

Mental Health Promotion through training for voluntary agents in the workplace. A longitudinal study.

Promoción de la Salud Mental mediante formación a agentes voluntarios en el Medio Laboral. Un estudio longitudinal.

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Abstract

Introduction: This longitudinal study presents the first data (at six and twelve months) on the benefits of implementing a training on first aid dispensing and mental health promotion to a network of volunteer agents in organisations. In addition to training, the action focused on the creation of exchange and follow-up groups. The aim was to improve psychosocial conditions in the working environment, to detect psychopathological symptoms early, to provide support techniques, to orientate towards health services and to encourage actions that promote well-being. **Material and Methods:** 685 employees from 22 companies participated (477 in the intervention group and 208 in the control group). The following instruments were used: 1) Demographic and employment data sheet; 2) General Health Questionnaire (GHQ-12); 3) Five items of The Columbia-Suicide Severity Rating Scale, and 4) Maslach Burnout Inventory (MBI General Survey). **Results:** The intervention group showed significant improvements over time in the dimensions of depersonalisation and self-fulfilment. Differences in General Health, depersonalisation and personal accomplishment were also identified between this group and the control group. **Conclusion:** The implementation of a network of mental health promoters in organisations improved key aspects of employees' psychological well-

being, confirming the desirability of further study in these settings and underlining the effectiveness of structured and sustainable interventions for the promotion of mental health in the work environment.

Keywords: mental health training; health promotion; prevention; suicide; work environment.

Resumen

Introducción: Este estudio longitudinal presenta los primeros datos (a los seis y a los doce meses) de los beneficios de implementar una formación sobre dispensación de primeros auxilios y promoción de la salud mental a una red de agentes voluntarios en organizaciones. Además de la formación, la acción se enfocó en la creación de grupos de intercambio y seguimiento. Se buscó mejorar las condiciones psicosociales del medio laboral, detectar síntomas psicopatológicos de manera temprana, proporcionar técnicas de apoyo, orientar hacia los servicios de salud y fomentar acciones que promuevan el bienestar. **Material y Métodos:** Participaron 685 empleados de 22 empresas (477 en el grupo de intervención y 208 en el grupo control). Se utilizaron los siguientes instrumentos: 1) Ficha de datos demográficos y laborales; 2) Cuestionario de Salud General (GHQ-12); 3) Cinco ítems de The Columbia-Suicide Severity Rating Scale, y 4) Maslach Burnout Inventory (MBI General Survey). **Resultados:** El grupo de intervención mostró mejoras significativas en el tiempo en las dimensiones de despersonalización y realización personal. También se identificaron diferencias en Salud General, despersonalización y realización personal entre este grupo y el grupo control. **Conclusión:** La implementación de una red de agentes promotores de salud mental en las organizaciones mejoró aspectos clave del bienestar psicológico de los empleados, confirmando la conveniencia de continuar con el estudio en estos medios y subrayando la efectividad de intervenciones estructuradas y sostenibles para la promoción de la salud mental en el entorno laboral.

Palabras clave: formación en salud mental; promoción de la salud; prevención; suicidio; medio laboral.

INTRODUCTION

Mental disorders affect more than 900 million people worldwide (Sutar, Kumar, & Yadav, 2023) and it is estimated that more than 700,000 die each year by suicide. In a lifetime, one in three people have had or will have suicidal ideation (Wang et al., 2024). Suicidal ideation is a phenomenon in which biological, psychological and social variables interact. Therefore, it is necessary to know the protective or risk factors in order to plan preventive interventions (Evans, & Abrahamson, 2020; Gullestrup, King, Thomas, & La Montagne, 2023).

In Spain and other neighbouring countries, symptoms of mild mental disorders are treated in Primary Care (PC), with severe cases being referred to Mental Health Services (MHS). This means that many disorders could have been addressed with pharmacological treatment, or that patients with severe conditions remain on waiting lists, which contributes to overloading the MHS (Wang et al., 2021). Although developed countries have high-level health systems, they are far from having a sufficient network to meet the demand for mental health care (Wang et al., 2021), which is a social challenge with no immediate solution.

