

# Healthy organizations and social capital: Promotion of wellbeing

**Edited by**

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**Published in**

Frontiers in Psychology



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ISSN 1664-8714  
ISBN 978-2-8325-2873-0  
DOI 10.3389/978-2-8325-2873-0

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# Healthy organizations and social capital: Promotion of wellbeing

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## Citation

Gil-Lacruz, M., Gil-Lacruz, A. I., Saz-Gil, I., Gimenez, G., Cosenza, J. P., eds. (2023).  
*Healthy organizations and social capital: Promotion of wellbeing*.  
Lausanne: Frontiers Media SA. doi: 10.3389/978-2-8325-2873-0

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RECEIVED 12 April 2023

ACCEPTED 23 May 2023

PUBLISHED 15 June 2023

## CITATION

Gil-Lacruz M, Gimenez G, Saz-Gil I and  
Gil-Lacruz AI (2023) Editorial: Healthy  
organizations and social capital: promotion of  
wellbeing. *Front. Psychol.* 14:1204837.  
doi: 10.3389/fpsyg.2023.1204837

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# Editorial: Healthy organizations and social capital: promotion of wellbeing

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## KEYWORDS

healthy organizations, social capital, corporate social responsibility, wellbeing, labor health

## Editorial on the Research Topic

### Healthy organizations and social capital: promotion of wellbeing

On paper, we all recognize that corporate social responsibility (CSR) promotes sustainable development, increases the satisfaction and loyalty of stakeholders and, consequently, improves the value of the organization. However, who has not thought that CSR is simply a corporate effort to improve the public image of the company? Often, CSR programs are decoupled from the core business and limited to token and marketing gestures. The dispersion in its use and in the definition of who its benefactors are means that it runs the risk of becoming a new trend without content.

Today more than ever, VUCA environments (acronym used to describe the Volatility, Uncertainty, Complexity and Ambiguity that occurs in the markets), impose on companies the need to adopt strategies that, in addition to providing them with a competitive advantage over other organizations promote its sustainability. It is essential that companies are able to retain talent and maintain the high motivation of their workers. Labor commitment facilitates the involvement of employees, both with their work and with the objectives and values of the entity in which they are integrated. This is where CSR can play a prominent role, because with proper CSR management by business leaders, the labor commitment of workers can be improved (López-Concepción et al., 2021).

Creativity, motivation and the desire to progress in the workplace require a good state of health, but not only that. More than 1 million people do not go to work on average every day. Among them, 74% were absent due to temporary disability, while the remaining 26% did so despite not being on sick leave (Randstat, 2022).

The definitions of corporate social responsibility (CSR) and Strategic Management of Human Resources (SMHR) continue to be subject to a wide and varied set of challenges (green management, sustainability, commitment, performance, satisfaction, etc.) and to multiple interpretations, as many or more, as types of agents intervene (Herrera and de las Heras-Rosas, 2020). Therefore, the potential development and measurement of the effect and consequences of these interventions have not been sufficiently explored (Herrera and de las Heras-Rosas, 2020; López-Concepción et al., 2021).

In 2018, the Global Reporting Initiative (GRI), an independent international organization that helps companies and other entities take responsibility for their impacts by providing them with a common global language to communicate them, defined a standard for companies to share, in a coordinated manner, their initiatives in relation to the promotion

of workers' health. These initiatives go beyond the "traditional" risk prevention requirements for safety and health at work. They cover things like smoking cessation programs or free workplace health screenings. Thanks to these initiatives, private actors are adopting voluntary standards for their companies to intervene in areas of public health that were traditionally associated with public decision makers (Global Reporting Initiative, 2018). The Global Reporting Initiative (2018), although it constitutes an important advance in the matter, also illustrates the lack of coordination among the agents involved. Under this background, the path toward "corporate responsibility in health" promises to be long and arduous (Brassart-Olsen, 2020). Among other issues, a consensus on a common evaluation model and quality standards is the first step. In this sense, the European Commission proposes as a progress strategy, the design and evaluation of a set of Key Performance Indicators (European Commission, 2020).

This long-term horizon contrasts with the urgency of giving a coordinated response, which transcends national borders, to the needs imposed by the global health crisis of COVID-19 (Gorgenyi-Hegyes et al., 2021). To help companies make strategic decisions, academics, business leaders, and government legislators need to assess the effectiveness of CSR and SMHR policies (Mahmud et al., 2021).

The complexity of the issue and its multiple aspects require further research on the consequences of implementing adequate health strategies at workplace, as well as those derived from their absence or from incorrect corporate policies. This issue on healthy organizations and social capital includes 10 research articles that advance the state of the art in this direction. Reading these articles will allow us to understand how working conditions, and in special social support, feedback, task significance, task Identity, and autonomy impact positively the probability of being in the happy-productive pattern. At workplace, social support practices and sustainable leadership foster undoubtedly workers' wellbeing. It is confirmed that burnout has a negative impact on personal

and organizational goals, but that this impact could be moderated with an adequate promotion-focused job crafting. Among causes of distress, high stress and poor sleep quality require special attention, and specific interventions need to be implemented. Among other actions, mindfulness-based interventions may positively impact employees' and managers' mental health skills and social relations at work. Aspects such as the relevance of diversity in positions of highest responsibility or which human values reinforce workers' involvement in CSR are other topics that are also addressed in this issue. Finally, a systematic review of 27 articles concludes that CSR and work health promotion have beneficial reciprocal effects.

## Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

## Conflict of interest

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## SPECIALTY SECTION

This article was submitted to  
Organizational Psychology,  
a section of the journal  
Frontiers in Psychology

RECEIVED 24 May 2022

ACCEPTED 19 July 2022

PUBLISHED 23 August 2022

## CITATION

Sánchez-García J, Vega-Tinoco A,  
Gil-Lacruz AI, Mira-Tamayo DC,  
Moya M and Gil-Lacruz M (2022) Are  
you ready for retirement?  
The influence of values on  
membership in voluntary organizations  
in midlife and old age.  
*Front. Psychol.* 13:951811.  
doi: 10.3389/fpsyg.2022.951811

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# Are you ready for retirement? The influence of values on membership in voluntary organizations in midlife and old age

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Membership in voluntary organizations is associated with individual and social benefits. Due to the negative consequences of the global pandemic on older people, and the governmental challenges posed by population aging, voluntary membership is of great importance to society. To effectively promote volunteering among older people, it is necessary to understand the determinants of voluntary membership. This study analyses the influence of individual values—secular/traditional and survival/self-expression—on voluntary membership among European adults ( $N = 31,985$ ). Specifically, it examines which values orient two age groups (middle age: 50–64 and old age: 65–79), as well as men and women toward a certain type of association (Social Awareness; Professional and Political; Education and Leisure; Religion). The sample of 31,985 comprises 60% of adults aged 50–64 and 40% aged 65–79; of which 56% are women and 44% men. The empirical estimation considers different levels of data aggregation: individual, national and welfare system, therefore multilevel analysis is used as an analytical strategy. Individual-level variables from the Integrated Values Survey (2005/09, 2010/14, and 2017/20) and national-level variables (Gini Index and Gross Domestic Product Per Capita) from the World Bank and Eurostat are used. The results indicate that traditional and self-expression values promote membership in voluntary organizations in general more than secular and survival values. However, there are differences according to the type of organization. Furthermore, values are found to moderate the effect of age and gender on voluntary membership.

## KEYWORDS

voluntary membership, values, middle-aged, old age, gender



## Introduction

Retirement can be defined as the exit of a person from the labor force that occurs after middle age (Wang and Shi, 2014). Retirement can be an expected moment in later life (van Solinge and Henkens, 2007). However, very little is known about how adults behave after retirement. There is growing recognition of the potential for retirement to negatively affect the long-term health and well-being of older adults by remaining inactive (Wang and Shi, 2014). With fewer friends over time, with children moving away, and with retirement replacing a phase of life filled with productivity, seniors report a great sense of loneliness and worthlessness (Athavale et al., 2022).

Consequently, it is time to encourage more sustainable mechanisms to address isolation, especially among older people (Payne, 2022). One way to strengthen social inclusion and well-being in old age is membership in voluntary associations (Serrat et al., 2015; Moyano-Díaz and Mendoza-Llanos, 2021; Levasseur et al., 2022), which directly contributes to Sustainable Development Goal 3: *Ensure healthy lives and promote well-being for all at all ages*. In this regard, the empirical evidence shows that membership helps older people to feel more useful and productive, and to enhance their sense of agency and self-esteem (Haslam et al., 2018; Chung et al., 2020; Celdrán et al., 2021; Lam et al., 2021; de Wit et al., 2022).

Continuity Theory explains that the occurrence of voluntary activities in workers can predict the continuation of volunteering when they are retired (Muthuri et al., 2009). However, older people tend to be less likely to volunteer than younger people (Wymer, 1999). Governments, civil society organizations, the private sector and communities should create opportunities to foster active aging after retirement (UNV, 2021). Therefore, it is necessary to identify the motivational factors that lead older people to become volunteer members, to improve recruitment and retention strategies in organizations. Among these motivational factors, the Volunteer Process Model identifies values (Omoto and Snyder, 1995; Wilson, 2012).

Values are considered deep-rooted dispositions that cause people to behave in a certain way (Halman et al., 1993). A well-known classification into two dimensions of Inglehart and Welzel (2005) includes traditional values (emphasizing the importance of religion, deference to authority, and national pride), in contrast to secular-rational values (divorce, abortion, euthanasia, and suicide are considered acceptable), and survival values (emphasis on economic and physical security), in contrast to self-expression values (environmental protection, tolerance of foreigners, homosexuality and gender equality, and civic participation). It seems that membership in a volunteer organization depends to a large extent on the values a person holds (Kearney, 2001). In this sense, the shift from traditional to secular values is associated with a decline in civic participation, while the shift from survival to self-expressive values is associated with an increase in participation (Inglehart, 2017).

According to Modernization Theory, the variation in basic value orientations between generations is due to cultural changes resulting from economic development (Inglehart and Baker, 2000; Inglehart, 2018), with more rational and self-expression values among the younger compared to more traditional and survival values among the oldest. However, it is not known whether the statistical differences between the value orientations of older and younger people affect voluntary membership ratios (Wollebæk and Selle, 2003). Consequently, the main objective of this research is to analyze the individual and contextual determinants of volunteer membership among adults aged 50+, especially those related to values, and in their interaction with age and gender in different types of organizations.

The main contributions of this work are: (1) the analysis of values through two indexes: Traditional/Secular Index and Survival/Self-Expression Index (Inglehart and Welzel, 2005); (2) the comparison between two age groups: middle age (pre-retirement –50–64–), and old age (retirement –65–79–) since active aging has to be approached as a dynamic process that requires awareness throughout life; (3) the consideration of gender, to check whether behaviors and values differ between men and women; (4) to study membership in four types of associations: Social Awareness, Professional and Political, Education and Leisure, Religion; (5) considering several European welfare systems (Continental, Nordic, Mediterranean, and Eastern), as well as economic inequality (Gini index) and gross domestic product per capita (GDP). Data from the Integrated Values Survey (IVS; 2005/09, 2010/14, and 2017/20), the World Bank and Eurostat (2005/20) are used. The empirical estimation is carried out considering simultaneously different levels of data aggregation: Individual, National and Welfare Systems.

## Literature review

Voluntary associations are becoming increasingly relevant due to their greater number of members and beneficiaries (Kang, 2014; AbouAssi and An, 2017; Ki and Cho, 2021), as well as their positive effects on the health and well-being of older people (Moyano-Díaz and Mendoza-Llanos, 2021). Voluntary associations are defined as formally organized groups whose members do not receive financial remuneration for their participation (Knocke, 1986). These associations represent activities aimed at various social, cultural, political, professional, industrial, occupational, sports, and religious groups (Tschirhart and Gazley, 2014).

The scientific literature has mainly considered two forms of membership: money, in the form of donations, and time, in the form of volunteering (Kou et al., 2014; Mesch et al., 2021). Regarding the second, being a member of a voluntary organization provides numerous benefits for the volunteer and



for the society (Dekker and Feenstra, 2015; Li and Wu, 2019; Lam et al., 2021). In the case of older people, at the individual level, it improves the health, life satisfaction, and happiness (Burr et al., 2021; Vega-Tinoco et al., 2021; de Wit et al., 2022). At the national level, it fosters social solidarity and active aging (Gil-Lacruz M. et al., 2019), which facilitate the sustainability of pension and healthcare systems (Galenkamp and Deeg, 2016), besides generating economic benefits, for example, increasing the levels of Gross Domestic Product (Salamon et al., 2003; Gil-Lacruz and Marcuello, 2013).

Nevertheless, not all membership in a voluntary organization means the same thing. In this sense, Gil-Lacruz A. I. et al. (2019) show that the characteristics and effects of membership in voluntary organizations depend on the type of association in which this labor is performed. For instance, volunteering in social awareness organizations is characterized as instrumental, in which individuals offer to influence public behavior through certain values, and less for the enjoyment of participation itself. As a result, these organizations have a positive impact on life satisfaction, but a negative impact on happiness. Consequently, it is assumed that the motivations and rewards attributed to these associations could differ.

The classical Resource Model of Civic Engagement (Verba et al., 1995) argues that membership in organizations could be explained in terms of mobilizing factors. Niebuur et al. (2018) in a meta-analysis, find that married people and those with high level of education or income are more likely to be members of a voluntary organization. Regarding age, Nichols and Shepherd (2006) indicate that the highest peak of participation is reached at middle age and then declines among the oldest. In contrast, Putnam (2000) find that older people are more likely to volunteer than younger people. However, this result was only found in rich countries, suggesting that this phenomenon could be associated with economic development. Other authors explain that these age differences in volunteering could be due to levels of education and income, the impact of religious tradition on civic attitudes, degree of freedom of expression (Inglehart and Baker, 2000) or the type of welfare system (Salamon et al., 2003).

Overall, the highest proportions of older volunteers are found in Nordic countries, while Mediterranean countries tend to be characterized by lower rates of membership among older people. These findings imply that membership patterns are related to the way societies are structured and how social responsibility is allocated within them (Salamon et al., 2003), revealing, for example, variations in the opportunities to engage in productive activities. This only explains a part of the membership. Sánchez-García et al. (2022), point out that age differences in volunteering depend on the type of activity. The authors show that the 50–64 age group frequently joins professional and political organizations, while the 65–79 age group tends to be involved in religious associations. The

question of why they choose to be involved one or the other organization, however, requires further research (Boccacin and Lombi, 2018).

In relation to gender, the scientific literature is inconclusive: some research indicates that men are volunteer members more frequently than women (Einolf, 2011), other that women are more likely to be volunteer members (Women's Philanthropy Institute, 2022), and some have found no differences (Eagly, 2009). Social Resources Theory developed by Wilson and Musick (1997) argues that these differences between genders could be a consequence of economic resources. People with higher educational level, higher income level and better professional position are more likely to volunteer. In this sense, on average, men have more economic resources and a higher level of education than women (Wiepking et al., 2022), although this is changing in some Western countries, such as Germany (Van Bavel et al., 2018). Other factors that could explain gender differences are time availability (Ariza-Montes et al., 2015), type of organization (Gil-Lacruz A. I. et al., 2019), gender roles (Wemlinger and Berlan, 2016), differences between countries in terms of culture (Spitsyna and Koval, 2022), and national level of gender equality (Sánchez-García et al., 2022). In summary, the decision to become a member of a voluntary association not only depends on sociodemographic factors (Niebuur et al., 2019), it can also depend on altruistic motives, signs of empathy, facilitation, caring, personality, or individual values (Spitsyna and Koval, 2022).

The analysis of the influence of values on membership in an association has been a widespread issue in several disciplines such as psychology or sociology (Dekker and Halman, 2003; Ariza-Montes et al., 2015; Luria et al., 2017). Building on Maslow, Inglehart (2018) argues that older people who experienced wartime in their childhood developed predominantly materialistic value orientations, due to the scarcity of goods. In contrast, younger adults, who were better off in their childhood, developed postmaterialist values, being free to care about ideals such as democracy, human rights, environmental issues, and gender equality.

Putnam (2000) questions this position and describes older people as the "long civic generation," being more active in associations, and younger people as less civic-minded and more materialistic. He explains that young adults have been brought up to believe that their needs can be satisfied immediately, which has shaped their moral norms and values. Despite these contradictory assumptions, there is no doubt that value orientations generate social change. Therefore, values that are socialized during childhood and adolescence influence adults' perspectives on participation in voluntary associations (Wollebæk and Selle, 2003).

According to Inglehart (1990, 1997), modernization-economic and political progress-gives rise to long-term intergenerational cultural changes that transform people's basic

values. The first shift as a consequence of modernization involves a transition from traditional values to secular values, associated with industrialization, leading to a lower rate of civic engagement. Societies with traditional values among their members emphasize religion, authoritarian and male-dominated structures, as well as low tolerance for alternative family or gender constructs; whereas societies with secular values exhibit the opposite characteristics (Inglehart, 2017, 2018).

The second change refers to the shift from survival values to self-expression values, the latter related to the emergence of the knowledge society, leading to higher rates of voluntary adherence in general (Dekker and Feenstra, 2015). Inglehart and Baker (2000) explained that self-expression is associated with an elevated trust, tolerance, subjective well-being and political activism that emerges in post-industrial societies with high levels of security. In contrast, survival is associated with low levels of well-being in societies characterized by insecurity, which emphasize physical and economic security above all else, and which feel threatened by foreigners, ethnic diversity, and cultural change.

## The present research

The aim of this study is to assess whether individual values (traditional, rational, survival, and self-expression) significantly influence voluntary membership among Europeans 50+. Specifically, we evaluated the extent to which these values interact with age (two groups: 50–64 and 65–79 years) and gender in predicting affiliation. Furthermore, since individual values cannot be studied independently of the socio-economic context of a country, we control the results for economic and macro-social factors at the country level (Gini index, GDP, and Welfare Systems).

It is expected that, individuals with high traditional and self-expressive values will report high ratios of organizational membership when compared to individuals with high secular and survival values (Hypothesis 1). As well, it is expected that, the 50–64 age group (vs. 65–79) will be more associated with voluntary organizations when they score high (vs. low) on traditional and self-expressive values (Hypothesis 2). Finally, it is expected that, men (vs. women) will be more associated with voluntary organizations when they score high (vs. low) on traditional and self-expressive values (Hypothesis 3).

Finally, because only a few researchers have analyzed the impact of these values on different types of voluntary membership among senior citizens, we conducted separate model tests for membership in voluntary social awareness, professional and political, educational and leisure, and religious organizations. We consider these aspects of the study to be exploratory.

## Materials and methods

Several data resources are used: (1) the Integrated Values Survey (IVS; 2005/09, 2010/14, and 2017/20), to select dependent variables (membership in a voluntary organization and categories), values (traditional/secular values and survival/self-expression values), and individual predictors (age, gender, educational level, income level, and marital status); (2) the Gini index (Eurostat, 2005/20); (3) Gross Domestic Product per capita (World Bank, 2005/20), which we used to obtain data at the national-level. The study focuses on European countries, as they are sufficiently homogeneous to make inferences from the results.

The sample consists of 31,985 individuals aged 50–79 years residing in twelve countries in Europe (Cyprus, Germany, the Netherlands, Poland, Romania, Slovenia, Spain, Sweden, Turkey, Ukraine, Russia, and Georgia), for three-time waves (2005/09, 2010/14 and 2017/20).

## Measures

### Individual-level variables

Membership in voluntary organizations constitutes the dependent variable of this research. The IVS examines voluntary membership in eight types of organizations. The organizations are categorized into four groups (Gil-Lacruz M. et al., 2019; Sánchez-García et al., 2022): (1) Social Awareness (environmental, humanitarian, and charitable organizations); (2) Professional and Political (professional organizations, political parties, and labor unions); (3) Education and Leisure (sports and recreational clubs, arts, music, and educational organizations); and (4) Religion (religious organizations or churches). The variable of membership in voluntary organizations was coded as a dichotomous variable: “1” denotes that the individual belongs to the organization and ‘0’ indicates that the individual does not belong.

The IVS database contains a wide variety of sociodemographic variables: gender (Men and Women), age in two groups (Middle age: 50–64 and Old age: 65–79), educational level (Primary, Secondary, and Tertiary), income level (Low, Medium, and High) and marital status (Married, Single, Divorced, and Widowed). Furthermore, it includes two dimensions of values (Inglehart and Welzel, 2005): The Traditional-Secular Values Index and The Survival-Self-expressive Values Index.

The two dimensions were created following the protocol indicated by the World Values Survey created by Inglehart and Welzel (2005). The two values indices are created by performing a factor analysis on a set of ten indicators (importance of God, autonomy index, justification of abortion, national pride, respect for authority, happiness, justification of homosexuality, signing a petition, trust, and materialist/post-materialistic values

index). The ten indicators used (five for each dimension) following the WVS procedure are selected for technical reasons, i.e., they appear in all three waves of the IVS. The positive pole of the first factor is rational, and the negative pole is traditional. The positive pole of the second factor is self-expression, and the negative pole is survival.

## National-level variables

Countries are grouped by welfare systems (Sardinha, 2011; Sánchez-García et al., 2022): (1) Nordic: Sweden; (2) Continental: Germany, the Netherlands; (3) Mediterranean: Cyprus, Spain and Turkey; (4) Eastern: Poland, Romania, Slovenia, Ukraine, Russia, and Georgia. Geographic dummy variables were created for each country and for each welfare system. Dummy variables were also generated for each wave (2005–2009, 2010–2014, and 2017–2020). The set of dummy variables allows the calculation of geographic and temporal effects.

Finally, explanatory variables at the national level facilitate the comprehension of the differences between countries and welfare systems. Gross Domestic Product (GDP, constant prices adjusted to purchasing power 2017 US dollars) in per capita terms are included. Moreover, the Gini index is considered as an index of income inequality. The Gini coefficient is defined as the ratio between the cumulative percentages of the population, ordered by level of equivalized disposable income, and the cumulative percentage of the total equivalized disposable income they receive (EUROSTAT, 2022); high scores (100) mean “complete inequality,” where one individual has all the resources, and low scores (0) mean “complete equality,” where everyone has the same resources.

## Procedure

Data are analyzed using STATA 14 (Stata Corporation, College Station, TX, United States). The different characteristics at the individual and national level are analyzed using descriptive statistics. Table 1 shows the estimated frequencies.

Multilevel regression models (xtmelogit) are indicated when there is a hierarchical structure in the levels of the data (individual and national), with a single dependent variable measured at the lowest level and a set of explanatory variables at each level (micro and macro). The study allows the simultaneous consideration of micro variables (values, age, gender, educational level, income level, and marital status), and macro variables (GDP, Gini index, and welfare systems) to explain the decision to membership in voluntary organizations.

The estimation analysis considers a mixed-effects multilevel regression model. Data are obtained from individuals nested within countries. The model is estimated as,

$$\text{Volunteer member}_{ij} = \beta_0 + X'_{ij} \beta_j + u_j + e_{ij} \quad (1)$$

For  $j = 1, \dots, 12$  European countries, with data structured for  $j = 1, \dots, 12$  observations, where  $X$  includes  $K$  regressors ( $K - 1$  variables and a constant) and the error term denoted by  $e_{ij} \sim N(0, \sigma^2)$ . The model incorporates the coefficients of the regressions for the intercept  $\beta_0$  and fixed effects  $\beta_j$  as explanatory variables for membership in a voluntary organization; and random effects  $u_j$  to include cross-country variability.

Estimates are repeated for the four categories of volunteering ( $f = 1$  for Social Awareness  $f = 2$  for Politic and Professional  $f = 3$  for Leisure and Education;  $f = 4$  for Religion). The fact that the same person may belong to different volunteer organizations implies that the categories are not exclusive, thus the estimates were made independently,

$$\text{Volunteer member}_{fij} = \beta_0 + X'_{ij} \beta_{fj} + u_{fj} + e_{fij} \quad (2)$$

The objective is to achieve accurate estimates of the  $\beta$  coefficients. To ensure the robustness of the estimated parameters, the Wald test was used to test for any problems related to endogeneity. The results are analyzed and presented stepwise in three models. According to test Hypothesis 1, focused on the association between individual variables and membership in voluntary organizations, Model 1 contains only individual factors (age–middle and old age -, gender, marital status, educational level, income level and cultural values) and time variables (2005–2020). This model is also used to analyze the hypothesized direct relationship (Hypothesis 2) of values with volunteer membership.

Model 2 simultaneously estimates the two levels, (1) individuals within countries, and (2) differences between countries. This model incorporates country-level factors (GDP, Gini index, and welfare systems). Model 2 is justified by the results obtained in ANOVA, a statistical analysis that considers the dispersion of random effects according to groups of countries classified by welfare systems. The dispersion of random effects is greater between groups than within groups, so that the welfare system represents an appropriate country classification model.

Finally, to examine the hypothesized interactions (Hypothesis 3), Model 3 incorporates the interactions between individual variables and cultural values. This model explores the impact of the effect of values on the probability of membership as a function of age and gender.

## Results

### Preliminary analysis

To prevent technical problems related to the endogeneity of the variables, tests were performed using the Wald test to ensure the direction of the association between the values and the dependent membership variables. The estimated parameters

of the variables that could cause endogeneity problems were not significant ( $p > 0.01$ ).

## Descriptive analysis

The results in **Table 1** show the descriptive statistics of the variables studied. Because most of these variables are dummy variables (1/0), their means as percentages (multiplied by 100) provide us their corresponding participant distribution. For instance, the mean of membership in voluntary organizations is 0.41, which means that 41% of the participants report belonging to voluntary associations. The total sample is equally distributed between women (39%) and men (44%), as well as between both age groups (50–64 and 65–79). The majority of citizens are married (66%), especially men (78%) and adults aged 50–64 (71%). Most of the people surveyed have secondary education (36%); men (37%) and adults aged 50–64 (40%) have higher levels of education than women (35%) and those aged 65–79 (30%). Taking into account economic conditions, 38% of senior citizens have low income, 52% middle income, and only 11% high income.

The results in **Table 1** reveal that men (44%) adhere slightly more frequently to voluntary organizations than women (39%). However, the ratios of membership vary according to the type of organization. On the one hand, men are more likely to join political and professional (24%), educational and leisure (23%) associations than women (15 and 18%, respectively). On the other hand, women more frequently belong to associations related to religion (20%), compared to men (18%).

There are no differences between age groups in the frequencies of membership in voluntary organizations, in general. However, while middle-aged adults aged 50–64 (22%) are more frequent members of political and professional voluntary organizations than older adults (15%), adults aged 65–79 (23%) are more frequent members of religious associations than middle-aged adults (17%).

In terms of individual values, men have more secular (27%) and self-expressive (29%) values than women (9 and 2%, respectively). However, these results vary according to age and time period considered, as shown in **Figure 1**. Positive percentages refer to secular and self-expression values, while negative percentages refer to traditional and survival values. Although an increase in rational values is observed from 2010

TABLE 1 Variables (means and standard deviation by gender and age).

|                                 | Total    |      | Female   |      | Male     |       | 50–64    |      | 65–79    |      |
|---------------------------------|----------|------|----------|------|----------|-------|----------|------|----------|------|
|                                 | Mean (%) | SD   | Mean (%) | SD   | Mean (%) | SD    | Mean (%) | SD   | Mean (%) | SD   |
| <b>Dependent variables</b>      |          |      |          |      |          |       |          |      |          |      |
| All categories                  | 40.9     | 0.49 | 38.6     | 0.49 | 43.9     | 0.50  | 41.1     | 0.49 | 40.7     | 0.49 |
| Social Awareness                | 11.9     | 0.32 | 11.9     | 0.32 | 11.9     | 0.32  | 11.6     | 0.32 | 12.3     | 0.33 |
| Politics and profession         | 19.0     | 0.39 | 15.4     | 0.36 | 23.6     | 0.42  | 22.0     | 0.41 | 14.5     | 0.35 |
| Leisure and education           | 19.9     | 0.40 | 17.6     | 0.38 | 22.9     | 0.42  | 19.9     | 0.40 | 20.0     | 0.40 |
| Religion                        | 19.4     | 0.39 | 20.1     | 0.40 | 18.5     | 0.39  | 17.2     | 0.38 | 22.6     | 0.41 |
| <b>Independent variables</b>    |          |      |          |      |          |       |          |      |          |      |
| Age: 50–64                      | 60.2     | 0.49 | 60.1     | 0.49 | 60.3     | 0.49  | 100      | 0.00 | 0.00     | 0.00 |
| Age: 55–79                      | 39.8     | 0.49 | 39.9     | 0.49 | 39.7     | 0.49  | 0.00     | 0.00 | 100      | 0.00 |
| Female                          | 55.9     | 0.50 | 100      | 0.00 | 0.00     | 0.000 | 55.9     | 0.50 | 56.0     | 0.50 |
| Male                            | 44.1     | 0.50 | 0.00     | 0.00 | 100      | 0.00  | 44.1     | 0.50 | 43.9     | 0.50 |
| Primary studies                 | 33.3     | 0.47 | 33.4     | 0.47 | 33.1     | 0.47  | 29.8     | 0.46 | 38.6     | 0.49 |
| Secondary studies               | 36.1     | 0.48 | 35.4     | 0.48 | 37.2     | 0.48  | 40.2     | 0.49 | 30.1     | 0.46 |
| Tertiary studies                | 12.7     | 0.33 | 11.9     | 0.32 | 13.8     | 0.34  | 13.7     | 0.34 | 11.3     | 0.32 |
| Low income                      | 37.8     | 0.48 | 42.2     | 0.49 | 32.4     | 0.47  | 33.8     | 0.47 | 43.9     | 0.49 |
| Middle income                   | 51.6     | 0.50 | 49.1     | 0.50 | 54.7     | 0.50  | 53.8     | 0.50 | 48.4     | 0.50 |
| High income                     | 10.5     | 0.31 | 8.7      | 0.28 | 12.8     | 0.33  | 12.4     | 0.33 | 7.7      | 0.27 |
| Married                         | 66.5     | 0.47 | 57.6     | 0.49 | 77.7     | 0.42  | 71.4     | 0.45 | 59.1     | 0.49 |
| Divorced                        | 10.1     | 0.30 | 11.3     | 0.32 | 8.7      | 0.26  | 12.2     | 0.33 | 7.0      | 0.26 |
| Widow                           | 17.8     | 0.38 | 25.9     | 0.44 | 7.5      | 0.26  | 9.8      | 0.30 | 30.0     | 0.46 |
| Single                          | 5.5      | 0.22 | 5.1      | 0.22 | 6.1      | 0.24  | 6.7      | 0.25 | 3.8      | 0.19 |
| Traditional/secular values      | 17.8     | 1.54 | 9.2      | 1.50 | 26.9     | 1.57  | 22.5     | 1.56 | 9.0      | 1.50 |
| Survival/self-expression values | 14.3     | 2.05 | 2.4      | 2.07 | 28.7     | 2.01  | 18.9     | 2.03 | 7.0      | 2.07 |

We have also included Macro Variables (GDP ppp and Gini index). Regional Dummy Variables (Nordic: Sweden; Continental: Germany, the Netherlands; Mediterranean: Cyprus, Spain, and Turkey; and Eastern: Poland, Romania, Slovenia, Ukraine, Russia, and Georgia) and Time Dummy Variables (Wave 1: 2005–2009; Wave 2: 2010–2014; and Wave 3: 2017–2020).

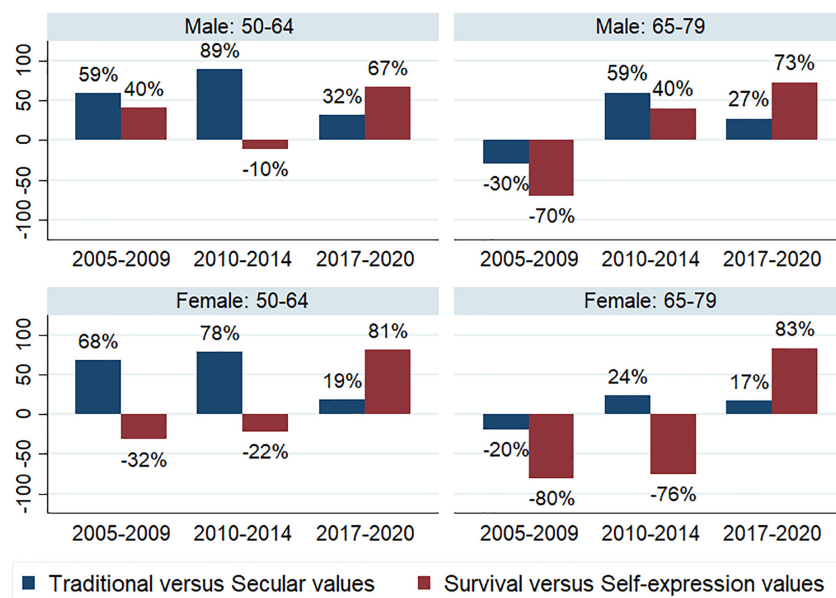


FIGURE 1

Values by gender and age, 2005/09, 2010/14, and 2017/20 (Data in percentages). Integrated Values Survey, own production.

to 2014, a decrease in the same values is observed from 2014 to 2020, while an increase in progressive values is observed, regardless of age and gender. The shift from survival values to self-expression values is more prominent for older women than for older men. In recent years (2017 to 2020), men of any age group report being more rational than women, while women are more self-expressive than men.

## Multilevel analysis

**Table 2** shows the probability of voluntary membership in general and by category (Model 1). As for the degree of variance of the random effect of Model 1  $\sigma_u^2$  is significant, this justifies the multilevel analysis of the dependent variable explained by the fixed and random effects. Sociodemographic and values variables are included in the fixed effects. Secondary and tertiary education level, and middle and high income level, are positively associated with membership in voluntary organizations. In addition, being married promotes membership in voluntary organizations in contrast to being divorced. These results are similar for each of the volunteer categories, except for religion, where primary education is more relevant for volunteer membership.

Men are more likely to belong to voluntary organizations than women, in general. Furthermore, there are differences depending on the type of activity. While men are more willing to become members of professional, political, educational and leisure organizations, women are more likely to be members of social awareness and religious organizations. With respect

to age, middle-aged individuals are more likely to be volunteer members than older individuals. There are also variations by type of organization, with middle-aged individuals more frequently belonging to political and educational organizations, while older individuals are more inclined to be members of social awareness organizations.

The results found in Model 1 are congruent with Hypothesis 1. Hence, individuals with traditional and self-expressive values are more likely to be members of voluntary organizations than individuals with secular and survivalist values. Although it has not been hypothesized, this tendency varies according to the type of association. On the one hand, high traditional values positively influence voluntary membership in religious organizations, while high rational values are positively related to voluntary membership in professional and political associations. On the other hand, high self-expressive values favor adherence to social awareness, professional and political, and educational and leisure organizations; whereas survival values promote voluntary membership in religious associations.

Model 2 incorporates GDP, Gini index and welfare systems as fixed effects. The coefficients of the individual variables remain stable as an indicator of robustness, as shown in **Table 3**. As for the national variables, GDP per capita turns out to be a positive indicator of affiliation coefficients. The Gini index has a negative relationship with membership in voluntary organizations. This means that the greater the economic inequality in a country, the lower the probability of joining an association. With respect to welfare systems, the Nordic regime positively influences voluntary membership in general, compared to Eastern countries. However, residents of



TABLE 2 Estimations of individual-level variables on volunteering: Model 1.

|                                 | All categories | Social awareness | Politic and professional | Leisure and education | Religion |
|---------------------------------|----------------|------------------|--------------------------|-----------------------|----------|
| Intercept                       | -0.60**        | -2.69***         | -2.16***                 | -2.08***              | -1.62*** |
| <b>Fixed effects</b>            |                |                  |                          |                       |          |
| Age: 50–64                      | 0.16***        | -0.10**          | 0.51***                  | 0.09***               | -0.06    |
| Age: 65–79 <sup>a</sup>         | –              | –                | –                        | –                     | –        |
| Female                          | -0.08**        | 0.29***          | -0.45***                 | -0.14***              | 0.22***  |
| Male                            | –              | –                | –                        | –                     | –        |
| Primary studies <sup>a</sup>    | –              | –                | –                        | –                     | –        |
| Secondary studies               | 0.12***        | 0.21***          | 0.12***                  | 0.27***               | -0.08**  |
| Tertiary studies                | 0.67***        | 0.73***          | 0.69***                  | 0.68***               | 0.08     |
| Low income <sup>a</sup>         | –              | –                | –                        | –                     | –        |
| Middle income                   | 0.30***        | 0.33***          | 0.48***                  | 0.36***               | 0.06     |
| High income                     | 0.35***        | 0.32***          | 0.45***                  | 0.42***               | 0.02     |
| Married <sup>a</sup>            | –              | –                | –                        | –                     | –        |
| Divorced                        | -0.16***       | -0.15**          | -0.11*                   | -0.24***              | -0.30*** |
| Widow                           | -0.03          | -0.11            | -0.22***                 | -0.14**               | 0.04     |
| Single                          | 0.02           | 0.13             | 0.05                     | -0.10                 | 0.01     |
| Traditional/secular values      | -0.10***       | 0.02             | 0.04***                  | 0.00                  | -0.39*** |
| Survival/self-expression values | 0.13***        | 0.18***          | 0.20***                  | 0.21***               | -0.10*** |
| Wave: 2005–2009                 | -0.40***       | -0.48***         | 0.01                     | -0.46***              | -0.40*** |
| Wave: 2010–2014                 | -0.05          | -0.33***         | 0.07                     | -0.25***              | 0.07     |
| Wave: 2017–2020 <sup>a</sup>    | –              | –                | –                        | –                     | –        |
| <b>Random effects</b>           |                |                  |                          |                       |          |
| $\sigma^2$                      | 1.00           | 1.01             | 0.54                     | 0.99                  | 1.15     |
| LR test (Prob[ > $\chi^2$ ])    | 0.00           | 0.00             | 0.00                     | 0.00                  | 0.00     |
| ICC                             | 0.23           | 0.24             | 0.08                     | 0.23                  | 0.29     |
| <b>Analysis of variance</b>     |                |                  |                          |                       |          |
| Between groups                  | 25627.37       | 17676.01         | 3475.06                  | 25631.12              | 33442.39 |
| Within groups                   | 7337.84        | 15380.70         | 4448.27                  | 8967.55               | 8850.29  |
| Barlett's test                  | 0.00           | 0.00             | 0.00                     | 0.00                  | 0.00     |

Coefficients are reported. ICC: intra-class correlation index. \*\*\*, \*\*, and \* explanatory variables are statistically significant at 99, 95, and 90% levels.

<sup>a</sup> Variable of reference.

Eastern countries are more frequently associated with religious organizations than Nordic citizens. In Mediterranean countries there is a high probability of voluntary membership in political, professional, and religious organizations.

The variance of the random effects is reduced in Model 2, that is, with the introduction of national data. Once the results have been controlled for individual and national variables, we are interested in testing whether the association between age and membership, as well as between gender and membership, is moderated by cultural structures. Hypotheses 2 and 3 focus on the effect of traditional and self-expressive values on the relationship between age and membership, on the one hand, and on the relationship between gender and membership, on the other hand.

As presented in Model 3 in Table 4, traditional and self-expressive values do not interact with age in associationism in general, thus Hypothesis 2 cannot be supported. The exploratory

analyses for each type of organization show that traditional values do interact with age in religion. Consequently, middle-aged individuals (50–64) are more likely to associate with religious organizations when they have rational values. In addition, self-expression values increase the likelihood that older adults (65–79) associate with social awareness and education and leisure organizations. In addition, self-expression values increase the likelihood that middle-aged adults (50–64) participate in political and professional organizations.

