints about their own health, compared to 20% of employees identified as being without risk. Complaints about their own health among employees identified with depressive com-

plaints were higher (57%), compared with 21% of employees without depressive complaints. This study and others selected[30] in this guideline demonstrated the repercussion in workers of the presence of significant depressive symptoms in relation to the perception of health at work.

In this subgroup of articles, the impact of depression on workplace was evaluated in 19 prognostic studies carried out on the working population. In eight studies, the impact of significant depressive symptoms on presenteeism and productivity was evaluated[23,24,26-29,33,34](B). In six studies, the impact of depression on absenteeism was analyzed[18,19,27,28,32,34](B).

In five studies, the impact of significant depressive symptoms on the long-term absence from work was evaluated[17,21,22,25,26](B). In four other studies, the impact of depression on other outcomes such as commute accidents, work accidents, work restriction, perception of health at work and adverse events in patients was analyzed[16,20,30,31](B).

The compilation of these studies demonstrates the extent of the repercussion of significant depressive symptoms on occupational outcomes in the workplace, determining the relevant impact on workers in presenteeism, absenteeism, prolonged leave, work accident, commute accident, activity restriction, perception of health at work and adverse events for patients.

SCREENING OF DEPRESSION IN WORKERS ASSOCIATED TO TREATMENT

Selected studies have involved clinical trials or systematic reviews[35,45,58](A) of interventions with potential to improve depressive symptoms and other occupational outcomes of interest. The selected studies involved pharmacological treatment with antidepressants[35,38,63](A), occupational therapy[48,61](A), psychoeducation[51,56,62](A), cognitive behavioral therapy or other modalities of psychotherapy with psychotherapist present[43,54,55](A) or by phone[38,40,47,52,53,57,60](A),[59](B), multifaceted interventions[49,50,52](A), use of automated online tools with heterogeneous content, generally based on principles of cognitive behavioral therapy, psychoeducation, self-help and other diverse contents such as relaxation or meditation techniques associated with a previous screening of depression symptoms[36,37,39,41,42,44,46](A).

Lee[35](A) conducted a systematic review published in 2018 of clinical trials that examined the impact of pharmacological treatment of depression on occupational outcomes such as work functionality and absenteeism. The selected papers met the selection criteria defined: adult population with major depression, submitted to pharmacological intervention with antidepressants, in randomized, double-blind, placebo or comparative intervention clinical trials with outcomes of work functionality or absenteeism assessed quantitatively with standardized instruments. The analysis of 13 comparative clinical trials with placebo and four comparative clinical trials with other interventions reported the efficacy of antidepressants on subjective measures of commitment in the workplace. Treatment with antidepressants has improved standardized measures of functioning in the workplace. The study suggests that pharmacological treatment with antidepressants has a positive effect on productivity in the workplace.

Tan[45](A) conducted a systematic review published in 2014 that selected randomized clinical trials on workplace interventions that reported outcomes on mental health for individuals with depression. The selected studies compare at least two different intervention groups randomly allocated with at least one being a control group or waiting list. Study participants should be active-age adults (18-65 years old) who belonged to a working group. It was observed that most of the included studies used cognitive behavioral therapy (CBT) techniques. The overall standardized mean difference (SMD) between the intervention and control groups was 0.16 (95% CI 0.07-0.24, P = 0.0002), indicating a positive effect. A separate analysis using only interventions based on cognitive behavioral therapy (CBT) generated a significant difference of 0.12 (95% CI 0.02-0.22, P = 0.01). The results indicate that a number of different intervention programs on depression have positive effects on the workplace. When analyzed separately, universally distributed CBT interventions significantly reduced levels of depressive symptoms among workers. These results demonstrate that appropriate interventions based on psychotherapy in the workplace should be part of efforts to intervene in depression. Other clinical trials selected in this guideline analyzed the application of in-person psychotherapy in the workplace, individually or in groups, alone or in conjunction with other interventions[43,48,51,54,55,60,61,62](A), by telephone[38,40,47,52,53,57,60](A)[59](B), online[36,37,39,41,42,44,46](A). These findings are in line with other recent systematic reviews recently published

on the subject[64-67](A). In a meta-analysis published in 2019 by Nigatu[67](A), the benefit of CBT-based and non-CBT-based interventions had small to medium effect size with significant standardized mean differences (SMD) and, respectively, in -0.44 (95% CI -0.61 to -0.26, I^2 = 62.1%) and in -0.32 (95% CI -0.59 to -0.06, I^2 = 58%).

Martin[58](A) conducted a systematic review published in 2009 that selected articles that focused on workplace interventions that reported outcomes in mental health for individuals with depression and anxiety. The primary outcome measures were the composite measure scores of depression, anxiety or mental health used as screening tools for these conditions. The multimodal intervention aimed at mental health, directly or indirectly, through a program to promote mental health in the workplace that acts on a known risk factor for depression or anxiety, such as smoking, chronic illness, substance abuse, obesity, physical inactivity and organizational climate. In total, 22 studies met the inclusion criteria, with a total sample of 3,409 post-intervention employees, 17 of which were included in the meta-analysis. The pooled results indicated small but positive overall effects of interventions in relation to depression symptoms with standardized mean differences (SMD) of SMD = 0.28 (95% CI 0.12-0.44) and anxiety with SMD = 0.29 (95% CI 0.06-0.51). This study suggests that multimodal intervention on work organization that is part of a workplace mental health promotion program improves clinical outcomes in individuals with depression. This finding is consistent with the results of a systematic review published in 2014 on the positive benefit in reducing depression symptoms of occupational interventions based on exercise[68](B).

Smith[63](A) conducted a clinical trial on the impact of the primary healthcare service on occupational outcomes. The intervention consisted of "optimized care," in which healthcare providers (physicians and nurses) directed the treatment in accordance with the recommendations of the Agency for Healthcare Research and Quality (AHRQ) guideline. Control consisted of usual care for study participants. Of the 262 patients in the baseline sample eligible for this analysis, 219 (83.6%) were followed up at one year. The occupational outcomes analyzed were employability/turnover and organizational climate. The intervention significantly increased employability with 10.1% (p = 0.04, CI 90% 2.8-17.4%) and reduced unemployment by 4.3% (CI 90% 1.2-7.4 %). In addition, among participants on op-timized care, there was a significantly lower probability of reporting workplace conflicts (8.1% vs. 18.9%, p = 0.04). This study suggests that the incorporation of the primary care logic with the training of physicians and nurses improves occupational outcomes in individuals with depression, thus determining the repercussion of the intervention on employability, turnover and organizational climate.

In this sense, the compilation of these studies demonstrates that screening for depression through validated questionnaire can be followed by therapeutic interventions, either in person or at a distance, with benefit on clinical and occupational outcomes, regardless of whether the worker is active or retired, or if they had a previous depressive episode or not. The set of interventions reflects the multifactorial nature of depression and the need for equally comprehensive interventions.

DISCUSSION

In order to assess the importance of screening for depression, specifically of workers (in a workplace), as well as their consequences in effective and safe therapeutic measures, it will be necessary to overcome some barriers and concepts that hinder not only the understanding of the scenario, but also the generation and/or the interpretation of available scientific evidence.

The extrapolation, from data and scientific information, on the screening of depression from the general population to the population of workers, based on the proximity between the prevalence indexes of these two populations, is insufficient. This is because the mechanisms of generation, maintenance and recurrence of depression in workers, although similar, present aspects specific to the occupational sphere and, consequently, the intervention measures present specific nuances. In addition, because of this extrapolation, there is a distinct accommodation of the scientific community in the generation of randomized trials comparing whether or not to screen for depression in the occupational population, which naturally reduces the strength of available evidence, supporting screening among workers.

At the same time, there is an unfounded concern that screening is used as an admission selection measure or to guide cost-centered post-admission actions, producing obvious detriment or reduction of care focused on the worker.

In this sense, in the specific evidence on depression in the workplace there are still biases, for example, the difficult individualization of exclusive populations of depressive and non-depressive patients in the screening, prevention and treatment actions, as well as the presence of other treatments concomitant with the interventions of the studies.

However, it is possible to indirectly build an adequate evaluation of the importance of the screening of depression in workers supported by prevalence data, the impact of depression on occupational outcomes, and response (efficacy and safety) to pharmacological and non-pharmacological treatment modalities in the workplace.