The protection and restoration of mental health are concerns of the individual and the community and consist of actions that create environments and conditions that encourage people to adopt and maintain healthy lifestyles, as well as the ability to detect signs that go unnoticed or do not reach professionals (Herrman, & Jané-Llopis, 2012). When someone suspects that they may have a mental health problem, it is common for them to think that they can solve it on their own. If it gets worse, it is normal that they have not turned to professionals, or that services are overcrowded. For this reason, "Mental Health Promoters" (MHPs) can be a support mechanism that acts as a link with health professionals (Kalra, 2012).

There is no doubt that training people on how to act in an emergency or use a defibrillator is an incalculable benefit. Similarly, having people who know how to provide psychological first aid could contribute to the early detection of disorders and help to manage these potential cases (Shah et al., 2020). Likewise, there is consensus in considering workplaces as privileged spaces to carry out health promotion actions, due to the amount of time spent in them and the special proximity with colleagues (Laranjo et al., 2015). In this environment, a high percentage of mental problems are caused by psychosocial risks (Derdowski, & Mathisen, 2023). The European Agency for Safety and Health at Work indicates that half of workers consider that stress is present in their environment (EU-OSHA, 2020). Stress and other psychopathologies tend to be denied when they are made public, but if they are addressed as an organisational problem, and not as a weakness, they can be prevented (Gascón et al., 2013).

Several research studies have described experiences on the responsibility of individuals in the management of their own health, showing the benefits of promoting health and well-being at work, especially in longitudinal studies over time (Jain et al., 2021; Jarman et al., 2016), which increases the awareness of companies and organisations, understanding that it is not an unnecessary expense but an investment that favours both individuals and the social climate and the good development of the company (Graeser, 2011; Ornek & Esin, 2020).

The results presented in this article are part of a longitudinal study aimed at suicide prevention addressed through continuous promotion of mental health in the workplace. The aim was to involve managers and workers in improving conditions so that they would be able to detect possible early symptoms of psychopathology, including suicidal ideation, learn techniques for providing support, referral to health

services and promotion of holistic health activities. There are warning indicators of mental problems and it is vital to detect them: changes in eating or sleeping habits, isolation, loss of energy, malaise, feelings of hopelessness, use of alcohol or other substances, neglect of hygiene habits, etc. (Wanigasooriya, et al., 2021). These signs can warn of mental and emotional exhaustion, depression or other pathologies, and can manifest themselves in multiple ways, including as a heart attack or suicide.

High levels of stress are also reflected in poor company performance and higher accident rates due to errors (O'Connor, Thayer & Vedhara, 2021). The European Union (EU-OSHA, 2020) devotes special attention to mental health and the prevention of work-related stress. Therefore, the aim of this study was to create a network of WMP in organisations through training actions and exchange and monitoring groups to improve psychosocial factors, detect signs of pathology and promote well-being among employees.

In this initial phase, the aim was to observe the trend of the results during the first year of the longitudinal study. It was considered that adequate on-the-job training of MHPs, as well as participation in the network and follow-up by the research team, would contribute to improving health indices, reducing the risk of suicide, which is expected to be confirmed in the five-year research, through measures of variables related to mental health, well-being or reduction of suicidal ideation.

The following hypotheses were established for this study:

Hypothesis 1: employees and managers of those companies in which mental health training groups (with their corresponding follow-up) operate, show improvements over time in terms of health indices, burnout and a decrease in possible suicidal ideation.

Hypothesis 2: the employees and managers of the companies that make up the intervention group (with actions of the mental health promotion agents) will show differences with respect to the control group in terms of health indices, burnout and reduction of suicidal ideation.

METHODOLOGY

A longitudinal study is currently being carried out in 47 companies in Aragon (N.E. Spain) in its three provinces of Huesca, Teruel and Zaragoza. However, in the present article, the results of the first phase of the study in the province of Zaragoza are shown, therefore, this study was a pragmatic parallel controlled trial consisting of two arms with pre-, 6-month follow-up, and 12-month follow-up measurements. Data collection was conducted from February 2023 to June 2024. At all three assessments, participants received information sheets, informed consent forms and a booklet of questionnaires.