Finally, traditional values do interact with gender, but not in the way we expected according to Hypothesis 3. Women with high secular values affiliate more frequently with voluntary organizations than men. However, significant interactions are found in the exploratory analyses in the categories. Women who score high on rational values are volunteer members in each type of organization. In addition, self-expressive values increase the willingness of women to belong to social awareness, education,



TABLE 3 Estimations of individual-level and national-level variables on volunteering: Model 2.

|  | All categories | Social awareness | Politic and professional | Leisure and education | Religion |
|--|----------------|------------------|--------------------------|-----------------------|----------|
| Intercept_                                   | -5.21***       | -7.48***         | -3.63***                 | -3.86***              | -2.08*   |
| <b>Fixed effects</b>                         |                |                  |                          |                       |          |
| Age: 50–64                                   | 0.17***        | -0.09***         | 0.51***                  | 0.09**                | -0.06    |
| Age: 65–79 <sup>a</sup>                      | –              | –                | –                        | –                     | –        |
| Female                                       | -0.07**        | 0.29***          | -0.45***                 | -0.14***              | 0.22***  |
| Male <sup>a</sup>                            | –              | –                | –                        | –                     | –        |
| Primary studies <sup>a</sup>                 | –              | –                | –                        | –                     | –        |
| Secondary studies                            | 0.12***        | 0.20***          | 0.12***                  | 0.27***               | -0.08**  |
| Tertiary studies                             | 0.68***        | 0.74***          | 0.69***                  | 0.68***               | 0.08     |
| Low income <sup>a</sup>                      | –              | –                | –                        | –                     | –        |
| Middle income                                | 0.30***        | 0.33***          | 0.48***                  | 0.36***               | 0.06     |
| High income                                  | 0.34***        | 0.31***          | 0.44***                  | 0.42***               | 0.01     |
| Married <sup>a</sup>                         | –              | –                | –                        | –                     | –        |
| Divorced                                     | -0.16***       | -0.16**          | -0.11*                   | -0.24***              | -0.31*** |
| Widow  | -0.03          | -0.11            | -0.22***                 | -0.14**               | 0.04     |
| Single                                       | 0.01           | 0.12**           | 0.05                     | -0.10                 | 0.01     |
| Traditional/secular Values <sup>b</sup>      | -0.10***       | 0.02**           | 0.04***                  | 0.01                  | -0.39*** |
| Survival/self-expression values <sup>b</sup> | 0.13***        | 0.18             | 0.20***                  | 0.20***               | -0.10*** |
| Gini index                                   | 0.14***        | 0.13**           | 0.03**                   | 0.02                  | 0.05**   |
| GDP  | 0.00***        | 0.00***          | 0.00***                  | 0.00***               | 0.00*    |
| Nordic <sup>a</sup>                          | –              | –                | –                        | –                     | –        |
| Continental                                  | -0.85          | -0.46            | -0.89                    | 0.24                  | -0.68    |
| Southern                                     | -2.81**        | -1.40            | -1.02                    | -0.71                 | 2.98***  |
| East   | -1.71          | -1.26            | -0.62                    | -0.49                 | 2.09***  |
| Wave: 2005–2009                              | -0.18***       | -0.18*           | 0.16                     | -0.22***              | -0.27*** |
| Wave: 2010–2014                              | 0.11**         | -0.10            | 0.19*                    | -0.07                 | 0.16***  |
| Wave: 2017–2020 <sup>a</sup>                 | –              | –                | –                        | –                     | –        |
| <b>Random effects</b>                        |                |                  |                          |                       |          |
| $\sigma^2$                                   | 1.00           | 1.10             | 0.46                     | 0.45                  | 0.72     |
| LR test (Prob[ > $\chi^2$ ])                 | 0.00           | 0.00             | 0.00                     | 0.00                  | 0.00     |
| ICC  | 0.23           | 0.27             | 0.06                     | 0.06                  | 0.13     |

Coefficients are reported. ICC: intra-class correlation index. \*\*\*, \*\*, and \* explanatory variables are statistically significant at 99, 95, and 90% levels.

<sup>a</sup>Variable of reference.

<sup>b</sup>The Wald endogeneity test was estimated. There is no empirical evidence of endogeneity.

and leisure organizations; while survival values increase the adherence of women to be members in religious associations.

## Discussion

The results of this study provide new evidence on the determinants of membership of voluntary organizations among 50+ years of age citizens in Europe, following the model of the volunteering process with respect to its "antecedents" (Snyder and Omoto, 1992): (1) examines differences in voluntary membership between women and men in middle age and old age with integrated data at two levels: individual and national, (2) highlights the influence of individual values in explaining voluntary membership in general (Inglehart and Welzel, 2005)

and in different types of associations, (3) shows how values can explain age and gender differences in voluntary membership. The findings are intended to further the understanding of voluntary membership in order to promote this activity and avoid a state of "mental retirement" that can lead to early inactivity, with negative health consequences.

Volunteering by older people is a way of being active, as well as an opportunity to work with others when work and family roles have been fulfilled (Principi et al., 2014). The Theory of Activity proposes that, after retirement, older people engage in volunteering activities as a means of maintaining a positive sense of self and feeling meaningful and productive (Lemon et al., 1972; Havighurst et al., 1996). In this sense, volunteering can play an important role for older people by protecting them from the negative effects of retirement, physical decline,

TABLE 4 Estimates of the moderating effect of values on volunteering: Model 3 by age and gender.

|  | All categories | Social awareness | Politic and professional | Leisure and education | Religion |
|--|----------------|------------------|--------------------------|-----------------------|----------|
| Intercept_                                   | -5.19***       | -7.37***         | -3.60***                 | -3.70***              | -2.10*   |
| <b>Fixed effects</b>                         |                |                  |                          |                       |          |
| Age: 50–64                                   | 0.16***        | -0.03            | 0.47***                  | 0.16***               | -0.06*   |
| Age: 65–79 <sup>a</sup>                      | –              | –                | –                        | –                     | –        |
| Female                                       | -0.09***       | 0.17***          | -0.45***                 | -0.26***              | 0.24***  |
| Male <sup>a</sup>                            | –              | –                | –                        | –                     | –        |
| Primary studies <sup>a</sup>                 | –              | –                | –                        | –                     | –        |
| Secondary studies                            | 0.12***        | 0.19***          | 0.12***                  | 0.27***               | -0.08**  |
| Tertiary studies                             | 0.68***        | 0.74***          | 0.70***                  | 0.68***               | 0.08     |
| Low income <sup>a</sup>                      | –              | –                | –                        | –                     | –        |
| Middle income                                | 0.30***        | 0.33***          | 0.48***                  | 0.36***               | 0.06     |
| High income                                  | 0.34***        | 0.34***          | 0.45***                  | 0.44***               | 0.01     |
| Married <sup>a</sup>                         | –              | –                | –                        | –                     | –        |
| Divorced                                     | -0.16***       | -0.16**          | -0.11*                   | -0.24***              | -0.31*** |
| Widow  | -0.03          | -0.08            | -0.22***                 | -0.11*                | 0.03     |
| Single                                       | 0.01           | 0.12             | 0.04                     | -0.10                 | 0.00     |
| Traditional/secular values <sup>b</sup>      | -0.15***       | -0.05*           | -0.01                    | -0.02                 | -0.45*** |
| Survival/self-expression values <sup>b</sup> | 0.12***        | 0.19***          | 0.18***                  | 0.20***               | -0.09*** |
| Gini index                                   | 0.14***        | 0.13***          | 0.04**                   | 0.01                  | 0.05**   |
| GDP  | 0.00***        | 0.00***          | 0.00***                  | 0.00***               | 0.00*    |
| Nordic <sup>a</sup>                          | –              | –                | –                        | –                     | –        |
| Continental                                  | -0.86          | -0.46            | -0.90*                   | 0.25                  | -0.69    |
| Southern                                     | -2.84**        | -1.38            | -1.05*                   | -0.65                 | -3.00*** |
| East   | -1.73*         | -1.23            | -0.65                    | -0.43                 | 2.11***  |
| Age 50–64 × Traditional/secular              | 0.03           | 0.03             | 0.02                     | -0.01                 | 0.05**   |
| Age 50–64 × Survival/self-expression         | 0.02           | -0.05**          | 0.04**                   | -0.05**               | 0.01     |
| Female × Traditional/secular                 | 0.06***        | 0.10***          | 0.07***                  | 0.07***               | 0.04*    |
| Female × Survival/self-expression            | -0.00          | 0.04*            | -0.01                    | 0.07***               | -0.03*   |
| <b>Random effects</b>                        |                |                  |                          |                       |          |
| $\sigma^2$                                   | 1.00           | 1.09             | 0.46                     | 0.42                  | 0.72     |
| LR test (Prob[ > $\chi^2$ ])                 | 0.00           | 0.00             | 0.00                     | 0.00                  | 0.00     |
| ICC  | 0.23           | 0.26             | 0.06                     | 0.05                  | 0.14     |

Coefficients are reported. Estimations have also been controlled by waves. These results have been omitted to improve presentation, but they are available on request. ICC, intra-class correlation index. \*\*\*, \*\*, and \* explanatory variables are statistically significant at 99, 95, and 90% levels.

<sup>a</sup>Variable of reference.

<sup>b</sup>The Wald endogeneity test was estimated. There is no empirical evidence of endogeneity.

inactivity and social isolation (Fiorillo and Nappo, 2014; Coll-Planas et al., 2017). Some studies have shown that older people who volunteer report better health status than older people who do not volunteer (Fancourt and Steptoe, 2018; Huo et al., 2021; Moyano-Díaz and Mendoza-Llanos, 2021).

Despite the beneficial effects of volunteering on older people, such as improved physical function, self-reported health and life satisfaction (Gil-Lacruz M. et al., 2019), most older people engage in volunteer activities only after being asked, while a minority actively seek out volunteering opportunities (Chen and Morrow-Howell, 2015). Therefore, it is relevant to know the individual characteristics that promote the drive for this type of behavior. Undoubtedly, knowing the determinants

of voluntary membership will help the recruitment of older people (Heist et al., 2019).

The study data show that middle-aged, male, with higher-income level, higher educational level and married adults are more likely to belong to voluntary organizations. In contrast, older, female, with lower educational level and divorced adults are less willing to enroll in voluntary organizations. These results are consistent with the scientific literature (Gil-Lacruz et al., 2017) and with theories of volunteering at the individual level (Wilson, 2000). Consequently, the ability to be a member of an association is determined by the resources that it possesses.

Educational level and income level are the most consistent variables in predicting membership in voluntary organizations

in line with other studies (Prouteau and Wolff, 2004; Gil-Lacruz and Marcuello, 2013). Resource theorists assume that individuals with greater resources tend to be more likely to adhere to voluntary associations (Wilson and Musick, 1999; Musick et al., 2000). The theorists argue that "the desire to do good is more or less distributed, but the resources to fulfill that desire are not" (Wilson and Musick, 1999, p. 244). Hence, human capital is seen as a determinant of volunteerism. There have been several interpretations of the positive relationship between educational level and volunteerism. For instance, people with higher levels of education have highly developed organizational and communication skills (Brady et al., 1995), a strong sense of civic responsibility and understanding of community issues (Wilson and Musick, 1997), and extensive social networks that increase their chances of being asked to volunteer (Brady et al., 1999).

In addition, income has also been associated with volunteering. Two explanations can be considered in terms of costs and benefits (Musick and Wilson, 2007, p. 127). The first is the Opportunity Cost Theory, which assumes that those with higher incomes spend less time volunteering because of the loss of wages by doing volunteering. The second is the Resource Theory, which argues that people with higher incomes spend more time volunteering because their abundant resources allow them to volunteer. Since our results report a positive relationship between income and membership in voluntary organizations, we argue for the latter.

In terms of age, the lowest membership ratios are found among older people of unemployed age (65–79 years). The results contrast with the Rational Choice Theory, which predicts an increase in voluntary membership at retirement age because more time is available. Similarly, the Exchange Theory assumes that retirees seek to engage in voluntary work to replace the benefits formally derived from paid employment (Fischer et al., 1991; Midlarsky and Kahana, 1994). However, both theories agree with the discourse that the highest level of involvement in voluntary organizations occurs in middle age (Menchik and Weisbrod, 1987).

Following the analysis of sociodemographic variables, the results show that, in general, men are more frequently adhered to voluntary organizations than women, which is consistent with the literature (Gil-Lacruz A. I. et al., 2019). One possible explanation for this is that men possess higher resources than women; for example, men possess higher educational level and income level than women. The fact that women and older people report the same results is in consonance with the Life-Cycle Theory, in which membership ratios to a voluntary organization decrease in old age, especially among women (Gallagher, 1994).

However, these results vary according to the type of activity (Sánchez-García et al., 2022), with middle-aged men (50–64) being more likely to associate with professional, political and

educational organizations; whereas older women (65–79) are more likely to associate with social awareness and religious organizations. In this sense, socio-economic determinants are insufficient to draw firm conclusions to explain gender and age differences (Wiepking et al., 2022). According to the Process Model of Volunteering (Snyder and Omoto, 1992; Wilson, 2012), motivations, beliefs and values are significant as well.

In relation to the above, the cultural and social climate of a society co-determines the attitudes of individuals, as well as values, and behaviors (Halman and Gelissen, 2019; Akaliyski et al., 2021; Spitsyna and Koval, 2022). The results reveal that traditional and self-expressive values encourage adherence to voluntary organizations. This is related to the theories of modernism (Inglehart and Baker, 2000; Dekker and Halman, 2003; Welzel, 2021). According to modernism, volunteerism and its membership are associated with the degree of industrialization of a country and the emergence of the knowledge society. Thus, in an increasingly developed society the shift from traditional to secular values leads to lower ratios of civic activism, while the shift from survival to self-expressive values leads to higher levels of activism in general.

Some authors argue that due to modernization processes such as differentiation and specialization, each area of life has specific values (Durkheim, 1964; Fox, 2016). Therefore, it would be logical to think that each domain of voluntary membership is influenced by certain values. It is found that, membership in social awareness organizations, and educational and leisure time organizations are influenced by self-expression values. Professional and political organizations are influenced by self-expression and secular values. And the religious by traditional and survival values.

The strong influence of self-expressive values can be explained by the fact that, in societies where people have these types of values, opportunities for freedom of association and open discussion are unlimited (Musick and Wilson, 2007). In addition, the influence of traditional values on voluntary membership in religious associations might be due to the reason that, in these types of organizations, people have simpler and more direct relationships with others, and therefore tend to attend more frequently when they are called upon (Luria et al., 2017).

In terms of age, the frequency of affiliation of middle-aged individuals (50–64) to political and professional organizations is stronger when they possess self-expressive values. These values even lead older adults (65–79) to belong to educational and leisure organizations, as well as social awareness organizations. These findings show that values are not specific to one age group but can be found in different generations (Wollebæk and Selle, 2003), and shape behavior in favor of voluntary membership.

With respect to gender, although men express more willingness to be affiliated to volunteer organizations than women, when women possess rational values they are more

often involved than men in all categories of volunteering. In addition, self-expression values help women to participate in political and educational organizations, which have often been characterized by a male presence (Gil-Lacruz A. I. et al., 2019; Sánchez-García et al., 2022). One reason is that self-expressive values promote altruism (Welzel, 2021), a characteristic of women (Wilson, 2000), and that self-expressive societies support gender equality (Inglehart, 2007).

According to Salamon and Anheier's (1998) Theory of Social Origins, the influence of attitudes, beliefs and values cannot be considered in isolation from the economic and temporal context of a country. The findings indicate that economic inequality mobilizes individuals to participated in voluntary organizations, probably in seeking social change. In addition, citizens of Sweden report higher membership ratios in voluntary organizations compared to Mediterranean countries. Nordic governments are characterized by limited private welfare provision, which encourages people to be active (Esping-Andersen, 1990). Moreover, Nordic countries provide more care and help services (Bergquist et al., 2018; Costa-Font, 2019), which may encourage affiliation among older people, and women, by reducing the need to be caregivers.

## Limitations

The absence of Anglo-Saxon countries evaluating voluntary membership in the WVS prevents the analysis of the Anglo-Saxon welfare system, which limits the generalization of the results to the European level. In line with the above, data are only available for Sweden within the Nordic regime.

Future studies could consider a wide range of values, such as those related to Achievement, Benevolence, Power, Universalism, Individuality, Hedonism, Tradition, Security, Conformity, and Stimulation (Schwartz, 1992) or those related to Distance to Power, Individualism versus Collectivism, Uncertainty Avoidance, Masculinity versus Femininity, Long-Term Orientation and Complacency versus Moderation (Hofstede, 1991).

## Practical implications

Retirement is a long-awaited life transition for many older people, although in some cases the exit from the labor force implies a loss of meaningful social interactions and sense of productivity (Jolles et al., 2022). In this sense, membership in volunteer organizations mitigates these negative effects and even improves the subjective well-being of unemployed older people (Gil-Lacruz M. et al., 2019; Chung et al., 2020). Given the synergy arising from social cooperation and well-being, more attention and consideration should be given to volunteer

membership. It should be recognized as a key element in the development of social cohesion and have much more visibility in society (Deloitte Consulting, 2012).

Since values influence voluntary membership ratios, organizations and policy makers could improve the choice of terms to refer to older people in equality (Vauclair et al., 2016). Moreover, organizations could provide clearer information about the principles, values and objectives of the association so that seniors can check whether they are in line with their values. In this way, voluntary organizations could improve recruitment and retention strategies for seniors. At the societal level, it is necessary improve opportunities for equal access to a voluntary organization across all age groups (Swift et al., 2017). This involves ensuring pension systems that provide economic security for older people, ensuring equal access to medical and social care, investing in age-friendly structures, and offering educational opportunities throughout life (Fasel et al., 2021).

## Conclusion

In conclusion, the present findings contribute to the existing literature on the determinants of membership in voluntary organizations among the older adults. It provides important insight into the importance of personal values, demonstrating that those who hold traditional and self-expressive values adhere more frequently to voluntary organizations. The Theory of Reasoned Action (Fishbein and Ajzen, 1975) already demonstrated that values are one of the components that can explain human behavior. People with different values and norms will be more attracted to different organizations, and a distinction of types of volunteering seems to be a condition for a better understanding of values at the individual level. Specifically, self-expressive and rational values are most likely to encourage membership of older women in voluntary associations, even in those that traditionally have been male-dominated (e.g., political and professional). The fact that these values lead women to become volunteer members more often could have an impact on society in advancing equality (Wiepking et al., 2022). "Culture includes what we think, how we act and what we own" (Macdonis and Plummer, 1998, p. 98). Therefore, resources are not the only determinants of membership in voluntary organizations; personal values may also affect this prosocial behavior among the older adults.

## Data availability statement

Publicly available datasets were analyzed in this study. This data can be found here: [Micro-data from the Integrated Values Survey \(2005–2009; 2010–2014, and 2017–2020\)](#), and macrodata from [World Bank \(2020\)](#) and [EUROSTAT \(2022\)](#).

## Author contributions

JS-G: conceptualization, investigation, methodology, formal analysis, visualization and data presentation, writing—original and final drafts, review, and editing. JS-G and AG-L: data collection and analysis. JS-G and MG-L: review, writing, and editing of the conceptual framework. JS-G, AV-T, DM-T, and MM: review and editing. All authors approved the submitted version.

## Funding

This research was funded by the Government of Aragon (Reference Group BYCS S16\_17R), by project CSO2017-82110-R funded by the Spanish Ministry of Economy and Competitiveness, and the Scholarship for Research Teachers Training (FPI 2018,

PRE2018-083981) funded by State Research Agency to JS-G.

## 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.

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## OPEN ACCESS

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## SPECIALTY SECTION

This article was submitted to  
Organizational Psychology,  
a section of the journal  
Frontiers in Psychology

RECEIVED 04 August 2022

ACCEPTED 21 September 2022

PUBLISHED 13 October 2022

## CITATION

Alonso-Nuez M-J, Cañete-Lairla M-Á,  
García-Madurga M-Á, Gil-Lacruz A-I,  
Gil-Lacruz M, Rosell-Martínez J and  
Saz-Gil I (2022) Corporate social  
responsibility and workplace health  
promotion: A systematic review.  
*Front. Psychol.* 13:1011879.  
doi: 10.3389/fpsyg.2022.1011879

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# Corporate social responsibility and workplace health promotion: A systematic review

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The complex situation that global society is facing as a result of COVID-19 has highlighted the importance of companies committing to the principles of social responsibility. Among the internal initiatives, those related to the health of workers are, obviously, highly topical. The objective of our research is to provide concise knowledge of the relationship between workplace health promotion (WHP) and corporate social responsibility (CSR) so that the relevant specialized research was gathered in a single document that lays the foundations of its applicability. A systematic review, following the PRISMA method, has been carried out. Twenty-seven articles have been selected from the main scientific databases. Their qualitative analysis concludes that CSR and WHP are linked, have beneficial reciprocal effects, need committed leadership respectful of autonomy and voluntariness, and require the establishment of specific goals within the framework of the organizations' sustainability policies. Future studies should establish the impact of the pandemic on these aspects.

## KEYWORDS

corporate social responsibility, CSR, workplace health promotion, WHP, systematic review

## Introduction

Globalized markets, along with increasingly unstable economic environments and changes, impose on companies the need to adopt strategies that, in addition to give them a competitive advantage over other organizations, promote their sustainability (Khediri, 2021). Therefore, organizations are exposed now to external and internal challenges such as reorganizations, financial cuts, or structural changes. Leadership and management practices have a direct effect on whether an organization responds to such changes with an improvement or deterioration in organizational health (Arnetz and Blomkvist, 2007). The concern of companies for the wellbeing of workers will facilitate their adaptation to the changes and uncertainties of today's world (Di Fabio, 2016, 2017), and will in turn allow them to help their organizations in the difficult challenges they face.

To build an ethical culture usually means to balance business desires for profit with ethical responsibilities toward employees (Bulatova, 2016): healthy organizations are characterized by both good profit and health business, and the wellbeing of workers (Grawitch and Ballard, 2016). A healthy workplace maximizes the integration of worker goals for wellbeing and company objectives for profitability and productivity (Sauter et al., 1996). Unhealthy work organizations, that are not concerned with creating the conditions that lead to enhanced wellbeing, can create enormous human and financial costs (Cooper, 1994). Therefore, organizations should be diagnosed in the same way as employees in the empirical analysis of working conditions and health (Bolin and Olofsdotter, 2019).

As stated almost 20 years ago by Wilson et al. (2004), employees' perceptions of their organization affect their perception of the working environment, the way they relate to their work and see their future, and ultimately their job adaptation, health, and wellbeing. Work engagement can be improved through implementation of an adequate management of internal Corporate Social Responsibility (CSR) by corporate leaders (López-Concepción et al., 2022). Further, employees' support ensures effective CSR programs and policies (Ramus and Steger, 2000). They show interest in the activities of their organizations that affect external stakeholders, as they develop a positive social image (Rego et al., 2010). Employees judge the social concern embedded in their organization's actions, the outcomes that result from such actions, and how individuals, both within and outside the organization, are treated interpersonally as these actions are carried out (Aguilera et al., 2007). The external prestige generated by these external CSR initiatives translates into the identification of employees with their organizations (Hameed et al., 2016).

Employees have unique characteristics as a stakeholder group, in their own right as well as having a major influence on their organization's relationships with other stakeholders. As pointed out by Simmons (2008), Human Resources Management (HRM) is both a component and a potential facilitator of Corporate Social Responsibility (CSR). Employees seek benefits from their organizations: functional, in the form of challenging, stimulating, and satisfying work; economic, in the form of competitive compensation; psychological; and ethical. The provision of these benefits from a suitable HRM is considered indicative of a socially responsible employer, offering employees CSR values similar to those of their clients (Mason and Simmons, 2014).

In our research we focus on employees, specifically on internal CSR and its link with healthy organizations focused on workplace health promotion. Scientific production on CSR has grown exponentially in recent years, as society has become more aware of its importance, and more specifically, academic literature accumulates abundant production on the relationship between CSR and workers. Aguinis and Glavas (2012) identified, among others, conceptual frameworks that

describe how the psychological needs of employees drive participation in CSR; how participation in CSR is affected by needs, such as physiological support, safety, affiliation, esteem, and self-actualization; or how self-determination theory explains that decision contexts within organizations that foster competence, relationship, and employee autonomy can also drive commitment to CSR.

There have been systematic reviews carried out relating CSR and HRM (Yue, 2016; De Stefano et al., 2018; Herrera and de las Heras-Rosas, 2020; Xiao et al., 2020), CSR and organizational psychology (Glavas, 2016) or CSR and internal stakeholders' health and wellbeing (Macassa et al., 2021), but none focuses on the relationship between internal CSR and workplace health promotion as an HRM tool. Specifically, the role of workplace health promotion in the concept of corporate social responsibility was studied by Wojtaszczyk (2008), who highlighted the importance of social dialogue and worker participation. Later, in their study "CSR and the health promotion debate" on 12 articles extracted from EBSCO, Monachino and Moreira (2014) underlined that their research only furnishes a merely preliminary framework. In particular, more studies are needed to develop evaluation approaches and practical tools on how CSR in health promotion allows to align commercial and corporate needs and elucidate which factors can promote the participation of CSR in health promotion. A preliminary search of Scopus and Web of Science was conducted and no current or underway systematic reviews on this topic were identified. It seems the right moment to synthesize such experiences and highlight the opportunities that these tough times of COVID-19 can offer. The study of external activities and external performance of CSR is easier to be faced by researchers, due to the availability of information. However, it is difficult to think of any aspect of CSR different from workplace health promotion with a deeper impact on daily wellbeing of the workforce. We are sure that the recent pandemic has provided the social researcher with abundant practical information and heterogeneity among companies to witness in a near future an upswing of empirical articles on the topic that may benefit from the present systematic review.

Companies adopt CSR because it is a "win-win" strategy in terms of added wellbeing of their employees (Singhapakdi et al., 2015). The objective of this research is therefore to provide the academy, society, and its agents with a general and sufficiently concise knowledge of the relationship between workplace health promotion and CSR, so that the relevant specialized researches was gathered in a single document that, as a summary executive, lays the foundations of its applicability. The pandemic has posed challenges to organizations with regard to CSR, but it also offers opportunities to engage in new CSR initiatives and catalyze a new era of CSR development in the long term (He and Harris, 2020). This background underlines the social and scientific relevance of our work, since the review of the initiatives that relate CSR to health promotion

can contribute to its dissemination, its implementation, and its improvement, with a positive impact on the sustainability of organizations.

A systematic review has been carried out to analyze the state of the art. In fact, one of the main contributions of this manuscript is to demonstrate that although there are previous papers on HR, workplace wellbeing and CSR, different issues have been addressed in isolation, lacking a discourse that unites the different dimensions as a whole. Reviewing is a search for the whole truth, rather than just one part of it (Mulrow, 1994).

The paper is structured as follows: identification of a relevant research problem (section Introduction), theoretical background on CSR and healthy organizations (section Theoretical background), description of the methodology (Section Methodology), presentation and discussion of results (section Discussion), and, finally, conclusions and implications of the findings (section Conclusions).

## Theoretical background

Organizational health is a continuous process that result from interconnections between multiple factors (Adkins et al., 2000). For years, academics have proposed conceptual models of healthy organizations (Cox and Cox, 1993; Smith et al., 1995; Danna and Griffin, 1999). More recently, Grawitch et al. (2006) identified five key healthy workplace practices (work-life balance, employee growth and development, health and safety, employee involvement, and recognition), and Keller and Price (2011) categorized nine elements that contribute to organizational health: accountability, capabilities, coordination and control, culture and climate, direction, external orientation, innovation and learning, leadership, and motivation.

Other explanatory models around healthy organizations incorporate the organization's interaction not only with employees, but with a wide variety of stakeholders (Zwetsloot and Pot, 2004). The introduction of perspectives such as corporate social responsibility has positioned the concept of healthy organizations in a more inclusive perspective, as a possible way to get the goal proposed by Argandoña (2011) of balancing shareholder value creation with stakeholder value protection. Successful, healthy, and sustainable organizations generate processes, practices, dynamics, and work environments that favor the wellbeing of all their stakeholders (Grueso-Hinestroza, 2016). It is possible to refer to healthy organizations insofar as they achieve positive impacts on employees, customers, shareholders, suppliers, business partners, and society in general (Grueso-Hinestroza and Rey-Sarmiento, 2013). Recently Müller et al. (2021) identified the difference between the consumers' perspective on occupational health issues and responsibilities on the one hand and what companies and stakeholders believe consumers think about these issues and responsibilities on the other.

The empirical definition of healthy organizations usually focuses on employees' psychosocial health, without including the factors that could cause or maintain this health (Acosta et al., 2015), as the socio-organizational context of the workplace and the quality of work life itself (Dejoy and Wilson, 2009). Even if employees tend to experience lower levels of stress and a higher level of wellbeing when working in units that have a positive organizational climate of safety, customer service, fairness, interpersonal treatment, control, support, and effectiveness (Jex et al., 2014). Continuing to develop occupational health psychology will allow meeting the challenge of maximizing both workforce and organizational health (Adkins, 1999). Particularly important in this VUCA (Volatile, Uncertain, Complex, and Ambiguous) environment is that companies give meaning to their employee's work, understood as a sense of coherence, direction, meaning and belonging to working life (Schnell et al., 2013). Following Probst (2009), by offering secure employment when possible, improving communication, increasing employee's participation in decision-making, and maintaining a strong commitment to organizational safety during times of change, organizations can positively impact the wellbeing of their workers and families, proactively contributing to the long-term financial success and wellbeing of the organization itself.

Health promotion in the workplace has been concerned with improving the health and wellbeing of workers through programs and services that seek to improve personal health behaviors and lifestyle decisions (Dejoy and Wilson, 2009). Occupational health promotion encompasses screening activities to identify potential health risks (for example, health risk assessments); lifestyle management activities to improve health and to prevent or minimize risks, like exercise programs, healthy food proposals or, more recently, Mindfulness-Based Interventions in workplace mental health promotion (Huang et al., 2015); and lifelong learning interventions in the workplace (Poscia et al., 2016). So, health promotion programs focus not only on employees' physical and mental conditions related to their professional roles but also on their total life including, among others, family, fitness, eating, drinking, smoking, sleeping habits, and other employee behaviors (Holmqvist, 2009). Most health promotion programs adopt a medical perspective that focuses on known health risk behaviors, but few programs have still incorporated growth and development activities or principles of positive psychology (Tetrick and Winslow, 2015). A recent review of reviews about the effectiveness of workplace health promotion interventions on physical and mental health outcomes carried out by Proper and van Oostrom (2019) showed evidence for the effectiveness of workplace interventions on the prevention of weight-related outcomes as well as mental health and musculoskeletal disorders.

Workplace health promotion and wellness programs vary significantly in size and composition. Employers looking



for programs “that work” are urged to consider if their organizational culture can facilitate their success (Goetzel et al., 2014). Forward-thinking organizations are focusing on improving the health of their overall workforce through integrated strategies that include promoting health in the workplace with the support of committed leadership (Childress and Lindsay, 2006), always keeping in mind employers’ views on the promotion of workplace health and wellbeing (Pescud et al., 2015). Companies with the most effective workplace health promotion programs report superior financial performance (Grossmeier et al., 2016). Future research is needed on the factors that contribute to the successful implementation of these interventions (Proper and van Oostrom, 2019).

In order to unite the objectives of the different stakeholders, CSR actions must be accompanied by upgrades of employee working conditions (Harvey, 2019). Internal CSR practices are those directly related to the physical and psychological working environment of employees: their health and wellbeing, their training and participation in the business, their equality of opportunities and their work-family relationship (Low, 2016). As its inclusion in all major CSR measurement and reporting guidelines demonstrates, Occupational Safety and Health (OSH), a broad discipline that covers among other areas the promotion and maintenance of the highest degree of physical, mental, and social wellbeing of workers, forms an integral part of CSR (Sowden and Sinha, 2005). But nevertheless, even if CSR standards broadly include issues related to OSH, other areas of working conditions have more limited coverage. It is the case of psychosocial risk factors (lack of variety at work, lack of meaning or meaningless fragmented tasks, tasks below the worker’s skills, role ambiguity, role conflict, or responsibility for other people). Other risk factors such as low levels of support in problem solving and professional development, poor relationships with superiors, or lack of social support, do not appear commonly in CSR standards (Jain et al., 2014).

The development of CSR requires new proposals about how managers and workers can best approach OHS (Montero et al., 2009). Integrating OHS in CSR leads to an interesting approach that shapes and solves a number of current concerns (Cioca et al., 2014). CSR opens new opportunities to manage OHS within the organizations, to experiment with positive OHS concepts, and connect to strategic long-term OHS and CSR strategies and development (Zwetsloot and Ripa, 2012). In the path from accident prevention to the promotion of health, safety, and wellbeing at work CSR has an important role to play by inspiring transformational leaderships rational but also founded on ethics (Zwetsloot et al., 2017). In this sense, the Global Reporting Initiative adopted in 2018 a new standard requiring companies to report on their initiatives to promote the health of workers and becoming the first instrument that specifies requirements for employers in promoting the health in the workplace (Olsen, 2020).

## Methodology

A systematic review is “a review of the evidence on a clearly formulated question that uses systematic and explicit methods to identify, select and critically appraise relevant primary research, and to extract and analyze data from the studies that are included in the review” (Khan et al., 2001). Carrying out systematic reviews is undoubtedly one of the main methods of synthesis of knowledge (Grant and Booth, 2009). They address questions that could not otherwise be answered by individual studies, allow the identification of research problems for future studies, and can generate or evaluate theories about how or why phenomena occur (Page et al., 2021).

This research has been carried out according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis PRISMA protocol (Moher et al., 2009), recently updated (Page et al., 2021). PRISMA was developed by a group of experts who identified the minimum criteria for systematic reviews for high-quality scientific publications. The use of the PRISMA checklist increases their transparency (Kelly et al., 2016) and facilitates the traceability of the entire process in general and the flow of information in particular. Following the recommendations of Hartling et al. (2015), and aligned with the PRISMA proposal, the research was characterized by its transparency and the clarity of its purpose. In the case of this research, a four-stage process was followed from its purpose: identification of relevant studies, selection of studies, mapping of data, and synthesis and reporting of the results.

## Identification of studies

First, the inclusion and exclusion criteria were specified and documented. Research studies published in scientific journals and books and chapters, all written in the English language, were included. Conference proceedings were excluded because they were considered to be ongoing investigations, the final results of which usually appear in articles. The official literature, status reports and opinion pieces in magazines were not considered either because our purpose was to identify and analyze proposals based on scientific studies.

## Selection of studies

An exhaustive search of the Scopus, Proquest, and Web of Science databases was then carried out in December 2021. To construct the optimal search equation, combinations of keywords, and phrases related to occupational health promotion and corporate social responsibility were tested. The search strategy was adapted for each included database. For example, the search equation finally used on Scopus, including limiters to consider the inclusion and exclusion criteria,

was: ALL ("Corporate social responsibility" AND "Workplace health promotion") AND [LIMIT-TO (DOCTYPE, "ar") OR LIMIT-TO (DOCTYPE, "ch") OR LIMIT-TO (DOCTYPE, "re") OR LIMIT-TO (DOCTYPE, "bk")] AND [LIMIT-TO (LANGUAGE, "English")]. No date range was included.

The bibliographic search yielded 179 investigations. The results were exported to EndNote and the information specialist on the research team removed the duplicates. The detection and elimination of duplicate studies involved 34 citations, keeping 145 articles.

Subsequently, following a pilot test, titles and abstracts were screened by two independent reviewers, MAGM and AIGL, for assessment against their adaptation to the objective of the study from the perspective of its scope, opting for those generalizable contributions in a broad sense. After title and abstract screening, the researchers kept 66 articles.

The full text of the selected citations was assessed in detail by the same reviewers. Following the critical appraisal, studies that did not meet a certain quality threshold were excluded. This decision was based on the originality of their contributions (Daudt et al., 2013), their adaptation to the objective of the study, and the affirmative answer to the five criteria proposed by Dixon-Woods et al. (2006): are the aims and objectives of the research clearly stated?, is the research design clearly specified and appropriate for the aims and objectives of the research?, do the researchers provide a clear account of the process by which their findings were reproduced?, do the researchers display enough data to support their interpretations and conclusions?, is the method of analysis appropriate and adequately explicated? Any disagreements that arose between the reviewers were resolved with an additional reviewer, MISG. Forty-eight articles were excluded in this full text screening and, therefore, 18 documents were accepted.

A backward and forward snowballing process on these included articles allowed the identification of 14 more references, which were subjected to screening. This process included nine more references. At last, the number of articles included in the qualitative synthesis was 27. The list of included and non-included articles is attached as [Supplementary material \(Appendices I, II\)](#).

The results of the search and the study inclusion process are presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) flow diagram ([Figure 1](#)) that shows the inclusion decision flowchart with the steps in the process.

## Mapping of data

All included studies underwent data extraction and synthesis. First, they were aggregated by two independent reviewers, MAGM and AIGL, in a [Table 1](#) with all the relevant data to inform the objective and the research question. The extraction fields agreed by the research team were the following:

title, first author, journal or conference, year, keywords, and main contribution. The researchers independently extracted data from the first 10 studies and pooled together to confirm that their approach to data extraction was consistent with the research question and purpose. Any disagreements that arise between the reviewers was resolved through discussion.

## Synthesis and reporting of the results

The publication platforms for the selected articles are mainly magazines dedicated, in this order, to Health and Medicine, Business and Management, Economics, Occupational Health, and Social Sciences. *Journal of Business Ethics* and *Sustainability* are the only journals with two articles included in the qualitative synthesis.

The keywords of the selected articles are generic for the entire corpus or specific to one or more topics. Apart from the most obvious ones, linked to the search equation, the most prominent ones are health (6), wellbeing (6), COVID-19 (3), stakeholders (3), employee satisfaction (2), Europe (2), Germany (2), human resources management (2), networks (2), occupational safety and health (2), SDG Goal 3 (2), and supply chain (2).

Regarding the geographical distribution of this literature, Sweden (7) and Germany (5) stand out, followed, with two articles, by Hungary, Slovenia, The Netherlands, and UK. It should be remembered that, according to the inclusion and exclusion criteria, literature published in languages other than English was not considered and, therefore, the analysis might not represent a global sample. Furthermore, the analysis was only performed on scientific publications, thus excluding other types of publication such as public documents and other gray literature.