Thus, despite the fact that there are no experimental cohorts (RCTs) comparing screening and not screening worker populations as there is in the non-occupational population, we can see that the available evidence on the management of depression among workers through active screening and treatment offer for those diagnosed can be considered of moderate strength of scientific evidence based on observational cohorts and randomized clinical trials.

Among the recognized interventions, mention is made of pharmacological treatment with antidepressants, psychotherapy (presential or distance), multimodal intervention on work organization and primary care service centered on the worker's care.

Thus, the population of depressive patients among workers is underdiagnosed in an environment in which the worker seeks, with or without psychological attention, to remain in activity without his/her problem being noticed. On the other hand, the supervision of these workers does not notice the indirect or even direct signs of the presence of depression, and if they do notice, since they do not know how to deal with the situation, they do not take intervention measures, thus failing to generate benefits in occupational outcomes such as presenteeism, absenteeism, prolonged leave, work accident, commute accident, activity restriction, health perception and adverse events for patients.

RECOMMENDATION

Screening for depression in workers is recommended because of its high prevalence and underdiagnoses in the workplace. There is evidence that depression in workers has a relevant impact on occupational indicators and on the generation of comorbidities. Therefore, its early diagnosis and identification is recommended, as well as specific interventions, including actions on risk factors for depression at work.

Thus, screening for depression needs to be followed by diagnostic confirmation and pharmacological and non-pharmacological therapeutic measures, with the benefit and safety being verified in occupational outcomes such as presenteeism, absenteeism, prolonged leaves, work accident, commute accident, activity restriction, perception of health and adverse events for patients.

On screening, several instruments for screening or diagnosis of depression already validated for use in the workplace are found. Among the recognized interventions, mention is made of pharmacological treatment with antidepressants, psychotherapy (presential or distance), multimodal intervention on work organization and primary care service centered on the worker's care.

The findings and conclusions of this guideline are in agreement with systematic reviews published on the subject[35,45,58,62,63,64].

ANNEX I
Clinical question

Is it necessary to screen workers for depression? Is the treatment effective and safe?

Structures question

The research question was organized according to the acronym PICO (P for population or problem, I for intervention or indicator, C for control or comparison, and O for outcome). From the PICO format, from the descriptors of health science (MeSH terms) and their synonyms, search strategies were defined for each database.

P	adult patient in a workplace (worker) with or without current symptoms of depression
I	screening and/or treatment of depression in the workplace
C	usual measures or no intervention
O	job, absence or leave from work, recurrence, return to work

ELIGIBILITY CRITERIA
Inclusion

1. Elements of PICO

2. Randomized clinical trials; observational cohort studies; cross-sectional studies; systematic review with or without meta-analysis (the most recent)

3. No restriction on language and period

4. Full text or abstract with data

Exclusion

1. Population outside the workplace or scope

2. Treatment or adherence to treatment of depression

3. Papers assessing risk factors for depression

4. Papers assessing stress, burnout, anxiety, insomnia, mental health

5. Validation of diagnostic instruments

6. Quality assessment of workplace

7. Cost-effective or effectiveness models

ARTICLES SEARCH
Databases

Medline, Embase, Central Cochrane. Manual and gray search.

Research strategy

#1 (Depression* OR Depressive OR Depressive disorder) AND (screening OR questionnaire* OR score* OR scale* OR tool* OR survey*) AND (Worker OR Workplace OR Workplaces OR Work OR Job OR Worksite OR Employment OR Occupation* OR Occupational OR Industry OR Occupational diseases) – 19,850 papers.

#2 (Depression* OR Depressive OR Depressive disorder) AND (Worker OR Workplace OR Workplaces OR Work OR Job OR Worksite OR Employment OR Occupation* OR Occupational OR Industry OR Occupational diseases)))) AND random* - 4,062 papers.

CRITICAL ASSESSMENT

The selected evidence was graded according to the Oxford Centre for Evidence-based medicine – Levels of Evidence (March 2009)[69], with recommendation grades A or B being added to the references.
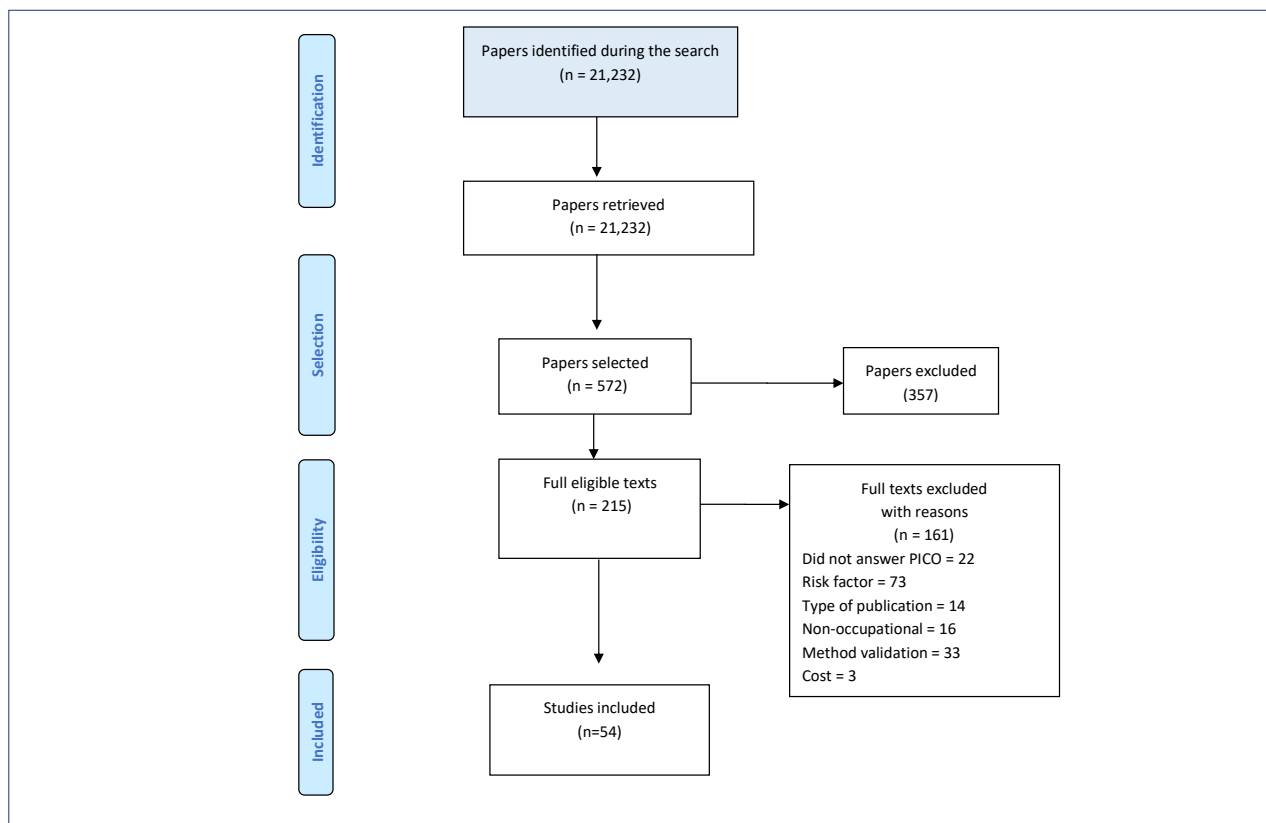
RESULTS EXTRACTION AND ANALYSIS METHOD

From each evidence included, the necessary data were extracted to support, through a text, the recommendations to answer the clinical question taking into account the characteristics of the patients, the interventions and comparisons, and the outcomes defined in the eligibility criteria.