The project was approved by the Clinical Research Ethics Committee of Aragón (CEICA, PI22/217). The procedures carried out complied with ethical standards and with the 1975 Declaration of Helsinki. The professionals were informed that their participation was voluntary and that the responses obtained

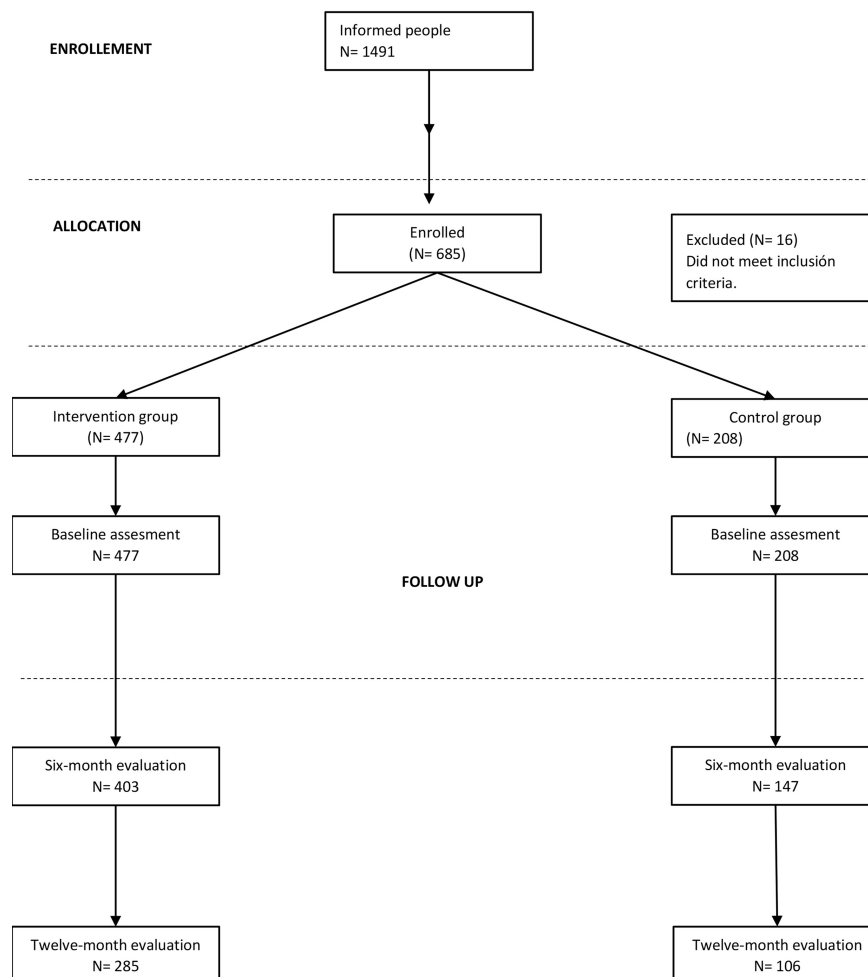
would be treated anonymously and confidentially. All of them signed an informed consent form and were subsequently informed of the results.

Participants

A total of 1491 people were informed about the objectives of the study at their workplaces. The companies were randomly assigned to one of the two groups. Thus, 477 employees belonging to the companies in the intervention group and 208 employees belonging to the organisations in the control group answered the pre-assessment questionnaires (baseline measure). Of the intervention group, 403 responded to the six-month assessment and 285 to the 12-month assessment. Of the control group, 147 employees and managers responded to the questionnaires at six months and 106 at 12 months. All participants had a personalised and anonymous key, so only the responses of those who participated in the three measurement moments were considered (figure 1).

Figure 1

Flow chart of participants during the study



The inclusion criteria for participation in either of the two groups were: a) being between 18 and 60 years old, b) having a contract in the company for at least one year and c) not suffering from any mental disorder (following the GHQ-12 screening criteria).