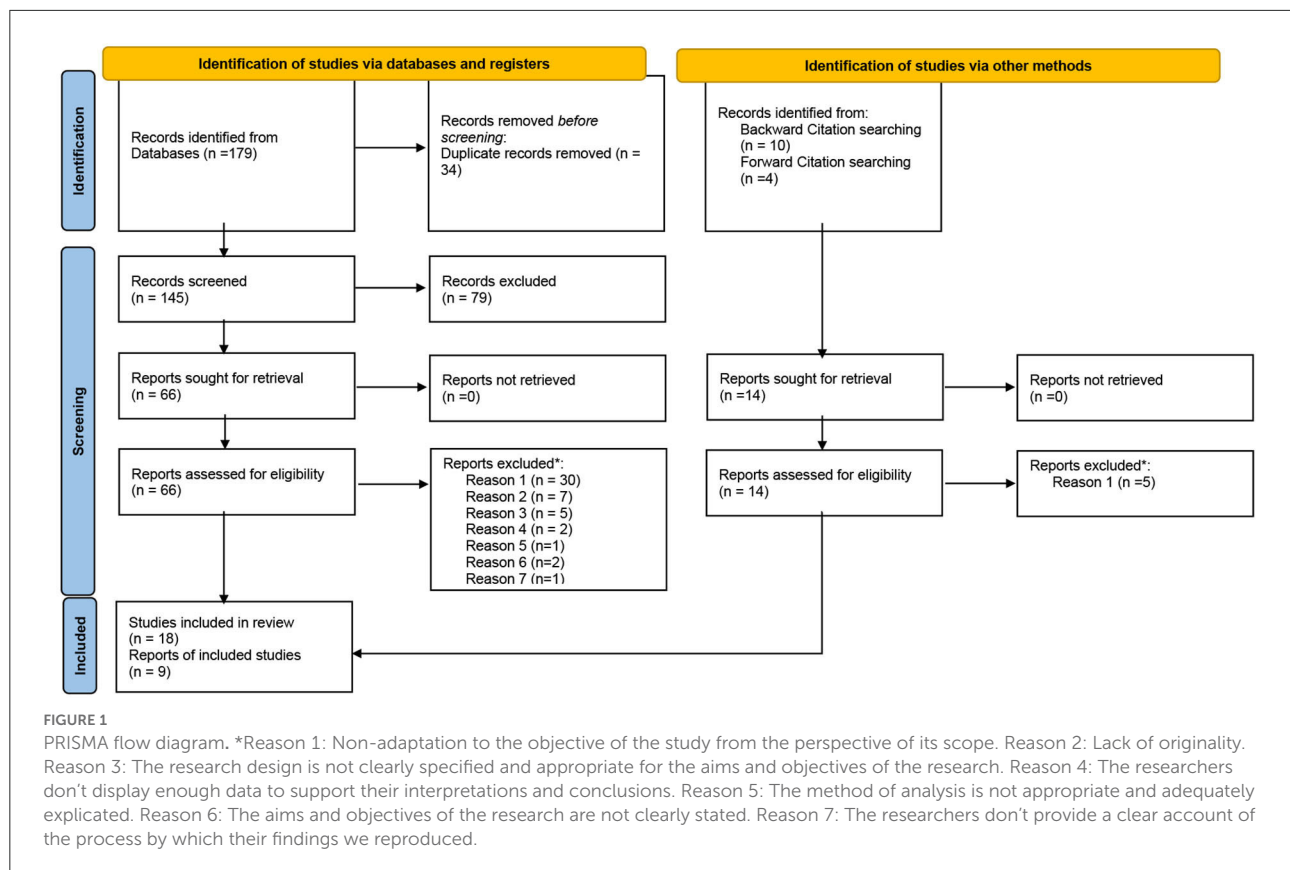
## Discussion

This process involved the synthesis of findings to generate a set of statements that represent that aggregation, through assembling the findings and categorizing these findings on the basis of similarity in meaning. These categories were then subjected to a synthesis in order to produce a single comprehensive set of synthesized findings that can be used as a basis for evidence-based practice. Where textual pooling was not possible the findings were presented in narrative form. Only unequivocal and credible findings were included in the synthesis.

## Key findings

CSR and WHP are linked, and there are positive reciprocal effects between them ([Bamberg et al., 2019](#)). Work-related





diseases and accidents impose high costs on the economy and have negative effects for employees and their families (Tanner et al., 2019). CSR behavior impacts on health promotion positively and so influences on occupational health and safety (Žižek and Mulej, 2016). Following Sowden and Sinha (2005), the review of the relevance of CSR for the promotion of occupational health and safety shows that, in many ways, CSR is a potentially very useful vehicle for WHP. Its focus on social outcomes, particularly the impacts on employees, should place OHS at the center of CSR. At the same time, one interesting way to improve the implementation of CSR in the organizations is to integrate CSR into specific fields of action, such as WHP (Bamberg et al., 2019), remembering that an uncontroversial issue is that companies already have a social responsibility in complying with the classic obligations of health and safety at work (Siegel et al., 2021).

Macassa et al. (2017) suggest a joint agenda for CSR and global health promotion as part of sustainable development, which would integrate, firstly, CSR and sustainability from a health perspective and, secondly, the promotion of the health of stakeholders from the perspective of sustainable development. In fact, health promotion is not only considered as a CSR activity by a growing number of corporations; also, national, and international legislators demand that companies act in a socially

responsible manner through health promotion (Holmqvist, 2009).

All potential resources available should be aware of the mutual importance of CSR and WHP. However, Bamberg et al. (2019) notice that persons in charge of health promotion are rarely informed about CSR programmes. Macassa et al. (2021) highlight the need for health science researchers to be incorporated into discussions about the potential impact of internal CSR on employee health as well as on OHS outcomes beyond job satisfaction. From a health promotion perspective, organizations will be required to contribute to addressing the social determinants of health, which *per se* requires the participation of actors outside the health system (Chowdhury et al., 2021). A new type of collaboration between employees, employers, and other actors in the field is required, as WHP needs cooperation, partnerships, and alliances between both internal and external stakeholders (Auvinen et al., 2012). The WHP inspired by CSR goes beyond the limits of organizations and includes interactions with other organizations in their value chain. To spread the idea of WHP and to connect WHP and CSR, networking is a beneficial and useful first step (Tanner et al., 2019), as interactions allow sharing experiences, making decisions together or even modifying processes (Bamberg et al., 2019).

TABLE 1 Data extraction.

| References                               | Title   | Journal/Book                                      | Subjects                                  | Country 1st author | Keywords   | Main subject   |
|--|---|---|---|--------------------|--|--|
| Auvinen et al. (2012)                    | Workplace health promotion and stakeholder positions: a finnish case study  | Archives of Environmental and Occupational Health | Environmental Health. Occupational Health | Finland            | Finland, occupational health services, stakeholders, stakeholder analysis, workplace health promotion  | No stakeholders are strongly opposing the acceleration of WHP as an important part of occupational health care. There are, however, great differences in the level of interest among various stakeholders and even some resistance due to different views of OHS system development priorities and allocation of financial resources |
| Bamberg et al. (2019)                    | Enhancing organizations' social responsibility by workplace health promotion?   | Social Responsibility and Sustainability          | Social Responsibility. Sustainability     | Germany            | Workplace health promotion, corporate social responsibility, management systems, supply chain, networks  | Small-sized enterprises often lack the knowledge and resources required for CSR and WHP. Therefore, they may profit crucially from support within a network  |
| Bolis et al. (2014)                      | Mapping the relationships between work and sustainability and the opportunities for ergonomic action                            | Applied Ergonomics                                | Ergonomics                                | Brazil             | Work, Sustainable development, Corporate sustainability  | Ergonomics can help place the action of CSR squarely within the vision of sustainable development, at least from the standpoint of its internal social dimension   |
| Chowdhury et al. (2021)                  | CSR reporting of stakeholders' health: proposal for a new perspective   | Sustainability                                    | Management, Conservation Biology          | Sweden             | GRI, stakeholder, health, corporate social responsibility, reporting, disclosures  | Classification of core and comprehensive GRI disclosures that have direct or indirect influence on the health of external or internal stakeholders   |
| Ferreira and de Oliveira (2014)          | Does corporate social responsibility impact on employee engagement?   | Journal of Workplace Learning                     | Human Resources                           | Portugal           | Corporate social responsibility, employee engagement, CSR, internal CSR, external CSR, Utrecht work engagement scale   | The need to enlighten the impact that socially responsible practices can have on employees' engagement   |
| Gorgenyi-Hegyes and Fekete-Farkas (2019) | Internal CSR as a strategic management tool in reduction of labor shortages   | Polish Journal of Management Studies              | Management                                | Hungary            | Labor market, sustainability, internal CSR activities, human resource management, CEE region   | Potential role of internal CSR activities in reduction of labor shortages  |
| Gorgenyi-Hegyes et al. (2021)            | Workplace health promotion, employee wellbeing and loyalty during COVID-19 pandemic-large scale empirical evidence from Hungary | Economics   | Development Economics and Macroeconomics  | Hungary            | Workplace health promotion, CSR, social sustainability, PLS-SEM, self-reliance and preservation, employee wellbeing; employee satisfaction, SDG Goal 3, COVID-19 | Effects of COVID-19 pandemic on CSR activities and Health sensitivity has significantly increased due to pandemic. Important health factors have to be emphasized by not only policy decision makers but also employers  |

(Continued)

TABLE 1 (Continued)

| References                      | Title   | Journal/Book                       | Subjects   | Country 1st author | Keywords   | Main subject  |
|---------------------------------|---|------------------------------------|--|--------------------|--|---|
| Holmqvist (2009)                | Corporate social responsibility as corporate social control: The case of work-site health promotion                             | Scandinavian Journal of Management | Management   | Sweden             | preservation; employee wellbeing, employee satisfaction; SDG Goal 3, COVID-19              | Health promotion may be a particularly important mechanism of corporate social control since this practice targets the very foundation of a human's "personal condition"—sickness or health; disability or fitness                |
| Holmqvist and Maravelias (2010) | Managing healthy organizations: Worksite health promotion and the new self-management paradigm                                  | Managing Healthy Organizations     | Economics, Finance, Business, and Industry                   | Sweden             | –  | Work site health promotion may be a sign of a new or altered corporate health ethic: in contrast to the old corporate health ethic, the new appears to judge the whole employee and especially what the whole employee may become |
| Jain et al. (2011)              | Corporate social responsibility and psychosocial risk management in Europe  | Journal of Business Ethics         | Religion and Philosophy (General), Business (General), Ethic | UK                 | Psychosocial risk management, CSR, work-related stress, wellbeing, Europe                  | The management of psychosocial issues and risks is also about ethics and values, about doing the right things   |
| Kuhn et al. (2020)              | The ethics of workplace health promotion  | Public Health Ethics               | Public Health  | Germany            | –  | Highlight the inadequacy of currently established ethical frameworks to sufficiently cover all aspects of workplace health promotion  |
| Kuhn et al. (2021)              | Interfaces of occupational health management and corporate social responsibility: a multi-center qualitative study from Germany | BMC Public Health                  | Health and Medicine (General)                                | Germany            | Workplace health promotion, Corporate philosophy, ethical values, company culture, Germany | Potential, theory, and practice, for the systematic combination of OHM and CSR  |
| Macassa et al. (2021)           | Corporate social responsibility and internal stakeholders' health and wellbeing in Europe: a systematic descriptive review      | Health Promotion International     | Health Education   | Sweden             | Corporate social responsibility (CSR), internal stakeholders, health and wellbeing, Europe | The need for a consensus on measurement of internal CSR and of outcomes related to health and wellbeing, in order to enable better comparison of findings from studies across Europe  |
| Macassa et al. (2017)           | Corporate Social Responsibility and Population Health.  | Health Science Journal             | Health and Medicine (General)                                | Sweden             | Corporate social responsibility, Business case, Responsible leadership, Population health  | Necessity of building a platform for a joint agenda for CSR and global health promotion as part of sustainable development  |

(Continued)

TABLE 1 (Continued)

| References                      | Title   | Journal/Book  | Subjects   | Country 1st author | Keywords  | Main subject  |
|---------------------------------|---|---|--|--------------------|---|---|
| Maravelias and Holmqvist (2016) | “Healthy organizations”: Developing the self-managing employee  | Int. J. Human Resources Development and Management                | Human Resources, Management                                  | Sweden             | workplace health promotion; WHP; health; self-management; human capital; human resource management  | WHP is still a potentially precarious activity because it tends toward subordinating not only work, but also life in general to principles of management and performance  |
| Monachino and Moreira (2014)    | Corporate social responsibility and the health promotion debate: an international review on the potential role of corporations                | International Journal of Healthcare Management                    | Medicine (General); Public aspects of medicine               | Sweden             | CSR, Healthcare management, Corporate communication, Health promotion, World health organization, Health partnerships   | Further research was needed to develop assessment approaches and practical instruments as how a more detailed understanding of CSR involvement in health promotion may allow alignment  |
| Moussu and Ohana (2016)         | Do Leveraged Firms Underinvest in Corporate Social Responsibility? Evidence from Health and Safety Programs in U.S. Firms                     | Journal of Business Ethics  | Religion and Philosophy (General), Business (General), Ethic | France             | Debt, investment, health and safety programs, corporate social responsibility   | The negative link between debt and CSR is interpreted as an efficient disciplinary effect of debt on CSR. However, the specific case of HandS programs suggests that debt discipline leads to underinvestment in activities of high importance for both firms and society |
| Núñez-Sánchez et al. (2021)     | Corporate wellbeing programme in covid-19 times. The Mahou San Miguel case study  | Sustainability  | Management, Conservation Biology                             | Spain              | corporate wellbeing, COVID-19, telework, worker's health, physical inactivity, corporate, wellbeing programmes  | Human Resources departments should adapt their workplace wellbeing programmes to the new situation  |
| Radacsi and Hardi (2014)        | Substance misuse prevention as corporate social responsibility  | Substance Use and Misuse  | Substance Abuse and Addiction                                | Hungary            | Substance misuse prevention, corporate social responsibility, workplace, health promotion, East-Central Europe  | Support for substance misuse prevention is an issue of both communication and a perception  |
| Rai (2019)                      | Tata steel's initiatives for promotion of health and wellness through corporate social responsibility   | Jharkhand Journal of Development and Management Studies           | Management   | India              | Corporate social responsibility, sustainable business, stakeholders, economic transformation, community   | Tata steel experience   |
| Siegel et al. (2021)            | Attitudes of company executives toward a comprehensive workplace health management—Results of an exploratory cross-sectional study in Germany | International Journal of Environmental Research and Public Health | Health and Medicine (General), Environmental Sciences        | Germany            | Workplace health management, total worker health, occupational safety and health, small and medium-sized enterprises (SME), cross-sectional survey, self-administered questionnaire, exploratory factor analysis, multiple regression analysis, Germany | Positive view on occupational safety and health according to corporate social responsibility  |

(Continued)

TABLE 1 (Continued)

| References                | Title   | Journal/Book  | Subjects  | Country 1st author | Keywords   | Main subject  |
|---------------------------|---|---|---|--------------------|--|---|
| Sørensen and Brand (2011) | Health literacy—A strategic asset for corporate social responsibility in Europe                                       | Journal of Health Communication International Perspectives                              | Health; Communication; Europe; Social Science; Public Aspects of Medicine; Social sciences (General); | The Netherlands    | –  | Health Literacy as an Asset for Corporate Social Responsibility   |
| Sowden and Sinha (2005)   | Promoting health and safety as a key goal of the Corporate Social Responsibility agenda                               | Promoting health and safety as a key goal of the Corporate Social Responsibility agenda | Health  | UK                 | –  | For the CSR movement to give OHS greater prominence it must be viewed as a material issue of reputational risk and business performance and/or an important element in the interaction of the business with employees |
| Tanner et al. (2019)      | Workplace health promotion inspired by corporate social responsibility—Interactions within supply chains and networks | Management Revue  | Management  | Germany            | Workplace health promotion, corporate social responsibility, supply chain, networks, collaboration   | The establishing of networks is a beneficial first step and useful in spreading the idea of WHP and connecting WHP and CSR  |
| Žižek et al. (2017)       | Health-promoting leadership culture and its role in workplace health promotion  | Occupational Health   | Occupational Health   | Slovenia           | Ethics, Health, Health-promoting leadership culture, Management, Leadership, social responsibility, workplace health promotion, work environment | Leaders must be consistent and proactive about incorporating ethics into their leadership agenda, to match principles of social responsibility, including WHP   |
| Žižek and Mulej (2016)    | Creating a healthy company by occupational health promotion as a part of social responsibility                        | Kybernetes  | Artificial Intelligence   | Slovenia           | Employees, health, social responsibility, Requisite holism, Work health promotion  | Develop model of socially responsible occupational health and safety  |
| Zwetsloot et al. (2013)   | The core values that support health, safety, and wellbeing at work  | Safety and Health at Work   | Occupational Health and Safety  | The Netherlands    | Occupational health, organizational culture, occupational safety, social responsibility, social values   | The concept of responsibility is linked with that of “prevention culture,” partly through the closely related concept of “Corporate Social Responsibility” which implies a link with business ethics                  |

Communicating the efforts that the organizations do through standardized procedures is relevant. Chowdhury et al. (2021) synthesize the Global Reporting Initiative (GRI) contents that have a direct and indirect effect on the health of the population (internal and external stakeholders) that organizations must address when publishing their CSR reports. Open communication, transparency, and stakeholder participation link CSR and WHP (Zwetsloot et al., 2013).

## Leadership

Research such as that of Moussu and Ohana (2016) provides evidence that the decision to launch a health and safety program is taken at the CEO level. Business organizations that make the health and wellbeing of all stakeholders through CSR strategies a business case need a committed leader (Chowdhury et al., 2021). Leadership support, expressed in the participation and promotion of leaders in policies and practices that foster the development of social responsibility, is identified by Žižek et al. (2017) as an essential component of successful WHP programs. Leaders also play a relevant role in formulating goals, which is very relevant since one way to integrate CSR and WHP is to formulate clear goals (Bamberg et al., 2019), keeping in mind that the promotion of wellbeing at work is one of the main goals of companies in the context of their discourse about sustainability (Bolis et al., 2014).

Nevertheless, the findings of Jain et al. (2011) indicate that even accepting that the internal dimension of CSR has a direct relationship with occupational psychosocial risks, the “win-win” situation still seems very distant.

## Practices

Holmqvist already collected in 2008 examples of Swedish companies of work-site health promotion as a means to exercise CSR. As a good example Tetra-Pak developed activities to promote employees' health included, among others, health profiles, where employees' lifestyles were screened by professionals, and focused on so-called health-promoting leadership.

Gorgenyi-Hegyes and Fekete-Farkas (2019) group CSR initiatives within the scope of the WHP into three areas: environmental issues, like safe and secure working environment; risk factors related to nutrition, like fresh food at the workplace restaurant, cooking courses, and nutrition counseling; and risk factors related to lifestyles, like support for sport and fitness, massage, psychologist, relaxation training, screening programs, vaccinations, or regular physical check. These health preservation and health promotion initiatives affect employee loyalty through

employee satisfaction and wellbeing (Gorgenyi-Hegyes et al., 2021).

In the particular case of the prevention of substance abuse in the workplace, and although CSR is valued as an adequate framework, the work of Radacsi and Hardi (2014) highlighted that it cannot be applicable in the case of employers and companies that do not even comply with their basic legal obligations regarding the safety and health of their employees.

Rai (2019) compiles the detailed description of the CSR activities carried out by the TATA firm in the field of health promotion, among which external initiatives stand out, such as the creation and operation of clinics and hospitals, health camps, family planning services and treatment and rehabilitation of people with disabilities, and interns, such as raising awareness of various health problems and generating demand for health services. More recently, Núñez-Sánchez et al. (2021) describes how Mahou San Miguel, a Spanish company whose Corporate Social Responsibility includes employees' health and wellbeing as one of its strategic lines, has adapted their corporate wellbeing programs to the new post-COVID reality.

However, as will be discussed below, within WHP settings, questions of autonomy and voluntariness are highly relevant (Kuhn et al., 2020).

## Training

CSR activities play a role for health promotion that organizations must assume, as they can focus on health education and confer understanding of the role of social determinants in health, but academics still seem to be more focused only on the involvement in health promotion of the industry sectors in which CSR strategies are considered more critical and controversial (Monachino and Moreira, 2014).

Sørensen and Brand (2011) reflect on the introduction of health literacy as an asset, as a management tool, for Corporate Social Responsibility through which the organizations can create a health-friendly environment, increase the workforce's awareness to manage their own health and make decisions in terms of promoting health and wellbeing. Values related to psychosocial issues and ethical dilemmas could, and should, also be integrated into the training plans that companies offer as part of their CSR policies (Jain et al., 2011): the more an organization actively engages in CSR practices, the more engaged their employees are (Ferreira and de Oliveira, 2014).

## Ethics

Some of the articles reviewed by Monachino and Moreira (2014) reflect a precautionary stance toward CSR, mainly warning against certain potential threats inherent in its



practice, such as potential lobbying objectives and hidden agendas. As pointed out by Žižek et al. (2017), “Leaders must be consistent and proactive about incorporating ethics into their leadership agenda, to match principles of social responsibility, including WHP.” For WHP, ethical leadership is important because it is positively related to followers’ ethical decision-making, prosocial behavior, and followers’ satisfaction, motivation, and organizational commitment, among other factors.

Attention should also be paid to the fact that health promotion, as proposed in CSR, may be closely linked to an idea of control over the behavior and actions of workers, whose attitudes and behaviors would be shaped in accordance with company standards and value (Bolis et al., 2014); From this point of view, health promotion could be viewed as an effective means of social control “that operates both intraphysically and in terms of cultural values and norms” (Holmqvist, 2009), “closely related to critical studies of unobtrusive forms of control such as human resource management techniques and corporate culture programs” (Maravelias and Holmqvist, 2016). Participants in the study by Kuhn et al. (2021) reported difficulties in articulating ethical values relevant to both health management and CSR at the strategic level. The new corporate health ethic appears to judge the whole employee and what the whole employee may become (Holmqvist and Maravelias, 2010).

## Conclusions

The objective of our research is to provide concise knowledge of the relationship between workplace health promotion (WHP) and corporate social responsibility (CSR) so that the relevant specialized research was gathered in a single document that lays the foundations of its applicability. Among the main results obtained from the systematic review, we highlight that there is a lack of a holistic discourse on topics related to HR, labor wellbeing and CSR which support the development of evaluation approaches and practical tools on how CSR promotes health promotion. The CEO of a company that understands that the value of a company depends on its workers, will be more likely to introduce HR strategies that guarantee the access and maintenance of talented workers.

We are facing a complex and uncertain reality, in which the principles of sustainability are more valid than ever. Companies, aware of this, are redoubling their efforts within the framework of Corporate Social Responsibility. Among the internal initiatives that companies have been addressing are those related to health promotion, focused on the detection of potential health risks and the management of lifestyle for their prevention or minimization. CSR is a potentially very useful vehicle for WHP and, in parallel, WHP is a specific

field of action that allows the internal deployment of social responsibility. For example, an unexpected consequence of the confinement is that for many workers the return to their workplaces has been hard. The great resignation in the USA points to the need to improve labor welfare in companies to retain workers. This paper is not devoted to the COVID 19 pandemic, but the pandemic has highlighted the importance of this research line for a wide range of stakeholders (academics, managers, workers, policy makers, and so on).

Health promotion is not only considered as a CSR activity by a growing number of companies; likewise, national, and international legislators demand that companies act in a socially responsible manner through health promotion. All potential resources available, internal, and external to the organization, must be made aware of the mutual importance of CSR and WHP. Firstly, there is a need for health science researchers to join in discussions about the potential impact of internal CSR on employee health. Secondly, a new type of collaboration between employees and employers is required. And finally, the WHP inspired by CSR includes interactions with other organizations all around the value chain and the creation of networks that allow sharing knowledge and making joint decisions from a systemic improvement approach.

The participation and promotion of leaders in policies, the formulation of objectives, and the implementation of practices that foster the development of social responsibility are essential components of successful WHP programs. To prevent these initiatives from being perceived as an attempt to control the behavior of workers and shape them to the particular values of each company, leaders must consider them in an environment of autonomy and voluntariness.

The analysis of the data obtained through a systematic review has made it possible to synthesize the key aspects of the relationship between Corporate Social Responsibility and the promotion of health at work. However, the impact of the pandemic makes us cautious about our conclusions, and future research will be necessary to determine the new relationships that will be established between companies and workers in a context that is much more concerned with aspects related to health.

## Data availability statement

The original contributions presented in the study are included in the article/Supplementary material, further inquiries can be directed to the corresponding author/s.

## Author contributions

M-JA-N, M-Á-C-L, and M-Á-G-M: conceptualization. M-JA-N, M-Á-C-L, M-Á-G-M, MG-L, JR-M, and IS-G:

methodology, writing original draft, and visualization. M-ÁG-M and A-IG-L: data curation, supervision, and project administration. All authors contributed to the article and approved the submitted version.

## Funding

This research was funded by the Spanish Ministry of Economy and Competitiveness (Grant number CSO2017-82110-R) and by the Department of Science, University, and Knowledge Society of the Government of Aragón, in charge of the reference research group Wellbeing and social capital (BYCS) (ref. S16\_20R, internal code 270–308).

## 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.

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## Supplementary material

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2022.1011879/full#supplementary-material>

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## OPEN ACCESS

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## SPECIALTY SECTION

This article was submitted to  
Organizational Psychology,  
a section of the journal  
Frontiers in Psychology

RECEIVED 16 August 2022

ACCEPTED 10 October 2022

PUBLISHED 09 November 2022

## CITATION

Pérez-Nebra AR, Viana BS, Lira E,  
Martín-Hernandez P, Gracia-Pérez ML  
and Gil-Lacruz M (2022) The work  
design contribution to educational  
workers' sustainable wellbeing and  
performance patterns.  
*Front. Psychol.* 13:1020942.  
doi: 10.3389/fpsyg.2022.1020942

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# The work design contribution to educational workers' sustainable wellbeing and performance patterns

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Brazilian education faces difficulties relating to performance and illness, suggesting that the characteristics of the work can affect both variables. This study aims to describe the work characteristics that increase the odds of having happy-productive patterns in education workers. A total of 4,598 employees of the Secretariat of Education of the Federal District (SEEDF) participated in the research, answering questionnaires about work design (Brazilian version, with 18 factors), wellbeing (containing three factors), and performance. The results showed that task, social, and contextual characteristics increase the probability of being in the happy-productive pattern, and specifically, Social Support, Feedback from Others, Task Significance, Task Identity, and Autonomy, in this order, should be considered for intervention purposes.

## KEYWORDS

work characteristics, work design, wellbeing, happy-productive worker, teachers, elementary school, social support

## Introduction

One of the United Nations Sustainable Development Goals is to increase and protect health and wellbeing (Goal 3). Moreover, societies prosper when social capital is high, i.e., when there is a broader and positive social environment and relationship (Diener and Seligman, 2004; Kiss et al., 2014). A key actor in the relationships of society is the elementary school worker, who directly and indirectly serves many families. However, this professional is not always well (experiences wellbeing) and sometimes does not perform well, with clear repercussions for society. Due to these consequences, this research aims to analyze which work characteristics can facilitate patterns of relationship between wellbeing and performance. Diagnosing the work's characteristics will allow organizations to be healthier.

Education is a fundamental right guaranteed by the Brazilian Federal Constitution, and the teacher and other workers in the school are the main facilitators of the learning process and children's care. The performance of these professionals can be measured subjectively, from his/her self-perception, and objectively, through educational indexes



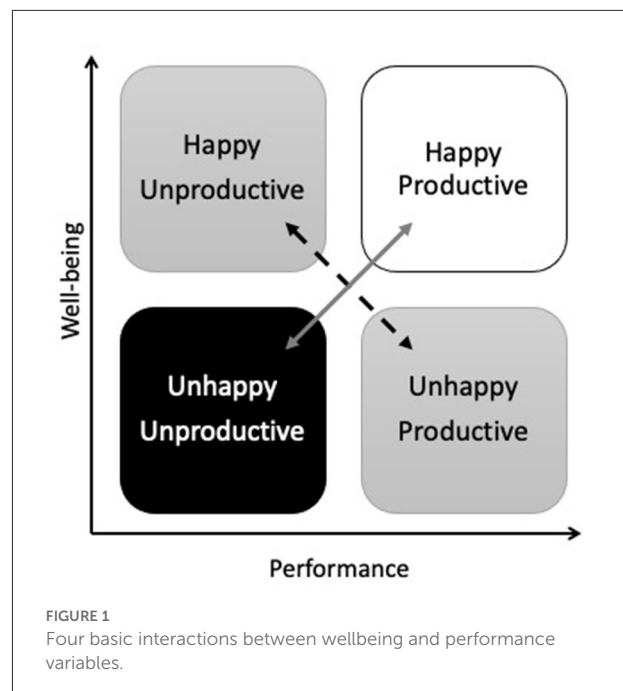
[IDEB, SAEB, and PISA, (Brasil, 2021)]. The results of these indexes have not been satisfactory in Brazil, and the schools that make up the Secretary of State for Education have presented difficulties regarding their performance. Contributing to this scenario, the high rate of sickness absenteeism suggests low wellbeing of the educational worker, which, together, leads to an unhappy and unproductive category.

The International Labor Organization (ILO) considers the education profession one of the most stressful, having evident repercussions on physical and mental health and professional performance (Reis et al., 2006). One of the justifications for the lower-than-expected educational rates and the greater rates of illness lies in the relationship between the wellbeing and performance of the actors involved in the educational context, which is not presented in a sustainable manner for both variables. It is necessary to foster a positive synergy, characterized by Peiró et al. (2014) as “sustainable productive wellbeing synergy,” in a practical and manageable way to help education professionals and managers deal with the phenomenon.

For several years, the relationship between wellbeing and performance was grounded in the “Happy–Productive Worker Thesis” (HPWT), which states that workers with higher levels of wellbeing tend to perform better at work compared to workers with lower levels of wellbeing. However, this proposition has some limitations, such as the focus being only on hedonic wellbeing (e.g., “Happy,” which will be discussed below) to the detriment of eudaimonic wellbeing. Another limitation relates to measuring task performance only, i.e., only one of the dimensions analyzed in the concept, and also to the linearity of the relationship between the two variables, by assuming that the happy worker is productive and the productive worker is happy. However, other patterns of relationships may exist, especially those that establish negative and null associations between these two variables (Peiró et al., 2019; Pérez-Nebra et al., 2021a).

In other words, the HPWT does not explain the nuances of the relationship between wellbeing and performance. In order to overcome the limitations of this model, the proposal is to study the relationship between wellbeing and performance by patterns, where positive and negative relationships between the constructs are possible, namely, where the worker can also be “happy–unproductive” or “unhappy–productive.” Peiró and colleagues (Peiró et al., 2019; Pérez-Nebra et al., 2021a) suggest that it is important to consider antagonistic patterns in redesigning the “happy–productive” worker thesis.

In the proposed patterns, four types of interactions between variables are suggested: high wellbeing and high performance, low wellbeing and low performance, high wellbeing and low performance, and low wellbeing and high performance. They can be separated by quadrants, with synergistic relationships such as “happy–productive” or “unhappy–unproductive” and antagonistic relationships such as “happy–unproductive” or “unhappy–productive,” as shown in Figure 1, where the



“happy–productive” pattern is the desirable one and interpreted as more sustainable in the long run, unlike the others that can lead to occupational disease (Ayala et al., 2017; Peiró et al., 2014; Peiró et al., 2015; Latorre et al., 2021).

“Happiness” is a generic word that has some limitations. Among them is that it is considered fleeting, only oriented to hedonism, and in this work, it was used to refer to the thesis of the happy–productive worker. Subjective wellbeing is a broad category of a phenomenon that includes different dimensions (Diener et al., 1999). This approach has two predominant perspectives: hedonic and eudaimonic. The former wellbeing is based on the idea of happiness and comprises individual experiences of pleasure and displeasure, which stems from judgments about the positive and negative elements of life (Ryan and Deci, 2001). The eudaimonic covers the individual’s self-realization perspective; the achievement of a life’s purpose and personal growth are central elements (Ryff and Singer, 2008). Transferring the reading of hedonic and eudaimonic wellbeing to the work context, it can be conceptualized as the prevalence of positive affect and the individual’s perception that, in their work, they express and develop their skills and advance in the fulfillment of their life goals (Waterman, 1993; Paschoal and Tamayo, 2008). This triad, between Negative and Positive affect and Fulfillment at Work, will be used in the present work.

The separation into components of wellbeing and its valence (positive and negative) is an attempt to illustrate that some characteristics of work may reduce a Negative Affect, for instance, but not be able to increase the Positive one.

Therefore, besides displaying unique relationship patterns with performance, it may also present different antecedents.

Measuring job performance in the educational context is challenging due to the inherent characteristics of educational work. Measuring performance through other people can be problematic because the observer may not have adequate knowledge or because the target behavior depends on several processes that are not fully observable by a single audience (Warr and Nielsen, 2018). Performance in education is not only task-based but also context-based (Pérez-Nebra et al., 2021a). Even with some criticism related to acquiescence, the general self-assessment of professionals is an alternative that will be the one used in the present work (de Andrade et al., 2020).

Thus, depending on the measure used, and despite this four-quadrant proposal being coherent, it is fundamentally empirical, in that it ceases to focus solely on the relationship between variables, and becomes central to how these variables are configured for the individual. Studies suggest that depending on the type of variable studied and the source of assessment, one does not find four quadrants but three quadrants (e.g., Peiró et al., 2019).

The relationship between wellbeing and performance appears several times in the literature and has also been observed in the Brazilian literature (Pérez-Nebra et al., 2021a). It is possible to propose the first hypothesis (H1):

H1 - There will be four quadrants of the relationship between wellbeing and performance in the context of elementary education.

Peiró et al. (2014), Peiró et al. (2015), when proposing the study of wellbeing and performance patterns, also suggested that it would be necessary to advance in describing which variables can predict such patterns. There is evidence that the work environment influences the perception of wellbeing/ill-being in performance in the educational context (Diehl and Marin, 2016; Rebolo and Bueno, 2014; Magalhães, 2019). This evidence suggests working with characteristics that are considered the core of the work design (Vough and Parker, 2008); thus, the more positive and motivating the characteristics, the more they will promote wellbeing and performance (Morgeson and Humphrey, 2006). The association of work design with motivation has been widely researched; however, its relationship with wellbeing is seen less in the literature (Morgeson and Humphrey, 2006; Stegmann et al., 2010; Montañez-Juan et al., 2019; Pérez-Nebra et al., 2020).

Therefore, in order to influence the relationship between the two variables synergistically and positively, the Job Characteristics Model is considered the most appropriate to predict the variables that influence this relationship (Parker et al., 2017). The Job Characteristics Model (JCM) was proposed by Hackman and Oldham (1976). However, the model used a limited number of characteristics and was found to

be insufficient for application in a complex organizational environment (Parker and Wall, 1998). Work design presents additional characteristics to the core five, and Morgeson and Humphrey (2006) proposed a taxonomy of work design with specific measures for its four categories (Task, Knowledge, Social, and Contextual characteristics) and subcategories that can be measured using the Work Design Questionnaire (WDQ). Task and Knowledge characteristics are considered intrinsic and cover most of the core characteristics. Intrinsic characteristics are related to perfectionism—the belief that one is doing something important (Waterman, 1993), and the feeling of personal expression of skills that can lead to self-fulfillment. Intrinsic task characteristics, such as Autonomy and Significance, are considered the most central, with several pieces of evidence showing that they are important for education workers' wellbeing (e.g., Guise, 1988; Rebolo and Bueno, 2014; Pérez-Nebra et al., 2020), and for performance in different types of operationalization (Humphrey et al., 2007). Moreover, in the case of performance, these variables also appear as mediators of other variables for subjective performance (Humphrey et al., 2007). However, knowledge characteristics, which are also an intrinsic characteristic of the task, although related, are not related to the same intensity and frequency to wellbeing or performance (Humphrey et al., 2007). We hypothesize:

H2 - Task characteristics best predict the happy-productive quadrant for Fulfillment at Work.

H3 - Knowledge characteristics do not predict the happy-productive quadrant.

Social characteristics, extrinsic to the worker and enablers of social capital, have been studied by various theories and are an important component of work in elementary education. Social capital refers to the contacts between actors in organizations (Hatala, 2006) and, as such, may include protective variables such as social support, which has been shown to be a predictor of anxiety, stress, and burnout (Humphrey et al., 2007), Fulfillment at Work (Pérez-Nebra et al., 2020), but not for absenteeism due to illness at work (Pérez-Nebra et al., 2021b). Other Social characteristics such as Feedback from Others are predictors of stress and burnout, but not of anxiety and overload. In other words, Social characteristics will probably be more related to Positive and Negative affects than to Fulfillment at Work. We hypothesize:

H4 - Social characteristics predict the happy-productive quadrant for affect.

Finally, Context characteristics, particularly Work Conditions and Physical Demands, emerge explaining malaise (i.e., absenteeism at work; Pérez-Nebra et al., 2021b) and Fulfillment at Work (Pérez-Nebra et al., 2020), but only work conditions for stress and burnout (Humphrey et al., 2007). That is, different

variables could predict different outcomes and, again, are more related to the affective dimensions of wellbeing when compared with the Fulfillment at Work dimension of wellbeing.

When considering the context of the educational work and the use of this model, it is possible to suggest that:

H5 - Contextual characteristics predict the happy-productive quadrant for affect.

The present work aims to fill gaps in the literature, such as the relationship between wellbeing and performance in the educational context, in addition to proposing situational and manageable variables, which can be used to foster a more sustainable and healthier organization for the employees of the Secretary of State for Education, with a specific look at different types of wellbeing in organizations.

## Methods

### Participants and procedures

The inclusion criteria of the research were as follows: (i) being a civil servant of the Secretary for State for Education of the Federal District, Brazil, and (ii) having fully completed the questionnaire. Thus, 4,598 participants met the criteria; among the civil servants, 72.3% are women, 63.5% are married, 74.8% are teachers, 8.6% are agents, 2.3% are analysts, 4.1% are monitors, 3.3% are advisors, and 6.8% are technicians. The average age of these employees is 44.24 (SD = 8.40). Of the teachers, 31.3% do not work as a teacher (pedagogical activities such as a librarian and management), 27.7% work in primary education, 16.9% work in languages (arts, physical education, Portuguese language, foreign languages, music), 6.2% work in humanities, 5.2% work in natural sciences, and 3.6% work in mathematics. 53.5% of these teachers are specialists. Of these, 85.0% are non-readapted teachers, 2.5% are in the process of being readapted, and 12.5% are readapted. Of the total, 4.5% are people with disabilities (PWD).

A mixed procedure was used for data collection: paper-and-pencil and online in the first semester of 2018. In the paper-and-pencil collection, (a) researchers went to the schools and applied the questionnaire to employees who were interested in participating and (b) pedagogical coordinators were trained to apply the questionnaire in their respective schools. In the online collection, we sent it through the e-mail addresses registered in the institution. In all cases, the Free and Informed Consent Term was presented so that the respondent could know the research objectives and continue their voluntary participation.

### Ethical issues

The project was approved by the Ethics Committee of the National (Brazilian) Health Council (CAAE:

53743316.2.0000.0023). Throughout the research phase, total anonymity of the respondents and confidentiality of the answers provided were guaranteed. In addition, feedback on the research results was made in several instances, according to the commitment initially signed.

## Material

### Wellbeing at work

A reduced version of the wellbeing at work scale (EBET) was applied, composed of three factors (Demo and Paschoal, 2016—English version; Paschoal and Tamayo, 2008—Brazilian-Portuguese version), which were presented as follows: Fulfillment at Work (five items,  $\omega = 0.84$ , a sample item is “In my work, I achieve my potential”), Positive Affect (four items,  $\omega = 0.94$ , sample item is “Over the past six months, my work has made me feel happy”), and Negative Affect (five items,  $\omega = 0.92$ , a sample item is “Over the past six months, my work has made me feel distressed”). This scale was reduced to meet the research objectives better, containing the same original factors. This reduction considered the highest factor loadings of each factor predicted in the original scale. An agreement scale with a five-point range anchored at the extremes of 1 = Strongly Disagree to 5 = Strongly Agree was used to respond to the items. The fit indices of the factor structure proved adequate ( $\chi^2/df = 14.76$ ; CFI = 0.98; TLI = 0.97; NNFI = 0.97; RMSEA = 0.06; SRMS = 0.04).

### Self-assessment scale of job performance

A single-factor self-report scale containing 10 adapted job performance items, and reduced scale was used ( $\omega = 0.92$ ; de Andrade et al., 2020). The scale was tested originally in Brazilian-Portuguese. A sample item is “I work hard to do the tasks designated to me.” A five-point range was anchored at the extremes. This scale contains task- and context-related performance items. The fit index was acceptable ( $\chi^2/df = 26.50$ ; CFI = 0.92; TLI = 0.89; NNFI = 0.89; RMSEA = 0.12; SRMS = 0.04).