RESULTS

Thus, 54 papers were selected to support the guideline, of which 25 were randomized clinical trials, 3 systematic reviews, 12 cross-sectional studies and 14 observational cohort studies. The scientific evidence included to support the recommendations is exposed in three subgroups for didactic purposes of discussion, and the content of each article is not necessarily limited to a single category:

1. Importance of depression in workers based on screening and prevalence (6 papers) [10-15].

2. Importance of depression in workers based on its consequences (19 papers)[16-34].

3. Screening for depression aggregated to efficacy and safety of treatment proposals (29 papers)[35-63].

FIGURE 1. INFORMATION FLOW WITH DIFFERENT STAGES OF THE SYSTEMATIC REVIEW

TABLE 1. STUDIES SELECTED RELATED TO MAPPING OF DEPRESSION IN WORKERS

Author	Population	Main results
Ahlin 2018[10]	Data from the Swedish Longitudinal Occupational Survey of Health (Slosh) study of 6,679 Swedish workers from 16 to 64 years of age who took the Symptom Checklist Core Depression (SCL-CD6), Hopkins Symptom Checklist (HSCL), Demand-Control-Support -Questionnaire (DCSQ) between 2006 and 2014 every two years.	1,336 workers maintained over the years very mild symptoms of depression (score 0-6). 3,299 workers maintained persistent mild symptoms (score 7-9). 995 evolved from borderline symptoms to mild depression (score 10-11). 588 had persistent moderate depression (score 12-15). 94 had persistent severe symptoms (score > 16). There was a significant association of high labor demand and low social support in both the population with mild persistent symptoms (RR = 1.26 CI 95% 1.06 - 1.51) and population with severe persistent symptoms (RR = 2.51 CI 95 % 1.43 - 4.41).
Nakamura-Taira 2018[11]	3,718 Japanese volunteer workers from various work activities completed a questionnaire about stress (SUB scale), Kessler Psychological Distress Scale (K6), and a knowledge assessment about depression by means of a vignette.	Underestimating stress has a positive association with failure to recognize symptoms of depression, knowledge about the disease, expectation of spontaneous resolution of depression, denial of the need for support from relatives, friends, drug treatment and psychotherapy.
Nieuwenhuijsen 2016[12]	2,219 Ontario volunteer workers completed questionnaires online or interviews. The Need for Recovery after Work (NFR), Patient Health Questionnaire (PHQ-8), Job Content Questionnaire were applied.	A high NFR score correlates with more severe symptoms of depression (OR = 8.3 95% CI 6.8 to 10.2). There was no significant association of depression with stress at work or job strain (association of high demand with low occupational control). Of 2,068 workers, 800 had a high NFR score with a mean of depression greater than 7.5 vs. 2.7 compared to workers with lower NFR scores.
Wang 2016[13]	841 Canadian workers without depression were evaluated by a predictor algorithm for major depression in 4 years.	511 considered high risk for depression and 330 low risk after application of the algorithm. Higher-risk workers were more likely to endorse the importance of accessing healthcare resources online than low-risk men (83.4% vs. 75.0%, respectively, P = 0.01). Of the 17 different characteristics evaluated, the three most commonly used by high risk men were: "information on how to improve sleep" (61.3%), "practice and exercise to help reduce symptoms of stress and depression" (59.5%) and "access to quality information and resources on work-related stress issues" (57.8%). Qualitative data analysis revealed that issues of privacy, perceived stigma, ease of navigation, personal relevance and lack of personal interaction, time and knowledge were identified as barriers to the use of mental health programs in working men who were at high risk of depression.

Author	Population	Main results
Volker 2016[14]	170 workers on work leave from 4 to 26 weeks were selected for validation of the PHQ-9 questionnaire for depression.	36 employees scored positively for depression. The optimal cutoff value in the questionnaire score is 10 points, resulting in sensitivity of 86.1%, specificity of 78.4%.
Wada 2007[15]	2,219 workers, during a periodic occupational examination, answered two questionnaires for depression: Center for Epidemiologic Studies Depression Scale (CES-D) and Mini International Neuropsychiatric Interview (Mini).	The optimal cutoff of the questionnaire in this population was 19 points for the screening of major depression with sensitivity of 92.7%, specificity of 91.8%. A proportion of 9.5% of this population presented CES-D above 19 points.

TABLE 2. STUDIES SELECTED RELATED TO THE IMPACT OF DEPRESSION ON WORKERS

Author	Methodology	Main results
Weaver 2018[16]	416 healthcare workers with a total of 1,367 person-months were assessed with questionnaires for sleep disorders, for anxiety and depression, for automobile accident events or with biological material, near misses and medical error.	Two out of five participants had at least one sleep disorder, with insomnia being the most common, followed by sleep apnea, restless leg syndrome, and shift work-related disorder. 23 reported an auto accident, there were 200 near-auto accident events by 94 participants, 66 accidents with biological material in 30 participants. 75% of reported medical errors were attributed to sleep deprivation or fatigue. There was a significant association between the sleep disturbance group with adverse safety events (p = 0.001), with an 83% increase in these events. Depression and anxiety independently added adverse events by 63%. There was no significant relationship between sleep disorders and symptoms of anxiety or depression. Individuals who present with sleep disorders and depression or anxiety present triple the risk for adverse safety events with RR = 2.97 (95% CI 2.12 to 4.16) and medical error with RR 2.24 (95% CI 1.42 to 3.55) and near misses with RR 2.47 (95% CI 1.62 to 3.47). 88% of the population with sleep disorders continued without diagnosis or treatment.
Porru 2018[17]	5,263 workers from 11 European countries aged between 50 years old and the specific retirement age of the local country were evaluated prospectively by interviews after two and four years. The study seeks to associate the questionnaire score for Euro-D depression with compensated work leave.	For both genders, high score in Euro-D has a significant association with disability pension with HR = 2.46 (95% CI 1.68 to 3.60). Among men, depressive symptoms have a non-significant association with unemployment with HR 1.55 (95% CI 0.94 to 2.57) and significant among women with HR = 2.10 (CI 95% CI 1.17 to 3.77). 19% of the study population had four or more symptoms of depression.
Lamichhane 2017[18]	2,349 plant workers were prospectively evaluated for one year. The study sought to associate depressive symptoms with absenteeism using the Center for Epidemiologic Studies Depression Scale (CES-D).	For both genders, the presence of depressive symptoms with a CES-D score greater than or equal to 16 is associated with higher chances of future absenteeism with OR = 4.06 (95% CI 2.32 to 7.11) in men and OR = 1.75 (95% CI 1.02-2.98) in women.
Vendrig 2018[19]	2,514 workers participated in the validation of the Work and Wellbeing Inventory (WBI).	The depression scale predicted absenteeism in future work (> 6 weeks) because of a common mental disorder in healthy workers. The scale of stress at work and the disease behavior scale predicted long-term absenteeism (> 3 months) in workers with short-term absenteeism.
Newcomb 2016[20]	205 workers were selected and completed the Patient Health Questionnaire (PHQ-9).	Screening for depression was associated with an increased diagnosis of depression compared to controls (30% versus 4%, P <0.001). There was no significant difference in length of absence at work or percentage of workplace restrictions. However, the restricted work duration was reduced to 97 days for the screened employees compared to 159 days for controls (P <0.001). The screening of depression was associated with a lower chance of receiving temporary work restrictions with odds ratio OR = 0.55 (95% CI 0.38 to 0.78) or permanent restrictions with OR = 0.35 (95% CI 0.23 to 0.52).
van Hoffen 2015[21]	2,782 postal workers were evaluated prospectively over a two-year period seeking an association between symptoms related to mental health and long-term absenteeism. Two questionnaires were applied: Four-Dimensional Symptom Questionnaire and Maslach's Burnout Inventory.	Scores of underlying mental health symptoms were significantly associated with prolonged absenteeism due to mental illness during the two-year follow-up. Mental health symptoms did not discriminate between postal workers with and without prolonged absenteeism due to all causes. Postal workers with prolonged absenteeism due to mental illness presented higher median scores of distress (40.5, interquartile range [IQR] 12.5 - 87.5), depressed mood (25.0, IQR 0.0 - 50.0) and fatigue (40.0, IQR 20.0 - 68.0) than postal workers without mental disorders. These workers who went on leave during the follow-up presented a score of 25.0 (IQR 9.4 - 53.1, P <0.01), 0.0 (IQR 0.0 - 25.0, P <0.01) and 28.0 (IQR 8.0 - 48.0, P <0.01) in suffering, depressed mood and fatigue, respectively.
Torske 2015[22]	The study sought to evaluate the association between rural activity and depression symptoms with disability pension. For 14 years (1985-2008), 29,016 Norwegian workers from different occupational activities participated with 3,495 farmers, all under 62 years of age and active. The Hospital Anxiety and Depression Scale (Hads) questionnaire was applied.	In comparison with the high educational level population, farmers presented a higher risk of pension due to occupational disability HR 2.07 (95% CI 1.80 to 2.38). Farmers with symptoms of depression have a higher risk of occupational disability pension HR 1.53 (95% CI 1.25 to 1.87) compared to farmers with no symptoms of depression. The same occurs in farmers with anxiety symptoms with HR 1.51 (95% CI 1.23 to 1.86).