Instruments

In the pre- and post-evaluations, participants answered the following questionnaires:

- Demographic and labour data sheet. The following variables were collected: gender, age, cohabitation, and working time in the field.
- General Health Questionnaire (GHQ -12, Goldberg & Williams, 1988). It values general aspects of cognitive function and psychological symptoms and is used in psychiatric populations to obtain the general assessment of cognitive functioning in recent weeks. In their short version, the 12 items report four subscales: somatic symptoms, anxiety and insomnia, social dysfunction, and depression. Using the Likert scale between 0 and 3, 0 indicating always and 3 never. The Spanish validated version revealed a Cronbach's alpha of 0.76 on the global scale (Goldberg et al., 1996). In the present study, an alpha of 0.78 was obtained.
- *Maslach Burnout Inventory (MBI General survey*, Maslach, Jackson & Leiter, 1996). It provides information about the three dimensions that constitute their theoretical model of burnout: Emotional Exhaustion (EE), Depersonalization (DP), and Personal Accomplishment (PA). The questionnaire was validated in Spanish by Gil Monte (2002), who found a reliability of α : 0.89 for the EE, 0.67 for DP and 0.74 for PA. The 16 items are rated using a Likert scale on which the frequency with which the described situation has been experienced, from 0 to 6, is indicated. Thus, for example, to the question "I feel emotionally exhausted at work", the answer should inform of the frequency with which it happens, ranging from 0, never, to 6, daily. Low scores on professional efficiency and high scores in exhaustion and cynicism mean perceptions of being "more burned by work". In the present study, values of α : 0.86 for the EE, 0.69 for DP and 0.77 for PA were obtained.
- First five items of The Columbia-Suicide Severity Rating Scale (C-SSRS; Posner, et al. 2011). These questions assessed the severity of possible suicidal ideation on a 5-point ordinal scale (from 1 = wish to die to 5 = suicidal ideation with specific plan and intent).

Training

The training consisted of workshops given by psychology and medicine professionals in twelve 90-minute sessions, with a total duration of 18 hours, in groups of 6-10 people, following a theoretical-practical methodology, through which aspects related to mental health in everyday life were defined and developed. The intervention programme is briefly described in Table 1.

Table 1

Training programme for Mental Health Promoters

PSYCHOEDUCATION

- **Session 1.** Physical, psychological and social health.
- **Session 2.** Knowledge of elementary psychological problems; risk, predisposing, precipitating and maintaining factors.

INDIVIDUAL WELLBEING

- **Session 3.** Responsibility for one’s own health.
- **Session 4.** Self-care strategies: healthy lifestyles, rest habits, sport, nutrition.
- **Session 5 and 6.** Individual psychological techniques.
- **Session 7.** Recognition of precursor signs of psychopathology.
- **Session 8.** Well-being through social relationships.
- **Session 9.** Community resources and services.

WELFARE AT WORK

- **Session 10.** Knowledge of psychosocial factors related to health, as well as the resources available for their optimisation. Support dispensing techniques.
- **Session 11.** Promotion, prevention and intervention.
- **Session 12.** Review of topics and techniques learned.

Procedure: In the selected companies, all staff were invited to voluntarily attend an informative talk on mental health, psychosocial factors at work and suicide risk, giving the option to discuss the topics with the attendees. Information was also given about the MHP, what it consisted of and who could participate as agents. Those who applied as volunteers were required to commit to attending the sessions. In addition to following the workshops, these agents could participate in other more specialised dissemination activities, as well as obtain publications.

In the intervention group companies, 5 groups were formed with a total of 39 volunteer agents who were trained in MHP and who participated in subsequent exchange and follow-up activities.

Teams of participants worked in groups to identify risk factors and protective factors and were enlightened on how they directly and indirectly influence mental health. Special importance was given to the knowledge of basic emotions and their manifestations, cognitive functioning and its biases, as well as the promotion of healthy lifestyles. Emphasis was placed on knowledge, both of one's own resources and of the resources offered by the health system and the company's prevention service, emergency telephones and others. The central aspect was for participants to acquire training in psychological first aid.

The MHP agents subsequently attended follow-up sessions every two months and had the possibility of maintaining direct contact with the research group to solve doubts or in case of possible crisis situations.