### Work design questionnaire

This came originally from Morgeson and Humphrey (2006) adapted to Brazilian-Portuguese by Borges-Andrade et al. (2019) and contains four dimensions and 18 work characteristics distributed among 71 items. The Task dimension includes: Decision and Execution Autonomy (item sample: “The job allows me considerable independence and freedom in how I do my work”), Work Planning Autonomy (item sample: “The job allows me to decide how to schedule my work”), Task Variety (item sample: “The job requires a wide range of tasks”), Task Significance (item sample: “The job has a large impact on

people outside the organization”), Task Identity (item sample: “The job allows me to finish tasks I begin”), and Feedback from Job (item sample: “The job itself provides feedback on my performance”). The Knowledge dimension includes: Job Complexity (item sample: “The job is comprised of relatively uncomplicated tasks”—reversed item), Information Processing (item sample: “The job demands significant mental effort”), Problem-Solving (which includes Skill Variety, item sample “The job requires a variety of skills”), and Specialization (item sample: The job requires specialized knowledge and skills”). The Social dimension includes: Social Support (item sample: “I can develop friendships in my job”), Interdependence (item sample: “The job’s completion depends on the work of many different people”), Interaction Outside the Organization (item sample: “On the job, I frequently communicate with people outside my organization”), and Feedback from Others (item sample: “Other people in the organization, such as managers and co-workers, provide information about the effectiveness of my job performance”). And the contextual dimension of work characteristics includes: Comfort at Work (item sample: “The seating arrangements at the workplace are adequate”), Physical Demands (item sample: “The job involves excessive reaching”), Work Conditions (item sample: “The job is performed in an environment free from health hazards”), and Equipment Use (item sample: “The job involves using complex equipment or technology”). All items were answered on a five-point agreement scale ( $\chi^2/df = 10.03$ ; CFI = 0.90; TLI = 0.90; NNFI = 0.90; RMSEA = 0.05; SRMS = 0.06; and omegas above 0.70, with exception to work condition that was 0.67).

### Control variables

The personal variables used were age and sex. The work variables were time working in the organization in years and time in the profession in years (i.e., seniority).

### Data analysis

All analyses were performed with the software R, version 4.0.4. The procedures were divided into two stages. In the preliminary analyses, database cleaning was conducted, and the factor structure indicators of the scales were run.

### Cluster analysis

A cluster K-means analysis was conducted to test the four patterns hypothesis with the wellbeing and performance factors. The cluster fits, which showed a positive silhouette (above zero), were considered acceptable (Rousseeuw, 1987). The method by the sum of squares [within sum of squares (WSS)] was also used to estimate the optimal number of clusters, and four clusters are suggested for each pair. The K-means clustering strategy is

a traditional method for this type of analysis (Eshghi et al., 2011) and ensures that people are distributed into profiles most similar to theirs (Garcia et al., 2015). This splitting method requires specifying the number of clusters to be generated (Kassambara and Mundt, 2020) and is suitable for large samples. For the analysis, the package “factoextra r” was used (Kassambara and Mundt, 2020).

### Regression analysis

The proportion of the number of cases in the cluster is balanced, and since the largest category is not only for the happy-productive cluster, there were no hindrances to conducting multinomial logistic regression. Multinomial logistic regression was performed using mlogit (Croissant, 2019), and the synergistic happy-productive cluster (high wellbeing and high performance) was considered as the reference group. Regression was run in two stages, namely, Stage 1 using personal variables as control variables and Stage 2 using controls and job characteristics.

## Results

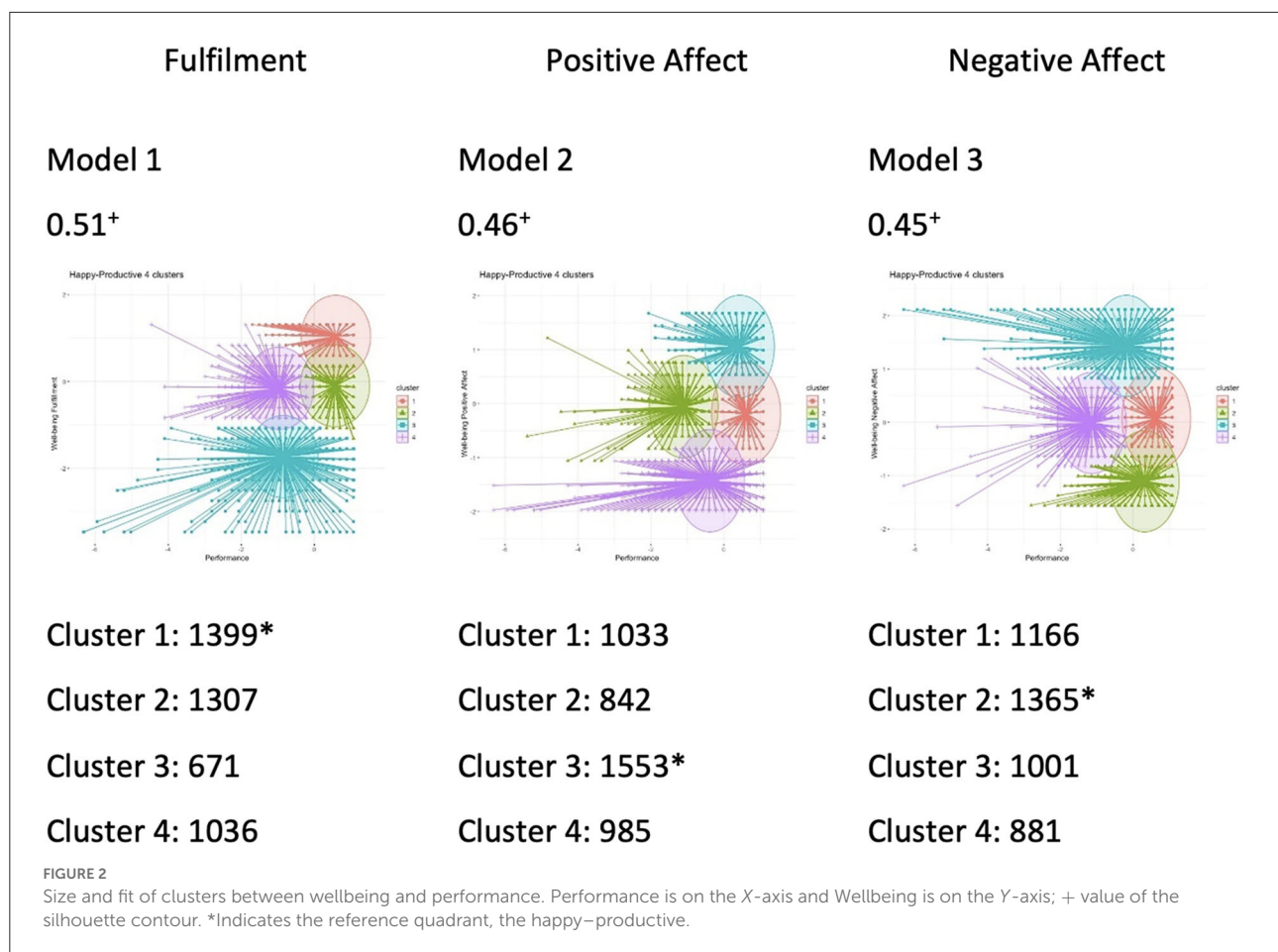
The study’s first hypothesis dealt with the possibility that the relationship between wellbeing and performance occurred in four quadrants. The happy-productive quadrants make up the largest cluster of each of the patterns found. It is worth noting, however, that the antagonistic patterns, when added together, are often more numerous than the synergistic patterns.

The cluster analysis (Figure 2) shows the distribution between each pair of variables. The relationship between the factors of wellbeing (Fulfillment, Positive affect, and Negative affect) and performance generated three combinations, with the presence of well-defined clusters of positive silhouettes. Depending on the pair of variables, the “happy-productive” cluster is located in different positions and is a larger profile. Thus, as the silhouette is adequate and the models are clear, it is possible to provide support for H1.

From the presented clusters, the multinomial logistic regression analysis was performed. Table 1 shows the regression models analyzed between the patterns of wellbeing and performance and the job characteristics in two stages. Stage 1 contains the control variables and Stage 2 the control variables and the job characteristics.

Based on the results in Table 1, the R<sup>2</sup> (McFadden) indicated different percentages of variance explained for the three models (16, 12, and 11%, respectively). The control variables, Stage 1, suggest that older people are more likely to be in the happy and productive patterns of the three operationalizations of wellbeing. Furthermore, for Negative Affect, men are less likely to be in the unhappy-unproductive, unhappy-productive, and happy-unproductive quadrants of Negative Affect when





compared with women. Time of Organization presents an unclear pattern; for Fulfilment at Work, those with more time are more likely to be in the happy-productive quadrant. However, the more senior are also the ones who have higher chances of being in the happy-productive quadrant when compared with the unhappy-unproductive.

When the regression aggregates both personal variables and work characteristics, Stage 2, the higher the perception of the motivating characteristics of the task when operationalized by Fulfilment at Work, the higher the chance of workers being in the happy-productive quadrant. These results partially support H2, as task characteristics not only predict the happy-productive quadrant of Fulfilment at Work, but also for higher Positive Affect and lower Negative Affect, albeit to a lesser extent.

When considering Knowledge characteristics, no subcategory showed systematic negative betas. Only Specialization favors the consolidation of Fulfilment at Work. The other subcategories present unclear patterns. Thus, H3 is supported.

The Social characteristics contain four factors, only two of which were systematically protective: Social Support and

Feedback from Others. Both Social Support and receiving Feedback from Others increase the likelihood when compared with all of the affective rather than Fulfilment of the happy-productive patterns of wellbeing. It is possible to infer that Interdependence, i.e., that which describes the degree that work depends on others and vice versa to complete the task (Morgeson and Humphrey, 2006), contrary to what was expected, is a variable that decreases the likelihood of being in the happy-productive quadrant. In other words, it increases the likelihood of feeling Negative Affect (but does not necessarily decrease positive ones). Thus, it is possible to partially support H4.

The work Context characteristics, also comprised of four factors, present a similar pattern—different operationalizations of wellbeing can lead to different results, and in general, it is more able to predict affect than Fulfilment. The Physical Demands variable favors the likelihood of being in non-sustainable quadrants when compared with the happy-productive pattern for Negative Affect, but not necessarily for Fulfilment at Work and Positive Affect. Working Conditions and Comfort at Work present negative betas with all patterns, i.e., not always significant, but always protective. Thus, it is possible to partially support H5.



TABLE 1 Multinomial logistic regression analysis between work characteristics and clusters of wellbeing and performance.

|  | Fulfillment |          |          | Positive affect |          |          | Negative affect |          |          |
|--|-------------|----------|----------|-----------------|----------|----------|-----------------|----------|----------|
| McFadden $R^2$                             | 0.16        |          |          | 0.12            |          |          | 0.11            |          |          |
| $\chi^2$ (15)                              | -5014.3     |          |          | -5252.7         |          |          | -5408.1         |          |          |
| Cluster                                    | 2 (U-P)     | 3 (U-U)  | 4 (H-U)  | 1 (U-P)         | 2 (H-U)  | 4 (U-U)  | 1 (U-P)         | 3 (U-U)  | 4 (H-U)  |
| <b>Control (stage 1)</b>                   |             |          |          |                 |          |          |                 |          |          |
| Age  | -0.01       | -0.03*** | -0.02*** | -0.01*          | -0.03*** | -0.02**  | -0.02***        | -0.05*** | -0.04*** |
| Sex  | 0.02        | -0.17    | -0.06    | 0.20            | -0.03    | 0.13     | 0.33***         | 0.40***  | 0.30**   |
| Seniority                                  | 0.00        | 0.00     | 0.00     | 0.00            | 0.00     | 0.00     | 0.00            | 0.00     | 0.00     |
| Length of time working in the organization | -0.02**     | -0.02**  | -0.01    | 0.00            | 0.01     | 0.00     | 0.00            | 0.01*    | 0.01     |
| <b>All variable (stage 2)</b>              |             |          |          |                 |          |          |                 |          |          |
| Age  | 0.00        | -0.03*** | -0.02**  | 0.00            | -0.03*** | 0.01     | 0.00            | -0.03*** | -0.03*** |
| Sex  | -0.12       | -0.35**  | -0.18    | 0.05            | -0.07    | -0.03    | 0.30**          | 0.30*    | 0.30**   |
| Seniority                                  | 0.00        | 0.00     | 0.00     | 0.00            | 0.00     | 0.00     | 0.00            | 0.00     | 0.00     |
| Length of time working in the organization | -0.01*      | -0.01    | 0.00     | 0.01*           | 0.02**   | 0.02*    | 0.01            | 0.02**   | 0.02**   |
| <b>Task characteristic</b>                 |             |          |          |                 |          |          |                 |          |          |
| Work planning autonomy                     | -0.11       | -0.30*** | -0.22*** | -0.13*          | -0.17**  | -0.25*** | -0.12*          | -0.30*** | -0.20**  |
| Decision and execution autonomy            | -0.11       | -0.26**  | 0.05     | -0.20***        | -0.03    | -0.30*** | -0.06           | -0.05    | 0.03     |
| Task variety                               | 0.06        | -0.02    | -0.08    | 0.03            | -0.14*   | -0.17**  | 0.01            | 0.08     | -0.05    |
| Task significance                          | -0.10       | -0.40*** | -0.23*** | -0.04           | -0.15*   | -0.08    | -0.08           | -0.13    | -0.20**  |
| Task identity                              | -0.21**     | -0.53*** | -0.48*** | -0.02           | -0.35*** | -0.09    | -0.02           | -0.31*** | -0.40*** |
| Feedback from job                          | -0.22***    | -0.41*** | -0.30*** | 0.04            | -0.11    | -0.20**  | 0.02            | -0.06    | -0.13*   |
| <b>Knowledge characteristics</b>           |             |          |          |                 |          |          |                 |          |          |
| Job complexity                             | 0.04        | 0.00     | 0.00     | 0.03            | -0.04    | 0.16**   | 0.09*           | 0.16**   | 0.00     |
| Information processing                     | 0.00        | -0.30**  | -0.11    | 0.19*           | -0.08    | 0.16     | 0.06            | 0.23**   | -0.03    |
| Problem-solving                            | -0.20       | -0.40**  | -0.20    | 0.06            | -0.01    | 0.00     | 0.30**          | 0.42***  | 0.16     |
| Specialization                             | -0.20**     | -0.40*** | -0.33*** | -0.09           | -0.17*   | -0.16*   | 0.02            | -0.06    | -0.07    |
| <b>Social characteristics</b>              |             |          |          |                 |          |          |                 |          |          |
| Social support                             | -0.50***    | -0.82*** | -0.50*** | -0.60***        | -0.60*** | -0.95*** | -0.40***        | -0.80*** | -0.52*** |
| Interdependence                            | 0.06        | 0.13*    | 0.04     | 0.10*           | 0.03     | 0.04     | 0.13**          | 0.17***  | 0.13*    |
| Interaction outside organization           | 0.00        | -0.01    | 0.00     | 0.00            | 0.02     | 0.08     | -0.03           | 0.06     | 0.02     |
| Feedback from others                       | -0.20***    | -0.40*** | -0.15**  | -0.14**         | -0.13*   | -0.40*** | -0.05           | -0.21*** | 0.04     |
| <b>Work context</b>                        |             |          |          |                 |          |          |                 |          |          |
| Comfort at work                            | -0.05       | -0.30*** | -0.08*   | -0.03           | -0.10*   | -0.22*** | -0.10*          | -0.13**  | -0.07    |
| Physical demands                           | 0.00        | 0.02     | 0.02     | -0.05           | 0.00     | -0.05    | 0.15***         | 0.24***  | 0.14***  |
| Work conditions                            | -0.13*      | -0.06    | -0.02    | -0.23***        | -0.07    | -0.20*** | -0.22***        | -0.23*** | -0.09    |
| Equipment use                              | -0.04       | -0.12    | -0.05    | -0.05           | -0.02    | -0.12*   | 0.08            | 0.03     | 0.02     |

Reference cluster is the happy and productive model. Model 1 = Fulfillment; Model 2 = Positive Affects; Model 3 = Negative Affects. U-P = unhappy-productive; U-U = unhappy-unproductive; H-U = happy-unproductive. \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

## Discussion

This paper aimed to analyze which work characteristics can facilitate patterns of relationship between wellbeing and performance. It is understood that the aim of the work was achieved. There was no linear relationship between wellbeing and performance, and each worker experiences the relationship between wellbeing and performance differently, supporting H1. H2 suggested that motivational task variables would increase the likelihood of being in the happy-productive

quadrant when measuring wellbeing as Fulfillment at Work; this hypothesis received partial support as it not only increases the likelihood for Fulfillment but for Positive Affect and in the lower Negative Affect quadrant. H3 pointed to a non-relationship with knowledge variables and received empirical support. H4 suggested that social characteristics would be protective and gain partial empirical support (only for two variables), and H5 emphasized that context characteristics would be protective, and the pattern is unclear.

Four defined clusters were found and empirically support H1. In this case, for these variables—single-factor self-assessment performance and different types of wellbeing—the quadrants were clear. Although these patterns emerge and have acceptable silhouette contour values, they suffer from the left asymmetry of the performance variable. Although the variable is within acceptable standards of normality, other variables that measure performance may present a different and better-distributed configuration. The performance discussion goes beyond this study's scope, but remains an unfolding research possibility for future works.

Hypothesis 2 (H2) suggested that Task characteristics best predict the happy-productive quadrant for Fulfillment. The meta-analysis conducted by [Humphrey et al. \(2007\)](#) already pointed to support for this hypothesis, as well as the study on teacher wellbeing by [Rebollo and Bueno \(2014\)](#), which describes Autonomy and Task Significance as sources of teacher work wellbeing. There remains, therefore, the test of how to offer human resource management practices that redesign this work to improve role clarity by identifying the task with identifiable outcomes, facilitating the identification of different types of Feedback from Job, the Task Significance, and the different types of Autonomy.

This work also suggested that knowledge characteristics do not increase the likelihood of being in the happy-productive quadrant (H3). We have some explanations for this; one regards the selection process to access this job. To obtain this job, professionals had to pass a public entry test, which may interfere with the result. It is worth mentioning that the work characteristic Specialization emerges as increasing the probability of being in the happy-productive quadrant in the wellbeing Fulfillment at Work dimension. This result is consistent with previous studies ([Parker, 2014](#); [Rebollo and Bueno, 2014](#)) that reinforce that continuing professional development can be an important factor in building self-esteem and self-confidence of the professional, particularly the education professional, and can increase task clarity.

H4 proposed that social characteristics increase the likelihood of being in the happy-productive quadrant because education is fundamentally emotional and social work, and increasing social capital is a way to improve this environment. These characteristics describe perceptions of a work environment that facilitates positive interpersonal relationships between employees. Social Support implies getting assistance and advice from others, and having others available to listen and talk to ([Humphrey et al., 2007](#)). In other words, social support, seen in a welcoming environment that provides opportunities for contact and developing friendships, is a factor that increases the likelihood of being in the happy-productive quadrant for all types of wellbeing, not just affective wellbeing.

An additional comment needs to be made regarding Feedback from Others. Although Feedback from Others is in the

bulge of variables related to Social characteristics, it contains a specific context, as the feedback refers to the accomplishment of the task that is performed by the worker, and not context-free feedback that could include other more relational issues.

The last hypothesis of this work suggested that Contextual characteristics increase the chance of being in the happy-productive quadrant (H5). It was possible to observe that Work Conditions and Comfort at Work are protective variables, and Physical Demands, as the name implies, are demanding. [Magalhães \(2019\)](#) reinforces this result by saying that degrading working conditions contribute to teaching malaise and what was found falls more to affective variables when compared with work fulfillment variables. Within the affective ones, it contributes more to avoiding Negative Affect when compared to the increased chances of being in the happy-productive quadrant of Positive Affect.

Finally, regarding the control variables, previous studies reveal that older adults are more adaptable to the work environment and have higher emotional regulation skills compared with younger individuals ([Goštautaitė and Bučiuniene, 2015](#)). Thus, one explanation is that older people can create sustainable strategies in their work environment more easily and already have a more consolidated social support network. One could also posit whether those who remain in the organization are the “survivors”, i.e., those who have learned strategies and are still there. The others have left the organization, and what we are measuring in the end are the survivors.

For sex, the results are consistent with the literature, where men perceive themselves to be happier and more productive in the work environment. This result suggests some explanations, among them leniency in evaluation on the part of men or greater severity on the part of women. Another explanation lies in the overload of demands for women, who have double roles, which may affect their performance and wellbeing. In addition, being male in a predominantly female context may facilitate their work in some way. Another point is that some work characteristics are also perceived differently if you are a man or a woman. Testing these explanatory hypotheses was not the study's aim and can be addressed in future research.

In general, the subcategories that most impact the school context are, in order of relevance: Social Support, Task Identity, Feedback from Others, Work Planning Autonomy, and Feedback from Job. In summary, task characteristics, similar to the main variables of the classical model of [Hackman and Oldham \(1976\)](#), seem to be more related to the eudaimonic aspect of wellbeing at work and performance. On the contrary, social characteristics such as Social Support and Feedback from Others and the contextual characteristics of Working Conditions, Comfort at Work, and Physical Demands seem more related to hedonic aspects of wellbeing at work and performance.

## Limitations

This work is not exempt from limitations. However, these limitations do not compromise the presented findings or diminish the contributions. It is important to emphasize that some characteristics such as Work Interdependence, Comfort at Work, and Physical Demands are significant when the wellbeing measure has a negative valence (Negative Affect), which points to the need for studies that explain this issue of the valence of the variables.

Moreover, age and sex are variables that seem to play a role in workers who are at school. When the work design variables are included, age showed a reduction in its beta score. Still, sex seems to be a variable that suffered more interference with the work design variables, suggesting that work design may have a hidden and less developed sex issue (in other words, there is multicollinearity between the variables), a limitation that is beyond the scope of this study, but that is highlighted for future studies.

## Practical implications and conclusion

From the results obtained, it is inferred that work redesign is the intervention that can be effective depending on the intended result. This practice can contribute positively to wellbeing at work and performance (Vough and Parker, 2008; Parker, 2014; Knight and Parker, 2019). According to Vough and Parker (2008), the first step is to identify which characteristics are most important for the situation. When they are positively delineated, they can promote wellbeing and performance. For the educational context assessed, these are, in decreasing order: Social Support, Task Identification, Feedback from Others, Expertise, Autonomies, and Task Significance. In other words, the main characteristics are distributed across the different dimensions.

Establishing strategies that increase people's receptiveness and create a perception of trust and support is not only related to Social Support, but to increasing the social capital of organizations (Kiss et al., 2014). Identifying the Task correctly means decreasing uncertainty about their social role and their role in the organization, in other words strategies that communicate what is expected of the worker (Van Beurden et al., 2021), and using Feedback from Others would probably increase the likelihood of being in the happy-productive pattern. Fostering Specialization at work and different forms of Autonomy linked to the worker's tasks can increase the chances of the worker finding themselves in the happy-productive pattern. Finally, Task Significance which refers to the extent to which work impacts the lives of others systematically has emerged as a protective variable (e.g., Humphrey et al., 2007) and is related not only to meaning but to experience and

the sense of social responsibility of work. There are several organizational strategies and, perhaps, social strategies to foster this characteristic of education workers' work and increase the chance of elementary education professionals to be in the happy-productive pattern.

## Data availability statement

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

## Ethics statement

The studies involving human participants were reviewed and approved by Ethics Committee of the National (Brazilian) Health Council (CAAE: 53743316.2.0000.0023). The patients/participants provided their written informed consent to participate in this study.

## Author contributions

AP-N contributed to the conception and design of the study, performed the statistical analysis, and wrote the first draft of the manuscript with support from BSV. EL, PM-H, MG-P, and MG-L contributed to the manuscript revision. All authors approved the submitted version of the manuscript.

## Funding

This work was supported by the Federal District Research Support Foundation process SEI 00193-00000102/2019-97 for AP-N and BSV. The edition of this article was funded by the Department of Science, University, and Knowledge Society of the Government of Aragón (Spain), in charge of the reference research group Wellbeing and Social Capital (ref. S16\_20R) for the MG-L.

## Acknowledgments

We thank the Department of Education of the Federal District (SEEDF), registered in GAB 066158/2016, for the opportunity to work and collaborate.

## 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.

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## SPECIALTY SECTION

This article was submitted to  
Organizational Psychology,  
a section of the journal  
Frontiers in Psychology

RECEIVED 20 September 2022

ACCEPTED 06 October 2022

PUBLISHED 10 November 2022

## CITATION

Valls Martínez MC and Soriano  
Román R (2022) Women in monitoring  
positions and market risk. Are the stocks of  
companies with gender diverse boards less  
volatile?

*Front. Psychol.* 13:1049175.  
doi: 10.3389/fpsyg.2022.1049175

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# Women in monitoring positions and market risk. Are the stocks of companies with gender diverse boards less volatile?

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Gender equality is included in the United Nations Sustainable Development Goals and in the Global Jobs Pact of the International Labour Organization. Many countries, especially in Europe, are incorporating legal quotas into their legislation to oblige companies to increase the presence of women in the highest positions of responsibility. This measure has been controversial and widely debated, and so it is of great interest to analyze the economic effects that the incorporation of women brings. The aim of this paper is to analyze the relationship between the percentage of women on the board of directors and systematic market risk, measured using the beta of stocks in the S&P 500 and Euro Stoxx 300 indexes from 2015 to 2019. Applying OLS regressions with instrumental variables, fixed effects panel data, and a GMM estimation, the results show a negative and significant relationship for the U.S. market. However, this relationship was not confirmed for the European market.

## KEYWORDS

gender diversity, board of directors, systematic risk, volatility, stock market risk

## Introduction

The board of directors is the main management and control body of a company. It establishes the company's strategic policies, defines the investment guidelines, determines the intended financing structure, and selects executive personnel (Campbell and Mínguez-Vera, 2008; Ferreira, 2010). The corporate board plays a key role in monitoring the activities of the company and ensuring that managers act in accordance with the interests of shareholders (Chakraborty et al., 2019).

In general, women show less absenteeism at board meetings than men, and so, on gender-diverse boards, absenteeism among men is reduced. As a result, the presence of women leads to more active boards, which increases the monitoring of companies, resulting in a reduction in risk (Adams and Ferreira, 2009). Board gender diversity is also related to a reduction in the reputational risk of a company (Chen et al., 2017), as well as fewer lawsuits (Adhikari et al., 2019), earnings management practices (Kyaw et al., 2015), and information asymmetries (Abad et al., 2017). Companies with a higher percentage of women on the board of directors are less likely to manipulate their financial statements or

commit tax fraud (Wahid, 2019), and are more transparent in disclosing their financial risk (Bufarwa et al., 2020).

The board of directors is responsible for the supervision of risk management and the governance of risk-related business decisions (McNulty et al., 2013). The board members' individual risk preferences will affect company decisions. As men are more prone to risk-taking behavior (Birindelli et al., 2020; Plieger et al., 2021), gender diversity on the board will lead to a reduction in corporate risk (Palvia et al., 2020). Indeed, banks suffer fewer defaults when the decision on whether to grant a loan is made by women (Palvia et al., 2015). Moreover, the presence of women on boards is associated with a strong capital structure featuring a larger proportion of long-term financing (Alves et al., 2015), higher stock liquidity (Loukil et al., 2019; Ye et al., 2021), lower stock price crash risk (Qayyum et al., 2021), and reduced stock volatility (Bansak et al., 2011).

Behavioral differences between genders have been extensively studied in psychology, but not sufficiently in corporate finance. If decision-making is influenced by gender, the proportion of women on the board of directors should have an impact on stock value (Huang and Kisgen, 2013). There exists a vast literature on the relationship between board gender diversity and corporate social responsibility (Kyaw et al., 2017; Harjoto and Rossi, 2019; Lu and Herremans, 2019; Al-Qahtani and Elgharabawy, 2020; Valls Martínez et al., 2020a, 2022a). The connection between gender-diverse boards and financial performance, which can be measured based on accounting results (Ekada and Mboya, 2012; Joecks et al., 2013; Ward and Forker, 2017) or market valuation (Campbell and Mínguez-Vera, 2008; Reguera-Alvarado et al., 2017; Valls Martínez and Cruz Rambaud, 2019), has also been extensively analyzed.

However, studies on the influence of board gender diversity on stock market risk are scarce. Moreover, the few existing works on the subject yield contradictory results and are therefore inconclusive (Jizi and Nehme, 2017). The results found may differ in the empirical studies conducted due to the samples used, i.e., the geographical scope and time period analyzed (Adams and Ragunathan, 2017), as well as the methodologies employed. Therefore, more research is needed to really find out how women's participation on the board of directors influences the volatility of the company's stocks in the capital markets.

Investors select their portfolios based on two main variables, return and risk, which move in the same direction. Considering two different financial assets, rational investors will always prefer the one with the lower risk when faced with equal returns. They will only be willing to invest in the riskier asset if the expected return is also higher. The total risk of a financial asset is determined by the fluctuation of the market price. Part of this fluctuation is due to the market's own characteristics, which affect the shares listed on it, although not to the same degree. This is known as systematic risk. Another cause of stock volatility is the specific situation of the company, defined as idiosyncratic risk.

Financial markets are not stable. On the contrary, they are highly sensitive to all events that may affect the economy. At

present, they are particularly turbulent because of the COVID-19 pandemic and the Russo-Ukrainian War. According to the literature, women's risk behavior differs from that of men, and so this paper aims to test whether the percentage of women on boards of directors influences share price stability, and whether companies with more women are more resilient to market fluctuations, resulting in more suitable stocks for risk-averse investors. The object of analysis is systematic risk, as it is the most relevant for the investor and it cannot be eliminated by portfolio diversification, unlike idiosyncratic risk. Indeed, idiosyncratic risk is less significant to the investor, although it is important to other stakeholders (lenders, employees, customers, etc.), who would suffer in the event of losses or bankruptcy of the company (Yang et al., 2019). However, this work is conducted from the point of view of an investor selecting a portfolio.

Based on the extensive literature establishing differences in risk preferences between women and men, it may be expected that a higher presence of women on the board of directors would influence the company's risk (Eckel and Grossman, 2008; Yang et al., 2019). In heterogeneous groups, it tends to be more difficult to reach consensus, which implies longer decision-making times. Therefore, gender diverse boards could entail more risk. However, board gender diversity implies greater monitoring, which reduces the danger of extreme results and, therefore, entails less risk (Sila et al., 2016).

In general, all investors are averse to risk, but women are considered more risk-averse, leading to more conservative board decisions (Adams and Ragunathan, 2017). Women possess a more in-depth knowledge of the market (Bernardi and Threadgill, 2010), contribute to higher financial performance (Valls Martínez and Cruz Rambaud, 2019), and present greater commitment to corporate social responsibility practices (Valls Martínez et al., 2019, 2022a). In addition, men are more overconfident, which drives them to overestimate expected results and make investments that do not generate value (Huang and Kisgen, 2013). Therefore, the stock volatility of companies with a higher proportion of women on the boards of directors is expected to be lower.

Women, who represent half of the population, are underrepresented on boards of directors, in government and in top positions in general. In OECD countries, women earn, on average, 15% less than their male counterparts (OECD, 2017). One of the main reasons for the lower, and sometimes non-existent, representation of women in management positions is gender stereotyping. Leadership and decision-making skills are more often attributed to men. However, despite widespread stereotypes, women's participation in top management is increasing, due not only to changes in social values and ethical pressure measures, but also, and mainly, to quotas established by legislation (Johnson and Powell, 1994; Adams, 2016; Birindelli et al., 2020).

The European Commission recommended that its member states develop their legislation to increase the representation of women on boards of directors to at least 40%. As a result, most

countries have established mandatory or voluntary legal quotas. In 2020, the percentage of women on corporate boards in countries with mandatory quotas reached an average of 37.6%, while in countries with voluntary quotas it was 24.3%. However, less than 10% of companies had a female CEO. These figures demonstrate the effectiveness of mandatory quotas in achieving gender equality. In the United States, where there is no such nationwide legislation, the percentage of women is barely 22%. Only a few states, such as California, Illinois, Massachusetts, Michigan, New Jersey, Hawaii, and Pennsylvania have proposed a minimum of between one and three women, depending on the size of the board, while Washington advocated a minimum target of 25% by the end of 2022 (World Economic Forum, 2019; Deloitte, 2022).

The purpose of this research is to analyze the relationship between board gender diversity and systematic market risk in Europe and the United States. For this purpose, companies in the Euro Stoxx 300 and S&P 500 indexes for the period 2015–2019 were considered, using OLS regressions, a two-stage regression with instrumental variables, fixed-effects panel data, and the generalized method of moments. The results show that, for the U.S. market but not for the European market, a higher proportion of women on the board of directors is negatively and significantly related to lower systematic risk, measured by stock beta. So far, this relationship appears to have scarcely been explored at all. Indeed, we have only found seven previous works in this regard. Three of these studies analyze the U.S. market, and, while one finds that the relationship is negative and significant (Perryman et al., 2016), two consider that there is no relationship between the two variables (Sila et al., 2016; Peltomäki et al., 2021). Three other studies were conducted on companies in the United Kingdom (Nadeem et al., 2019), Norway (Yang et al., 2019), and Vietnam (Van Vo et al., 2021), and the presence of women on the boards of directors was found to be negatively and significantly related to systematic risk. Finally, a study of Indian banks concluded that there was no relationship between the two variables (Shukla et al., 2021). The different methodologies and periods used in the studies conducted mean that the results are not comparable (Charness and Gneezy, 2012). Hence, the importance of the present research.

This article contributes to the existing literature in the following respects. First, it is the only empirical study analyzing the relationship between stock beta and gender diversity in the European market. Second, it is the most up-to-date analysis in the U.S. market (previous studies ended in 2010, 2012, and 2018). Third, it is the first study to analyze the U.S. and European markets, allowing for a reliable comparison.

The remainder of this article is structured as follows. The second section reviews the literature and establishes the theoretical framework on which to base the study hypotheses. The third section presents the study variables and describes the methodology used in the empirical analysis. The fourth section presents the results of the research. The fifth section shows the discussion of the results. Finally, the last section presents the main conclusions.

## Literature review and theoretical framework

Gender differences in behavior have been extensively studied in fields such as psychology and even experimental economics (Peltomäki et al., 2021). Research prior to the 1980s considered that women possess certain characteristics, such as being more conformist and less aggressive, that lead them to take fewer risks. However, since the 1980s, many studies have argued that there are no gender differences, claiming, for example, that female and male entrepreneurs have similar personalities (Johnson and Powell, 1994). However, most of the literature considers women to be more cautious (Levin et al., 1988) and men to be more prone to risk-taking (Hudgens and Fatkin, 1985; Sila et al., 2016; Li and Yan, 2021).

Studies by psychologists and sociologists have concluded that women and men respond differently to non-financial risks, such as alcohol, drugs, gambling, and environmental damage. In the field of insurance, women have been shown to have fewer traffic accidents and injuries than men (Karacasu and Er, 2011; Singh, 2017). However, the field of financial decisions from a gender perspective has been studied far less (Eckel and Grossman, 2002; Fehr-Duda et al., 2006).

Regarding investments, women behave more conservatively than men (Agnew et al., 2003; Watson and McNaughton, 2007), selecting lower-risk assets (Jianakoplos and Bernasek, 1998; Sundén and Surette, 1998; Charness and Gneezy, 2012). A greater presence of women on the board of directors is associated with lower risk-taking in mergers and acquisitions, as they are better at negotiating lower valuations (Levi et al., 2014). Similarly, investments made by female executives had higher announced returns than those made by their male counterparts (Huang and Kisgen, 2013). Banks with more female directors were also found to invest in less risky positions (Abou-El-Sood, 2019), and the results obtained by mixed-gender groups of market operators were less volatile than those corresponding to all-male groups (Cueva and Rustichini, 2015).

Studies in the field of psychology have shown that men are more overconfident than women when performing more difficult activities, especially if such activities are traditionally considered to be masculine (Barber and Odean, 2001). Therefore, in management and financial decision-making, women are more risk-averse (Berger et al., 2014; Palvia et al., 2015, 2020). A large number of similarities have been found between both sexes in terms of entrepreneurial personality, leadership style, and ability to process and react to information. However, one important difference is men's greater propensity to take risks, which increases in more uncertain environments where ambiguity is higher (Powell and Ansic, 1997). However, it should not be understood that women's higher aversion to risk implies that they make suboptimal decisions that lead to the destruction of value in the company (Khan and Vieito, 2013). In fact, for companies with female CEOs, the risk assumed by the company will decrease, and it will have less indebtedness, less volatile profits, and a higher

probability of surviving (Elsaid and Ursel, 2011; Palvia et al., 2015; Faccio et al., 2016).

It is important to remember that although the different gender attitudes to risk are significant, the difference is not large. Moreover, when women and men have the same investment knowledge, the differences are attenuated (Dwyer et al., 2002). The reasons for women's greater risk aversion include their stronger emotional response to the possibility of loss, the greater overconfidence of men, and by how men see uncertainty as a challenge, as opposed to women, who perceive it as a threat (Borghans et al., 2009; Croson and Gneezy, 2009; Baixauli-Soler et al., 2015; Hurley and Choudhary, 2020).

The theoretical framework that explains gender differences in behavior is biosocial, as it integrates social and biological dimensions (Van Staveren, 2014). From the social point of view, gender roles and gender identity are determining factors. Society has ingrained beliefs about the behavior of women and men, and so most of the population is biased in its thinking. Thus, gender-based behavioral differences derive from education, i.e., from the role attributed to one's gender, and not from the nature of gender itself. In addition, people entrench gender identity by behaving in accordance with the stereotypes attributed to their gender. From a biological perspective, hormones behave differently in women and men in a risk scenario. When above-average benefits are obtained, testosterone levels rise in men, and this may become addictive. A chronic increase in testosterone leads to an increase in impulsivity and more willingness to take risks, since upward market movements are overestimated. In addition, cortisol rises with market volatility, leading to increased anxiety and exaggeration of risk, as downward market movements are overestimated. While cortisol levels are similar in both sexes, in women it produces a greater reaction in the secretion of the hormone oxytocin, which has a calming effect. Thus, women may perform better in contexts of uncertainty and financial stress (Sapienza et al., 2009; Maxfield et al., 2010).

From an empirical point of view, female portfolio managers reduce risk by adopting a strategy of greater investment diversification, which leads them to outperform men, both in normal market conditions and in times of crisis and price volatility, where they show more patience and self-control by holding their investments and trading less frequently. In addition, women show a more cooperative and ethical attitude, while men are more oriented towards protecting their own interests (Van Staveren, 2014).

As women and men have different attitudes to risk, gender diversity in management positions is linked to corporate risk management. Some views claim that male dominance has contributed to financial crises (Adams and Funk, 2012). If women are more risk-averse, better at monitoring activities, and more ethical in their behavior, then they will make less risky decisions in companies, reducing financial risk (Jia, 2019). Hence, the Lehman Sisters hypothesis, according to which the financial problems that occurred at Lehman Brothers could have been avoided if women had been highly involved in the company's decision-making (Kroes, 2009).