Author	Methodology	Main results
Rose 2015[23]	The study assessed the association between symptoms of depression and functionality among 6,339 German active workers born in 1959 or 1965 in unspecified activities and workload. Civil servants and freelancers were not included in the study. The Beck Depression Inventory questionnaire (BDI-V) and two items of the Work Ability Index were applied.	The discussion of the study sought to define BDI-V scores associated with loss of functionality. For men, cutoff values between 20 and 24 points are associated with a sensitivity of 0.64 to 0.75 and a specificity of 0.64 to 0.75. In women, cutoff values between 23 and 28 points are associated with a sensitivity of 0.57 to 0.74 and a specificity of 0.60 to 0.74. The instrument does not define a cutoff score associated with disability but rather with loss of functionality.
Asami 2015[24]	The study sought to evaluate the association of severity of depression with absenteeism, presenteeism, loss of work functionality and in the daily activities of 17,820 Japanese workers. The Patient Health Questionnaire-9 (PHQ-9) and Work Productivity and Activity Impairment (WPAI) questionnaires were used.	1,336 of 17,820 or 7.5% of the workers had scores above 10 in PHQ-9 and were undiagnosed, 346 diagnosed with depression had PHQ-9> 10 points. There was a significant association between score in PHQ-9> 10 with presentism and loss of work functionality and in daily activities, but not significant with absenteeism. The effects on productivity and absenteeism were higher in the undiagnosed population compared to those diagnosed.
Ervasti 2015[25]	The study assessed the association between present or recent psychiatric illness and other comorbidities with return to work of 9,908 Finnish public officials with at least one episode of absenteeism due to depression between 2005 and 2011. In total there were 14,101 events of absenteeism due to depression in the period in this population.	12,486 or 89% of absenteeism episodes result in return to work, with a mean of 34 days. Comorbidities identified in the study were associated with a lower probability of return to work due to depression. Other psychiatric diseases with HR = 0.78 (95% CI = 0.74-0.83), cancer with HR = 0.66 (95% CI = 0.47-0.92), diabetes with HR = 0, 73 (95% CI = 0.62-0.86), cardiovascular disease with HR = 0.78 (95% CI = 0.62-0.99), hypertension with HR = 0.76 (95% CI = 0.67-0.85), osteomuscular disease HR = 0.82 (95% CI = 0.77-0.87) and asthma HR = 0.84 (95% CI 0.75-0.94).
Wang 2014[26]	A cross-sectional study of 1,000 Brazilian active workers currently or in the last 12 months, from 16 to 64 years of age, sought to assess the prevalence of symptoms of depression and loss of work functionality using a questionnaire adapted from the European Depression Association and another one for functionality.	One in five workers reported having received at some point in their lives a diagnosis of depression. 73.5% of the diagnosed workers remained active. 60% of these workers reported loss of work productivity associated with the presence of cognitive symptoms such as loss of interest (59%), bad mood or sadness (52%), sleep disorders (44%) and difficulty concentrating (36%). In individuals already defined as depressed, a total loss of 4,139 working days per year was reported by the 63 individuals who left work because of depression. The calculated absenteeism considering part-time workers (n = 11) was 3,795 days. The mean number of off-day days was 65.7 days. More than half of these workers have been away for 21 or more days.
Jain 2013[27]	1,051 adult and active workers with a diagnosis of depression were evaluated for severity of symptoms and their association with loss of productivity, applying the questionnaires Patient Health Questionnaire (PHQ-9), World Health Organization Health and Performance Questionnaire (HPQ) and Work Productivity and Activity Impairment Questionnaire (WPAI).	All levels of depressive severity were associated significantly and proportionally with worsening in work productivity, either by the measure of presenteeism through HPQ and WPAI or by the measure of absenteeism through WPAI. Mean unadjusted scores in the HPQ (no depressive symptoms [81.0], mild [73.5], moderate [68.6], moderately severe [66,1] and severe [61,5] depression; P <0, (P <0.001) and mean WPAI scores (no depressive symptoms [10.7], mild [26.2], moderate [38.8], moderately severe [44.7] and severe [54.3] depression; P < 0.0001) presented progressive worsening of labor productivity (presenteeism) with the increase of depression severity.
Woo 2011[28]	102 South Korean workers aged 20-60 years of age who had untreated depression and who had no other major physical or mental comorbidities were compared and matched to 91 healthy workers. The intervention group received pharmacological treatment and psychotherapy for 20 to 30 minutes. Intensity of symptoms of depression and productivity were assessed after four and eight weeks of treatment. The questionnaires used were the World Health Organization's Health and Work Performance Questionnaire (HPQ) and the Hamilton Rating Scale for Depression (HAM-D).	After eight weeks of antidepressant treatment with supportive psychotherapy, HAM-D scores improved significantly (24.00 vs. 7.19, P <0.001). The number of workdays absent due to health problems and that due to any other reason decreased significantly after eight weeks of treatment (P = 0.041; P = 0.008). The number of days missed due to health problems during the last four weeks also decreased (P = 0.003). The performance of the self-assessed work increased significantly from 4.90 to 6.46 (P <0.001). Compared with the control group, there was a significant difference for a higher prevalence of absenteeism and presenteeism in the intervention group. The self-reported average productivity in workers in the intervention group is 32.3% lower compared to the control group and 22.2% lower compared to the past one to two years.
Harvey 2011[29]	An ecological study with adherence of 1,161 English telephone operators sought to evaluate the association of depressive symptoms with productivity. In the study were used the Patient Health Questionnaire depression scale (PHQ-9) and four telemarketing productivity indicators.	The implementation in the online environment of online questionnaires via the web is feasible. 623 or 54% of the workers presented PHQ-9 with scores above or equal to 5 points, demonstrating a high prevalence of population with at least subclinical symptoms. There was an association between severity of depressive symptoms and level of productivity at work.
Munir 2011[30]	Data from completed questionnaires of Danish workers from 2000 (n = 5,510) and 2005 (n = 8,393) were assessed seeking association of long-term absenteeism in workers with depression with positive occupational psychosocial factors. The questionnaires used were the 5-Item Mental Health Inventory and Copenhagen Psychosocial Questionnaire (COPSOQ).	Leadership quality was associated with a reduction in sick leave to a stronger degree for those with moderate depressive symptoms (hazard ratio = 0.88, 95% CI = 0.78-0.98) than for those without depressive symptoms, and high decision autonomy was a protective factor against depression (RR = 0.91, 95% CI = 0.85-0.97).

Author	Methodology	Main results
Lexis 2010[31]	The study aims to evaluate the association of depressive symptoms with future risk of absenteeism and the adherence profile to the search for treatment. Data of 8,893 bankers. Questionnaires used in the study: Hospital Anxiety and Depression (HAD) and The Balansmeter (BM).	2,311 workers presented health complaints and 1,848 of 2,311 workers previously sought help: 1,293 for primary care, 341 for the occupational physician, 951 for other professionals. Of 463 untreated workers, 35% have a future intention to seek help and 46% do not intend to seek help. Among workers with depression at any level and with a high risk profile for absenteeism and without treatment started, only 50% expressed intention to seek treatment, a scenario that may be a barrier to occupational prevention programs.
Lexis 2009[32]	Data from 3,339 Dutch workers were assessed for association between depressive symptoms as predictors of absenteeism during a 10-month period in 2001. The Hospital Anxiety and Depression (HAD-D) questionnaire and absenteeism data provided by companies were used.	In both men and women, a significant association was found between depressive complaints and the onset time of the first period of sick leave. In men, the hazard ratio (HR) was 1.03 (1.01 to 1.05) and 1.04 (1.01 to 1.07) in women. For both men and women, the HR for the relationship between depressive complaints and the time of the beginning of the first period of sick leave were all in the expected direction, where those with mild or moderate-severe complaints had a higher risk of taking leave of absence earlier than employees who scored within the reference range.
Wang 2004[33]	The study aims to evaluate the association of depressive symptoms with momentary work performance in 105 aviation reserve agents and 181 telephone operators. For seven days, a diary and data collection via pager were performed. For screening of depression, the Composite International Diagnostic Interview Short Form questionnaire was used.	Major depression was significantly associated with a decrease in task focus at decreases of approximately 12 points in task focus and approximately 5 points in productivity on their scales from 0 to 100. These effect sizes are equivalent to a reduction of standard deviation of 0.4 in the focus of the task and a reduction of 0.3 standard deviation in productivity. As these effects are based on random experience sampling method assessments during the workday, they can reasonably be considered to describe the average decreases in these results at all times in a typical workweek.
Druss 2001[34]	The study evaluated the association between depressive symptoms, level of health service satisfaction and occupational outcomes after two years (1993 to 1995) in a population of 6,239 workers. For depression, the 36-item and 12-item versions of the Short-Form Health Survey were applied.	In all, 1,200 enrolled in the longitudinal sample (19.2%) met the criteria for depressive symptoms. Multivariate models indicated that the odds of absence from work due to illness were 2.17 times higher for those interviewed with chronic depressive disease than for participants without depressive symptoms, and the odds of reporting decreased efficacy at the workplace were 7.20 times higher. Incident depressive symptoms were associated with an intermediate impact on workplace function. Participants whose symptoms were resolved showed some persistent difficulties in workplace function but these effects were substantially lower than those for groups with chronic and incident depressive symptoms.