Statistical analysis

Initially, the Kolmogorov-Smirnov normality test was applied to assess the normal distribution of the variables. Since the variables did not have a normal distribution, non-parametric tests were used. Subsequently, a descriptive analysis including frequencies and percentages was performed, together with Friedman's two-way analysis of variance by rank summary and Wilcoxon's paired-samples tests for variables. Kendall's W (w) was calculated as a measure of effect size. The significance level was set at $p < 0.05$, and all statistical analyses were run using SPSS software (IBM Corp, 2017).

RESULTS

Table 2 describes the baseline characteristics of the entire sample and compares the two groups. The cohort consisted of 685 participants. In the intervention group, 40.7% were female and in the control group, 34.13%. The mean age was 39.07 (SD 4.65) in the intervention group, while in the control group it was 43.3 (SD 5.11). No statistically significant differences were found between the two groups in the main study variables.

Table 2

Participants in the baseline assessment

	TOTAL SAMPLE N=685	INTERVENTION. GROUP N=477	CONTROL GROUP N=208	P-VALUE (CI)
Gender (n %)	42.04% F (288) 57.9% M (397)	40.7% F (194) 59.2% M (283)	34.13% F (71) 65.65% M (137)	.788
Age (mean SD)	41.29 (3.81)	39.07(4.65)	43.3 (5.11)	.381 (-3.27; .34)
Convivience (family living n%)	65,8% Yes (451) 34,1% No (234)	67.7% Yes (323) 32.2% No (154)	63,2% Yes (131) 36,7% No (77)	.837 (-119; .087)
Seniority (mean SD)	18.70 (10.27)	17.91 (9.82)	19.07 (8.47)	.217 (-2.03; .021)
General Health	25.71 (5.63)	24.02 (5.22)	23.94 (4.76)	.844(-12.33;16.51)
Burnout				
EE	18.16 (6.39)	19.89 (9.01)	17.64 (4.72)	.081 (-11.62; 9.29)
DP	8,58 (3.11)	7.93 (2.79)	9.02 (3.63)	.073 (-6.06; 4.77)
PA	7.74 (3.64)	8.93 (3.88)	7.01 (3.11)	.116 (-2.882; -.993)
SI	.089 (1.68)	.094 (1.91)	.070 (1.33)	.476 (-8.77; -.093)

Note. EE: Emotional Exhaustion; DP: Depersonalization; PA: Personal Accomplishment; SI: Suicide ideation

Table 3 shows the evolution of both groups at each of the three measurement points (T0, T1 and T2). In general, improvements over time were observed in the intervention group, although not in all cases they were statistically significant. They were significant in the depersonalisation dimension [$F(2.07) = 7.3942, p = .003, w = 1.603$], in the personal accomplishment dimension [$F(4.19) = 8.532, p < .001, w = 2.586$] and in the suicidal ideation variable [$F(6.04) = 8.972, p = .023, w = 4.211$]. As for the control group, the variables studied did not improve, or worsened slightly, without these differences being statistically significant.

Regarding the contrast between groups, statistically significant differences were found between the intervention and control groups in the General Health variable (T2-T1; $p = 0.038$) and (T2-T0; $p < 0.001$); in the PD depersonalisation dimension (T2-T1; $p = 0.053$) and (T2-T0; $p = 0.026$); in the PD personal accomplishment dimension (T2-T1; $p < 0.001$) and (T2-T0; $p = 0.043$), and the differences between groups in suicidal ideation (T2-T1; $p = 0.067$) and (T2-T0; $p < 0.055$) were close to statistical significance.

Table 3

Health variable scores, at baseline (T0), six months (T1) and twelve months (T2).