The literature has shown that, within the general population, women are more risk-averse than men. However, is this difference still evident at the managerial level? It is possible that women in senior management behave similarly to men (Schubert et al., 1999; Adams and Ragunathan, 2017; Van Vo et al., 2021). Some studies consider that, at this organizational level, there are no differences in risk propensity or in the quality of decisions (Johnson and Powell, 1994; Lenard et al., 2014). They argue that women who want to be promoted to positions of high corporate responsibility must behave and think like men on a competitive level, and adapt to the prevailing male environment (Adams and Funk, 2012; Adams and Ragunathan, 2017). In other words, the differences between women and men in the general population vanish once women break through the glass ceiling and enter the traditionally male-dominated sphere (Croson and Gneezy, 2009; Sila et al., 2016). In short, the evidence is mixed. Women may be more or less risk-averse than men depending on the context, culture, measure used, sample selected, etc. (Maxfield et al., 2010; Adamus, 2018).

Focusing on market risk and management gender using samples of U.S. companies, Ozdemir and Erkmen (2022) and Peltomäki et al. (2021) found that the presence of a female CEO reduces both total and idiosyncratic risk, but has no relationship with systematic risk. However, Van Vo et al. (2021) found that, in Vietnamese companies, female CEOs are associated with lower systematic and idiosyncratic risk (see Appendix 1).

Studies on companies in the United States (Baixauli-Soler et al., 2015; Hurley and Choudhary, 2020), China (Jebren et al., 2020), South Asia (Yahya et al., 2020), Canada (Chakraborty et al., 2019), Italia (Rossi et al., 2017), and the U.K. (Jizi and Nehme, 2017) found that the percentage of female board members shows a negative relationship with the total risk of the company's shares in the stock market. Analogous results are found in two studies conducted on a sample of international banks (Birindelli et al., 2020) and a sample of banks in the Arabian Gulf States (Abou-El-Sood, 2019). Moreover, for U.S. companies, Lenard et al. (2014) found that gender-diverse boards were related to lower total and idiosyncratic risk, and Perryman et al. (2016) likewise reported an inverse relationship with total and systematic risk. Yang et al. (2019) established that board gender diversity negatively influences the systematic and idiosyncratic risk of Norwegian companies. In addition, for UK companies, Nadeem et al. (2019) showed that female directors reduced total, systematic, and idiosyncratic risk.

However, studies conducted on U.S. companies concluded that there was no relationship between gender-diverse boards and total risk (Bansak et al., 2011), or total, systematic and idiosyncratic risk (Sila et al., 2016). Similarly, a recent study of Indian banks, Shukla et al. (2021) found no relationship between gender and systematic risk. Loukil et al. (2020), analyzing a sample of French family businesses, reported that female inside directors increase idiosyncratic risk while female independent directors reduce it. Therefore, given that there is no consensus at managerial level and that the number of studies is limited, more research is needed (Hurley and Choudhary, 2020).



The relationship between the presence of women on the board of directors and the company's risk can be explained by well-established theories, among which the following are the most important.

According to Agency Theory, managers (agents) might make decisions that are for their own benefit but detrimental to the interests of shareholders (principals), since agents and principals do not always have common interests (Jensen and Meckling, 1976; Fama and Jensen, 1983). Board gender diversity strengthens monitoring (Achour, 2022) by restricting opportunities for managers and limiting risky behavior (Jia, 2019; Yahya et al., 2020). Moreover, it reduces the possibility of earnings management practices and manipulation of financial statements (Qayyum et al., 2021). Diverse gender boards increase public and private disclosure of information, which improves transparency and reduces information asymmetries (Jizi and Nehme, 2017; Loukil et al., 2019). In short, the presence of women on the board of directors reduces both conflicts of interest and agency costs, and leads to a reduction in the market risk of the shares (Palvia et al., 2015).

Upper Echelons Theory states that the company's strategies and policies are established according to the individual preferences of top management, and that these preferences depend on the managers' values, psychological traits, knowledge, and experience (Hambrick and Mason, 1984). Therefore, the characteristics of the board members, including gender, are determinant in the decision-making processes, in the acquisition of information, and in the handling of contingencies, which all influence performance (Ozdemir and Erkmen, 2022). Consequently, the percentage of women on the board of directors might influence the company's risk, as women tend to be more cautious and risk-averse, in line with gender-based behavioral differences (Baixauli-Soler et al., 2015; Palvia et al., 2015; Poletti-Hughes and Briano-Turrent, 2019). Thus, as women are more sensitive to risk, they may favor the adoption of less risky business policies (Loukil et al., 2020; Achour, 2022), thereby protecting the shareholders' interests (Loukil et al., 2019).

According to Human Capital Theory (Becker, 1964), heterogeneous boards, whose members have different personal traits and backgrounds, strengthen the company's human capital by contributing a broader range of ideas and perspectives. Diversity can increase the quality of corporate governance by reducing opacity, which is especially important for investors in the case of information asymmetries (Loukil et al., 2020). Gender-diverse boards can be a valuable and inimitable resource (Achour, 2022). Moreover, companies need large and stable resources to survive, especially in competitive and complex environments. Based on Resource Dependence Theory (Pfeffer and Salancik, 1978), board members with different characteristics could bring new perspectives and resources that would attract more investors (Jia, 2019). The literature has widely shown that an increased presence of women in top management enhances financial performance, innovation, corporate social responsibility, and company reputation (Valls Martínez and Cruz Rambaud, 2019;

Valls Martínez et al., 2022a). Therefore, we may assume that the presence of women in managerial and monitoring positions might help to reduce the company's market risk.

Stakeholder Theory (Freeman, 1984) establishes that, in order to survive, a company must meet the expectations of not only its shareholders, but also its stakeholders, i.e., customers, suppliers, lenders, employees, governments, and, in general, society as a whole. As women are more empathetic, communicative, sensitive to other people's problems, and committed to environmental care, etc. (Nguyen and Nguyen, 2015; Gennari, 2018; Sial et al., 2018; Francoeur et al., 2019), they are more likely than men to satisfy the interests of different stakeholders. Therefore, a gender-diverse board of directors may contribute to lowering the company's risk.

Based on the previous arguments, we predict that a higher presence of women on the board of directors is related to a lower systematic market risk for the company. To test this statement, we formulated the following hypotheses:

*H1: The percentage of women on the board of directors is negatively related to the market beta of the company's stocks in the U.S. market.*

*H2: The percentage of women on the board of directors is negatively related to the market beta of the company's stocks in the European market.*

## Methodology

### The dataset

The empirical study was developed with data corresponding to the companies included in the S&P 500 and Euro Stoxx 300 indexes during the period 2015–2019. This sample was selected for two reasons. First, these indexes are representative of the U.S. and European markets, respectively, allowing for reliable comparisons between them. Second, the period is sufficiently broad and current to allow us to draw reliable conclusions. The year 2020 was not included owing to the disruption experienced by the markets due to the COVID-19 pandemic, which would have distorted the results. It would be interesting, in the future, to compare the 5 years prior to the pandemic with the years after. However, companies do not present their annual financial statements until the middle of the following year, and it is later when they are incorporated into the databases. Consequently, at this time it is too premature to perform the study pre-COVID vs. post-COVID era.

The data were obtained from the Bloomberg database, which is frequently used by stock market analysts and portfolio managers. In addition, it has been used in previous scientific work (Nadeem et al., 2019; Valls Martínez et al., 2022c), which supports its reliability and the validity of the results obtained for practical investment management. After eliminating those observations for which any of the variables used were unavailable, the final sample



TABLE 1 Sample by countries.

| Euro Stoxx 300      |         | S&P 500             |         |
|---------------------|---------|---------------------|---------|
| Country             | Percent | Country             | Percent |
| France              | 28.10   | United States       | 95.45   |
| Germany             | 23.81   | Republic of Ireland | 1.98    |
| Netherlands         | 9.59    | United Kingdom      | 1.78    |
| Italy               | 9.26    | Switzerland         | 0.59    |
| Spain               | 8.58    | Bermuda             | 0.20    |
| Finland             | 5.36    |                     |         |
| Belgium             | 4.83    |                     |         |
| Republic of Ireland | 2.82    |                     |         |
| Austria             | 2.35    |                     |         |
| Luxembourg          | 2.28    |                     |         |
| Portugal            | 1.34    |                     |         |
| United Kingdom      | 1.34    |                     |         |
| Switzerland         | 0.34    |                     |         |

TABLE 2 Sample description.

| Year                          | Board size | % women on board | Beta     |
|-------------------------------|------------|------------------|----------|
| <b>Section I. U.S. market</b> |            |                  |          |
| 2015                          | 11.852823  | 22.453358        | 1.054897 |
| 2016                          | 11.521127  | 22.652870        | 1.016576 |
| 2017                          | 11.238298  | 22.643987        | 1.019949 |
| 2018                          | 11.051613  | 22.712936        | 0.987257 |
| 2019                          | 11.087420  | 22.949072        | 1.028492 |
| <b>Section II. EU market</b>  |            |                  |          |
| 2015                          | 13.783787  | 32.464087        | 0.898884 |
| 2016                          | 13.530612  | 33.031053        | 0.896141 |
| 2017                          | 12.694444  | 32.825930        | 0.878769 |
| 2018                          | 12.541219  | 31.858068        | 0.880025 |
| 2019                          | 12.613475  | 31.802274        | 0.901391 |

included 1,998 observations for the United States and 1,161 for Europe.

Table 1 shows the composition of the sample by country. As it can be seen, the S&P 500 index is almost entirely composed of companies headquartered in the United States, although 4.55% of its members are companies that have never had their headquarters in the United States or that have moved to other countries. As regards the Euro Stoxx 300 index, France and Germany are the countries with the highest representation, together accounting for 51.91% of the total sample, followed by the Netherlands, Italy, Spain, Finland, and Belgium follow, with a total of 37.62%. Finally, Ireland, Austria, Luxembourg, Portugal, the United Kingdom, and Switzerland account for the remaining 10.47%.

Table 2 shows the average annual values of the dependent and independent variables corresponding to the companies included in both market indexes. It can be seen that the results remain stable during the period analyzed. The size of the board of directors is only slightly larger in Europe than in the United States,

with a difference of just one or two members. However, the percentage of female board members is almost 50% higher in Europe, with between 31.80 and 33.03%, than in the United States, with 23%, depending on the year observed. In contrast, the market beta of companies is lower in Europe, indicating higher volatility in the United States.

Figures 1, 2 depict the scatter graph and fitted values by sectors for the dependent and independent variables in the U.S. and European markets, respectively. There is a notable difference between the two markets. The U.S. market shows a negative relationship, so greater gender diversity corresponds to lower volatility. In contrast, the relationship between the variables in Europe is positive.

## Variable description

Table 3 contains the definitions of the variables used in the empirical study, grouped according to the function attributed, as well as the abbreviations to be used hereinafter.

### Dependent variable

The stock return,  $R$ , in the period  $t$  under consideration, is usually represented in finance as a linear function of market return, as follows:

$$R_t = \alpha + \beta R_{Mt} + \varepsilon_t, \quad t = 1, 2, \dots, T,$$

where  $R_{Mt}$  is the market return for the period  $t$ . The intercept of the regression,  $\alpha$ , represents the part of the stock's return that is independent of the market. The coefficient  $\beta$  denotes the degree of intensity with which fluctuations in market return influence stock return. The random disturbance,  $\varepsilon$ , includes the part of the stock's returns explained by factors independent of the market and dependent on the specific characteristics of the stock (Sharpe, 1963).

The variance of the stock return is given by the following equation:

$$\sigma^2(R) = \beta^2 \sigma(R_M) + \sigma^2(\varepsilon).$$

The total stock risk is  $\sigma^2(R)$ , which can be split into two components:  $\beta^2 \sigma(R_M)$ , which represents systematic or market risk, also known as non-diversifiable risk; and  $\sigma^2(\varepsilon)$ , which represents the own or specific risk, also known as idiosyncratic or diversifiable risk.

The beta parameter,  $\beta$ , is known as the volatility coefficient (BETA), and is used as a measure of systematic risk. The higher the beta, the more the asset's return will increase when the market is rising, but the greater the decline will be when the market is falling. If  $\beta > 1$ , the stock moves more sharply than the market and in the same direction. Conversely, if  $0 < \beta < 1$ , the stock is more

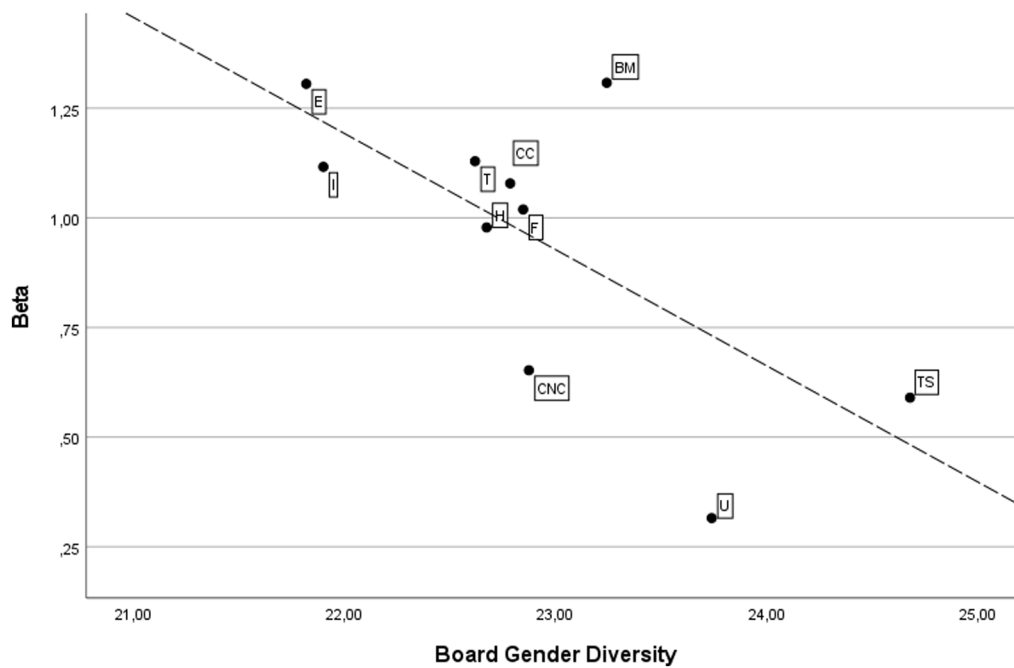


FIGURE 1

Scatter graph and fitted values by sectors in the U.S. market. B, Basic Materials; CC, Consumer Cyclicals; CNC, Consumer Non-Cyclicals; E, Energy; F, Financials; H, Healthcare; I, Industrials; T, Technology; TS, Telecommunication Services; U, Utilities.

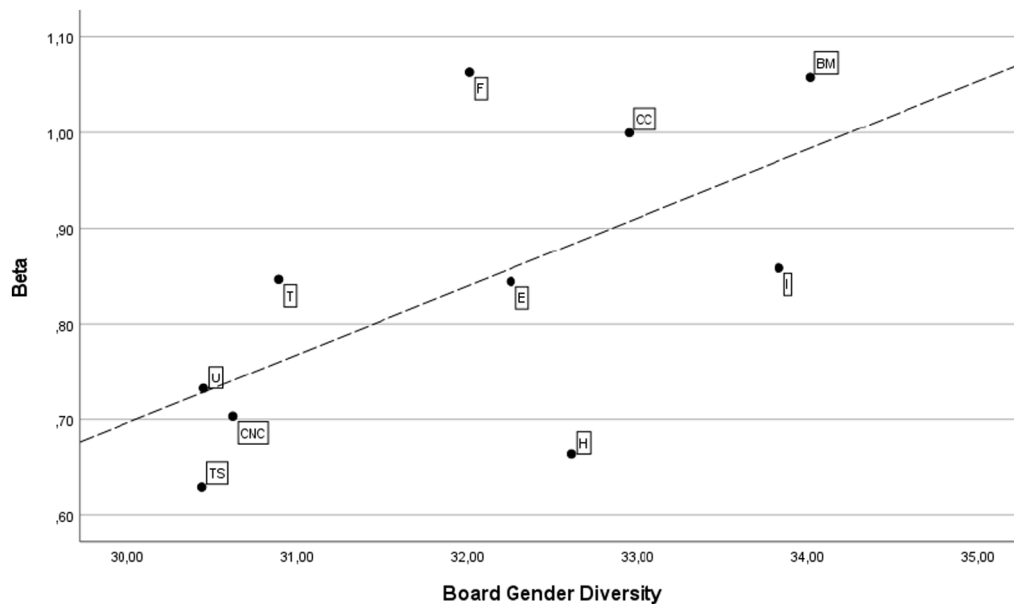


FIGURE 2

Scatter graph and fitted values by sectors in the EU market. B, Basic Materials; CC, Consumer Cyclicals; CNC, Consumer Non-Cyclicals; E, Energy; F, Financials; H, Healthcare; I, Industrials; T, Technology; TS, Telecommunication Services; U, Utilities.

resilient than the market. Sometimes beta is negative, meaning that stock prices move in the opposite direction to the market, but this is not usual. Risk-averse investors will prefer stocks with  $\beta < 1$ ,

known as defensive betas. On the contrary, risk-prone investors will select stocks with  $\beta > 1$ , known as aggressive betas (Valls Martínez et al., 2020b).

TABLE 3 Variables definition.

|                        | Abbreviation | Variable                            | Definition  |
|------------------------|--------------|-------------------------------------|---|
| Dependent variable     | BETA         | Beta                                | Volatility of a stock against the volatility of the broader market (it is calculated based on trailing five-year prices, on a monthly basis, relative to the S&P 500 or the Euro Stoxx 300 indexes) |
| Independent variables  | BGD          | Board Gender Diversity              | Percentage of women on board of directors   |
|                        | BLAU         | Blau Index                          | Blau diversity index  |
|                        | SHAN         | Shannon Index                       | Shannon diversity index   |
| Control variables      | TOQ          | Tobin's Q                           | Stock price/replacement value   |
|                        | OPM          | Operating Profit Margin             | Operating profit to total revenue, as a percent   |
|                        | SIZE         | Company Size                        | Logarithm of revenue  |
|                        | INDEB        | Indebtedness                        | Total debt to total equity, as a percent  |
| Instrumental variables | GDP          | Policy Board Diversity              | Dummy variable, 1 if the company has a board gender diversity policy, and 0 otherwise   |
|                        | NEBM         | Non-Executive Board Members         | Percentage of non-executive board members   |
|                        | IBM          | Independent Board Members           | Percentage of independent board members   |
|                        | EMGD         | Executive Members' Gender Diversity | Percentage of female executive members  |

The  $\beta$ -values were obtained from the Bloomberg database, which calculates them based on the trailing five-year prices, on a monthly basis, relative to the S&P 500 or the Euro Stoxx 300, as applicable. Beta is a proxy for the volatility of a stock against the volatility of the broader market (Yang et al., 2019; Shukla et al., 2021; Van Vo et al., 2021).

### Independent variables

The independent variable is the percentage of women on the board of directors, which is a proxy for Board Gender Diversity (BGD) in the main management and monitoring body of the company. Only a limited number of papers relate board gender diversity to market risk, and even fewer to systematic risk.

So far, the evidence is mixed. Regarding the U.S. market, Perryman et al. (2016), for a sample of companies from 1992 to 2012 and using OLS regression methodology, found a negative relationship between Beta and Board Gender Diversity. However, Sila et al. (2016), for a sample from 1996 to 2010 and using the generalized method of moments, found no relationship between the two variables, as did Peltomäki et al. (2021), for a sample from 2006 to 2018 and applying the fixed effects and two-stage methodologies with instrumental variables regressions.

In addition, we are aware of three more papers that have identified a negative relationship: Nadeem et al. (2019), on a sample of U.K. firms from 2007 to 2016, using OLS, fixed effects, and two-stage with instrumental variables regressions; Van Vo et al. (2021), considering Vietnamese firms from 2007 to 2015, using OLS and two-stage with instrumental variables regressions; and, Yang et al. (2019), on Norwegian firms from 2003 to 2008, using the Difference-In-Differences regression model. Finally, Shukla et al. (2021) found no relationship between the percentage of women and market beta, in a sample of Indian banks from 2009 to 2016, applying a fixed effects regression model.

To test the robustness of the results and to isolate any causal relationship between BETA and women's participation, and in line

with the literature (Campbell and Mínguez-Vera, 2008; Adams and Ragunathan, 2017; Nadeem et al., 2019; Ozdemir and Erkmén, 2022), the Blau and Shannon diversity indexes, will be used as proxies for gender-diverse boards, as they are considered an optimal approach for quantifying diversity within a group.

The Blau index (BLAU; Blau, 1977) is defined as follows:

$$1 - \sum_{i=1}^n p_i^2.$$

The number of categories is represented by  $n$  (in our case, two: women and men) and the percentage of members of each category in the total group by  $p$ . The index value ranges from 0 (when there is only one gender on the board of directors) to 0.5 (when women account for 50% of the board seats and men for the other 50%).

In turn, the Shannon index (SHAN; Shannon, 1948) is calculated as:

$$-\sum_{i=1}^n p_i \cdot \ln p_i.$$

The meanings of  $n$  and  $p$  are the same as in the Blau index, although the Shannon index ranges from 0 (when all board members are of the same gender) to 0.6931 (when women and men account for the same proportion), and is more reactive to small differences in the board composition.

The validity of both indexes for measuring diversity can be observed, as they cannot take negative values, they will be zero when homogeneity is absolute, their value will increase with diversity, and they are upper bounded, as mentioned above (Miller and Triana, 2009).

## Control variables

It is usual to include accounting and/or market financial performance measures as control variables. The accounting measures represent the current situation of the company derived from its previous trajectory. Market measures, on the other hand, show the company's long-term future expectations (Valls Martínez et al., 2022a). This study takes the Operating Profit Margin (the ratio of operating profit to total revenue) as the accounting variable (OPM), and Tobin's Q (the ratio of stock price to replacement value) as the market variable (TOQ).

Two of the control variables used in almost all studies are firm size (defined by total assets, revenues, or number of employees) and level of indebtedness. Accordingly, we have included the logarithm of revenues (SIZE) and the debt-to-equity ratio (INDEB) as proxies for firm size and indebtedness, respectively.

News about the sector to which the firm belongs can affect stock volatility, so dummy variables have been included as control variables to account for the effect of the sector in the empirical analysis. Specifically, firms are grouped into 10 sectors: basic materials, consumer cyclicals, consumer non-cyclicals, energy, financials, healthcare, industrials, technology, telecommunication services, and utilities.

The sign and significance of the relationship between these variables and the firm's market beta is not uniform among previous empirical studies. For example, indebtedness is often shown to be negatively and significantly related to beta (Baixauli-Soler et al., 2015; Chakraborty et al., 2019; Qayyum et al., 2021; Van Vo et al., 2021), but other studies have shown a positive relationship (Peltomäki et al., 2021; Ozdemir and Erkmén, 2022), or even no relationship (Jizi and Nehme, 2017; Birindelli et al., 2020). The same applies to the other variables.

## Instrumental variables

To avoid biased and inconsistent regression estimators due to reverse causality and endogeneity problems between BETA and the percentage of women on the board of directors, and in accordance with the literature, one of the methodological procedures employed was a two-stage instrumental variable regression. The instruments must be correlated with the endogenous variable that they replace, i.e., with board gender diversity, but not with the error term in the estimation of beta (Baum et al., 2007). The following variables were used as instruments in the study performed (Valls Martínez and Cruz Rambaud, 2019; Valls Martínez et al., 2022b): (1) a dummy variable based on whether the company applies Gender Diversity Policies on the board (GDP), expecting that, if so, this body will be more gender-diverse; (2) the percentage of Non-Executive Board Members (NEBM), as the more non-executive members there are, the more women could occupy seats on the board; (3) the percentage of Independent Board Members (IBM), since most women on the board tend to belong to the category of independent members; and (4) Executive Member Gender Diversity (EMGD), assuming that, if the company is more inclined to apply gender

policies, then these will affect all levels of the organization, from the lowest positions to executive and monitoring positions.

## Methodology

The methodology applied in this study is based on regression models that incorporate various econometric techniques to deal with possible endogeneity problems. For the continuous variables, as is usual before proceeding with the regressions, an analysis of the descriptive statistics and the bivariate Pearson correlations between them is performed. In addition, a test of means and an ANOVA analysis are conducted for the instrumental dummy variable (GDP) in relation to the explanatory variable (BGD).

Indeed, endogeneity is a constant concern in this type of study, since there may be different causes of biased estimators. Variables considered in the analysis, such as company size, could simultaneously influence both the explained and explanatory variables. Larger companies may be at greater risk because they are less agile in adapting to changing circumstances in the economy. In addition, larger companies are more likely to have boards with a larger number of seats and, therefore, may incorporate more women (Adams, 2016). The same could occur with omitted variables that are nonetheless influential. Based on Stakeholder Theory, socially responsible companies enjoy greater legitimacy in the eyes of investors and are perceived as being better managed, which makes them less vulnerable to market fluctuations, thus reducing their risk. Moreover, these companies are more sensitive to ethical issues, so they are more likely to implement equality policies and, consequently, have more women on their boards of directors (Nadeem et al., 2019).

In addition, there could be reverse causality between the dependent and independent variables. On the one hand, if women tend to be more risk-averse, it is logical to think that they will assume less risk in their corporate decisions, and so the market risk of the shares will be lower. On the other hand, companies with lower risk will look for directors with less predisposition for taking risky decisions, possibly leading to greater gender diversity on boards. In addition, women may self-select those companies with lower risk (Sila et al., 2016).

The multivariate empirical analysis starts with an ordinary least squares (OLS) multiple linear regression. Next, we apply one of the most frequently employed techniques for dealing with endogeneity, the use of the lagged dependent variable as a regressor (Francoeur et al., 2019). With the aim of further addressing the problem of reverse causality, and keeping the lagged variable, we next apply a two-stage regression with instrumental variables (Valls Martínez and Cruz Rambaud, 2019). The Sanderson-Windmeijer test (Sanderson and Windmeijer, 2016) and the Anderson test (Anderson and Hsiao, 1981) confirm that the instruments are valid and that there are no identification problems if value of  $p < 0.05$ . Similarly, with the Sargan test (Sargan, 1958), it must be verified that value of  $p > 0.05$ . Finally, to eliminate the bias produced by omitted variables, we incorporated

TABLE 4 Descriptive statistics of continuous variables.

| Variable                      | Mean       | Median    | SD         | Minimum     | Maximum     |
|-------------------------------|------------|-----------|------------|-------------|-------------|
| <b>Section I. U.S. market</b> |            |           |            |             |             |
| BETA                          | 1.021228   | 1.023351  | 0.448188   | −0.061792   | 2.734090    |
| BGD                           | 22.679260  | 22.22222  | 8.525444   | 0           | 62.500000   |
| BLAU                          | 0.336185   | 0.345679  | 0.090373   | 0           | 0.500000    |
| SHAN                          | 0.513642   | 0.529706  | 0.110126   | 0           | 0.693147    |
| TOQ                           | 2.162764   | 1.578622  | 2.049475   | 0           | 19.365190   |
| OPM                           | 16.774570  | 15.86832  | 16.337750  | −165.707300 | 84.602240   |
| SIZE                          | 22.915330  | 22.86551  | 1.237210   | 18.924090   | 26.966280   |
| INDEB                         | 145.518900 | 77.57098  | 341.127100 | 0           | 6458.906000 |
| NEBM                          | 86.270310  | 88.88889  | 6.791209   | 60.000000   | 100.000000  |
| IBM                           | 84.716550  | 86.66667  | 8.504586   | 42.857140   | 100.000000  |
| EMGD                          | 17.396000  | 16.66667  | 12.064190  | 0           | 57.142860   |
| <b>Section II. EU market</b>  |            |           |            |             |             |
| BETA                          | 0.890904   | 0.830946  | 0.366635   | 0.006099    | 2.151797    |
| BGD                           | 32.405010  | 33.333333 | 11.102540  | 0           | 63.636360   |
| BLAU                          | 0.413447   | 0.444445  | 0.099103   | 0           | 0.500000    |
| SHAN                          | 0.597458   | 0.636514  | 0.124603   | 0           | 0.693147    |
| TOQ                           | 1.371872   | 0.975345  | 1.413182   | 0           | 12.998710   |
| OPM                           | 18.929510  | 11.131230 | 41.218220  | −286.022400 | 424.890100  |
| SIZE                          | 22.481850  | 22.497540 | 1.575104   | 15.138870   | 26.1864600  |
| INDEB                         | 109.779600 | 72.002790 | 117.396000 | 0           | 757.930500  |
| NEBM                          | 89.319900  | 92.307690 | 11.218650  | 40          | 100.000000  |
| IBM                           | 61.986970  | 61.538460 | 25.402800  | 0           | 100.000000  |
| EMGD                          | 12.826750  | 12.500000 | 10.594130  | 0           | 50.000000   |

the use of panel data treatment with fixed effects to the use of the lagged variable (Adams, 2016). The selection of the fixed effects model over the random effects model is based on the Hausman test (Hausman, 1978). To determine the model that best explains the sample data, in addition to considering the  $R^2$  fit coefficient (higher values are better), the Akaike and Bayesian criteria (lower values are better) are used (Akaike, 1974; Schwarz, 1978).

Furthermore, to test the robustness of the results, we performed additional estimations. First, considering that the use of the lagged dependent variable as a regressor could cause autocorrelation problems, a second-order generalized method of moments (GMM) model was used in order to deal simultaneously with endogeneity and autocorrelation problems (Arellano and Bover, 1995; Yahya et al., 2020). Second, we applied lagged fixed effects using the Blau index as a proxy for gender diversity on the board, with the intention of isolating the causal relationship between this variable and risk (Adams and Ragunathan, 2017). Third, we applied the Shannon index (Campbell and Mínguez-Vera, 2008). Fourth, instead of using the percentage of women on the board of directors as the independent variable, we used the residuals resulting from estimating this variable with the remaining regressors. Fifth, we applied the lagged fixed effects model with board gender diversity as the explanatory variable, but now with all the variables involved winsorized at level 0.01 in order to eliminate extreme values that could distort the results (Valls Martínez et al., 2022b).

The application of these methodologies cannot completely eliminate endogeneity problems, but researchers apply a combination of all of them to test the stability of the results and obtain reliable conclusions (Adams, 2016). Furthermore, from the methodological point of view, the empirical research conducted in this study is in accordance with the literature, as shown in Appendix 1.

## Results

### Descriptive statistics and bivariate relationships

Table 4 shows the descriptive statistics of the continuous variables for the sample companies included in the S&P 500 and Euro Stoxx 300 indexes over the period 2015–2019.

With respect to the BETA variable, the median of the distribution of U.S. companies was above 1, while in European companies it was below 1. Specifically, the values were 1.023351 and 0.830946, respectively. This means that while more than half of U.S. companies had aggressive betas, European companies had defensive betas. In other words, the volatility of U.S. companies was higher than that of European companies. In addition, the standard deviation of beta in the S&P 500 was greater than in the Euro Stoxx 300.



TABLE 5 Pearson correlations between continuous variables in the U.S. market.

| Variable | BETA                   | BGD                   | BLAU                  | SHAN                  | TOQ                    | OPM                    | SIZE                  | INDEB                | NEBM                  | IBM                   |
|----------|------------------------|-----------------------|-----------------------|-----------------------|------------------------|------------------------|-----------------------|----------------------|-----------------------|-----------------------|
| BGD      | −0.1000***<br>(0.0000) | 1.0000                |                       |                       |                        |                        |                       |                      |                       |                       |
| BLAU     | −0.1056***<br>(0.0000) | 0.9649***<br>(0.0000) | 1.0000                |                       |                        |                        |                       |                      |                       |                       |
| SHAN     | −0.1061***<br>(0.0000) | 0.9399***<br>(0.0000) | 0.9936***<br>(0.0000) | 1.0000                |                        |                        |                       |                      |                       |                       |
| TOQ      | −0.0710***<br>(0.0015) | 0.0006<br>(0.9777)    | −0.0013<br>(0.9535)   | −0.0065<br>(0.7700)   | 1.0000                 |                        |                       |                      |                       |                       |
| OPM      | −0.1433***<br>(0.0000) | −0.0168<br>(0.4526)   | −0.0042<br>(0.8504)   | 0.0041<br>(0.8539)    | 0.1508***<br>(0.0000)  | 1.0000                 |                       |                      |                       |                       |
| SIZE     | 0.0479**<br>(0.0321)   | 0.0811***<br>(0.0003) | 0.0912***<br>(0.0000) | 0.0954***<br>(0.0000) | −0.3088***<br>(0.0000) | −0.1405***<br>(0.0000) | 1.0000                |                      |                       |                       |
| INDEB    | 0.0481**<br>(0.0315)   | −0.0172<br>(0.4416)   | −0.0117<br>(0.6026)   | −0.0078<br>(0.7285)   | −0.0290<br>(0.1956)    | 0.0023<br>(0.9171)     | 0.0380<br>(0.0895)    | 1.0000               |                       |                       |
| NEBM     | −0.0211<br>(0.3449)    | 0.1471***<br>(0.0000) | 0.1649***<br>(0.0000) | 0.1695***<br>(0.0000) | −0.0593***<br>(0.0080) | −0.0276<br>(0.2178)    | 0.1049***<br>(0.0000) | 0.0446**<br>(0.0461) | 1.0000                |                       |
| IBM      | −0.0548**<br>(0.0142)  | 0.1313***<br>(0.0000) | 0.1549***<br>(0.0000) | 0.1592***<br>(0.0000) | −0.0153<br>(0.4932)    | 0.0105<br>(0.6376)     | 0.0360<br>(0.1078)    | 0.0366<br>(0.1022)   | 0.5967***<br>(0.0000) | 1.0000                |
| EMGD     | −0.0342<br>(0.1266)    | 0.2942***<br>(0.0000) | 0.2797***<br>(0.0000) | 0.2737***<br>(0.0000) | 0.0334<br>(0.1361)     | −0.0135<br>(0.5476)    | 0.0609***<br>(0.0065) | 0.0489**<br>(0.0287) | 0.0949***<br>(0.0000) | 0.0825***<br>(0.0002) |

Value of p in parentheses. \*\*\*, \*\* and \* indicate a significance of less than 1%, less than 5% and less than 10%, respectively. Number of observations = 1,998.

The percentage of women on the board of directors (BGD) was, on average, substantially higher in Europe. Indeed, while U.S. companies had less than 23% female board members, European companies were well above the average of 32%. These figures contrast with the percentage of female executive members, where the United States was 4.6% ahead of Europe. It is also noteworthy that the percentage of independent board members in the U.S. market was 22.73% higher than in Europe.

U.S. companies were significantly better valued by the market than European companies (Tobin's Q was 2.16 in the United States versus 1.37 in Europe). They were also larger and significantly more indebted, showing a narrower operating margin but with a lower standard deviation.

Tables 5, 6 provides the Pearson's bivariate correlations between the continuous variables. No high correlations were found between the explanatory variables that could give rise to multicollinearity problems.

The independent variable BGD and the Blau and Shannon indexes showed a significant correlation with BETA, but while the sign of the correlation was negative in the U.S. market, it was positive in Europe. The upper part of Figure 3 depicts the scatter graph and fitted values of BGD and BETA for both samples, where a positive relationship is observed for the U.S. market and a negative one for the European market. However, in the lower part of the graph, where only the adjustment line is represented, the relationships are even more latent, due to the change in the scale of the ordinate axis.

Control variables also showed significant correlations with BETA. The companies better valued by the market and with higher operating margins, corresponded to lower betas. In contrast, larger and more indebted companies presented larger betas. On the other hand, instrumental variables displayed significant correlations with BGD.

The mean test corresponding to the GDP dummy variable, used as an instrument, is presented in Table 7. S&P 500 index companies that implemented board diversity policies had almost 3% more women. However, it is striking that the opposite is true for companies in the Euro Stoxx 300.

## Regression analysis

Tables 8, 9 show the results of the regression models applied. First, the OLS estimation, which is the simplest model implemented, shows a negative and significant relationship between BGD and BETA for the S&P 500 companies, at 1% significance level, achieving a fit coefficient of 33.11%. However, for the Euro Stoxx 300 companies, the relationship was positive and not significant, resulting in an  $R^2$  coefficient of 33.73%.

Second, the lagged dependent variable was used as the explanatory variable, by considering one lag. This lagged OLS regression confirmed the previous relationship between BGD and BETA in both markets, although the model fit improved to 82.33% in the United States and 85.48% in Europe. AIC and BIC criteria confirmed that this model outperforms the first.

TABLE 6 Pearson correlations between continuous variables in the EU market.

| Variable | BETA                   | BGD                   | BLAU                  | SHAN                   | TOQ                    | OPM                    | SIZE                  | INDEB               | NEBM                   | IBM                 |
|----------|------------------------|-----------------------|-----------------------|------------------------|------------------------|------------------------|-----------------------|---------------------|------------------------|---------------------|
| BGD      | 0.0708**<br>(0.0159)   | 1.0000                |                       |                        |                        |                        |                       |                     |                        |                     |
| BLAU     | 0.0803***<br>(0.0062)  | 0.9351***<br>(0.0000) | 1.0000                |                        |                        |                        |                       |                     |                        |                     |
| SHAN     | 0.0799***<br>(0.0065)  | 0.8976***<br>(0.0000) | 0.9916***<br>(0.0000) | 1.0000                 |                        |                        |                       |                     |                        |                     |
| TOQ      | −0.2464***<br>(0.0000) | −0.0529*<br>(0.0715)  | −0.0691**<br>(0.0185) | −0.0775***<br>(0.0083) | 1.0000                 |                        |                       |                     |                        |                     |
| OPM      | −0.1936***<br>(0.0000) | −0.0581**<br>(0.0477) | −0.0623**<br>(0.0337) | −0.0656**<br>(0.0254)  | −0.0784***<br>(0.0076) | 1.0000                 |                       |                     |                        |                     |
| SIZE     | 0.4253***<br>(0.0000)  | 0.1089***<br>(0.0003) | 0.1173***<br>(0.0001) | 0.1191***<br>(0.0000)  | −0.4349***<br>(0.0000) | −0.2979***<br>(0.0000) | 1.0000                |                     |                        |                     |
| INDEB    | 0.0121<br>(0.6799)     | 0.0163<br>(0.5791)    | 0.0292<br>(0.3203)    | 0.0343<br>(0.2430)     | −0.2676***<br>(0.0000) | 0.0490*<br>(0.0952)    | 0.1325***<br>(0.0000) | 1.0000              |                        |                     |
| NEBM     | −0.0211<br>(0.3449)    | 0.1471***<br>(0.0000) | 0.1649***<br>(0.0000) | 0.1695***<br>(0.0000)  | −0.0593***<br>(0.0080) | −0.0276<br>(0.2178)    | 0.1049***<br>(0.0000) | −0.0251<br>(0.3923) | 1.0000                 |                     |
| IBM      | 0.0746**<br>(0.0110)   | 0.0280<br>(0.3399)    | 0.0911***<br>(0.0019) | 0.0921***<br>(0.0017)  | 0.0560*<br>(0.0563)    | −0.008<br>(0.9793)     | 0.0381<br>(0.1947)    | −0.0342<br>(0.2439) | 0.0684**<br>(0.0197)   | 1.0000              |
| EMGD     | −0.0206<br>(0.4825)    | 0.2127***<br>(0.0000) | 0.1826***<br>(0.0000) | 0.1754***<br>(0.0000)  | −0.0169<br>(0.5643)    | 0.0343<br>(0.2428)     | −0.0082<br>(0.7805)   | 0.0287<br>(0.3281)  | −0.1376***<br>(0.0000) | −0.0098<br>(0.7386) |

Value of p in parentheses. \*\*\*, \*\* and \* indicate a significance of less than 1%, less than 5% and less than 10%, respectively. Number of observations = 1,161.