TABLE 3. STUDIES OF SCREENING FOR DEPRESSION IN WORKERS ASSOCIATED TO TREATMENT

Author	Methodology	Results
Lee 2018[35]	Systematic review of clinical trials that evaluated the effects of antidepressants on functionality at work. We selected papers published until 07/28/2017 in databases or search engines: Medline, ClinicalTrials.gov, Google Scholar.	Thirteen comparative clinical trials with placebo and four active comparators reported the efficacy of antidepressants on subjective measures of workplace impairment. Overall, antidepressant treatment has improved standardized measures of workplace functioning (for example, Sheehan Disability Scale work item). Evidence available suggests that antidepressant treatment improves workplace outcomes in MDD. The increase with other interventions may, additionally, facilitate the return to pre-morbid levels of functioning and return of patients to work (for example, lifestyle changes, cognitive-behavioral therapy, work-directed interventions, sleep normalization).
Beiwinkel 2017[36]	Clinical trial using the online tool "HelpID" based on cognitive behavioral therapy, mindfulness and counseling containing interactive content, videos, audios, graphics and others to promote education for depression, self-knowledge and relaxation, among others. The intervention was weekly, from 30 to 45 minutes. The Patient Health Questionnaire (PHQ9) and Beck Depression Inventory (BDI II) questionnaires were applied before, at the end of the 12 week intervention and after 24 weeks.	180 participants were randomized into intervention group (n = 100, final adhesion of 31) and control (n = 80, final adhesion of 27). The control group received informative texts on depression. Both groups presented a significant reduction of absenteeism in -67.23%, P <.001 in the intervention group and -82.61%, P <.001 in the control group. There was no significant difference in absenteeism reduction between the two groups (P = 0.07). A significant difference between groups in favor of the intervention group was found for PHQ9 (P <0.001), which corresponds to a mean effect size. For those in BDI-II, a significant difference was found between the posttreatment groups (P = 0.004), which corresponds to a moderate effect size. In the intervention group, 63% (63/100) of the participants showed a reliable change of symptoms from baseline to post-intervention and were classified as responders. In the control group, 33% (27/80) were classified as responders. The difference in the reliable change of symptoms between the intervention and the control group was significant (p <0.001). This resulted in an NNT of 4.08.

Author	Methodology	Results
Hirsch 2017[37]	Clinical trial using myStrenght digital tool with content based on cognitive behavioral therapy, religion, mindfulness, mood monitoring and others. The intervention group accessed the content freely during the 26 weeks of the study. The control group received e-mails with educational content on depression. The Depression, Anxiety, and Stress Scale (Dass21) questionnaire was applied at the beginning of the intervention and after 14, 60 and 180 days.	96 participated in the intervention group and 69 in the control group. The primary outcome of interest is the change in depression score over time. Both participants in the experimental study and active control experienced a reduction of depressive symptoms over time. Depressive symptoms, especially mild ones, tend to decrease, even without intervention, on the account of time. On average, study participants in the intervention group accessed the myStrength platform 6.09 times during the 26-week study period. Receiving mental health treatment, such as outpatient therapy or taking antidepressant medication, was an independent predictor of depression score reduction over time (P = .026). The main effect of time was statistically significant, which means that, overall, a reduction of 0.83 in the depression score was achieved at each time point (P = 0.002). This main effect finding is qualified by the interaction group x time (P <.001). Taking into account potential confounding factors, the experimental group experienced an accelerated course of reducing symptoms of depression to a factor 1.35 times faster than the control group.
Sarfati 2017[38]	Clinical trial that seeks to compare differences in productivity and functionality at work between intervention groups of patients with depression treated with escitalopram and eight weekly sessions of cognitive behavioral therapy by telephone vs. control group treated with escitalopram. The Montgomery-Åsberg Depression Rating Scale (Madrs), Employment Absence and Productivity Scale (Leaps), Work Performance Questionnaire (HPQ), and Sheehan Disability Scale (SDS) questionnaires were applied.	Among the 99 randomized patients, 86 completed the 12-week study. Remission of symptoms, irrespective of treatment, was associated with significant improvement in work performance, by the Leaps productivity subscale, by the overall HPQ performance, and by the SDS work/school item; a non-significant trend (P = 0.08) was observed with the HPQ productivity subscale. Effect sizes indicate small to medium effects likely to be clinically significant.
Imamura 2015[39]	Clinical trial that investigated the preventive effect for depression in Japanese IT company workers from an online cognitive behavioral therapy program. Intervention group (n = 381) participated in six weekly sections of the online program, control group (n = 381) received e-mails with nonspecific monthly stress management tips over six months. To evaluate the incidence of depression after 6 and 12 months, the Beck Depression Inventory - I (BDI-II) and Kessler's Psychological Distress Scale (K6) questionnaires were used.	At the end of six months, 272 (71.4%) participants in the intervention group and 320 (84.0%) of the control group completed the follow-up study. After 12 months, 239 (62.7%) participants from the intervention group and 272 (71.4%) from the control group completed the follow-up research. Dropout rates were significantly higher in the intervention group at both the six-month follow-up (p <0.01) and at the 12-month follow-up (p = 0.01). Participants in the intervention group had a significantly lower incidence than the control group at the six-month follow-up (p = 0.07) and a significantly lower incidence at the 12-month follow-up (p <0.01). The hazard ratio (HR) of major depression for the intervention group compared to the control group was 0.22 (95% CI 0.06-0.75) during the 12-month follow-up. At six months of follow-up, the relative risk (RR) of having major depression (MD) in the intervention group was 0.30 (p> 0.05). In the 12-month follow-up, the relative risk of having major depression in the intervention group was 0.20 (p <0.01); the number needed to achieve the prevention of one case of MD onset was 32 (95% CI 19-100).
Lerner 2014[40]	The study aimed to evaluate the improvement of the functionality at work in workers over 45 years of age with depression and with limitations at work. The intervention group was exposed to eight telephonic sessions of cognitive behavioral therapy of 50 minutes every two weeks with experienced psychologists. The control group received standard care of referral to the physician. A total of 380 participants completed the study. Patient Health Questionnaire-9 (PHQ-9), Primary Care Screener for Affective Disorder and Work Limitations Questionnaire (WLQ) were applied.	At baseline, 39% of participants in the overall sample had persistent depressive disorder, 25% had major depression, and 36% had both. Among those with persistent depressive disorder and those with persistent depressive disorder and major depression, 73% (N = 192 of 264) had moderate symptoms and 27% (N = 72 of 264) had severe symptoms. The intervention group improved significantly in each outcome, and the improvements were significantly higher than those observed for the usual care group. The loss of labor productivity improved significantly by 44% (p <0.001) in the intervention group compared with 13% (p <0.001) in the usual care group. Improvements measured by the four WLQ work performance scales were significant in favor of the intervention group. Absences decreased 53% in the WFI group (p <0.001) versus 13% in the usual care group (p = 0.31) (p <0.001 for the difference in change). The mean severity scores for depression symptoms dropped by 51% (p <0.001) in the intervention group versus 26% (p <0.001) in the usual care group (p <0.001 for the difference in change).
Volker 2015[41]	A clinical trial that evaluated, in workers with depression symptoms on leave for any disease for 4 to 26 weeks, the effects of an online intervention with content in five modules: psychoeducation, cognitive perception of return to work, problem-solving skills, management of pain and fatigue, prevention of relapse with the purpose of promoting partial or total return to work. The control group received usual care. The tool notifies via e-mail the occupational doctor that monitors and advises the worker during the leave.	A total of 220 workers were allocated initially in the intervention group (n = 131) and control (n = 89). Return to work presented higher and earlier rates of return to work in the intervention group. Partial or total return of 84% (72/86) in the intervention group vs. 87.7% (114/130) in the control group and total early return to work with difference of 47 days in the intervention group compared to the control group; however, this difference was not statistically significant.