	Intervention group N=477	Control group N=208	P-value
General Health (mean SD)			
T0	24.02 (5.22)	23.93 (4.76)	
T1	23.36 (6.71)	24.58 (10.03)	
T2	22.18 (9.40)	26.35 (9.83)	
	$F(1.04) = 7.51, p = .171, w = .282$	$F(1.18) = 9.02, p = .095, w = .153$	
T1-T0	-.69	.70	0.817
T2-T0	-.88	2.47	0.001
T2-T1	-1.22	1.79	0.038
Emotional Exhaustion (EE)			
T0	18.89 (9.01)	17.64 (4.72)	
T1	17.11 (5.63)	18.25 (8.23)	
T2	18.36 (7.42)	19.70 (8.11)	
	$F(.93) = 6.42, p = .123, w = .317$	$F(1.01) = 7.11, p = .164, w = .236$	
T1-T0	-1.72	.74	.097
T2-T0	-.53	1.98	.171
T2-T1	-1.26	1.46	.332
Depersonalization (DP)			
T0	7.93 (2.79)	9.02 (3.63)	
T1	6.25 (3.91)	8.63 (4.34)	
T2	6.01 (4.62)	10.22 (6.11)	
	$F(2.07) = 7.3942, p = .003, w = 1.603$	$F(2.38) = 6.42, p = .062, w = 1.071$	

T1-T0	1.73	-.40	.078
T2-T0	1.94	1.20	.026
T2-T1	.26	1.61	.053
Personal Accomplishment (PA)			
T0	8.93 (3.88)	7.01 (3.11)	
T1	9.17 (4.19)	7.48 (3.81)	
T2	10.08 (4.63)	6.72 (5.03)	
	$F(4.19) = 8.532, p < .001, w = 2.586$	$F(1.78) = 5.61, p = .093, w = .624$	
T1-T0	.23	.47	.085
T2-T0	1.15	-.29	.043
T2-T1	.91	-.76	.001
Suicide ideation (SI)			
T0	.094 (1.91)	.070 (1.33)	
T1	.088 (2.02)	.077 (1.89)	
T2	0.65 (.52)	.059 (.33)	
	$F(6.04) = 8.972, p = .023, w = 4.211$	$F(2.66) = 4.85, p = .087, w = .591$	
T1-T0	-.007	.007	.163
T2-T0	-.029	.011	.067
T2-T1	-.023	.018	.055

Note. Significant differences ($p < 0.05$) are highlighted in bold.

DISCUSSION

Initial results confirmed the trend that training of mental health promoters (MHP) and their follow-up contribute, on a day-to-day basis, to improving some variables of health and well-being, as well as to reducing suicidal ideation (González-Andrade et al., 2011), bearing in mind that particularly severe cases are directed to health services in their earliest manifestations.

As indicated, the results analysed during the first year, in one of the three study provinces, are part of a longitudinal investigation aimed at suicide prevention addressed through ongoing mental health promotion in the workplace, through training and monitoring of the volunteer promoters.

The hypotheses are partially confirmed: on the one hand, hypothesis 1, the members of the companies in which the health promoters work showed statistically significant improvements in some variables related to burnout, health and suicidal ideation. On the other hand, with respect to hypothesis 2, the trend that these same variables improved in a statistically significant way in the intervention group when contrasted with the control group was confirmed. However, it was surprising not to observe statistically significant changes in the Emotional Exhaustion dimension, since, according to several studies, this variable interacts directly with the Depersonalisation dimension and, both, with the Lack of Personal Fulfilment at Work dimension (Gascón et al., 2013; Leiter, 2018). Given the sequential dependence of the latter two on the former, it was to be expected that the cycle would

occur inversely and that the first signs of improvement would be reflected in the Emotional Exhaustion variable.

Although suicidal ideation decreased in those companies in which the intervention took place, it should be noted that the initial rates were low in both groups and that the inter- and intra-group differences were not statistically significant.

It should be noted that health variables, in general, and those related to burnout, or suicidal ideation, are slow to establish and grow, therefore, it should also be understood that their decrease and disappearance cannot be instantaneous and requires a process (Derdowski & Mathisen, 2023; Leiter, 2018). Data obtained during one year of follow-up reflect a positive trend that will need to be corroborated over time (Jarman, et al. 2016).

In any case, we cannot confirm that these actions contribute directly and causally to suicide prevention, just as we cannot differentiate the contribution of road improvements, the renewal of the car fleet, advertising campaigns, or increased penalties to the reduction in traffic fatalities. All these variables contribute to the reduction in fatal accidents and the trend over time should be analysed (Nilsen, et al., 2020).