Third, a two-stage lagged regression with instrumental variables was applied. For the United States, it is observed that, in the first stage, all the variables used as instruments show a positive and significant relationship with BGD. In the second stage, the negative and significant relationship between the percentage of women on the board of directors and stock beta is again confirmed. In Europe, the sign and significance of the GDP variable is striking, as it indicates that those companies that claim to apply gender diversity policies on the board have, nevertheless, a lower ratio of female directors. In addition, the NEBM and IBM variables were not significant. Regarding the second stage of the regression, it should be emphasized that BGD shows a negative coefficient, significant at the maximum level, contrary to what was indicated by the two previous models. Note that in neither market did the instrumental variables model outperform the lagged OLS regression, as indicated by the  $R^2$  values and the AIC and BIC criteria. Arguably, both models are similar in terms of their validity.

Fourth, panel data with a lagged fixed effects estimation was performed. Once again, for the S&P 500 companies, it was confirmed that an inverse relationship between BGD and BETA was verified at the 0.01 significance level. For Euro Stoxx 300 companies, the relationship was also negative, but not significant. This model achieved the highest  $R^2$  coefficient, with 89.03% for the U.S. market and 89.16% for the European market, and also shows the highest validity according to the AIC and BIC criteria. Therefore, it is the model that best represents the estimation of BETA.

According to the results obtained, H1 is strongly confirmed. We can state that the confirmation of H2 is weak, since it is only confirmed in the model with instrumental variables. Thus, it has been shown that S&P 500 companies with a higher percentage of women on the board of directors have lower market betas, i.e., the stocks exhibit lower volatility and are therefore more suitable for risk-averse investors. However, this relationship is less clear in the European market.

In addition, regarding the remaining variables involved in the study, it is notable that there is a positive and significant relationship between company size and BETA in both markets, such that larger companies show higher volatilities. Thus, risk-averse investors should select smaller companies for their portfolios.

## Robustness checks

The results showed that the best model was the lagged fixed effects regression and, in order to test their robustness, five different strategies were applied. The first of these consisted of a GMM estimation. The next two strategies consisted of the same methodology as the model to be tested, but replacing the independent variable with the Blau and Shannon indexes, respectively, as proxies for gender diversity on the board of directors. In the fourth estimation, the percentage of women on the board was replaced by the residuals resulting from the regression of this variable with

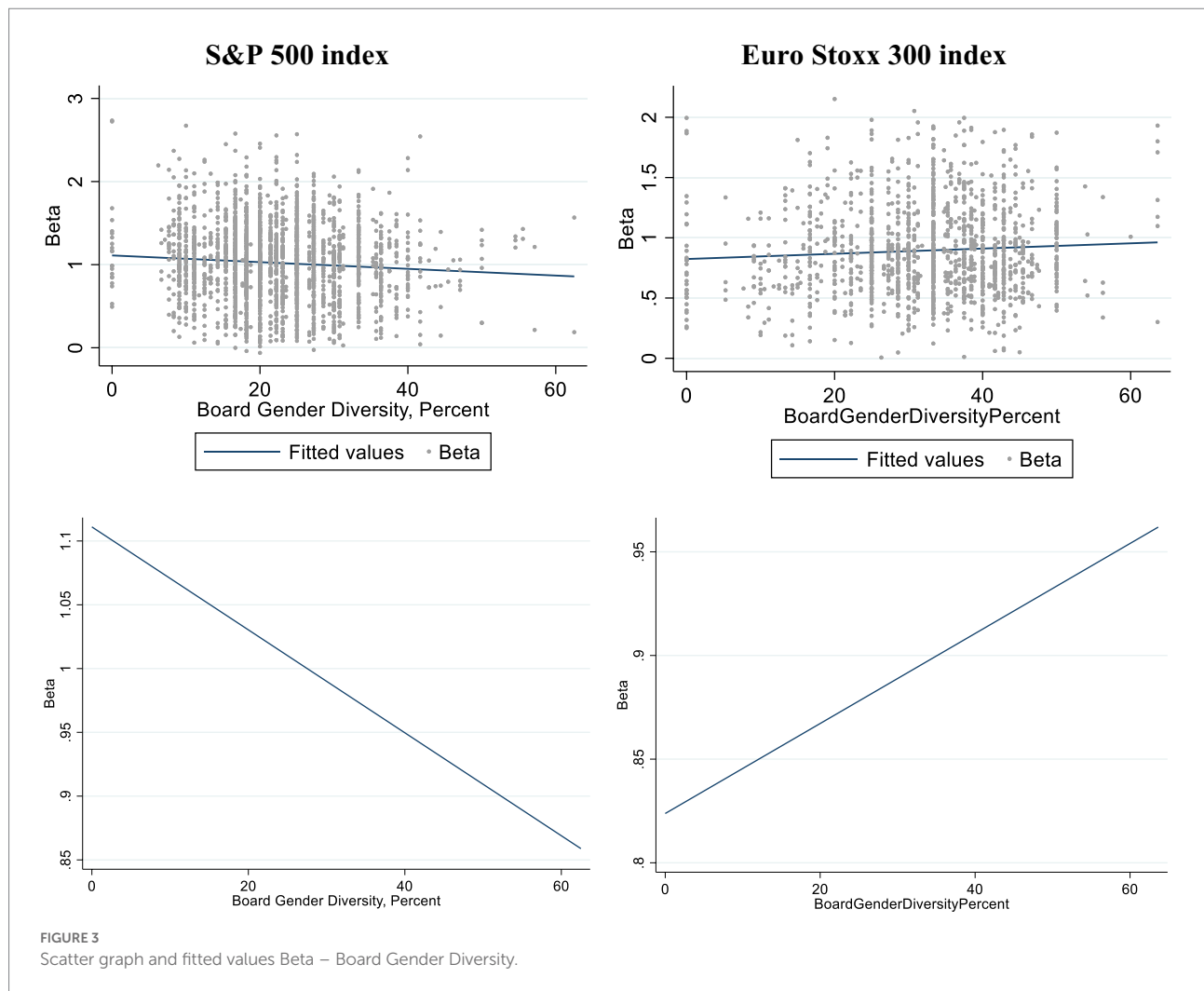


TABLE 7 Difference of means in the values of Board Gender Diversity and ANOVA test for the dummy variable of Policy Board Diversity.

|                               | Difference of means test ( <i>t</i> -test) |              |                       | ANOVA test        |                              |
|-------------------------------|--|--------------|-----------------------|-------------------|------------------------------|
|                               | Mean group 0                               | Mean group 1 | Difference            | <i>F</i>          | Adjust <i>R</i> <sup>2</sup> |
| <i>Section I. U.S. market</i> |  |              |                       |                   |                              |
| Mean                          | 20.09152                                   | 22.98114     | −2.889619*** (0.0000) | 26.37*** (0.0000) | 0.0105                       |
| Percentage                    | 10.60%                                     | 89.40%       |                       |                   |                              |
| <i>Section II. EU market</i>  |  |              |                       |                   |                              |
| Mean                          | 35.14651                                   | 31.96747     | 3.179042*** (0.0002)  | 13.94*** (0.0000) | 0.0089                       |
| Percentage                    | 13.56%                                     | 86.44%       |                       |                   |                              |

Value of *p* in parentheses. \*\*\* indicates a significance of less than 1%.

the rest of the regressors. Finally, the fifth strategy consisted of winsorizing all the variables to eliminate extreme values that could distort the regression coefficients.

In the U.S. market (see [Appendix 2](#)), the greater presence of women on the board of directors was significantly related to lower stock betas. Therefore, H1 was fully confirmed. However, in the European market (see [Appendix 3](#)), this negative relationship was not significant, and the GMM model even showed a positive

relationship, in line with the results obtained above. Consequently, H2 was not confirmed.

## Discussion

Individual and institutional investors select their portfolios based on expected return and equity risk, both of which move in

TABLE 8 Regressions in the U.S. market.

| Variables                 | Estimation (OLS)     | Lagged estimation (OLS) | IV Lagged estimation (OLS) |                     | Lagged fixed effects estimation |
|---------------------------|----------------------|-------------------------|----------------------------|---------------------|---------------------------------|
|                           |                      |                         | First-stage IV             | Second-stage IV     |                                 |
| Intercept                 | 1.171726*** (0.000)  | −0.094565 (0.357)       | −8.104832 (0.119)          | −0.083954 (0.434)   | −1.04705* (0.096)               |
| BETA (1 lag)              |                      | 0.836552*** (0.000)     | −1.099311** (0.049)        | 0.833872*** (0.000) | 0.256033*** (0.000)             |
| BGD                       | −0.003813*** (0.000) | −0.002426*** (0.000)    |                            | −0.004426** (0.011) | −0.001589*** (0.004)            |
| TOQ                       | −0.028652*** (0.000) | 0.001429 (0.699)        | 0.154491 (0.197)           | 0.001795 (0.514)    | 0.0051151 (0.350)               |
| OPM                       | −0.001624** (0.020)  | −0.000470 (0.260)       | −0.020623 (0.124)          | −0.000519* (0.094)  | 0.0002941 (0.415)               |
| SIZE                      | 0.012287 (0.104)     | 0.014477*** (0.001)     | 0.628315*** (0.001)        | 0.016213*** (0.001) | 0.0791103*** (0.004)            |
| INDEB                     | 0.000107*** (0.000)  | 0.000016 (0.360)        | −0.000978* (0.081)         | 0.000015 (0.234)    | −2.16e-06* (0.096)              |
| GDP                       |                      |                         | 2.062570*** (0.005)        |                     |                                 |
| NEBM                      |                      |                         | 0.093429** (0.014)         |                     |                                 |
| IBM                       |                      |                         | 0.056573* (0.056)          |                     |                                 |
| EMGD                      |                      |                         | 0.194491*** (0.000)        |                     |                                 |
| Sector                    | Yes                  | Yes                     | Yes                        | Yes                 |                                 |
| Adjusted R <sup>2</sup>   | 0.3311               | 0.8233                  | 0.1155                     | 0.8201              | 0.8903                          |
| F-statistic               | 121.16*** (0.0000)   | 540.24*** (0.0000)      | 12.37*** (0.0000)          | 477.04*** (0.0000)  | 23.57*** (0.0000)               |
| Observations              | 1,998                | 1,567                   | 1,567                      | 1,567               | 1,567                           |
| Sanderson-Windmeijer test |                      |                         |                            | 43.32 (0.0000)      |                                 |
| Anderson test             |                      |                         |                            | 157.74 (0.0000)     |                                 |
| Sargan test               |                      |                         |                            | 0.027 (0.9988)      |                                 |
| Hausman test              |                      |                         |                            |                     | 869.22*** (0.0000)              |
| Breusch Pagan test        |                      |                         |                            |                     | 3.466*** (0.000)                |
| AIC                       | 1742.140             | −773.006                |                            | −759.687            | −2049.727                       |
| BIC                       | 1826.138             | −687.295                |                            | −673.976            | −2012.228                       |

\*\*\*, \*\* and \* indicate a significance of less than 1%, less than 5% and less than 10%, respectively. Value of p in parentheses. AIC and BIC: smaller is better.

the same direction. A rational investor will only take on more risk if the expected return increases. Now, will investors be willing to buy a riskier asset or will they prefer a lower-risk asset and settle for a lower expected return? Let us remember that risk implies the possibility of higher profits if the market evolves favorably, but also the possibility of greater losses if it does not. The answer will depend on the investor's propensity or aversion to risk.

Risk is determined by the volatility of stock prices and is divided into two components: systematic risk and idiosyncratic risk. The former is the most relevant for financial investors, since it cannot be avoided by diversifying their portfolios, unlike the latter. The market beta of the stock indicates how the stock's return varies with respect to the average return of the market, i.e., the return of the market index, and is the measure of systematic risk. If beta >1, the stock has a higher volatility than the index, and if beta <1, then the stock is more resilient to market fluctuations. When the market is rising, stocks with beta >1 will be of interest for higher returns. However, if the market is down, assets with beta <1 will be more favorable, as the losses will be smaller. Therefore, risk-averse investors will prefer financial assets with lower betas, especially in times of crisis when markets are more volatile (Valls Martínez et al., 2021).

The question is whether there is any relationship between a greater presence of women on the board of directors and stock beta. Traditionally, women have been considered more

risk-averse. Therefore, we might wonder whether those boards with a higher presence of women bring about a reduction in beta. Through well-founded and established theories, such as Agency Theory, Upper Echelons Theory, Human Capital Theory, Resource Dependency Theory, and Stakeholder Theory, it can be explained that the presence of women on the board of directors leads to a reduction in the company's risk (Ozdemir & Erkmén, 2022). Therefore, gender-diverse boards of directors would make decisions more consistent with shareholder interests and curtail potential managerial opportunism (Yahya et al., 2020).

Women tend to find it more difficult than men to hold board positions, as they are usually expected to have more education and experience, and this requirement may be the cause of some of the differences in behavior between the two genders (Adams and Funk, 2012). As a further example of gender discrimination, women who gain access to boards are often not included in financial committees, but are relegated instead to "soft" positions, including monitoring committees (Furlotti et al., 2019). Therefore, it makes sense that more gender-diverse boards are associated with lower risk, as there is greater control.

The greater risk aversion attributed to women is considered one of the main causes of the so-called "glass ceiling," i.e., the invisible barrier that prevents women from holding senior management positions (Schubert et al., 1999). On the one hand, if women are risk-averse, they may not take risky decisions

TABLE 9 Regressions in the EU market.

| Variables                 | Estimation (OLS)     | Lagged estimation (OLS) | IV Lagged estimation (OLS) |                      | Lagged fixed effects estimation |
|---------------------------|----------------------|-------------------------|----------------------------|----------------------|---------------------------------|
|                           |                      |                         | First-stage IV             | Second-stage IV      |                                 |
| Intercept                 | −0.865618*** (0.000) | 0.026168 (0.775)        | 11.802380 (0.144)          | 0.064790 (0.472)     | −1.459437** (0.032)             |
| BETA (1 lag)              |                      | 0.852404*** (0.000)     | −0.000584 (1.000)          | 0.851097*** (0.000)  | 0.386053*** (0.000)             |
| BGD                       | 0.000047 (0.952)     | 0.000033 (0.929)        |                            | −0.000479*** (0.002) | −0.000171 (0.690)               |
| TOQ                       | −0.024566 (0.120)    | −0.005458 (0.232)       | 0.243288 (0.513)           | −0.003603 (0.404)    | −0.017661 (0.130)               |
| OPM                       | −0.001498*** (0.000) | −0.000331** (0.024)     | 0.011112 (0.392)           | −0.000296** (0.048)  | 0.000167 (0.636)                |
| SIZE                      | 0.085939*** (0.000)  | 0.006639 (0.116)        | 0.937557*** (0.006)        | 0.011929*** (0.005)  | 0.088234*** (0.004)             |
| INDEB                     | −0.000014 (0.870)    | −0.000083 (0.125)       | 0.002167 (0.587)           | 0.000072 (0.121)     | 0.000122 (0.274)                |
| GDP                       |                      |                         | −3.376713*** (0.001)       |                      |                                 |
| NEBM                      |                      |                         | −0.000998 (0.975)          |                      |                                 |
| IBM                       |                      |                         | 0.002640 (0.855)           |                      |                                 |
| EMGD                      |                      |                         | 0.226684*** (0.000)        |                      |                                 |
| Sector                    | Yes                  | Yes                     | Yes                        | Yes                  |                                 |
| Adjusted R <sup>2</sup>   | 0.3373               | 0.8548                  | 0.0703                     | 0.8539               | 0.8916                          |
| F-statistic               | 41.35*** (0.0000)    | 269.86*** (0.0000)      | 4.80*** (0.0000)           | 353.69*** (0.0000)   | 25.00*** (0.0000)               |
| Observations              | 1,161                | 907                     | 907                        | 907                  | 907                             |
| Sanderson-Windmeijer test |                      |                         |                            | 14.06*** (0.0000)    |                                 |
| Anderson test             |                      |                         |                            | 54.03 (0.0000)       |                                 |
| Sargan test               |                      |                         |                            | 0.909 (0.8233)       |                                 |
| Hausman test              |                      |                         |                            |                      | 208.85*** (0.0000)              |
| Breusch Pagan test        |                      |                         |                            |                      | 2.49*** (0.000)                 |
| AIC                       | 249.265              | −1205.081               |                            | −1052.076            | −1788.902                       |
| BIC                       | 355.120              | −1128.119               |                            | −975.132             | −1755.231                       |

\*\*\*, \*\* and \* indicate a significance of less than 1%, less than 5% and less than 10%, respectively. Value of p in parentheses. AIC and BIC: smaller is better.

necessary for the development and growth of the company, to the detriment of shareholders. On the other hand, in complex situations that involve less risk, women are expected to achieve successful results. Furthermore, if women behave similarly to men, they are considered unfeminine and aggressive. In short, the situation for women is unfair because, whatever they do, they will always be judged (Adamus, 2018). Why are women required to behave according to certain standards that are considered irrelevant when men are appointed to the board of directors?

The results of this research show a negative and significant relationship between the percentage of women on the board of directors and stock beta in the U.S. market. Therefore, companies with more women on the board are less volatile and, consequently, more suitable for risk-averse investors. However, this relationship has not been confirmed in the European market. Considering that the period analyzed, 2015–2019, and the methodologies used are coincident for the samples of both markets, we should reflect on what might be the causes of this difference.

The dissimilar results may be due to the fact that the characteristics of U.S. companies differ from those of European companies (Birindelli et al., 2020). Furthermore, the cultural environments are not the same and the economy of each area is specific. In addition, the characteristics of women may vary between countries due to the influence of the institutional and cultural environment (Croson and Gneezy, 2009; Adams and

Funk, 2012). It has been shown that the behavioral differences between women and men with respect to risk are more accentuated when the gender gap is greater (Eckel and Grossman, 2002). In 2018, a representative year of the study conducted, the United States was ranked 51st, well behind most European countries. For example, France ranked 12th, Germany 14th, the Netherlands 27th, Spain 29th, and Finland fourth (World Economic Forum, 2018). While it is true that the world is generally moving towards equality, it is not yet a fact. Change is slow, and it is not taking place at the same pace around the world. Professional differences between women and men arise from identity roles, and so the causes must be sought in the motivations and preferences that are created in the social context and not in the competencies, which are the same in both sexes. Thus, from an economic and labor perspective, many differences between women and men disappear in countries with greater gender equality (Adamus, 2018).

As mentioned above, one effect of discrimination is that women in senior corporate positions are relegated to so-called “soft” committees, such as auditing, personnel, corporate social responsibility, and monitoring. Therefore, more women means more control, since monitoring committees are often occupied by women. Consequently, if the gender gap widens in the United States, more women will be relegated to monitoring positions, thereby exercising more control over risk.



In addition, note that corporate beta is, on average, 14.63% higher in the United States than in Europe. This implies that the margin of influence of gender diversity on boards is smaller in Europe, which could also explain part of the difference in results.

It has been argued that, although under normal circumstances there may be no differences in behavior between women and men, gender diversity can be influential in more difficult situations and during periods of crisis, where more innovative ideas are required. Heterogeneous groups bring diversity of thought and, as women are more stakeholder-oriented, they help the company to better address problems and lack of trust (Adams and Ragunathan, 2017). It could be argued that gender diversity helps to generate economic stability (Lenard et al., 2014). Since the more volatile environments are more difficult for companies, the influence of women may be more noticeable in the United States than in Europe.

Few previous studies have related the presence of women on the board of directors to systematic risk, and the results are mixed: four studies considered this relationship to be negative (Perryman et al., 2016; Nadeem et al., 2019; Yang et al., 2019; Van Vo et al., 2021), while three found no relationship (Sila et al., 2016; Peltomäki et al., 2021; Shukla et al., 2021). All refer to a single country and, given that the methodology and variables used are different, they do not allow for a reliable comparison. Hence, the special value of the present investigation. Not only does it add empirical evidence to a little-studied issue, it also makes it possible to compare two important markets in the world economy, those of the United States and Europe.

In summary, the contributions of this article are: (1) it provides empirical evidence that supports the theory on the relationship between the presence of women on the board of directors and the stocks' market risk; (2) it contributes to the limited research conducted on the U.S. market; (3) it is the first research conducted on the European market; (4) it allows for a comparison of the results obtained in the U.S. and European markets by analyzing the same period and employing the same methodology; (5) by showing the financial benefit of including women on the board of directors, it contributes to the target of the Fifth Sustainable Development Goal of the United Nations: "Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic, and public life."

## Conclusion

This study analyzes the relationship between the proportion of women on the board of directors and systematic stock risk in S&P 500 and Euro Stoxx 300 companies over the period 2015–2019. The results show that the greater presence of women is significantly related to lower risk in the U.S. market. However, this relationship is not fully confirmed in the European market.

From a theoretical perspective, the greater risk aversion of women, which would account for the negative relationship empirically analyzed, is justified based on Agency Theory, Upper Echelons Theory, Human Capital Theory, Resource Dependence Theory and Stakeholder Theory. The possible causes that could lead to the differences found in the study between the U.S. and European markets are the following: (1) the different characteristics of the companies in both markets; (2) the different environments in the United States and Europe that shape the characteristics and competencies of women; (3) the wider gender gap in the United States, which amplifies these differences much more than in Europe; (4) the discrimination suffered by women, who are often relegated to "soft" committees; (5) the higher volatility of the U.S. market, which provides more opportunities to influence a reduction in risk; (6) this greater volatility accentuates the differences between women and men, as the environment is more turbulent.

In the selection of portfolios, one variable that should be considered is the percentage of women on the board of directors. Those companies with more women not only contribute to social equity but also present less risk, at least in the U.S. market, and, in any case, they do not increase risk in the European market. Investing in companies with more women means investing in more stable stocks with less volatility. Board gender composition is a variable that should be incorporated into the financial analysis models of companies.

This research is relevant for companies, which should consider including more women on their boards as a means of reducing market risk. The conducted research is also relevant for individual and institutional investors, who should consider board gender diversity as a key variable when selecting their portfolios, especially if their investment profile is risk-averse.

The incorporation of women into the labor market is increasing. However, there still exists discrimination against women which prevents their access to the best positions (Fauzi et al., 2017; Klinowski, 2019). This study is important not only from a financial point of view, highlighting an important relationship for the selection of investments, but also from a social perspective, as it enhances the value of women's contribution to the labor market.

The presence of women on boards of directors can reveal the values of society (Shukla et al., 2021), but we must emphasize that the legal establishment of quotas by legislators to contribute to gender equality is not only an example of social justice, but also has important economic connotations.

This analysis does not include data on the age or specific level of education and experience of the women on the company boards, nor on the tasks performed, the decision-making rules, or the group dynamics, which is a limitation. Although this information is difficult to obtain, it could shed light on the results of our study.

Future research should analyze the gender-risk relationship in other markets, such as the Asian market, extend the sample to include non-listed companies, and perform an analysis by sector of activity and country.

## Data availability statement

The data analyzed in this study is subject to the following licenses/restrictions: Data has been extracted from Bloomberg database, which is a private database. Requests to access these datasets should be directed to <https://data.bloomberg.com/>.

## Author contributions

MCVM: conceptualization, software, methodology, formal analysis, and writing–review and editing. MCVM and RSR: writing–original draft. RSR: data curation. All authors contributed to the article and approved the final manuscript.

## Funding

This work has been funded by PPUENTE2022/006 (from University of Almería, Spain) to the Consolidated Research Group on Ethics, Gender and Sustainability (SEJ-647).

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## Acknowledgments

The authors acknowledge Grupo Unicaja and Unicorp Patrimonio corporations for their collaboration in obtaining data.

## Conflict of interest

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## Supplementary material

The Supplementary material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2022.1049175/full#supplementary-material>

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## SPECIALTY SECTION

This article was submitted to  
Organizational Psychology,  
a section of the journal  
Frontiers in Psychology

RECEIVED 16 August 2022

ACCEPTED 18 November 2022

PUBLISHED 06 December 2022

## CITATION

Bonde EH, Mikkelsen EG, Fjorback LO and  
Juul L (2022) Impacting employees' and  
managers' mental health skills using a  
workplace-adapted mindfulness-based  
intervention.  
*Front. Psychol.* 13:1020454.  
doi: 10.3389/fpsyg.2022.1020454

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# Impacting employees' and managers' mental health skills using a workplace-adapted mindfulness-based intervention

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**Background:** During the past decades, the mental health of the population has been declining. Mindfulness-based stress reduction (MBSR) has been found effective in enhancing well-being along with reducing perceived stress and symptoms of anxiety and depression. Mindfulness-based interventions (MBIs) in the workplace have shown promising results relating to the mental health of employees and managers. However, the research field of organizational-level MBIs being offered to entire companies is still nascent. Practicing mindfulness may affect skills related to good mental health. Thus, the objective of this study was to investigate the impact of an organizational-level MBI on the mental health skills of employees and managers.

**Methods:** This qualitative study was part of a quasi-experimental multi-method study. Four small and medium-sized private enterprises with a total of 368 employees and managers were included. The intervention contained: 1. An obligatory introductory session on mental health and mindfulness, 2. Voluntary participation in a 10-week live online workplace-adapted MBSR course, and 3. A workshop for selected employee representatives and managers on further implementation of mindfulness in the organization. A total of 27 focus group interviews including 76 respondents were conducted pre- and post-intervention. Verbatim transcription was performed. Data was analyzed using inductive qualitative content analysis.

**Results:** Through analysis, four pre-intervention categories emerged: 1. Bodily sensations and awareness in stressful situations, 2. Reactive and passive behavior during stressful situations, 3. Differences in perception as a stressor, 4. Self-criticism and low ability to practice self-care. Six post-intervention categories were identified: 1. Enhanced ability to be aware in the present moment, 2. Increased acknowledgement of how others may view things differently from oneself, 3. Increased kindness to oneself and being able to practice self-care, 4. Moving from reactive to responsive behavior in stressful situations, 5. Mindfulness as an accelerator for an ongoing personal process and 6. Practicing mindfulness – setting time aside or being mindful in everyday life.



**Conclusion:** This study indicates that it is possible to enhance employees' and managers' mental health skills using an organizational-level MBI. Enhanced awareness in the present moment transcended through post-intervention categories, facilitating increased self-kindness and responsive behavior in stressful situations.

#### KEYWORDS

mental health, mindfulness, workplace, health promotion and prevention, qualitative methods

## Introduction

During the past decades, the mental health of the European population has been continuously declining (WHO, 2018a). A process which was reinforced by the Covid-19 pandemic. As such, the prevalence of anxiety and symptoms of depression amongst adults in OECD countries has risen dramatically from pre-pandemic 2019 to 2021 (OECD, 2021). In Denmark, the percentage of the population with a low mental health score measured on SF-12 has increased from 13.2% in 2017 to 17.4% in 2021 (Jensen et al., 2022). Moreover, a similar increase in percentage is evident in Danes experiencing a perceived high stress level (Jensen et al., 2022). However, mental health is more than the absence of psychological distress. Indeed, it is defined as: "... a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community" (WHO, 2018b). Hence, more positive elements such as realization of abilities and capabilities to cope with stress are fundamentals for having good mental health. Consequently, and as stressed by the Covid-19 pandemic, there is a need for implementing mental health promoting and preventing interventions to increase the population's mental health.

To identify which mental health promoting and preventing interventions to utilize, knowledge of causes related to poor mental health must be obtained. According to the World Health Organization's (WHO) World mental health report (WHO, 2022), individuals' mental health depends on multiple factors within the domains of individual factors, family and community factors and structural factors (WHO, 2022). Therefore, interventions working to promote protective factors within the three domains are needed. Protective factors for individuals' mental health within the individual domain is, i.e., "sense of self-worth and mastery" and "social and emotional skills" (WHO, 2022). In this study, acquired or intrinsic skills serving as protective factors to one's mental health are referred to as *mental health skills*. These may be skills such as regulating emotions, self-esteem and capability to engage in interpersonal relations (WHO, 2012).

In WHO's World mental health report (WHO, 2022), mindfulness-based interventions (MBIs) are mentioned as examples of evidence-based psychosocial interventions that have

been found effective in improving mental health (WHO, 2022). Being mindful enables individuals to be aware in the present moment with a kind and curious attitude. Mindfulness is defined as "... the awareness arising through paying attention on purpose in the present moment, non-judgmentally, in the service of self-understanding, wisdom, and compassion" (Kabat-Zinn, 2018). Being aware in the present moment allows one to actually experience that moment. It also allows one to notice bodily sensations, mood, thoughts and feelings; A knowledge, which is very helpful in order to be able to respond to life instead of reacting automatically (Fjorback, 2015). In a study by Killingsworth and Gilbert (2010), the authors investigated how not being mentally present in what you are doing affects self-reported happiness (Killingsworth and Gilbert, 2010). Using an App-based approach, they measured individuals' happiness and the degree to which they were aware in the present moment in real-time. The authors found that, on average, we humans are not mentally present in what we are doing 46.9% of the time, and that participants were happiest when they were mentally present in what they were doing (Killingsworth and Gilbert, 2010). Hence, according to this study, people are less happy when they are not mentally present in the moment – regardless of where their thoughts might wander (Killingsworth and Gilbert, 2010). Moreover, practicing mindfulness often involves focusing the attention on bodily sensations. Being aware of bodily sensations is proposed to be fundamental in for example self-regulation (Treves et al., 2019).

Mindfulness-based stress reduction (MBSR) is an 8-week programme designed to assist participants in developing abilities to be consciously aware in the present with kindness toward oneself and the surroundings. Furthermore, the curriculum-based programme entails practices focussing on becoming aware of reactions during stress. The programme is delivered by a trained MBSR teacher in a group format with weekly sessions of 2.5 h and a 7-h silent retreat day (Santorelli, 2014; Brown Mindfulness Center, 2020).

Previous research on MBSR has been conducted across study populations including both clinical and non-clinical populations. Furthermore, MBSR has been studied in various settings such as in schools, hospitals and workplaces (De Vibe et al., 2017). Across study populations and settings, MBSR has been found effective in

improving mental health among adults (De Vibe et al., 2017). Furthermore, participation in MBSR enhanced coping and empathy (De Vibe et al., 2017), both of which are factors relating to social and emotional skills put forward by the WHO as protective factors of mental health (WHO, 2022). Hence, MBSR is a universal intervention that can be delivered to both clinical and non-clinical populations demonstrating favourable effects on participants' mental health and protective mental health skills. Moreover, a recent systematic review and meta-analysis found MBIs to be some of the most effective in improving mental well-being compared to other mental health interventions (van Agteren et al., 2021).

According to McHenry (2012), mental health promoting interventions should be implemented in settings where people live their lives, i.e., workplaces (McHenry, 2012). Therefore, there is an incentive to implement mental health promoting and preventive interventions in workplace settings. The research area of implementing MBIs in workplaces is steadily developing with the majority of previous research of MBIs having been conducted within the public sector (Janssen et al., 2018). A systematic review and meta-analysis of randomized controlled trials of MBIs in the workplace showed these interventions to be effective in improving mental health (Vonderlin et al., 2020). Online and App-based MBIs have also demonstrated positive effects regarding stress reduction, mindfulness and concentration (Aikens et al., 2014; Nadler et al., 2020; Axelsen et al., 2022). However, most of these interventions targeted individuals within workplace settings.

According to the Medical Research Council, interventions can effectively target entire organizations to facilitate system change (Skivington et al., 2021). When intervening at an organizational level, a population-based strategy may be utilized. By using a population-based strategy, interventions are provided to the entire risk-spectrum of a population, including low, moderate and high-risk individuals (Rose et al., 2008). Such a risk-spectrum might represent a spectrum ranging from high to low degree of mental health. Hence, when using a population-based strategy, the interventions do not focus on selected high-risk individuals but instead target entire populations (Rose et al., 2008), such as organizations, i.e., workplaces. Utilizing a population-based strategy may prevent individuals at low and moderate risk of, i.e., poor mental health from transcending to the high-risk population, thereby preventing poor mental health in a wider population. In a study by Kersemaekers et al. (2018), they found an organizational-level workplace-adapted MBI effective in reducing perceived stress and enhancing well-being and mindfulness (Kersemaekers et al., 2018). Moreover, they also demonstrated improvements in the organizational climate (Kersemaekers et al., 2018). By intervening at an organizational level, the intervention is offered to the entire staff with the hopes of contributing to the creation of healthier work environments. Additionally, the impact on leader capabilities of this workplace-adapted MBI was investigated in a qualitative study by Rupprecht et al. (2019). In that study, managers showed enhanced abilities in both self-management and management of employees (Rupprecht et al.,

2019). However, knowledge of how a workplace-adapted MBI impacts mental health skills among employees and managers is lacking. To gain insights into how employees and managers express the impact of a workplace-adapted MBI on their mental health skills, there is a need for further qualitative research.

The results of previous research may be dependent on context and generalization to other settings and/or study populations might not be feasible (Galante et al., 2021; Skivington et al., 2021). Therefore, there is a need for investigating how an organization-level intervention aimed at implementing a workplace-MBI to as many employees and managers as possible can impact mental health skills.

Accordingly, the main objective of this qualitative study was to gain an understanding of how a workplace-MBI including a workplace-adapted MBSR course impacts the expressed mental health skills of employees and managers employed in small and medium-sized enterprises (SMEs). Secondary, this understanding will generate insights into the feasibility of implementing MBIs in private workplaces and of using workplaces as mental health promoting settings.

## Materials and methods

### Design

The present study presents qualitative results from a quasi-experimental, multi-method trial which main objective was to support the creation of healthy work environments using a workplace-adapted MBI. The main trial was registered with the Danish Data Protection Agency (2016-051-000001/1715). The present qualitative study however focuses on how mental health skills of employees and managers are impacted by a workplace-adapted MBI. The trial enrolled four SMEs with 10–249 employees and managers with the entire company or divisions thereof based in Denmark. The four SMEs represented businesses within media (Company 1), restaurants (Company 2), production (Company 3) and health-IT (Company 4). Company 4 was an international SME with employees working from offices across the globe. The remaining three companies were based in Denmark.

### Participants and recruitment

To be eligible for inclusion in the study, companies were required to be privately owned and have a total of 10–249 employed at enrolment. Furthermore, top management at the companies had to give permission for the employees to spend working hours participating in the intervention.

Companies were recruited *via* multiple channels including direct contact to relevant companies, digital newsletters from business organizations within IT and production businesses, social media post on Twitter, Facebook and LinkedIn as well as posts on

TABLE 1 Intervention components and content.

| Component  | Content  | Delivered by  | Participants                                   |
|--|--|---|--|
| Information session                                | A two-hour lecture concerning: <ul style="list-style-type: none"> <li>• What is mental health?</li> <li>• The bodily stress response</li> <li>• The possibility to train one's mental health</li> <li>• Mindfulness as a way of training one's mental health</li> <li>• Previous research on MBSR</li> <li>• Two guided mindfulness exercises</li> <li>• Information about the possibility to participate in a 10-weeks workplace-adapted MBSR course</li> </ul>                                       | A certified MBSR teacher  | All employees and managers                     |
| 10-weeks live online workplace-adapted MBSR course | A systematically workplace-adapted 10-week MBSR course including: <ul style="list-style-type: none"> <li>• Same themes as the original MBSR programme</li> <li>• Experience-based approach was utilized, engaging participants in mindfulness practices</li> <li>• Horizontal inquiry of direct experiences during mindfulness practices</li> <li>• Delivered live online <i>via</i> Zoom</li> <li>• Invitation to practice a minimum of 3 times a week for 15 min</li> </ul>                          | A certified MBSR teacher  | Self-selected employees and managers           |
| Implementation workshop                            | A two-hour workshop focusing on further implementation of mindfulness in the participating companies consisting of: <ul style="list-style-type: none"> <li>• Discussions in groups and plenary about the wish for and possible barriers to further implementation of mindfulness</li> <li>• Presentations of ideas emerging from these discussions</li> <li>• Facilitators presenting possible ways to further implementation</li> <li>• Creating an action plan for further implementation</li> </ul> | An organizational psychologist, a certified MBSR teacher and an observant | Selected employee representatives and managers |

the Danish Center for Mindfulness' webpage. Recruitment was performed between January 2020 and October 2020.

Upon a company's expressed interest in participation, a preliminary meeting with selected managers hosted by the research project leader, LJ, and an MBSR teacher took place. At this meeting, managers were informed that signing up for the project would require them to enable all employees and managers to participate in an obligatory two-hour information session during working hours. Furthermore, the managers were informed that the intervention were to be an organizational-level intervention. Hence, the intervention was not to be offered only to selected groups of employees and/or managers. The aim was to support a positive mental health environment in the organisation. During the meeting, the research project leader (LJ) emphasized that to participate, employees and managers had to be able to attend a live online 10-weeks workplace-adapted MBSR course either during working hours or with monetary payment for time spent participating during leisure time. After committing to these conditions, a formal contract of participation was signed by a company representative, typically by a person in the top management.

## Intervention

In all companies, the intervention consisted of three components: obligatory participation in a two-hour

information-session on mental health and mindfulness for all employees and managers, a live online 10-weeks workplace-adapted MBSR course for self-selecting employees and managers, and lastly a workshop for selected employee representatives and managers on the subsequent implementation of mindfulness in the company (Table 1).

Participation in a two-hour information-session was obligatory so to ensure that all employees and managers got the same information. The 10-weeks workplace-adapted MBSR course was systematically adapted from the original MBSR curriculum. Adaptation of the original MBSR programme was conducted with caution of what elements of the intervention could be varied to enhance intervention-context-fit, and which intervention elements were essential to ensure reliability of the programme theory (Crane et al., 2017). This workplace-adapted MBSR course followed the original MBSR curriculum with all weekly themes represented along the 10 weeks. Furthermore, a trained MBSR teacher delivered the course live online *via* Zoom in groups of 5–22 employees and/or managers. Through the course, the MBSR teachers utilized an experience-based approach, engaging participants in mindfulness practices followed by horizontal inquiry of direct experiences during the practices (Crane et al., 2017). During the 10-weeks workplace-adapted MBSR courses, LF supervised all MBSR teachers delivering one or more courses in the participating companies in weekly 1.5-h sessions (see Table 2).

TABLE 2 Differences between the original and workplace-adapted MBSR programme.

|                        | Workplace-adapted 10-weeks MBSR course              | Original MBSR course  |
|------------------------|---|---|
| Length of programme    | 10 weeks  | 8 weeks   |
| Length of sessions     | 1.5 h   | 2.5 h   |
| Silent retreat session | Included as one of the 10 sessions. Duration: 1.5 h | Added as a 9th session within the 8-week programme. Duration: 7 h |

TABLE 3 Distribution of respondents.

| Company   | Respondents, <i>n</i> | Managers, <i>n</i> | Employees, <i>n</i> | Females, <i>n</i> (%) |
|-----------|-----------------------|--------------------|---------------------|-----------------------|
| Company 1 | 5                     | 1                  | 4                   | 4 (80.0)              |
| Company 2 | 18                    | 8                  | 10                  | 12 (66.6)             |
| Company 3 | 25                    | 5                  | 20                  | 16 (64.0)             |
| Company 4 | 28                    | 8                  | 20                  | 9 (32.1)              |
| Total     | 76                    | 22                 | 54                  | 41 (53.9)             |

## Respondents

Sampling of respondents for the focus group interviews were conducted using the Matrix sampling method (Campbell et al., 2020). This purposive sampling method allowed managers to select employees that represented positive, negative and neutral attitudes towards mindfulness pre-intervention. Post-intervention, the Matrix sampling method was applied to allow MBSR teachers to recommend respondents that had participated in their respective workplace-adapted MBSR courses. It was made clear to the MBSR teachers that the recommended respondents had to represent both individuals who expressed a high degree of engagement during the workplace-adapted MBSR course as well as individuals with lower levels of engagement. In total, 76 respondents representing the four participating companies were included in a pre- and/or a post-intervention focus group interview. As shown in Table 3, across companies, a slight majority of the respondents were female.