Author	Methodology	Results
Imamura 2015[42]	762 IT workers were randomized into a clinical trial, which sought to evaluate the improvement of work engagement between intervention group exposed to a weekly online behavioral cognitive behavioral therapy program of 30 minutes in six modules vs. control group exposed to emails with simple stress management tips. After three and six months, work engagement was measured. The Utrecht Work Engagement Scale (Uwes), WHO Health and Work Performance Questionnaire (HPQ) and Beck Depression Inventory II (BDI-II) questionnaires were applied.	At the end of three months, 270 (70.9%) participants from the intervention group and 336 (88.2%) from the control group completed the follow-up study. At the six-month follow-up, 272 (71.4%) participants from the intervention group and 320 (84.0%) from the control group completed the follow-up research. The program showed a significant effect on Uwes (P = 0.04), but at low intensity of effect: 0.11 (95% CI, -0.05 to 0.27) at three months of follow-up and 0.16 95% CI, 0.0007 to 0.32) at six months follow-up. The program showed a marginally significant effect on days of sick leave in the last three months (P = 0.07), with small effect sizes: -0.16 (95% CI -0.32 to 0.0003) at three-month follow-up and -0.14 (95% CI -0.30 to 0.02) at the six-month follow-up. The conclusion of the study was positive results in the work engagement through the program, effect partially explained with the improvement of depression symptoms.
Kröger 2015[43]	26 workers on leave due to depression were divided between usual behavioral cognitive therapy (control group, n = 13) and work-related cognitive behavioral therapy. Each group received around 24 sessions of psychotherapy. The aim of the study was to compare the improvement of depression symptoms and absenteeism between the groups. Beck Depression Inventory (BDI), Life Satisfaction Questionnaire (FLZ) and Symptom-Checklist 90-Revised (GSI) questionnaires were applied.	All participants reported a BDI score ≥ 15 points. The mean pre-treatment BDI score was 20.58 (SD ± 5.20), indicating a moderate level of depression. Absenteeism was significantly reduced in both types of treatment. There was no difference between groups in terms of early partial return to work (p = 0.722). Eight versus six employees in the intervention and control group, respectively, returned to the work place on a part-time basis. For both types of treatment, BDI and GSI scores decreased significantly over time, while FLZ scores increased significantly.
Geraedts 2014[44]	The clinical trial tested the effects on absenteeism and symptoms of depression in workers not on leave for depression from an online Happy @ Work self-help program compared to usual care. This tool is based on problem-solving treatment (PST) and cognitive therapy (CT) and a guideline to help employees prevent work-related stress. The Trimbos and iMTA Questionnaire on Costs Associated with Psychiatric Illness (TiCP), Short Form Health and Labor Questionnaire (SFHLQ), Center for Epidemiologic Studies Depression Scale (CESD), Maslach Burnout InventoryGeneral Scale (MBI), WHO Health and Work Performance Questionnaire (HPQ) were applies, among others.	A total of 231 participants were included in the study, of which 116 were in the intervention group and 115 in the control group. Of the 231 participants, 10 (4.3%) used medication without psychological treatment, 24 (10.4%) received psychological treatment, but no medication, and four participants (1.7%) used both medications and received psychological treatment in the beginning of the study. All participants had improved depressive symptoms and this improvement was sustained over time. However, the estimated overall mean difference between groups over time was not significant. There were improvements between baseline and posttreatment assessment in the secondary outcomes, and these improvements were sustained over time, but there were no significant differences between groups over time. The total between the effect sizes of the group for secondary outcomes was small. The result of absenteeism was expressed in the duration of absenteeism during the period between two evaluations. Therefore, it is not possible to study whether there was an increase or decrease in the duration of absenteeism over time, but only the differences between the groups regarding the duration of absenteeism can be examined. The estimated overall mean difference between groups over time was not significant.
Tan 2014[45]	Systematic review of clinical trials of any intervention in an occupational setting for the prevention of depression. Articles were searched in Medline, PsycInfo and Embase databases.	Most of the included studies used cognitive behavioral therapy (CBT) techniques. The overall standardized mean difference (SMD) between the intervention and control groups was 0.16 (95% CI 0.07, 0.24, P = 0.0002), indicating a small positive effect. A separate analysis using only CBT-based interventions generated a significant SMD of 0.12 (95% CI 0.02, 0.22, P = 0.01). The results indicate that a number of different depression prevention programs produce small positive effects in the workplace. When analyzed separately, CBT-based interventions significantly reduced levels of depressive symptoms among workers. These results demonstrate that appropriate evidence-based interventions in the workplace should be part of efforts to prevent the development of depression. In conclusion, there is good quality evidence that universal mental health interventions can reduce the overall level of depression symptoms in workers. Specifically, CBT-based interventions in the workplace are effective in reducing universal symptoms for depression. Further research is required to determine the extent to which such interventions can prevent new cases of depression and establish economic and practical strategies for large-scale implementation. Overall, the results of this review provide support for occupational mental health interventions and raise the imperative that depression should no longer be ignored in health promotion programs in the workplace.
Phillips 2014[46]	Clinical trial that evaluated the effects on depression symptoms in workers of an online self-help program based on cognitive behavioral therapy, lasting five weeks and evaluating the effects after 6 and 12 weeks. The program has five modules of one hour each and weekly. The Work and Social Adjustment Scale (WSAS) and Patient Health Questionnaire-9 (PHQ-9) questionnaires were used.	In the experimental and control groups, depression scores improved in six weeks, but the loss of participants was high. There was no evidence of a difference in the median effect of MoodGYM treatment on WSAS, nor for a difference in any of the secondary outcomes.