The strength is that it is a novel study, with a sample that is difficult to access and whose results from the first year of follow-up show a clear trend of improvements in mental health, which are expected to be corroborated in the following years of follow-up. By following up in the three provinces of the study and analysing the results over time, it is hoped that this type of intervention through continuing education will contribute to the understanding that suicide prevention should be understood as one of the final consequences of a true promotion of mental health in different settings.

The main limitations of the study are, on the one hand, the fact that the participants were not randomly assigned to one of the two conditions (the fact of belonging to one or the other company determined their assignment to the control group or to the intervention group) and, on the other hand, as it is a follow-up of subjects over time, it entails the phenomenon of experimental mortality. Taking these considerations into account, we can conclude that there is a positive trend in the improvement of mental health over time, which encourages both the continuation of training and follow-up activities, the inclusion of new companies in this longitudinal project and the possibility to offer the possibility to participate also to those centres that formed the control group.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

In the preparation of our manuscript, we have not used any generative artificial intelligence or AI-assisted technologies in the writing process.

CONFLICT OF INTEREST

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

AUTHOR CONTRIBUTIONS

Conceptualization: SGS, II, and AAC. Data curation: YPM, RFD, and AAL. Formal Analysis: SGS, RFD, AAC and AAL. Funding acquisition: SGS, and LX. Investigation: SGS, AAC and YPM. Methodology: SGS, AAL and II. Project administration: LX and SGS. Resources: SGS and LX. Software: RFD and AAC. Supervision: SGS and YPM. Visualization: SGS, and AAC. All authors contributed to writing—review and editing, contributed to the article, and approved the submitted version.

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REFERENCES

- Derdowski, L. A., & Mathisen, G. E. (2023). Psychosocial factors and safety in high-risk industries: A systematic literature review. *Safety science*, 157, <https://doi.org/10.1016/j.ssci.2022.105948>
- EU-OSHA (2020). Third European Survey of Enterprises on New and Emerging Risks (ESENER 3). First findings. <http://www.esener.eu>
- Evans, A., & Abrahamson, K. (2020). The influence of stigma on suicide bereavement: A systematic review. *Journal of psychosocial nursing and mental health services*, 58(4), 21-27. <https://doi.org/10.3928/02793695-20200127-02>
- Gascón S, Leiter M, Andrés E... & Martínez-Jarreta B (2013). The role of aggressions suffered by healthcare workers as predictors of burnout. *Journal of clinical nursing*, 22(21-22), 3120-3129. <https://doi.org/10.1111/j.1365-2702.2012.04255.x>
- Gil-Monte, P. R. (2002). Validez factorial de la adaptación al español del Maslach Burnout Inventory-General Survey. *Salud pública de México*, 44, 33-40: <http://www.insp.mx/salud/index.html>