## Data collection

Semi-structured focus group interviews were conducted by EM and EB, with EM as the primary interviewer and EB as observer and substitute. In Company 1, management consisted of one manager, therefore an individual semi-structured interview was conducted with this manager at both pre- and post-intervention. In total 14 pre-intervention focus group interviews and 13 post-intervention focus group interviews were performed between March 2020 and May 2021. At the beginning of all conducted interviews, respondents received detailed information

about the study, the use of data, and the possibility to withdraw from the study at any given time. All respondents provided oral consent.

Apart from being a researcher, EM is an experienced interviewer and has in-depth knowledge of and practical experience with establishing safe sharing environments. EM is an organizational psychologist with no previous personal or professional experience of mindfulness or MBIs. EB holds an MSc in public health and has personal experience with and scientific knowledge of mindfulness and MBIs.

All 14 pre-intervention interviews were conducted before the two-hour information session using a semi-structured interview guide. The purpose of the interviews was two-fold: (1) to get insights into employees and managers knowledge of mindfulness and their patterns of behavior during stressful situations and (2) to gain insight into the social dynamics of the workplace as an organization. Therefore, the interview guide consisted of 9 themes: (a) Thoughts related to mindfulness, (b) Information and thoughts about the project, (c) Stress, (d) Coping with stress/overload, (e) The company's prioritization of well-being, (f) Collaboration within the company, (g) Communication and tone, (h) Feedback culture within the company and (i) Expectations regarding one's own and the organisation's participation in the research project (themes e-i) will not be elaborated on in the present study.

The 13 post-intervention interviews were conducted following the implementation workshop. The purpose of the post-intervention interview guide was to gain insights into the intervention's possible effects on the mental health skills of employees and managers as well as possible effects on the social dynamics within work groups and the organization as a whole. The post-intervention interview guide consisted of 8 themes: (a) Experiences of participating in the intervention, (b) Abilities to be in the present moment and notice bodily sensations, (c) Stress and behavior during stress, (d) Interpersonal relations, (e) Feedback culture and prioritization of well-being, (f) How the intervention is being narrated in the organization, (g) Facilitating and inhibiting factors for engagement and (h) Wishes for the future implementation of mindfulness. The organizational effects are to be published elsewhere and hence, this study focuses on themes a-d.

Due to the Covid-19-pandemic, most interviews were conducted live online using Zoom. Hence, 19 of the 27 interviews (70.4%) were performed live online. These 19 interviews were recorded using the record-function in Zoom. The remaining 8 interviews, performed in person, were recorded using a Dictaphone. During the interviews, EB made notes of seemingly relevant statements, demeanour and atmosphere.

## Analysis

Verbatim transcription of the interviews was conducted by EB. The transcriptions included pauses, length of pauses, changes in voice and pitch as well as changes in body language. Data



analysis was performed following the four steps of inductive qualitative content analysis (Schreier, 2014; Bjerrum and Lyhne, 2021): 1. Create an overview of the data, 2. Identify and extract meaning units using analytical questions, 3. Categorize meaning units into descriptive categories, and 4. Transversal analysis of categories to condense explanatory themes.

Firstly, EB read through all transcripts and noted preliminary analytical reflections. Secondly, meaning units were identified and extracted using three analytical questions: 1. How do employees and managers describe their awareness in the present moment? 2. What reactions to stress are described by employees and managers? 3. How do employees and managers relate to themselves and their felt needs? These analytical questions were based on the programme theory developed before the trial commenced. EB and EM independently identified meaning units on parts of the transcripts. Diverging identifications were discussed until agreement was reached. EB then conducted the identification and extraction of meaning units in all transcripts. Thirdly, meaning units were categorized into descriptive categories. Four pre-intervention and six post-intervention categories were condensed. During this analytical step, notes made during the interviews and the first analytical step were consulted to ensure that the individual meaning unit was not extracted from its context, leading to potential risk of over-interpretation. Following initial categorization, inter-coder validation of the descriptive categories was performed. Inter-coder agreement was 75.8%. The majority of disagreement was due to differences of the interpretation of specific meaning units. Upon discussion and consultation with notes, agreement was reached on interpretation of all meaning units and their respective categories. All categories were found to be valid. Fourthly, transversal analysis across categories was conducted. In collaboration, EM and EB compared categories that resulted in two explanatory themes. EM and EB was in close contact and had running discussions during the analytical process. Descriptive categories and explanatory themes were discussed with LJ and LF.

## Results

The obtained results are generated on the basis of: 1. Pre-intervention focus groups, 2. Post-intervention focus groups. First, results from pre-intervention focus groups followed by those from post-intervention.

### Qualitative pre-intervention focus groups

Pre-intervention, four descriptive categories were condensed using inductive content analysis: 1. Bodily sensations and awareness in stressful situations, 2. Reactive and passive behavior during stressful situations, 3. Differences in perception

as a stressor, 4. Self-criticism and low ability to practice self-care.

### Bodily sensations and awareness during stressful situations

When asked about what bodily sensations employees and managers noticed during stressful situations, the majority were able to identify a number of these. The most commonly mentioned bodily sensations during a stressful situation were faster heartbeat, a feeling of unease, stomachache and chest tightness. Others were unable to identify any bodily sensations during stressful situations. A few of these individuals described themselves as mentally detached from their body during stress, e.g., using a metaphor of being like a machine and thereby depersonalize themselves:

*"I'm made for... I am a machine that just runs"* (Female manager, Company 3).

*"so... I do not have any signals that I'm like aware of where I think: 'oh, that's why'"* (Female manager, Company 2).

This mental detachment and lack of ability to describe bodily sensations could indicate a low level of awareness of bodily sensations, and hence lower ability to be consciously aware in the present moment, indicating lowered mental health skills.

Furthermore, some managers and employees reported having previously been on sick leave due to stress. Going through this experience, several of these individuals described becoming aware of bodily sensations during stress, which enhanced their ability to act on feelings of stress:

*"Actually, I was just on sick leave due to stress (...) if somebody has bombarded me with 10,000 questions (...), I can get a slight tingling in my fingers and at the same time, I get kind of a dry mouth and things like that"* (Female production worker, Company 3).

This indicates that previous experiences with sick leave due to stress may act as a facilitator to one's ability to identify bodily sensations during stressful situations, posing an example of an acquired mental health skill.

### Reactive and passive behavior during stressful situations

Across companies, employees and managers were generally able to describe specific patterns of behavior during and following stressful situations. As such, both managers and employees described examples of being reactive during stressful situations. Being reactive, respondents described acting on impulse without the ability to reflect when in a stressful situation:

*"... because I need to be able to convince myself that the decision... so, I cannot reflect on it [her reaction while in a*



*stressful situation, red.] right in that moment. I might be able to in an hour or so" (Female employee, Company 2).*

However, a few managers gave examples of being more responsive during stressful situations, e.g., taking a break from work to get "a birds-eye view of things" (male manager, Company 4).

When describing specific patterns of behavior while in stressful situations, both managers and employees offered examples of specific reactions, i.e., being less patient, enhanced tendency to be defensive of oneself to others or wanting to avoid whatever is causing stress:

*"personally, I react kind of outward, I think... Or not outward, I'm not like yelling and screaming, but... I defend myself a bit" (Female employee, Company 2).*

Others spontaneously mention that they occasionally get "passive" and mentally shut down during stressful situations:

*"(...) then I begin to push things around without solving them. Then I notice that I get inefficient, I get passive" (Female employee, Company 4).*

The respondents' demonstrated ability to describe patterns of behavior in stressful situations might indicate that they were consciously aware of their behavior. However, it is not clear whether they were aware of their behavior whilst going through a stressful situation or strictly retrospectively through thinking about the transpired situation.

### Differences in perception as a stressor

This emerging category was not part of the interview guide. However, multiple managers and employees across companies spontaneously described feelings of pressure due to others (coworkers, employees, managers) having different perceptions of a specific situation than themselves. Most commonly, respondents described experiencing lowered ability to view situations from other persons' perspective while in a stressful situation. As such, having different perspectives on things may act as an additional stressor in an already stressful situation.

*"... He could not see how far behind he actually was. (...) and to be standing there with someone who did not share my view of the situation was almost more frustrating than it was for me to just run faster" (Female employee, Company 2).*

### Self-criticism and low ability to practice self-care

Generally, managers and employees across companies demonstrated lack of kindness towards oneself and their own felt needs. This was expressed as self-criticism in situations where they were not able to concentrate and when they made mistakes. Furthermore, a manager in Company 1 described feeling guilty

when acting on her felt needs, e.g., taking a day off from work when needed:

*"I sometimes feel guilty in relation to my employees when I say 'I'm not coming tomorrow' or something, and I really want that [feeling] to go away (...) but at the same time, I scold myself a bit" (Female manager, Company 1).*

One employee in Company 1 describe how she is able to retrospectively express kindness to herself following an unpleasant or stressful situation, e.g., having made a mistake at work. However, while being in the stressful situation, she is prone to self-criticism. This might indicate an ability to reflect on a specific situation without it turning into rumination generating negative thoughts.

When becoming aware of bodily sensations indicating stress, a small number of managers expressed the ability to exercise self-care by acting on their felt needs, e.g., taking time off from work. These managers also represented individuals that were able to describe bodily sensations in stressful situations. This may indicate that being aware of bodily sensations during stress enhances ones' ability of acting on felt needs, thereby exercising self-care. However, the majority of both managers and employees across companies gave examples illustrating a lack of attention to and taking care of ones' physical and mental health:

*"... I've sometimes worked all night without sleeping. Then I've gone to a client meeting at 9 AM next morning (...) and then I've gone home again to continue working. So awake for like almost 48 h without sleeping to get the job done, right?" (Male manager, Company 3).*

### Qualitative post intervention focus groups

During the analysis of the transcribed post-intervention interview data, two individuals independently reported experiencing that feelings seemed bigger or with a higher magnitude during and after the intervention than before. This resulted in enhanced worrying about the cause of why this was the case. However, none of the other participants in the respective focus groups reported having had the same experience. Furthermore, in the beginning of several post-intervention interviews, several respondents reported not having experienced any changes from participating in the intervention. Nonetheless, during the interviews, the majority of those same individuals described specific situations, where they had noticed changes, for example in their own behavior, following the intervention.

The analysis of the transcribed post-intervention interview data revealed six categories describing the perceived impact of participating in the intervention: 1. Enhanced ability to be aware in the present moment, 2. Increased acknowledgement of how others may view things differently from oneself, 3. Increased kindness to

oneself and being able to practice self-care, 4. Moving from reactive to responsive behavior in stressful situations, 5. Mindfulness as an accelerator for an ongoing personal process and 6. Practicing mindfulness – setting time aside or being mindful in everyday life.

### Enhanced ability to be aware in the present moment

An increased ability to be aware in the present moment was apparent from the use of specific examples provided by the respondents. Both managers and employees experienced being more aware of themselves as well as their surroundings, indicating a higher degree of awareness. Being more aware of themselves resulted in an enhanced ability to sense how they were feeling, which may again influence one's actions:

*“(...) I have a better sense of how I'm feeling. I am more able to feel joy, and I'm more able to feel if I'm sad, angry... And that also means that I can... sense what I really need”* (Female manager, Company 2).

Moreover, the ability to be more aware in the present moment manifested itself by an increased ability to concentrate during work-tasks as compared to pre-intervention. The ability to notice when one is not mentally aware in the present moment allows one to purposely return to the work-task at hand. A male employee in Company 4 stated:

*“I have a tendency to have my thoughts wander off or I start doing something else and I actually think I've gotten better and more conscious on staying in the assignment at hand”* (Male employee, Company 4).

Furthermore, increased awareness in the present moment seemed to allow employees and managers to become aware of when they ruminated, indicating a higher degree of meta-cognition. Employees across companies described themselves being able to stop rumination and to let go of thoughts concerning situations that are outside their control. Being aware of rumination enabled respondents across companies to notice what they were thinking of and then actively chose to let go of the rumination:

*“you become aware of if you are stuck in some things (...) that I become aware of “hey, I do not have to use my energy on this. I can let it go”* (Female manager, Company 2).

Being aware in the present moment was not only restricted to the ability to notice, for example, rumination or elevated concentration. Both managers and employees gave examples of being more aware of the good things in life when talking about the expressed impact of participating in the workplace-MBI:

*“I also noticed (...) where I go running and I do not even remember much of it. Like I do not remember taking in the atmosphere sensing my surroundings and now I'm just like enjoying it. Like take it all in”* (Female employee, Company 4).

As such, the ability to be aware in the present moment seems to impact employees and managers both while performing work-related tasks as well as insights into one's emotional state.

### Increased awareness of how others may view things differently from oneself

Pre-intervention, a category emerged that concerned experiences of individual differences in perceptions of specific situations that seemed to act as an additional stressor during an already stressful work situation. Following the workplace-MBI, managers and employees across companies reported an increased awareness of how others might perceive social situations differently from themselves. This heightened awareness of individual differences in perceptions enabled employees and managers to be curious as to how others perceive their own behavior:

*“I try to get an idea of their view of what happened is instead of having a preconceived opinion of “yeah, that's what I said, so of course you understood it like that””* (Female employee, Company 4).

Moreover, this increased awareness appears to allow for reflections on interpersonal differences in how one prefers work-tasks presented. This exemplifies a way for how employees and managers approach each other and communicate, in turn, possibly affecting the way employees and managers approach each other and may reflect on the level of interpersonal understanding in the workplace:

*“That you just remember (...) “how did the other person view this [situation]?” or “how is this going to be received?” Just take the time to either understand what the other party said or take the time to explain what needs to be done”* (Female manager, Company 2).

Furthermore, results point to the intervention influencing how participants view interpersonal differences in perceptions. At pre-intervention, some interviewees appeared to view differences in perception of specific situations as a stressor in itself and something one wanted to avoid. At post-intervention, more positive feelings towards these differences seemed to have been cultivated. This was exemplified by a greater amount of respect for and accept of how others may view things, and behave, differently from oneself:

*“I do not feel that I notice these differences MORE [than before, red.] but I have become sort of more accepting and respectful, that there are others think and do and act differently than I”* (Male employee, Company 3).

Cultivating a greater appreciation of how others view social situations differently from oneself may reduce the added feelings of frustration and stress in such situations leading to a reduction in the total amount of stress among employees and managers.

## Increased kindness to oneself and being able to practice self-care

Several employees and managers across companies expressed an increase of self-kindness post-intervention. Contrary to what was seen pre-intervention, participating respondents reported lower degrees of self-criticism following the workplace-MBI. This was most often exemplified by how the respondents acted when making mistakes. As with the ability to let go of rumination, employees and managers experienced capabilities in letting go of mistakes thereby reducing the amount of self-criticism:

*“(...) like when I do something wrong, it’s ‘oh, that’s silly, that’s kind of dumb’ instead of saying ‘Dang, you are so stupid! That’s... you are bad at all kinds of other things, too,’ right? Now I just go ‘oops’”* (Female employee, Company 1).

The ability to show oneself more kindness may affect how one handles work tasks. One employee describe how self-criticism can add to the feeling of “chaos” during stressful situations (female employee, Company 2). By reducing that added feeling of chaos, the respondent felt more able to accept the stressful situation for what it was:

*“You accept it more, that this is how it is now, instead of thinking ‘stop, you cannot think like that!’ and then it just becomes even more chaos”* (Female employee, Company 2).

Interview data points to that the ability to practice self-kindness is intertwined with the ability to practice self-care. Pre-intervention, only a small number of managers offered examples of self-care for example by taking time off from work. However, following the workplace-MBI, several managers and employees across all participating companies reported an increased ability to practice self-care, most often exemplified as taking breaks during the workday. Pre-intervention, a male manager reported that he sometimes worked through the night to finish a presentation for work. This same manager reported not only being aware of taking breaks but of the importance of working during the day instead of evenings and nights:

*“Well... to put in some space between them [meetings, red.], so you have time during the day, so you have time to prepare the meetings. (...) That, I’m completely convinced mindfulness did to me. (...) That you need this break now and then”* (Male manager, Company 3).

However, the ability to practice self-care did not limit itself to taking more breaks during the workday. Employees experienced increased awareness of their personal boundaries and situations where these boundaries were crossed. The same individuals reported a greater ability to speak up or ask for help when they had reached their emotional boundaries:

*“But [I’ve, red.] become better at holding back and saying ‘I cannot make it. I’m not super-human’ (...).”* Then

*you [manager, red.] have to tell me what to do (...).”* Not long ago, I would have just said, “Okay, I’ll keep going, and then I’ll stay a couple of hours” (Female employee, Company 3).

## Moving from reactive to responsive behavior in stressful situations

Pre-intervention, the majority of employees and managers showed patterns of being reactive by acting on impulse in stressful situations. Following participation in the workplace-MBI, an elevated level of responsiveness had replaced this reactivity. As such, employees and managers described having acquired the ability to “count to ten and breathe” in stressful situations (female manager, Company 2). The ability to respond to others instead of acting on impulse, allows the possibility of consciously choosing how to behave in situations of conflict or differences in opinion. This ability transcended into both working relationships and personal relationships. One employee in Company 1 reported that her daughter commented on her increased ability to listen and be more tolerant. At the workplace, this ability may have a positive effect on the collaboration and communication between departments, as illustrated by the below comment:

*“(...) breathe and count to ten and think, ‘OK, how do I want to challenge this down in the Planning department? (...)’ as opposed to previously, where I would maybe just’ve said ‘where are those Products?!’”* (Male manager, Company 3).

However, being more aware of one’s reaction patterns in stressful situations does not necessarily eliminate reactive behavior during these situations. Sometimes, the enhanced level of awareness – in this case, the ability to notice how one reacts in stressful situations – enabled employees to notice their behavior, yet they felt unable to change this behavior while being in the situation:

*“(...) then I cannot do anything. I could see it from the outside, (...) that ‘now, it [reaction] has happened, now it has happened... now, my body has already reacted (...). Then I cannot do anything about it, other than noticing that it’s happening”* (Male employee, Company 4).

Furthermore, enhanced bodily awareness seemed to aid some employees in stressful situations. By using the body as an anchor to the present moment, these employees were able to handle these situations with a calmer demeanour than before:

*“[I’ve, red.] gotten better at noticing.”* OK, now I need to do one thing at a time” (...) when you are at work and stressing around. Also [MBSR-teacher, red.] said to notice one’s feet if you were stressed out. Think like “now, I’ve got my foot down here. Think of that and get an overview” (Female employee, Company 2).

Hence, participation in this workplace-MBI appears to translate into concrete changes in the employees’ and managers’ behavior in stressful situations. This affected both personal

experiences of being in stressful situations and work relationships. Moreover, personal relationships may also be impacted following participation in this workplace MBI. However, only a limited number of respondents gave examples of this.

### Mindfulness as an accelerator for ongoing personal development

This category emerged from experiences described by employees and managers who had previous experience with mindfulness practice and/or previous experiences of working on changing their behavioral patterns, e.g., by seeing a psychologist. Participating in the workplace-MBI appeared to fuel the ongoing personal development of these individuals, causing it to accelerate:

*“(...) I actually think it’s two things [ongoing personal work on changing behavior while frustrated and workplace-MBI, red.] that has been put into motion simultaneously, which then really has had a self-perpetuating effect” (Male manager, Company 3).*

Data do not give insights into potential mechanisms for this accelerating effect. However, the use of the workplace setting for practicing mindfulness may make it easier for employees and managers with a preexisting mindfulness practice to implement mindfulness into their daily lives:

*“it [mindfulness exercises] was kind of the same as what I had already started. But (...) yeah, some of it has become kind of more related to reality” (Male employee, Company 4).*

### Practicing mindfulness – Setting time aside or being mindful in everyday life

The majority of employees and managers across companies did not establish a structured, formal mindfulness practice following participation in the workplace-MBI. However, informal exercises such as focusing on specific parts of the body when stressed were frequently employed. Moreover, following the workplace-MBI, employees and managers were aware of specific mindfulness exercises, they could use when needed:

*“(...) I’ve discovered a lot of... eh... like exercises and things like that, and I could imagine that in the future I might do a body scan just because I felt like it” (Female employee, Company 2).*

Most employees and managers perceived mindfulness exercises as means to reduce stress and not as a way of preventing it. However, several employees and managers with previous experience of practicing mindfulness, re-established or intensified their practice following the workplace-MBI:

*“(...) this course has... I already use it [mindfulness], but it has made me completely aware that I need to remember and use it more. (...) and I practice yoga about every other day, and I use*

*mindfulness to, as you say, thoughts and living in the moment (...)” (Female employee, Company 3).*

Furthermore, following the workplace-MBI some employees and managers used mindfulness exercises in relation to physical workouts. In this way, they had implemented mindfulness in their daily lives. This speaks to three different approaches to implementing mindfulness into one’s life. Either by establishing a structured, formal mindfulness practice, or by using mindfulness exercises sporadically to diminish feelings of stress when this occurs, or by using mindfulness informally by means of being more aware in the present moment.

## Discussion

The purpose of this study was to investigate how participation in a workplace-MBI including a workplace-adapted MBSR course impact employees’ and managers’ mental health skills. A minority of respondents reported having experienced no impact from participating in the workplace-MBI intervention or adverse effects in the form of enhanced worrying of experienced feelings. However, the transversal analysis (Bjerrum and Lyhne, 2021) of the condensed categories resulted in two explanatory themes of how this workplace-MBI impacted the majority of employees and managers: “Enhanced awareness as a facilitator of kindness towards oneself and felt needs” and “Enhanced awareness as a facilitator of behavior change during stressful situations.” These two themes offer explanations as to how participating in a workplace-MBI including a workplace-adapted live online MBSR course impacts mental health skills of employees and managers. Being aware in the present moment allows employees and managers to notice how they are feeling in specific situations giving rise to both greater abilities to register individual needs and to act on these. Furthermore, the increased awareness of bodily sensations during stress and automatic reaction patterns allows employees and managers to utilize the space between stimuli and response for reflection, leading to less reactivity in stressful situations.

### Enhanced awareness as a facilitator of kindness towards oneself and felt needs

Pre-intervention, the majority of the employees and managers reported a lack of kindness toward themselves, resulting in self-criticism and not responding to felt needs, for example needing a break from work. However, at post-intervention, both employees and managers across companies reported enhanced kindness toward oneself and enlarged ability to practice self-care as illustrated by, for example taking breaks during the workday. The transversal analysis showed a link between increased awareness in the present moment and the ability to practice self-kindness and self-care. Being more



aware in the present moment, enabled employees and managers to notice when they were being self-critical and instead, actively treat oneself with kindness. Furthermore, the ability to become aware of thoughts was evident in categories concerning both awareness and self-kindness. Hence, by being more aware in the present moment, employees and managers expressed a greater ability to let go of both rumination and mistakes, compared to pre-intervention-categories. Previous research has found similar results of a workplace-MBI for palliative care teams, i.e., showing increased abilities to notice and to let go of ruminative thoughts (Orellana-Rios et al., 2017). Moreover, in a study on a workplace-MBI for managers, Vonderlin et al. (2021) demonstrated elevated self-care and lowered mental distress (Vonderlin et al., 2021). However, the effect on mental distress was mediated by the amount of practice performed by managers (Vonderlin et al., 2021). In the present study, only a modest number of the respondent established a formal mindfulness practice following the workplace-MBI. As such, the question is how much employees' and managers' mental health skills may be increased through participation in this workplace-MBI. Still, respondents reported performing informal or sporadic mindfulness practices, indicating that some respondents were engaging in mindfulness practices, despite not having established a formal mindfulness practice.

Dahl et al. (2020) propose a framework for cultivating well-being through training (Dahl et al., 2020). This framework describes four dimensions relating to strengthening well-being through mental training: *awareness*, *connection*, *insight*, and *purpose* (Dahl et al., 2020). Training one's abilities within these dimensions are linked to skills that promote well-being (Dahl et al., 2020). Following participation in this workplace-MBI including a workplace-adapted MBSR course, employees and managers expressed enhanced capabilities regarding both *awareness* and *insight*. According to the framework, awareness relates to a more attentive way of perceiving both external and internal cues, i.e., bodily sensations (Dahl et al., 2020). Previous research has found that not being aware in what you are doing in the present moment is associated with lower levels of perceived happiness (Killingsworth and Gilbert, 2010). Hence, enhancing awareness in the present moment may result in increased perceived happiness. Dahl et al. understand insight as self-knowledge of how one relates to for example, emotions and thoughts as well as one's "sense of self" (Dahl et al., 2020). By enhancing awareness and insight, some employees and managers can approach themselves with newfound kindness. Previous research has underpinned the importance of self-awareness in order to become more self-kind and thereby less self-critical (Barnard and Curry, 2011). Self-criticism has previously been found associated with major depressive disorder (MDD), indicating that self-criticism may increase the risk of developing MDD (Ehret et al., 2015). Furthermore, treating oneself with compassion has been found to be associated with lower levels of depression and anxiety (Ehret et al., 2015; Muris et al., 2016) and

enhanced well-being (Barnard and Curry, 2011). Therefore, the skill of self-kindness may serve as a protective mental health skill. Thus, actively training the two dimensions *awareness* and *insight* through a workplace-MBI including workplace-adapted MBSR, can impact the mental health skills of employees and managers. Furthermore, the results of the present study indicate that utilizing workplaces as settings for MBIs may help integrate mindfulness practices into the way, employees and managers conduct their work. This emphasises the potential for using workplaces as mental health promoting and preventive settings.

## Enhanced awareness as a facilitator of behavior change during stressful situations

The transversal analysis demonstrated a link between employees and managers' expressed enhanced awareness in the present moment and their ability to behave more responsively in stressful situations. Hence, by being more aware, employees and managers were sometimes able to utilize the space between stimuli and reaction to choose a more responsive approach to for example, a disagreement between colleagues. In a study among adolescents, Zimmer-Gembeck et al. (2021) found that dispositional mindfulness in the form of mindful awareness directly affected involuntary emotional reactions to stress resulting from peer relationship problems, such as conflicts (Zimmer-Gembeck et al., 2021). Moreover, mindful non-reactivity was found to have a direct effect on the experience of fewer involuntary reactions to stress (Zimmer-Gembeck et al., 2021). These effects appear to be mirrored in the responses by employees and managers in the four included companies in the present study. The expressed changes from reactive to responsive behavior during stressful situations relates directly to WHO's definition of mental health: "... can cope with the normal stresses of life..." (WHO, 2018b). Hence, these expressed changes in behavior in stressful situations may indirectly affect the mental health of employees and managers *via* enhanced mental health skills. In a study of how an MBI impacted university employees, respondents stated that following participation in the MBI, they listen more actively, think and then respond during interactions at work (Hegney et al., 2021). However, as pointed to in the present study, increased awareness may not always lead to changes in the automated patterns of reaction in stressful situations. This might reflect that there is a leap from awareness to actual change, or that there is a need to practice over a longer period for the increased awareness to result in actual change.

Pre-intervention, differences in how people perceive social situations could cause additional stress in stressful situations. Employees and managers expressed that being aware of differences in perception in a stressful situation affected how they related to these and buffered the feeling of added stress caused by differences in perception. Changes in how one relates to interpersonal



differences in perceptions may play a role in enhancing the second dimension, *connection*, of the well-being training framework by Dahl et al. (2020). Positive interpersonal relationships have previously been found to be a protective factor against for example, depression (Santini et al., 2015). Additionally, previous research in workplaces has demonstrated associations between the quality of social relationships and mental health (Rydstedt et al., 2012). As expressed by one employee, changing how one relates to differences in perception may generate a greater amount of respect for other people's views. The enhanced respect might affect how one interacts with others and hence the social relationships. Thus, these changes in how employees and managers manage emotions and their relations to others serve as mental health skills, which may in turn impact their mental health.

## Strengths and limitations

One of main strengths of this study is that it utilized a population-based strategy, thereby making this mental health promoting and preventive intervention available for all employees and managers within the participating companies. Furthermore, the interview guide was based on theoretical assumptions from previous research and the programme theory (Supplementary material). Adding to the strength of the present study is that the delivered workplace-MBI was systematically developed in accordance with the recommendations on adaption of MBIs (Crane et al., 2017) by experienced MBSR teachers. Moreover, the study included a large number of respondents from four private SMEs representing four different business areas. The similarities in responses from employees and managers across companies imply that these results may represent implications one could expect to find in private SMEs across business areas. Moreover, given that EM did not have prior professional or personal experience of mindfulness or MBIs this contributes to the internal validity of the study, ensuring the results are not a product of preunderstanding.

Nonetheless, the study has some limitations. Being a part of a research project with an overall aim of creating healthy work environments, data for the present study was collected using focus group interviews. By being collected in focus groups, data may not offer the same insights to respondents' lived experiences, as individual interviews (Halkier, 2010). Therefore, these results are situated in social contexts and may be influenced by group dynamics between the focus group participants. However, as demonstrated in the explanatory themes, similar results have been found among individuals in previous studies (Orellana-Rios et al., 2017; Hegney et al., 2021), indicating validity of the obtained results. An added benefit of conducting data collection using focus groups was that respondents validated the experiences of peers and followed up with their own examples of similar experiences. However, during the focus groups, sometimes employees and managers expressed disagreement or did not

recognize experiences from peers. This tendency may indicate that respondents generally felt safe sharing personal experiences relating to the intervention in the focus group setting. Future research should include individual interviews to obtain data on the lived experiences of the respondents. Another limitation was that the majority of data was collected live online *via* Zoom. To the extent that respondents were not present in the same room, this format challenged the interpretation of group dynamic and body language. This may have affected how the respondents participated in the discussions within the focus groups. However, in the majority of focus groups, EM and EB did not experience that the online format hampered the participation of the respondents. Furthermore, EM and EB made sure to invite all respondents into the discussions within the respective focus groups.

## Conclusion

This study sheds light on how the mental health skills of employees and managers in private SMEs in Denmark may be impacted by a workplace-MBI including a systematically developed online workplace-adapted MBSR course. Following participation in this workplace-MBI, employees and managers expressed enhanced abilities in being aware in the present moment by for example, noticing how one is feeling and noticing when ruminating. Furthermore, participants demonstrated more kindness towards themselves and were more aware of how they behaved during stressful situation. The enhanced awareness facilitated changes in their abilities to practice self-kindness and self-care and to change behavior during stressful situations from reactive to responsive. These results indicate a strengthening of the mental health skills of employees and managers participating in this workplace-adapted MBI. Data underlying these results are based on focus group interviews. Future research should include individual interview to gain insights into the lived experiences of respondents. This may contribute to more in-depth knowledge of how individual employees and managers experiences of participating in the intervention and its potential impact on their mental health skills.

## Data availability statement

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

## Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent for

participation was not required for this study in accordance with the national legislation and the institutional requirements.

## Author contributions

LJ and EM designed the study. EM and EB developed the interview guide and collected data and performed inter-coder reliability tests of the validity of the coding and categorization, were in dialog throughout the analysis process, and finally discussed the results with LJ and LF. EB transcribed the interviews, performed coding, and categorization of all interviews, and drafted the manuscript. LJ, EM, and LF contributed with valuable corrections. All authors contributed to and approved of the final submitted manuscript.

## Funding

This study was funded by The Velliv Association. Grant number: 19-0506.

## Acknowledgments

We would like to thank all employees and managers that participated in this study and all managers who wished for their company to participate. We also thank MBSR teachers Bente Pedersen, Mie Glud Pedersen and Camilla Victoria Marcinkowski

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for their invaluable contribution to the development of the workplace-adapted MBSR curriculum and for taking part in the delivery of the intervention.

## Conflict of interest

The Danish Center for Mindfulness, Aarhus University, offers MBSR courses and MBSR teacher training. The Danish Center for Mindfulness receive payment for both services. The authors declare no conflict of interest.

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## Supplementary material

The Supplementary material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2022.1020454/full#supplementary-material>

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## OPEN ACCESS

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## SPECIALTY SECTION

This article was submitted to  
Organizational Psychology,  
a section of the journal  
Frontiers in Psychology

RECEIVED 14 October 2022

ACCEPTED 30 November 2022

PUBLISHED 16 December 2022

## CITATION

Boned-Galán Á, López-Ibort N and  
Gascón-Catalán A (2022) Sleep  
disturbances in nurse managers during the  
early and late stages of the COVID-19  
pandemic.  
*Front. Psychol.* 13:1070355.  
doi: 10.3389/fpsyg.2022.1070355

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# Sleep disturbances in nurse managers during the early and late stages of the COVID-19 pandemic

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**Introduction:** Working conditions during the COVID-19 pandemic have affected health professionals' quality of sleep. To date, most of the studies that assess the impact of the COVID-19 pandemic on sleep have been carried out with front-line health personnel, and almost none of them have been carried out with managers.

**Objective:** To evaluate the quality of sleep and the level of stress in nurse managers during the early and late stages of the COVID-19 pandemic.

**Methods:** Cross-sectional studies were carried out at two time points: after the lockdown period (July 2020) and a year and a half after the start of the pandemic (October 2021). A total of 102 nurse managers of a tertiary hospital were invited to participate. The Perceived Stress Scale (PSS-14) and Pittsburgh Sleep Quality Index (PSQI) were administered to assess stress levels and sleep quality.

**Results:** The response rate was 85.2% in 2020 and 81.3% in 2021. Nursing managers showed alterations in sleep quality throughout the pandemic: 70.1% after confinement and 61.4% at the beginning of the second wave. In addition to stress, the fear of contagion by COVID-19 influenced sleep problems. More than a year after the start of the pandemic, the professionals' fear of contagion decreased. Perceived stress also decreased, but sleep disturbances remained.

**Conclusion:** High stress and poor sleep quality among nurse managers require special attention, and specific interventions need to be implemented. Hospitals should develop programs that help nurse managers develop skills to mitigate stress levels and thus improve sleep quality and professional quality of life.

## KEYWORDS

COVID-19, nurse manager, sleep, stress, nursing, hospital, pandemic

## Introduction

COVID-19 appeared in early December 2019 in Wuhan, Hubei Province, China, where the first cases of atypical pneumonia caused by a new coronavirus (SARS-CoV-2) were diagnosed. Neither society nor health systems and organizations considered the possibility of experiencing a pandemic in their planning and health care strategies. For this reason, at the beginning of the pandemic (March 2020), attention to COVID-19 had an unprecedented impact on the Spanish health system. The response of the hospitals to this situation caused them to completely transform. Separate COVID-19 and non-COVID-19 units were created, additional ICU beds were made available, the diagnostic capacity of the laboratories was increased, and nursing units and medical services were relocated to be able to safely care for COVID-19 patients who were isolated from the rest of the patients. At the same time, new work protocols were developed and implemented based on the scientific evidence that was gradually published regarding the pandemic. In Spain, the population was confined for months until hospital pressure had decreased (June 2020). Subsequently, the infection evolved in several waves with lower intensity and less pressure on hospitals. Vaccination of the population, especially vulnerable people and health professionals, marked a turning point, reducing the number of cases and their severity. In October 2021, 79% of the population in Spain was fully vaccinated (Ministerio de Sanidad, 2021).

Nurse managers mainly led the transformation process in hospitals, both in the organization as whole and nursing units in particular, probably facing the most complicated management tasks of their managerial careers.

The role of nurse managers is essential in the health environment to guarantee a healthy work environment, influencing organizational performance, nurses' satisfaction and empowerment, staff turnover, and patient outcomes (Udod, 2014; Al Maqbali, 2015). However, the working conditions generated during the COVID-19 pandemic meant that supervisors faced an unknown and hostile hospital work environment, with a shortage of medical materials and personal protective equipment, excessive work overload, time pressure, a lack of nurses (in number and training), long working hours, a risk of exposure to infections, a lack of information, separation from their families (due to schedules and fear of contagion), and sometimes a lack of social support (Tu et al., 2020; Zhao et al., 2020). In addition, nurse managers experienced a large number of hospital admissions, the rapid deterioration of patients' physical conditions, patients dying without family at their bedside, the fear of not being prepared to care for COVID-19 patients, and a new feeling of helplessness as they learned to cope with this unknown disease (American Nurses Association, 2020).

In these circumstances, health professionals may have been one of the main groups that suffered from sleep disorders. Sleep quality is a complex phenomenon that conceptually includes quantitative aspects such as sleep duration, sleep latency or the number of awakenings, and qualitative aspects such as ease of

falling asleep, sleep maintenance, anxiety when trying to sleep, early awakenings, movements during sleep, tension, agitation during the night, and the perception of the depth of sleep (Demir Zencirci and Arslan, 2011).

Alterations in sleep quality are frequent in the adult population. One study showed that one-third of adults in Western countries experienced difficulty falling asleep or staying asleep at least once a week (Leblanc et al., 2009). The American Academy of Sleep Medicine has stated that 30–35% of the adult population in the United States has symptoms of insomnia (Deng et al., 2020). The incidence of sleep disorders among the Asian population in general ranges from 26.4–39.4% (Wong and Fielding, 2011).

In nurses, the figures related to sleep problems are the same or higher than those in the general population. The incidence of insomnia among nurses in a region of Poland was 47.8% (Zdanowicz et al., 2020). An investigation showed that 35.5% of Chinese nurses suffered from sleep disorders (Liu, 2015). Another study in four tertiary hospitals in Shanghai reported an average incidence of insomnia of 57.4% among nurses (Yang et al., 2011). Several authors maintain that these sleep disturbances are likely due to the peculiarity of their work, which includes great responsibility, a heavy workload, great pressure, the need to work in shifts (Huang et al., 2018), a high level of job stress (Thichumpa et al., 2018), high demands, and complex work environments (Liu et al., 2019).

Poor sleep quality among hospital nurses is a critical problem for the health system because it could have serious consequences both for nurses and for their patients. In nurses, poor sleep quality can lead to hypertension, exhaustion, and depression (Liu et al., 2016; Giorgi et al., 2018) and even an increased tendency to commit suicide (Mieda and Sakurai, 2013). Regarding patient care, safety can be compromised, and the quality of care can be reduced due to the greater probability that nurses will have poor work performance (Zhou et al., 2020). At the same time, impaired sleep quality is related to a decrease in the level of concentration and greater distraction, which leads to increased occupational risks, absenteeism (Kucharczyk et al., 2012; Uehli et al., 2014), and nurse turnover intentions (Søbstad et al., 2021).

Previous studies suggest that job stress may be a factor that directly correlates with poorer sleep quality in nurses (Han et al., 2016). High demands at work and a heavy workload can cause sleep disorders (Yazdi et al., 2014), but stressors in the work environment are the most common causes of sleep problems (Udod et al., 2017).

Stress is a complex multidimensional phenomenon that is determined by a person's subjective perceptions and interpretations and may be evaluated as damage, loss, threats, or challenges. Stress manifests as a biopsychosocial response when an individual's perceptions of the work environment are considered demanding or to exceed their resources, endangering their well-being (Udod et al., 2017).

The pandemic has increased and exacerbated all the factors that have been identified in previous studies, under normal conditions, as the main causes of stress among nursing managers



(Labrague et al., 2018). Warshawsky and Havens (2014) recognized the stressful role of the nurse manager position due to physical labor, long work hours, staffing, and interpersonal relationships (Warshawsky and Havens, 2014).

Recent studies show that stress is a significant problem, especially among nursing unit managers (Labrague et al., 2018). McCallin and Frankson concluded in their study that the nursing manager position is complex, multifaceted, and challenging (McCallin and Frankson, 2010). The 2003 Canadian Community Health Survey showed that two-thirds (67%) of head nurses and nurse managers reported high work stress, among the highest of the health care occupations (Statistics Canada, 2007).