Author	Methodology	Results
Lam 2013[47]	The clinical trial sought to compare improvement in symptoms of depression and functionality at work among workers with major depression with participants in a group exposed to cognitive behavioral therapy (CBT) by phone + escitalopram and a group exposed only to escitalopram. The Montgomery-Asberg Depression Rating Scale (Madrs), Sheehan Disability Scale (SDS), Lam Employment Absence and Productivity Scale (Leaps), Health and Work Performance Questionnaire (HPQ) were applied.	After randomization, 48 were allocated to the telephone CBT group and 51 to the escitalopram group. There were 40 (83%) patients evaluated at the outcome of 12 weeks for the CBT + escitalopram group and 46 (90%) for the escitalopram group. There was significant improvement in Madrs change scores within each treatment condition, with large start point effect sizes at the end. However, there was no significant difference between groups. In the analysis, response rates were 63% in the CBT + escitalopram group and 61% in the escitalopram group, and remission rates were 56% and 53%, respectively (p = 0.74). The SDS item of work/function showed improvement within each treatment condition, but there were no significant differences between the treatment conditions. The other work scales showed significant differences between the treatment conditions favoring CBT + escitalopram.
Hees 2013[48]	Clinical trial evaluating the effects of sessions with occupational therapists on return to work of workers on leave for at least eight weeks due to major depression compared to workers who received usual care. A total of 18 sessions, nine individual, eight in group and one with the employer were applied in the intervention group. The outcomes measured were the rates and delay of partial or total return to work, absenteeism and variation of the depression symptoms. The Hamilton Rating Scale for Depression (HRSD) and Utrecht Coping List (UCL) questionnaires were applied, among others.	Both groups decreased significantly in their hours of absenteeism (p <0.001), with the largest decrease between 6 and 12 months (p <0.001). However, there were no significant differences between the groups. Over time, participants in the intervention group had greater improvement in depression symptoms than in the control group, both in terms of severity (p = 0.03) and long-term remission (HRSD ≤ 7, OR = 1, 8, 95% CI 1.0 to 3.3). In addition, the percentage of participants achieving sustainable remission - defined as remission for ≥ 6 months - was higher in the intervention group (92%) than in the control group (69%; p = 0.04). Both groups decreased significantly in their work limitations (all three WLQ scales p <0.001), with the greatest decrease between 6 and 12 months (Output: p = 0.01, Time Management: p = 0.02, Mental/Interpersonal: p = 0.02). Likewise, both groups increased the work efficiency (p <0.001), with the highest increase between 6 and 12 months (p = 0.01). However, no significant differences were found between groups for these measures.
Vlasveld 2013[49]	The clinical trial sought to evaluate the effectiveness of a collaborative care program to promote return to work (RTW) in workers on leave for 4 to 12 weeks for major depression compared to usual care. The intervention involves 6 to 12 sessions of problem-solving therapy, use of antidepressants in selected cases, self-help manuals, and meetings between worker and employer. The Patient Health Questionnaire (PHQ-9) was used.	126 participants were included in the study and were randomized to either the usual care group (N = 61) or the collaborative care group (N = 65). Participants in collaborative care did not differ significantly from usual care participants in the odds of not achieving remission or response from depression (p> 0.05). For the participants who achieved remission, the mean time to first remission was 6.5 months in the collaborative care group (N = 27/65) and 7.9 months in the usual care group (N = 29/61). Within one year of follow-up, 64.6% of collaborative care participants and 59.0% of usual care participants had achieved long-lasting and complete RTW. The mean duration of complete and long-term RTW, calculated from day of randomization, was 190 days (DP of 120 days) in the collaborative care group and 210 days (DP of 124 days) in the usual care group.
Raiskila 2013[50]	The study evaluated the effectiveness of a multi-professional program involving psychotherapist, psychiatrist, social worker, among others, in order to promote support for professional and personal stressors. The program offers courses and sessions based on cognitive behavioral therapy and principles of psychodynamics, workplace visits and assessments associated with employer support and occupational health service, family support with convening family members. The Beck Depression Inventory (BDI) and the Structured Clinical Interview for DSMIV (SCID I and II) were applied.	A total of 355 individuals were referred to the project, and 283 of them were randomized to the intervention (N = 142) and control (N = 141) groups. The selected workers had BDI scores higher than 9. According to SCID I interviews, 34.3% of participants in the intervention group (N = 134) presented mild depression, 59.0% moderate and 6.7% severe depression at the beginning of the study. In the control group (N = 100), the respective rates were 49.0%, 45.0% and 6.0%. The mean BDI score at the beginning of the study was 20.8 in the intervention group and 19.3 in the control group and, after one year of follow-up, 9.1 and 8.8, respectively. The mean reduction in BDI scores in the intervention group was 11.6 and 10.8 in the control group. The decrease was statistically significant in both groups (P <0.001). The only significant difference between the study groups was the decrease in BDI scores above 9 points during the one-year follow-up period, which occurred in two-thirds of the intervention group and half of the control group (P = 0.013).
Ahola 2012[51]	The study sought to promote the prevention of active workers through skills training sessions. The intervention consisted of four half-day sessions, which were held for one or two weeks. The skills involved principles of lifelong learning, organizational change management practice, social conflict resolution, career management, among others. The Beck Depression Inventory (BDI) questionnaire and the Job Content Questionnaire were applied.	A total of 43 medium and large organizations were contacted and had the opportunity to participate in a study about an intervention program. The final study population consisted of 566 people (79%), with 296 (80%) in the intervention group and 270 (77%) in the comparison group. In the follow-up, the odds of depression were lower in the intervention group (OR = 0.40 95% CI 0.19 to 0.85) than in the comparison group when adjusted for initial depressive symptoms, work stress, and demographic data. The odds of depression among those with stress at work (OR = 0.15, 95% CI 0.03 to 0.81) were lower after the intervention. There was no statistically significant effect among those with depressive symptoms at baseline.

Author	Methodology	Results
Lerner 2012[52]	The clinical trial sought to evaluate the efficacy of a multifaceted telephonic program for workers with depression and lost productivity at work. The program involves coaching, coordination of care with negotiation of a therapeutic plan, education about depression and its treatment, referral to medical treatment, use of cognitive behavioral therapy strategies. The Work Limitations Questionnaire (WLQ) and Patient Health Questionnaire 9 (PHQ-9) questionnaires were applied.	79 workers were randomized into the control group (27) and the intervention group (52). All results improved significantly (p <0.01) in the intervention group. The results from the control group were worse compared to baseline or did not improve significantly. The magnitude of the improvement in all outcomes was significantly higher in the intervention group (p <0.01). Within the intervention group, job performance improved an average of 18.1 points for time management, 10.9 points for physical tasks, 11.8 points for interpersonal mental work tasks and 14.2 points for exit tasks. These represent between 20% and 50% of the initial mean of the WLQ scale. The loss of work productivity for the intervention group declined from 10.3% (SD = 4.3) to 6.8% (SD = 4.3), for an average improvement of 3.5 percentage points (p < 0.01). Absence in the intervention group improved from 1.7 (SD = 1.7) to 1.0 day (SD = 1.2 p <0.01). Loss of productivity due to absences improved 7.1% (p <0.01).
Furukawa 2012[53]	Clinical trial that sought to evaluate the effectiveness of an eight-session cognitive behavioral therapy program by telephone in active workers with the purpose of reducing presenteeism and symptoms of depression. In both the control group and the intervention group, a worker assistance program for diagnosis and stress reduction was available. The K6, Health and Work Performance Questionnaire (HPQ) and Beck Depression Inventory II (BDI-II) were used.	The planned sample size was 108 per group, but the test was interrupted early because of the low participation rate. In total, 118 individuals were randomized, of which 58 were in the intervention group and 60 in the control group. The BDI-II scores decreased from the mean of 17.3 at the baseline to 11.0 in the intervention group and to 15.7 in the control group after four months (p <0.001), with effect size at 0.69 (95% CI 0.32 to 1.05). However, there was no statistically significant reduction in absolute or relative presenteeism.
Sandahl 2011[54]	A sample of 120 office workers on prolonged leave of over 90 days due to work-related depression was distributed to focal psychodynamic therapy (FGT), cognitive therapy (CGT) or a comparison group (CC). The study sought to evaluate the effectiveness of the intervention in promoting return to work.	In the six-month telephone interview, 74% of the patients in the therapy group reported that they were satisfied or very satisfied with the group therapy treatments, and 75% reported that they felt better or recovered. There was no difference in this respect between the two group treatments. In the 12-month follow-up, 69% reported that they were working part-time or longer. The pattern of return to work differed somewhat between groups, but this can be explained by different patterns of inclusion. Therefore, the conclusion was that even with regard to return to work, there was no difference between the three treatment conditions.
Lexis 2011[55]	Clinical trial sought to evaluate the effectiveness of 10-12 sessions of psychotherapy based on principles of problem-solving therapy and cognitive behavioral therapy in the prevention of long-term absenteeism in high-risk workers with symptoms of depression. The Balansmeter, Hospital Anxiety and Depression Scale (HAD Scale), Short Form Health Survey (SF-36), Job Content Questionnaire, among others, were applied.	A total of 139 employees were included in the study and randomized to the intervention group (n = 69) or the control group (n = 70). A significant difference in the total duration of absence due to illness was found between the intervention (27.5 days) and the control group (50.8 days) at the 12-month follow-up with a 46% reduction (p = 0.017). The intervention group showed a non-significantly lower proportion of long-term absenteeism episodes compared to the control group (p = 0.127) at the 12-month follow-up. Regarding the complaints of depression, significant differences were observed after 6 and 12 months of follow-up in favor of the intervention group, with a reduction of 19.2% and 19.8%, respectively, with a number needed to treat (NNT) in 5.2 (95% CI 2.7 to 55.5) and 5.0 (95% CI 2.7 to 32.1), respectively.
Farzanfar 2011[56]	Clinical trial comparing the efficacy of an automated screening program associated with psychoeducation, counseling for self-help measures, and specialized follow-up versus isolated, telephone-based screening for workers with stress and untreated symptoms. The questionnaires used were Work Limitation Questionnaire, Medical Outcomes Questionnaire Short Form-12, Patient Health Questionnaire 9, Perceived Stress Scale 4 and WHO-Five Well-being Index.	A total of 164 workers were randomized into the intervention (87) and control (77) groups. Those in the intervention group showed a significantly greater reduction in depression (p ≤ 0.05) at three months, a non-significant improvement in overall mental health at six months (p ≤ 0.10), as well as a significantly greater improvement in subscale of the work limitation questionnaire, at the mental-interpersonal scale (p ≤ 0.05) at three months and at the time and scheduling scale (p ≤ 0.05) at six months. Based on the analysis, participants in the intervention group found the system easy to use (84% reporting very easy or slightly easy to use), friendly (80% very or slightly friendly), appropriately rhythmic (67%) and informative (76% reporting very or slightly informative). In addition, 65% reported that the system was very or partially useful and 47% agreed that the system reduced the time spent at the doctor.
Bee 2010[57]	Clinical trial evaluated the effects of telephone sessions of cognitive and behavioral therapy on symptoms of depression and productivity in workers with symptoms of depression and history of absenteeism in the last ten months. The questionnaires applied were the 34-item Clinical Outcomes in Routine Evaluation Outcome measure (Core-OM), Hospital Anxiety & Depression Scale (Hads), Work and Social Adjustment Scale (WSAS) and WHO Work Performance Questionnaire.	53 workers were randomized, of which 26 were in the intervention group. Although the clinical results were not statistically significant, the direction of the effect favored the intervention, which was associated with moderate effects sizes in clinical outcomes and in the labor productivity score.