- Goldberg, D.P.; Lobo, A.; Munoz, P.E.; Williams, P. (2016). Cuestionario de Salud General GHQ (General Health Questionnaire): Guia Para El Usuario; Masson: Barcelona, Spain, 1996.
- González-Andrade, F., López-Pulles, R., Gascón, S., & García Campayo, J. (2011). Epidemiological issues regarding suicides in Ecuador: an 8-year report. *Journal of Public Health*, 19(2), 161-169. <https://doi.org/10.1007/s10389-010-0372-4>
- Graeser, S. (2011). Salutogenic factors for mental health promotion in work settings and organizations. *International Review of Psychiatry*, 23(6), <https://doi.org/10.3109/09540261.2011.637909>
- Gullestrup, J., King, T., Thomas, S. L., & LaMontagne, A. D. (2023). Effectiveness of the Australian MATES in construction suicide prevention program: a systematic review. *Health promotion international*, 38(4), <https://doi.org/10.1093/heapro/daad082>
- Herrman, H., & Jané-Llopis, E. (2012). The status of mental health promotion. *Public Health Reviews*, 34(2), 1-21.
- Jain, A., Hassard, J., Leka, S., Di Tecco, C., & Iavicoli, S. (2021). The role of occupational health services in psychosocial risk management and the promotion of mental health and well-being at work. *International journal of environmental research and public health*, 18(7), 3632. <https://doi.org/10.3390/ijerph18073632>
- Jarman L, Martin A, Venn A, Otahal P, Blizzard L, Teale B, et al. (2016) Workplace Health Promotion and Mental Health: Three-Year Findings from Partnering Healthy@Work. *PLoS ONE* 11(8): e0156791. <https://doi.org/10.1371/journal.pone.0156791>
- Kalra, G., Christodoulou, G., Jenkins, R., Tsipas, V., Christodoulou, N., Lecic-Tosevski, D., ... & Bhugra, D. (2012). Mental health promotion: guidance and strategies. *European Psychiatry*, 27(2), 81-86. <https://doi.org/10.1016/j.eurpsy.2011.10.001>
- Laranjo L, Arguel A, Neves AL, and Lau Annie Y S. The influence of social networking sites on health behavior change: a systematic review and meta-analysis. *J Am Med Inform Assoc* 2015 Jan;22(1):243-256. <https://doi.org/10.1136/amiajnl-2014-002841>
- Leiter, M. P. (2018). Burnout as a developmental process: Consideration of models. In *Professional burnout* (pp. 237-250). CRC Press.
- Lubin Pigouche P., Maciá Antón A., and Rubio de Lemus, P. *Psicología Matemática II*. Universidad Nacional de Educación a Distancia. Madrid. Spain, 2005.
- Maslach, C.; Jackson, S.E.; Leiter, M.P. *Maslach Burnout Inventory*, 3rd ed.; Consulting Psychologist Press: Palo Alto, CA, USA, 1996.
- Nilsen P, Seing I, Ericsson C, Birken S A & Schildmeijer K (2020). Characteristics of successful changes in health care organizations. *BMC health services research*, 20(1), 1-8. Nilsen et al. *BMC Health Services Research* (2020) 20:147. <https://doi.org/10.1186/s12913-020-4999-8>

- O'Connor D, Thayer J F & Vedhara K (2021). Stress & health: A review of psychobiological processes. *Annual review of psychology*, 72, 663-88. <https://doi.org/10.1146/annurev-psych-062520-122331>
- Ornek, O. K., & Esin, M. N. (2020). Effects of a work-related stress model based mental health promotion program on job stress, stress reactions and coping profiles of women workers: a control groups study. *BMC public health*, 20. <https://doi.org/10.1186/s12889-020-09769-0>
- Posner, K., Brown, G. K., Stanley, B., Brent, D. A., Yershova, K. V., Oquendo, M. A., ... & Mann, J. J. (2011). The Columbia–Suicide Severity Rating Scale: initial validity and internal consistency findings from three multisite studies with adolescents and adults. *American journal of psychiatry*, 168(12), 1266-1277. <https://doi.org/10.1176/appi.ajp.2011.10111704>
- Shah, K., Bedi, S., Onyeaka, H., & Chaudhari, G. (2020). The role of psychological first aid to support public mental health. *Cureus*, 12(6). <https://doi.org/10.7759/cureus.8821>
- Sutar, R., Kumar, A., & Yadav, V. (2023). Suicide and prevalence of mental disorders: A systematic review and meta-analysis of world data on case-control psychological autopsy studies. *Psychiatry research*, 115492. <https://doi.org/10.1016/j.psychres.2023.115492>.
- Wang, C., López-Núñez, M. I., Pan, R., Wan, X., Tan, Y., Xu, L., ... & Aparicio García, M. E. (2021). The impact of the COVID-19 pandemic on physical and mental health in China and Spain: cross-sectional study. *JMIR formative research*, 5(5). <https://doi.org/10.2196/27818>
- Wang, W., Volkow, N. D., Berger, N. A., Davis, P. B., Kaelber, D. C., & Xu, R. (2024). Association of semaglutide with risk of suicidal ideation in a real-world cohort. *Nature medicine*, 30(1), 168-176. <https://doi.org/10.1038/s41591-023-02672-2>
- Wanigasooriya, K., Palimar, P., Naumann, D. N., Ismail, K., Fellows, J. L., Logan, P., ... & Ismail, T. (2021). Mental health symptoms in a cohort of hospital healthcare workers following the first peak of the COVID-19 pandemic in the UK. *BJPsych Open*, 7(1). <https://doi.org/10.1192/bjo.2020.150>