Author	Methodology	Results
Martin 2009[58]	Systematic review and meta-analysis of published clinical trials between 1997 and 2007 to evaluate the effects of occupational health promotion programs on symptoms of depression or anxiety. The intervention aimed at mental health, directly or indirectly, through a known risk factor for depression or anxiety. The revised interventions were limited to those delivered at the workplace.	In all, 22 studies met the inclusion criteria, with a total sample of 3,409 post-intervention workers, and 17 of these studies were included in the meta-analysis, representing 20 intervention-control comparisons. The pooled results indicated small but positive overall effects of interventions for symptoms of depression [SMD 0.28, 95% confidence interval (CI 95%), 0.12-0.44] and anxiety [SMD 0.29, 95% CI 0.06-0.51], but no effect on composite mental health measures [SMD 0.05, 95% CI 0.03-0.13]. Interventions that included a direct focus on mental health had benefit in the symptoms of depression and anxiety, as well as interventions with an indirect focus on risk factors.
Nakao 2007[59]	A cohort study of 283 Japanese workers exposed to a worker assistance program (EAP) aimed at improving the symptoms of depression. The program offered psychological counseling by email or telephone, which was free and anonymous, and referral to a psychiatric clinic affiliated with the institute. In addition, work-related mental health seminars were held for all employees five times a year. The Hamilton Depression Scale (HAM-D) and Job Content Questionnaire (JCQ) questionnaires were applied.	In the EAP group, scores on the full-scale HAM-D decreased significantly during the study. The following results were obtained for the total sample: HAM-D scores decreased by 149 people (53%), remained unaltered in 27 people (10%) and increased in 107 people (38%). In the EAP group, changes in the HAM-D scores for suicidal thoughts, agitation, psychomotor retardation, guilt, and depressed mood were significant. Specifically, 22 men in the EAP group responded positively to the suicidal thoughts item of HAM-D at baseline. The total scores of these 22 subjects decreased significantly over the two-year period, and 19 subjects (86%) reported no suicidal thoughts at the end of the study period. The total HAM-D at the beginning of the study did not differ significantly between the PAD group and the reference group, and there were no significant changes in the total scores and items in the reference group during the intervention period. The three JCQ scores at baseline were not significantly different between the EAP group and the reference group.
Wang 2007[60]	A clinical trial that sought to evaluate the effectiveness of a telephone depression screening and monitoring program for workers with depression. The structured telephone intervention program systematically evaluated treatment needs, facilitated entry into personal treatment (psychotherapy and antidepressant medication), monitored and supported adherence to treatment, and offered a structured psychotherapeutic intervention by telephone. The Quick Inventory of Depressive Symptomatology (QIDS-SR) and WHO Health and Productivity Questionnaire (HPQ) questionnaires were applied.	QIDS-SR scores were significantly lower at intervention than the usual care group at 6 and 12 months. The proportion whose symptoms improved substantially (50% improvement in QIDS-SR) was also significantly higher among interventions than usual care, but not until the 12-month evaluation (30.9% vs. 21.6%, OR = 1.7). The proportion of participants with recovery (QIDS-SR ≤ 5) was also significantly higher in the intervention than the usual care group, but not before 12 months (26.2% vs. 17.7%, OR = 1.7). The scores in the effectiveness measure of hours worked were significantly higher in the intervention than in the usual care group at 6 and 12 months. This overall effect was due to significant improvements in job retention (92.6% vs. 88.0% in 12 months, OR = 1.7) and hours worked among the participants. Participants in the intervention group were significantly more likely than those in usual care to receive any special mental health treatment (OR = 1.6), but somewhat less likely to receive any treatment of depression in primary or non-medical care (OR = 0.6-0.7). The average number of treatment contacts in all occupations (including care manager contacts) was almost twice as high in the intervention versus the usual care group (12.7 vs. 6.5, t = 5.7, p <0.001).
Schene 2007[61]	Clinical trial that sought to evaluate the effects of occupational therapy added to the usual care in workers with depression and absenteeism. The intervention consists of multiple phases seeking to clarify the activity of the job, promote preparation for reintegration to work, monitor the progress of return to work and advise on difficulties of adaptation. The Beck Depression Inventory (BDI) and the Questionnaire Organization Stress (QOS) were used.	The percentage of patients who met the DSM-IV criteria for Major Depressive Episode decreased from 100% to 29% in the control group and to 44% in the intervention group. This recovery was statistically significant (p = 0.000), particularly in the first six months (p = 0.007), but not in the following six months (p = 0.23). The total BDI score decreased from 23.6 to 14.0 for the control group and from 27.1 to 12.3 for the intervention group, with significant interaction (p = 0.015), which did not occur in the 12 months (p = 0.950), but emerged between months 13 and 42 (p = 0.032). The time to return to work was measured between the groups. In the intervention group, the mean time to return to work was 207 days. 299 days in the control group, with a relative risk of RR = 2.71 (95% CI, 1.16-6.29, p = 0.01).
Mino 2006[62]	The clinical trial sought to evaluate the effectiveness of a stress reduction program in preventing depression in workers who engaged in high-stress activities. The stress management program included lectures on stress perception, measures to address it, stress management records, and e-mail counseling. The General Health Questionnaire (GHQ), Center for Epidemiologic Study for Depression (CES-D), Questionnaire of Work-Related Stress and Effort-Reward Imbalance Questionnaire were used.	58 workers were randomized into intervention group (28) and control group (30). In the intervention group, a significant improvement in the depressive symptoms was observed, compared to the control group through the CES-D questionnaire. In the multiple regression analysis, the effect of stress control on depressive symptoms at follow-up was significant (p = 0.041).

Author	Methodology	Results
Smith 2002[63]	The clinical trial evaluated the effects of depression treatment offered by 12 primary care centers on reducing rates of unemployment and interpersonal conflict at work in workers with depression. Primary care physicians worked on providing treatment for depression and nurses worked on monitoring symptoms and adherence. Of the 262 patients in the baseline sample eligible for this analysis, 219 (83.6%) were followed up at one year.	The intervention significantly increased subsequent employment in one year by 10.1% (p = 0.04, CI 90% 2.8-17.4%), reduced unemployment by 5.8% (CI 90% 1.6 -10.0%) and underemployment at 4.3% (CI 90% 1.2-7.4%). Of the difference of 10.1% in employment between intensive and usual care patients in one year, 3.4 percentage points are explained by the intervention. The additional 6.7 percentage points represents the ability to intervene to reduce the length of the periods of unemployment/underemployment among those who reported unemployment/underemployment in six months. Among those employed in one year, intensive care patients were significantly less likely than usual patients to report workplace conflicts in the following year (8.1% vs. 18.9%, p = 0.04).

EVIDENCE APPLICATION – RECOMMENDATION

For the presentation of the recommendations, the suggestion of conduct was made with the preparation of the recommendations by the authors of the technical guideline, considering the characteristics of the evidence synthesis and being submitted for validation of all the authors participating in the work group. The degree of recommendation comes directly from the available strength of the studies included according to Oxford[69] and the use of the Grade[70] system.

Conflict of interest

There is no conflict of interest related to this review to be declared by any of the authors.

Final statement

The Guidelines Project, an initiative of the Brazilian Medical Association in conjunction with the Specialty Societies, aims to reconcile medical information in order to standardize behaviors that aid the physician's reasoning and decision making. The information contained in this project should be submitted to the evaluation and critique of the physician responsible for the conduct to be followed, in view of the reality and clinical condition of each patient.

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