Persistent exposure to stress negatively affects not only the health of nurse managers but also their decision-making processes, which can potentially affect staff, patient and organizational outcomes (Shirey et al., 2013).

Therefore, all these drivers of stress (increased and exacerbated stress, as discussed above) have been challenging for nursing managers as they have tried to manage the pandemic in their units. They have the burden of managing the crisis not only operationally but also mentally, emotionally, and even ethically (Dimino et al., 2021). Consequently, it would be expected that this work role, altered by the COVID-19 pandemic, would have an impact on the occupational well-being of nursing managers, specifically on the quality of sleep and the level of work stress.

Therefore, understanding this situation is important due to the adverse effects of poor sleep quality and stress on nurse manager health, staff satisfaction, and patient outcomes (Shirey et al., 2010). However, to date, little is known about the impact of the current crisis on psychological well-being over time, specifically on sleep quality and stress, among nurse managers, who have had to manage this unprecedented crisis in Spanish hospitals. Therefore, our objective was to evaluate the quality of sleep and the level of stress among nurse managers during the early and late stages of the COVID-19 pandemic.

## Methodology

### Design

Cross-sectional studies were carried out at two time points: after the lockdown period (July 2020) and a year and a half after the start of the pandemic (October 2021).

### Population/sample

The participants were nurse managers of a tertiary hospital. This hospital employed 102 nurse managers, 1,806 registered nurses, and 1,324 assistant nurses. The study population was the same at both time points except for the nurse managers who changed workplaces or retired.

All nurse managers who were working at the time the study was conducted were invited to participate. All nurse managers who answered the questionnaire and accepted the conditions of informed consent were included. There were no exclusion criteria. Of the 102 nurse managers who received the questionnaire, 87 completed it in 2020, and 83 completed it in 2021. There were no questionnaires with missing data, so all answered questionnaires were valid for inclusion in the study.

### Procedure

The invitation to participate in the study was sent by email from nursing management and included the link to the online form. A period of 30 days was established for completion of the form. Another email was sent after 15 days reminding the participants of the deadline. The online questionnaire was designed using the Google platform. It included a paragraph informing the participants of the objective of the research, as well as that by sending the questionnaire, informed consent was provided. Anonymity was guaranteed since no personal data were collected that would allow the unequivocal identification of those who decided to participate.

### Variables and measurement instruments

The following sociodemographic and labor variables were collected: age, sex, marital status, years of experience as a nurse manager, and type of shift (morning or rotating).

The level of fear of COVID-19 was assessed using an analog scale scored from 0 to 10, where higher values indicated a higher level of fear.

The Perceived Stress Scale (PSS-14) is used to assess the level of stress perceived during the last month (Cohen et al., 1983). It is a self-administered questionnaire with 14 items. Each item is scored from 0 to 4 (0 = never; 1 = almost never; 2 = sometimes; 3 = fairly often; 4 = very often). The total score is obtained by reverse scoring Items 4, 5, 6, 7, 9, 10, and 13 and then summing the scores across all 14 items. Total scores range from 0 to 56. The higher the score, the higher the level of perceived stress. As it is not a diagnostic element, there are no cutoff values, and this was agreed upon by the researchers. Cronbach's alpha in this study was 0.90 in 2020 and 0.89 in 2021.

To objectively measure sleep quality, polysomnography is usually used as the gold standard. The drawbacks that this technique presents have led to the development of other subjective instruments for sleep quality measurement, such as the Pittsburgh Sleep Quality Index (PSQI; See et al., 2007). The PSQI questionnaire is a widely used, multidimensional self-report measure of sleep quality and disturbances over a 1-month time interval. Therefore, this questionnaire was used to assess sleep quality in this research. The 19 items of the questionnaire generate scores for seven components: subjective sleep quality, sleep

latency, sleep duration, habitual sleep efficiency, sleep disturbance, the use of sleeping medication, and daytime dysfunction. The component scores range from 0 (indicating no difficulty) to 3 (indicating severe difficulty). The sleep component scores, referred to as the global score, are summed to yield a total score ranging from 0 to 21, with a higher total score indicating worse sleep quality. A cutoff point of 5 is used; if a person exceeds this score, their sleep quality is considered to be poor (Buysse et al., 1989). As this value increases, a subject's sleep quality decreases (Satizábal and Marín, 2018). In this study, Cronbach's alpha was 0.80 in 2020 and 0.84 in 2021.

## Data analysis

A descriptive analysis of the data, percentages, and frequencies for the qualitative variables and the mean and standard deviation for the quantitative variables was carried out. Chi-square tests were used to compare sociodemographic and work data at two time points: the early and late stages of the COVID-19 pandemic. The Kolmogorov–Smirnov test was used to evaluate whether the variables followed a normal distribution. To study whether there were differences between groups, the nonparametric Mann–Whitney U test (two groups), or the Kruskal–Wallis test (more than two groups) was used. Spearman's correlation coefficient was used to analyze the linear relationship between the Pittsburgh global sleep quality index, the level of perceived stress, and the fear of contagion by COVID-19. Differences were considered statistically significant when  $p < 0.05$ .

## Ethics statement

The design of the questionnaire for the collection of sociodemographic data guaranteed the complete anonymity of all the participants. All participants gave their informed consent when completing the survey. This study was approved by the Aragón Ethics Committee, CEICA (n° 16/2020 C.P. - C.I. PI20/371).

## Results

In 2020, 87 of the 102 nurse managers responded to the questionnaire (85.2%), and in 2021, 83 of the 102 responded (81.3%).

The sample mainly consisted of married women aged between 36 and 55 years who worked morning shifts. Approximately half of the sample had been working as a nurse manager for less than 5 years. There were no significant differences in terms of sociodemographic and labor variables between 2020 and 2021 (Table 1).

The sleep quality of nurse managers during the COVID-19 pandemic, based on the PSQI global score, was similar at the two

**TABLE 1** Sample characteristics through the study years of 2020 and 2021.

| Variables                 | Category               | 2020<br>N (%) | 2021<br>N (%) | p     |
|---------------------------|------------------------|---------------|---------------|-------|
| Age                       | ≤35                    | 6 (6.9)       | 3 (3.6)       | 0.697 |
|                           | 36–45                  | 33 (37.9)     | 34 (41)       |       |
|                           | 46–55                  | 28 (32.2)     | 30 (36.1)     |       |
|                           | ≥55                    | 20 (23)       | 16 (19.3)     |       |
| Sex                       | Female                 | 75 (86.2)     | 69 (83.1)     | 0.671 |
|                           | Male                   | 12 (13.8)     | 14 (16.9)     |       |
| Marital status            | Single                 | 13 (14.9)     | 12 (14.5)     | 0.989 |
|                           | Married                | 63 (72.4)     | 61 (73.5)     |       |
|                           | Has a partner          | 6 (6.9)       | 6 (7.2)       |       |
|                           | Divorced/<br>Separated | 3 (3.4)       | 3 (3.6)       |       |
|                           | Widowed                | 2 (2.3)       | 1 (1.2)       |       |
| Shift                     | Morning                | 74 (85.1)     | 70 (84.3)     | 1.000 |
|                           | Rotating               | 13 (14.9)     | 13 (15.7)     |       |
| Years as nurse<br>manager | < 5                    | 46 (52.9)     | 45 (54.2)     | 0.624 |
|                           | 5–15                   | 29 (33.3)     | 23 (27.7)     |       |
|                           | >15                    | 12 (13.8)     | 15 (18.1)     |       |

time points of the study. The mean (SD) values obtained were 8.45 (4.29) in 2020 vs. 8.18 (5.04) in 2021. A small decrease in the mean was observed, but this difference was not statistically significant ( $p = 0.71$ ). A total of 70.1% of the study participants in 2020 and 61.4% in 2021 were classified as poor sleepers (PSQI global scores >5).

No significant differences were observed in the quality of sleep with respect to the sociodemographic characteristics for age, sex, or marital status at the two time points of the study (early or late stage of the pandemic; Table 2).

The mean score for sleep quality was very similar when comparing the data of the nurse managers who worked morning shifts at the two study time points. In the case of nurse managers who worked rotating shifts, the mean value was lower after more than a year of the pandemic (late stage), indicating a better quality of sleep in these nurse managers.

Nurse managers who worked morning shifts had poorer sleep quality than those who worked rotating shifts. This difference was only significant in 2021 ( $p = 0.006$ ).

Table 3 describes the sleep characteristics of supervisors during the pandemic. The average number of hours they slept during the pandemic was below 6 h per day: 5.47 h in 2020 and 5.80 h in 2021. There was a slight increase in sleep time in 2021, although it was not significant. Only 16.1% of supervisors ( $n = 14$ ) in 2020 and 21.7% of supervisors ( $n = 18$ ) in 2021 slept at least 7 h per day ( $p = 0.231$ ).

The scores for global sleep quality and for the different components of the scale were similar at the two time points of the

**TABLE 2** Associations between sleep quality (Pittsburgh Sleep Quality Index global score) and sociodemographic and labor variables.

|                              |                        | 2020<br>Mean<br>(SD) | <i>p</i> | 2021<br>Mean<br>(SD) | <i>p</i> |
|------------------------------|------------------------|----------------------|----------|----------------------|----------|
| Age                          | ≤35                    | 11.83<br>(2.92)      | 0.124    | 14.00<br>(5.29)      | 0.106    |
|                              | 36–45                  | 8.52 (3.91)          |          | 7.56 (4.91)          |          |
|                              | 46–55                  | 7.36 (4.38)          |          | 8.93 (5.38)          |          |
|                              | ≥55                    | 8.85 (4.72)          |          | 7.00 (3.93)          |          |
| Sex                          | Female                 | 8.48 (4.36)          | 0.864    | 8.17 (4.88)          | 0.978    |
|                              | Male                   | 8.25 (3.98)          |          | 8.21 (5.92)          |          |
| Marital<br>status            | Single                 | 7.08 (4.49)          | 0.292    | 9.17 (5.09)          | 0.625    |
|                              | Married                | 9.06 (4.25)          |          | 8.18 (5.14)          |          |
|                              | Has a<br>partner       | 7.00 (3.03)          |          | 6.00 (4.73)          |          |
|                              | Divorced/<br>Separated | 5.67 (4.50)          |          | 10.00<br>(3.60)      |          |
|                              | Widow                  | 6.50 (6.36)          |          | 4.00                 |          |
| Shift                        | Morning                | 8.77 (4.21)          | 0.095    | 8.83 (4.99)          | 0.006    |
|                              | Rotating               | 6.62 (4.38)          |          | 4.69 (3.75)          |          |
| Years as<br>nurse<br>manager | < 5                    | 8.89 (4.17)          | 0.561    | 9.04 (5.08)          | 0.049    |
|                              | 5–15                   | 7.79 (4.45)          |          | 6 (4.23)             |          |
|                              | >15                    | 8.33 (4.49)          |          | 8.93 (5.33)          |          |

pandemic, with no statistically significant differences. The only component in which a significant difference was observed ( $p=0.02$ ) was sleep latency. The values indicated an improvement, with lower sleep latency 1 year after the start of the pandemic [1.43 (1.09) vs. 1.05 (1.03)].

The fear of contagion by COVID-19 and stress levels was also studied due to their possible effect on sleep quality. The fear of contagion by COVID-19 decreased as time passed since the start of the pandemic, and this difference was almost significant ( $p=0.054$ ) when comparing the data between 2020 and 2021. The level of stress was higher in the initial months of the pandemic. There was a significant difference in the stress level perceived by the nurse managers when comparing the years 2020 and 2021 ( $p=0.028$ ).

During the COVID-19 pandemic, a positive correlation was observed between nurse managers' sleep disorders and stress levels. In other words, sleep problems increased as perceived stress increased, and this was observed both in the initial months and more than a year after the start of the pandemic. However, there was only a positive correlation between sleep problems and the fear of contagion at the start of the pandemic. In 2021, the correlation between these two variables was no longer observed (Table 4).

**TABLE 3** Sleep quality, stress and fear of contagion by COVID-19 throughout the COVID-19 pandemic (2020 and 2021).

|                               | 2020<br>Mean (SD) | 2021<br>Mean (SD) | <i>p</i> |
|-------------------------------|-------------------|-------------------|----------|
| Hours of sleep per day        | 5.47 (1.10)       | 5.80 (1.02)       | 0.074    |
| Sleep quality                 | 1.55 (0.79)       | 1.24 (1.30)       | 0.060    |
| Sleep latency                 | 1.43 (1.09)       | 1.05 (1.03)       | 0.022    |
| Sleep duration                | 1.49 (0.95)       | 1.42 (0.75)       | 0.583    |
| Habitual sleep efficiency     | 1.01 (1.12)       | 0.84 (0.97)       | 0.297    |
| Sleep disturbances            | 1.48 (0.64)       | 1.34 (0.57)       | 0.121    |
| Use of sleeping medication    | 0.41 (0.86)       | 0.45 (0.93)       | 0.815    |
| Daytime disfunction           | 1.07 (0.79)       | 1.29 (1.52)       | 0.234    |
| Global score (PSQI)           | 8.45 (4.29)       | 8.18 (5.04)       | 0.709    |
| Fear of contagion by COVID-19 | 6.27 (1.93)       | 5.64 (2.34)       | 0.054    |
| Stress (PSS-14)               | 27.07 (8.01)      | 24.33 (8.16)      | 0.028    |

## Discussion

To our knowledge, this is one of the first studies focused on assessing the perception of sleep quality and stress throughout the COVID-19 pandemic, with only nurse managers as the study population. Most of the research carried out to date has focused on front-line professionals who care for patients.

Our results on the quality of sleep and the stress level of nurse managers in the pandemic are similar to those observed in nurses and other front-line professionals (Ortega-Galán et al., 2020; Tu et al., 2020). This does not agree with the results observed by Simonetti in a study carried out in Italy in the initial phases of the pandemic, where it was concluded that management work was a protective factor against anxiety and sleep disturbances, as managers did not work directly with COVID-19 patients (Simonetti et al., 2021). Although it is true that, as a general rule, nurse managers do not have direct contact with patients, their responsibilities and the leadership of their teams in a situation as uncertain and unknown as the current pandemic may have contributed to increased stress and sleep disturbances. At the beginning of the pandemic, the main stressors were ignorance of the disease, the fear of contagion, the lack of individual protection equipment, the turnover and lack of training of many professionals, work overload, and constant changes in the organization of hospitals to adapt to hospital admissions (Tan et al., 2020; Murat et al., 2021; Zheng et al., 2021). Currently, in Spain, work overload is still maintained due to the shortage of nurses being hired. All these factors have affected both frontline staff and other professionals, regardless of the unit in which they work (Zarzour et al., 2021).

**TABLE 4** Correlations between sleep quality and stress and the fear of contagion by COVID-19 during the pandemic (2020 and 2021).

|               | Years | Stress                | Fear of contagion by COVID-19 |
|---------------|-------|-----------------------|-------------------------------|
|               |       | <i>r</i> ( <i>p</i> ) | <i>r</i> ( <i>p</i> )         |
| Sleep Quality | 2020  | 0.547 (< 0.001)       | 0.247 (0.021)                 |
|               | 2021  | 0.489 (<0.010)        | 0.128 (0.248)                 |

This work overload may have been a factor that has contributed to the poor sleep quality of nurse managers during the pandemic. Our data show that nurse managers do not have good sleep quality and that sleep quality has not changed substantially as the pandemic has progressed. The results observed in 2020 ( $8.45 \pm 4.29$ ) and in 2021 ( $8.18 \pm 5.04$ ) showed minimal improvement in the sleep quality of the nurse managers, a difference that was not statistically significant. When our data were compared with a study carried out in nurses working in hospitals in our country, global PSQI values showed better sleep quality before the pandemic (Gómez-García et al., 2016).

Poor sleep quality was observed in the entire sample, with no differences regarding age, sex, or marital status. Some studies have reported poorer sleep quality in women (Lai et al., 2020; Luo et al., 2020; Simonetti et al., 2021) or in single people due to less social support (Al Maqbali, 2021).

However, differences were observed with respect to the shift performed; nurse managers who worked rotating shifts had better quality of sleep. This does not agree with the results of other studies (Kim-Godwin et al., 2021; Zheng et al., 2021) which could be explained by the fact that our data are for nurse managers and not for care nurses.

Nurse managers who work rotating shifts perform general supervision functions, resolving incidents that occur in the hospital during their work shift and passing the baton to nurse managers who work morning shifts. The latter group has one or more units assigned to them, being responsible, among other aspects, for their human and material resources. In our country, the problem of the availability of personal protective equipment, which existed at the beginning of the pandemic in 2020, has been solved, but the same has not happened in hiring nurses to cover absenteeism. This means that morning shift nurse managers must dedicate a greater amount of time and effort to keep their units running, even extending their work hours beyond those established. This can increase their worries and decrease their ability to disconnect when they leave the hospital, which can influence the quality of their sleep. Likewise, participants who had been working as nurse managers for a shorter time presented a worse quality of sleep. The most plausible explanation is that the experience acquired during the years of working as a nurse manager acted as a protective factor by reducing anxiety and thus favoring a better quality of sleep (Huang and Zhao, 2020; Lai et al., 2020). This result was expected because to manage crisis situations, it is equally important to have adequate training and work

experience in the position, which in turn provides greater self-confidence (Warshawsky and Cramer, 2019).

Another noteworthy aspect was that a decrease was found in the evolution of the fear of contagion to COVID-19 between the two time points of the study; however, this difference was not statistically significant. In addition, it was observed that the fear of contagion was correlated with a worse quality of sleep only in 2020, showing a trend toward the normalization of the pandemic.

When analyzing the different components of the PSQI scale, we wanted to highlight the number of hours of sleep per day and sleep latency. Regarding the number of hours of sleep per day, although the number increased slightly compared to that at the start of the pandemic, it is far from the consensus on the hours of sleep that an adult should get to achieve healthy sleep, which is between 7 and 9 h (Merino Andréu et al., 2016). The following consequences of short sleep duration have been described in the literature: daytime fatigue, psychomotor impairment, accidents, the deterioration of physical and psychological health, and poor academic or work performance. Sleep latency and its decrease when compared to that in the initial stage of the COVID-19 pandemic could be related to the observed decrease in stress levels throughout the pandemic, as shown by the data from our research and other studies (Kim-Godwin et al., 2021).

Previous research has pointed to stress as a predictor of sleep quality (Deng et al., 2020; Salari et al., 2020; Al Maqbali, 2021; Kim-Godwin et al., 2021), even more so when it occurs in the context of a pandemic and the population studied includes health professionals (Mauder et al., 2006). The level of perceived stress at the beginning of the pandemic was higher than that observed before the pandemic in 2019, when our data were compared with a study carried out in the same population of nurse managers and in the same hospital as the present study (Boned Galán, 2019).

During the pandemic period, a statistically significant decrease was observed, with values of  $27.07 \pm 8.01$  in 2020 (early COVID-19) and  $24.33 \pm 8.16$  in 2021 (late COVID-19), which indicates that nurse managers' stress is reducing as the pandemic progresses.

A year and a half after the start of the pandemic (2021), the values of perceived stress were quite close to those observed before the pandemic. This fact has already been observed in previous pandemics and can be attributed to the progressive adaptation to stressors, as the situation is perceived in a more favorable way (Su et al., 2007). Other aspects that should be taken into account include greater knowledge about the disease, the current availability of personal protective equipment, the effectiveness of a vaccine in reducing the severity of cases, reduced fear of contagion, and a decrease in health care pressure in hospitals related to the pandemic.

The WHO has highlighted the need to keep all staff protected from chronic stress and poor mental health from the start of the pandemic. It is evident that the quality of sleep is poor not only during the pandemic, but it is also a chronic problem that should be addressed in nursing. Additionally, nurse managers may experience additional pressure related to the functions derived

from their role. Hospitals should develop strategies that support nurse managers, providing training in soft skills and management. Personalized care programs for these health professionals should include psychological support, team building activities, mentoring or coaching programs adapted to the needs and maturity of the work teams and the individuals that make them up. Likewise, the underlying organizational factors that influence their role must be addressed. Span of control of the nurse manager should be adapted, considering aspects related to the characteristics of the unit, the professionals working in it, and the organization itself. In addition to developing human resources policies aimed at maintaining an appropriate nurse–patient ratio in care units considering the levels of dependency and complexity of patients. These managers should act as role models regarding care to mitigate stress (World Health Organization, 2020).

## Limitations

A limitation is that only one hospital was included in the current study. Thus, the results may not be generalizable to the experiences of nurse managers in other hospitals.

Because participation in the study was voluntary, it is possible that the respondents differed from the nonrespondents in some meaningful way (Enders, 2006). Nevertheless, the response rate was high (85.2 and 81.3%), which minimizes concerns about the representativeness of the respondents.

The use of self-reports may also have been an important limitation if we compare it with the use of other means, such as clinical interviews or functional neuroimaging, due to social desirability bias.

Unfortunately, a causal relationship between the pandemic and the observed sleep disturbances could not be established, due to the absence of data on sleep quality in this sample of nurse managers before the COVID-19 pandemic.

## Data availability statement

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

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## Ethics statement

The studies involving human participants were reviewed and approved by the Aragón Ethics Committee, CEICA (n° 16/2020 C.P.-C.I. PI20/371). The patients/participants provided their written informed consent to participate in this study.

## Author contributions

ÁB-G, NL-I, and AG-C: conceptualization, methodology, data analysis, writing—original draft preparation, and writing—review and editing. ÁB-G and NL-I: resources. NL-I: funding acquisition. All authors contributed to the article and approved the submitted version.

## Funding

This research has funded by the Instituto de Investigación Sanitaria de Aragón (IIS Aragón), Zaragoza, Spain.

## 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.

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## OPEN ACCESS

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## SPECIALTY SECTION

This article was submitted to  
Organizational Psychology,  
a section of the journal  
Frontiers in Psychology

RECEIVED 08 September 2022

ACCEPTED 09 December 2022

PUBLISHED 17 January 2023

## CITATION

Abid G, Contreras F, Rank S and  
Ilyas S (2023) Sustainable leadership and  
wellbeing of healthcare personnel: A  
sequential mediation model of procedural  
knowledge and compassion.  
*Front. Psychol.* 13:1039456.  
doi: 10.3389/fpsyg.2022.1039456

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# Sustainable leadership and wellbeing of healthcare personnel: A sequential mediation model of procedural knowledge and compassion

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**Introduction:** In healthcare organizations, saving patients' lives while maintaining the staff's wellbeing, performance and competencies were challenging during the COVID-19 pandemic. Although the complexity of healthcare settings is widely recognized, the pandemic evidenced the necessity of attending to the employees' wellbeing in such a sector. This research aims to examine the effect of sustainable leadership on wellbeing of healthcare personnel. Furthermore, we also evaluate whether procedural knowledge and compassion act as mediators in such a relationship.

**Methods:** The hypothesized model was tested in healthcare organizations in a South Asian country, and the data were collected during the pandemic crisis. A total of 366 health personnel (physicians and nurses) participated in this research. With Hayes' PROCESS macro, we examined all the direct and indirect paths, including sequential mediation.

**Results:** The findings confirm the impact of sustainable leadership on wellbeing and this relationship is also mediated by procedural knowledge and compassion.

**Discussion/conclusion:** Sustainable leadership fosters wellbeing among healthcare workers *via* the sequential mediation of procedural knowledge and compassion. Study findings suggest that sustainable leaders can trigger procedural knowledge among employees which in turn crafts the state of compassion in them that leads to their wellbeing. Theoretical and practical implications are discussed in light of study findings.

## KEYWORDS

sustainable leadership, procedural knowledge, compassion, wellbeing, healthcare settings

## 1. Introduction

Common goodness “with a higher purpose for our society and planet” is the logic behind the sustainability (Contreras and Abid, 2022), which is formulated within the sustainable developmental goals (SDG) of United Nations (United Nations, 2015). Coping with the grand challenges of the 21st century (Aust et al., 2020; Elahi et al., 2022), like global climate change, pandemics and inequality of wealth, sustainable strategies and leadership (Hallinger and Suriyankietkaew, 2018) are currently required for leading every organization to achieve sustainable performance (Iqbal et al., 2020a; Javed et al., 2021). For example, the heat waves that impact the world because of the temperature increase are affecting mainly those densely populated regions already-hot places (Xu et al., 2020) forecast the critical need to have a healthcare infrastructure to attend to their necessities (Bavel et al., 2020). In addition, the pandemics like the current Coronavirus might occur more frequently in the near future as forecasted by EMRO WHO (2022); it is a matter of “when,” not “if” which will impact our society as a whole (Iftekhar et al., 2021).

Consequently, hospitals’ staff not only had to work at the limit during the COVID-19 pandemic—that still persists—but might continue in the emergency status in the near future. This situation shows the need for scholars to focus their attention on the wellbeing of health personnel as a priority issue to address (Qaiser and Abid, 2022; Ilyas et al., 2022a, 2022b). In the healthcare setting, employees’ wellbeing acquired special relevance due to its relationship with performance.

During the heavy burden due of the pandemic, the primary purpose of the caring profession and healthcare organizations was to save patients’ life by continuously enhancing their wellbeing (De Kock et al., 2021; Ilyas et al., 2022a, 2022b). However, not only do the patients require attention, but the health staff also needs it. The COVID-19 situation in hospitals heavily impacted the wellbeing of the staff, especially in times of uncertainty and urgency in the highly stressful work environment (Petrella et al., 2021; Sun et al., 2021). Digby et al. (2021) recently evaluated hospital employees in Australia and identified a high level of anticipatory anxiety due to altered working conditions, isolation, and uncertainty caused by the pandemic. There is evidence that factors such as organizational support, adequate knowledge, and resilience protects the nursers against adverse mental health conditions and support the staff’s psychological wellbeing.

In the highly demanding work environment dealing with common goodness like people’s health (Abid and Contreras, 2022), an empowering and supportive leadership behavior toward the employees is crucial for enhancing staff’s wellbeing. This leadership is called sustainable leadership. Sustainable leadership aims to strike a balance between an organization’s human resources, profitability, and the planet over its lifecycle (McCann and Holt, 2010). According to Choi (2021), sustainable leadership behavior is an umbrella framework involving servant, authentic and ethical leadership characteristics that have in common an empowering and supportive behavior toward the employees. Sustainable leadership is highly

effective in environmental challenges because it emphasizes environmental diversity, sustained learning, efficient stakeholder management, development of resources, long-lasting success, amicable relationships with the workforce, and social, ethical, and responsible behavior. In light of the paucity of empirical studies about the significance of sustainable leadership and its relation to wellbeing, there is little research in healthcare settings and environmental considerations confronting Asia. Thus, framed in the AMO theory of Appelbaum et al. (2000), who consider the opportunity for participation as a core element, we propose that sustainable leadership exerts influence on employees’ wellbeing. The AMO theory involves two other components: ability and motivation, which will be addressed with the other variables included in the proposed model.

In addition to sustainable leadership support and encouragement to participate, doing the right things in the right manner in a professional team in highly stressful times is linked to knowledge sharing, e.g., sharing procedural knowledge (Akgün et al., 2008). In the knowledge management field, procedural knowledge involves sequential actions, procedures, and steps to solve problems through the application of automated techniques (Aydın and Özgeldi, 2019; Wuryaningrum et al., 2020). For example, effective procedures that help to decrease the virus infection risk should be shared among the healthcare staff (Petrella et al., 2021) to reduce the anxiety generated by the unknown. Thus, in pandemic times and the usual complex conditions of healthcare settings, we consider that procedural knowledge is a relevant factor in promoting the wellbeing of healthcare staff. From the AMO framework, the ability is the component related to how people possess the required knowledge and skills to perform well, reducing the anxiety produced by feeling overcome by performing their duties properly. Under this framework, procedural knowledge sharing enhances the ability of the health staff (De Kock et al., 2021), which could influence the employees’ wellbeing. We argue that in this highly demanding work environment with changing policies, procedural knowledge sharing has a significant impact on the wellbeing of health care staff, and sustainable leadership could trigger procedural knowledge sharing.

The last component of the AMO theory is the motivation to serve others, an individual factor that in the healthcare profession is considered compassion. Compassion as an individual factor for caring about others is crucial for the health care staff’s wellbeing. Lilius et al. (2011, p. 874) defined “compassion as the reliable capacity of members of a collective to notice, feel and respond to suffering.” Compassion is a prosocial, positive emotion that involves feeling for and wanting to help others in distress (Goetz et al., 2010). At the organizational level, compassion flows when individual interests are aligned with the organizational value system (Renzenbrink, 2011).

In a nutshell, for our explorative study, the mentioned factors are of interest because they could impact the wellbeing of healthcare staff in times not only of normal high pressure but in a health crisis that leads to frequently changing policies because of unexpected situations such as the pandemic (Digby et al., 2021). Following this argumentation, we propose a research model where



sustainable leadership influences employees' wellbeing in healthcare settings and that such a relationship could be mediated by procedural knowledge and compassion. Based on the above arguments, the research questions are:

RQ1: Could sustainable leadership influence the wellbeing of the healthcare staff?

RQ2: How are procedural knowledge and compassion at work associated with employees' wellbeing in healthcare settings?

## 2. Literature review and hypotheses

### 2.1. Sustainable leadership and wellbeing

Sustainable leadership is a new domain of effective leadership, which has been established recently to cope with issues related to sustainable development (Iqbal and Ahmad, 2021). Long-term perspectives, systemic innovation, workforce development, and quality are the foundations of sustainable leadership practices. To illustrate how sustainable leadership is still operationalized, we summarized different studies: On one hand, Avery and Bergsteiner (2011) defined a broad scope of sustainable leadership practices by including the corporate social responsibility (CSR) concept from a strategic management perspective. Further, Lee (2017) integrate internal CSR and sustainable human resource management (HRM) elements into sustainable leadership with diversity management, employee development, organizational justice, progress development and work-life balance impact satisfaction, motivation, and performance. On the other hand, Choi (2021) operationalized sustainable leadership as concrete behavioral practices related to servant, authentic and ethical leadership styles.

Moreover, Hallinger and Suriyankietkaew (2018, p. 3) considered the foundation for sustainable leadership in "Rhine-land approach capitalism in Germany" focusing on social care, highlighting the responsibility for employees and society. Based on their review, the following features are summarized in a conceptual framework: sustainable leadership links the long-term vision and organizational goals to the society's welfare, ethical behavior, social responsibility of leaders and the organization, stakeholder engagement to such vision, and innovation capacity for an open system. Sustainable leadership and its associated values, combined with knowledge and experience, increase the output of the CSR's triple bottom line performance, that is, social, ecological, and economic performance (van Veldhoven and Peccei, 2015; Hallinger and Suriyankietkaew, 2018).

There is some evidence regarding the impact of sustainable leadership on sustainable performance (Iqbal et al., 2020a), and employee satisfaction (mainly influenced by valuing employees, ethical behavior, and shared vision; Suriyankietkaew and Avery, 2014). Individualized consideration "serves as a carrot" to satisfy employee's personal needs. Recently, Choi (2021) showed that

managers' sustainable leadership significantly impacts employee wellbeing, especially when it is oriented to servant and authentic leadership practices. Similarly, virtuous leadership behavior, which is linked to sustainable leadership by its ethical approach, has shown its influence on work-related wellbeing (affect, job satisfaction, and work engagement), whereas trust in the leader served as a mediator (Hendriks et al., 2020). Sustainable leadership strives to improve the lives of all stakeholders while generating profits for the now and future. It emphasizes the fundamental value of sustainability at the personal, corporate, and societal levels. Supported by the above, we formulate the following hypothesis:

*Hypothesis 1: Sustainable leadership is positively associated with wellbeing.*

### 2.2. Sustainable leadership and procedural knowledge

Workplaces are learning environments that can provide their employees with opportunities through a proper condition, for learning in everyday work (Fuller and Unwin, 2004); among these conditions are autonomy, knowledge sharing, managerial support, competence and career among others are learning conditions that support the management of stressful work (Gustavsson and Lundqvist, 2021). Organizational knowledge can be declarative or procedural. While declarative knowledge is based on facts, propositions and events, procedural knowledge refers to specific knowledge about how things are done (Kyriakopoulos, 2011), which is important in the high demanding work environment of healthcare. Procedural knowledge is an organizational knowledge refers to specific knowledge about how things are done (Kyriakopoulos, 2011), involves a set of unit procedures organized for solving a specific purpose (Song et al., 2011). Managerial support and knowledge sharing in the workplace are good contextual conditions that encourage the learning process and are important for managing stressful work conditions (Gustavsson and Lundqvist, 2021). Kim and Park (2020) revealed a significant impact of transformational leadership as well as organizational climate on knowledge sharing, further a mediation path of leadership through knowledge sharing on organizational learning. Further Le and Lei (2019) confirmed the path of transformational leadership on knowledge sharing moderated by high perceived organizational support, further knowledge sharing mediates the impact of leadership on product and process innovation. This evidence gives support for the impact of the immediate work context factors on work outcomes. Effective leadership behavior is a significant important impact factor for knowledge management.

But how does sustainable leadership influences procedural knowledge sharing? Tuan (2016) provided evidence that servant leadership (as part of sustainable leadership, see Choi, 2021) enhanced knowledge sharing in a public organization moderated by public service motivation and CSR. Lee et al. (2016) found a



significant impact of top management support and clan culture on knowledge sharing, which serves as a mediator in process improvement success. Khalil et al. (2021) investigated the impact of sustainable leadership on knowledge sharing. Four dimensions of sustainable leadership (i.e., sustainability leadership, ethical leadership, mindful leadership, and servant leadership, in line with Choi, 2021) impact knowledge sharing. Moreover, Chaman et al. (2021) evidenced the impact of ethical, transformational and passive avoidant leadership on knowledge sharing mediated by introjected motivation as ethical leadership is an element of sustainable leadership. Sustainable leaders motivate and inspire staff to share new ideas and stimulate creativity, resulting in the organization's constant improvement. Such methods also ensure that employees will embrace new techniques for doing business. Sustainable leaders encourage knowledge exchange throughout firms to boost employees' ability to think outside the box.

According to Hart's (1995) natural resource-based view (NRBV) perspective, environmentally friendly resources are required to improve organizational performance and provide a sustainable competitive advantage. This study utilizes sustainable leadership as a resource in order to be ecologically friendly. Sustainable leaders identify sustainability issues, communicate long-term visions, establish policies for green management, and promote green activities (Avery and Bergsteiner, 2011). While maintaining strong relationships with many stakeholders, sustainable leaders scan and monitor potential external environment changes. Additionally, it enhances organizational performance by minimizing operating expenses and identifying possible business opportunities. Therefore, we conclude that sustainable leadership behavior and sharing of procedural knowledge are significant organizational/immediate work context variables for employee wellbeing in the health care profession. As Khalil et al. (2021) and Chaman et al. (2021) showed, sustainable leadership behavior should enhance procedural knowledge in a highly stressful work environment in health care. The current study postulates that an organization might use sustainable leadership as a resource to develop procedural knowledge. Thus, we postulate the following hypothesis:

*Hypothesis 2: Sustainable leadership is positively associated with procedural knowledge.*

## 2.3. Procedural knowledge and compassion

Procedural knowledge refers to specific knowledge about how things are done (Kyriakopoulos, 2011). In the organizations, procedural knowledge is crucial to understand concepts and develop the strategy to find problem solutions (Richter-Beuschel et al., 2018; Ismail, 2020). This knowledge is more tacit; people are hardly aware of it and is acquired from experience, which makes it difficult to be transferred (Gupta and Govindarajan, 2000) and measured (Richter-Beuschel et al., 2018). The effectiveness of procedural knowledge requires an organizational environment

that allows access to knowledge and promotes collaborative practices that encourage collective knowledge that can be inserted into organizational routines (Nieves et al., 2016).

The workplace learning perspective is supported by situated learning which assumes that learning goes beyond an individual process, and includes learning conditions and learning environment (Evans et al., 2006). Long-term superior performance could be guided by organizational learning attitudes, behaviors, and techniques. Natural resource-based view (NRBV) theory states that businesses can generate dynamic capability by establishing, reconfiguring, and integrating their capabilities to thrive in a dynamic market if they use resources as a foundation for sustainable competitive advantages. Organizational learning is seen as a dynamic capacity since it helps organizations to adjust continuously to market demands. Dynamic capability is based on how knowledge sources are created, collected, integrated, shared, and used. Organizational learning in the context of knowledge-based dynamic capacities entails the generation of new knowledge and the incorporation of new pieces of explicit knowledge into institutional memory. Dynamic capability drives greater performance since the learning organization encourages the generation of knowledge and its application activities.

Compassioned people create an environment of acceptance and harmony at work due to the recognition that the human experience is not perfect. They accept and recognize that everybody makes mistakes, which enables them to be more connected with the individual difficulties of others (Neff and Costigan, 2014). As a virtuous circle, a compassionate environment where it is recognized that the job can be improved and some mistakes are accepted fosters the employees to continuously strengthen their learning, improving performance in the procedures that their work implies.

Therefore, we propose that procedural knowledge effectiveness could strengthen the relationships between employees, colleagues and supervisors, contributing to the creation of a culture of compassion, which is characterized by helping behaviors (Piff et al., 2010), generosity (Saslow et al., 2013) and forgiveness (Worthington and Scherer, 2004). Supported by the above contention, we posit the following hypothesis:

*Hypothesis 3: Procedural knowledge is positively associated with compassion.*

## 2.4. Compassion and wellbeing

Compassion at work contributes to building high-quality relationships, enhancing relational resources such as loyalty, trust, and the connectedness between people, which leading healing people in struggling situations (Dutton et al., 2007). According to Ryan and Deci (2001), there are two main philosophical viewpoints on well-being: one is happiness-oriented (i.e., hedonism), which defines well-being as the subjective experience of happiness; the other is eudaimonism, which focuses on realizing human potential and sees well-being as the result of personal

success, self-actualization, or self-positioning. Compassion can be understood as an indicator of intrapersonal wellbeing, as a way of relating to oneself and others and promoting eudaimonic happiness (Neff and Costigan, 2014). From the eudaimonic approach, wellbeing and happiness are considered subjective experiences that tend to be stable over time and involve life satisfaction and positive affect (Howell et al., 2007).

There is evidence about the effect of compassion on nurses' wellbeing. In this regard, Wahl et al. (2018) found that compassion allows nurses to feel a sense of joy, satisfaction, and fulfillment in their professional work, connecting with their patients and their suffering, allowing the nurses to fulfill their professional and/or personal commitment to finding meaning in their work. Consequently, compassion increases employee commitment and decreases turnover and absenteeism (Dutton et al., 2007), all those personal and contextual work characteristics are related to employees' wellbeing.

According to Bag et al. (2022), higher levels of self-compassion are associated with better wellbeing. Muris et al. (2018) also confirm that self-compassion strongly predicts students' mental health. Additionally, Zessin et al. (2015)'s meta-analysis revealed a substantial positive relationship between self-compassion and wellbeing in general adult samples. Therefore, we propose that compassion can be related to wellbeing and posit the following hypothesis:

*Hypothesis 4: Compassion is positively associated with wellbeing.*

## 2.5. Procedural knowledge and compassion as mediators

This research aims to explore the mediator role of procedural knowledge and compassion in the relationship between sustainable leadership and wellbeing. Sustainable leaders promote a psychologically safe working environment that promotes effective learning within an organization (Iqbal et al., 2020b) through collaborative practices that influence procedural knowledge (Nieves et al., 2016). In turn, procedural knowledge could encourage the employees wellbeing due to this kind of knowledge supporting people in accomplishing their work and handling difficulties related to it in their everyday work (Kimmerle et al., 2010).

Bakker and Demerouti (2017) assert that learning is facilitated by working conditions and provides employees with resources to handle high work demands. Workplaces that enable learning conditions provide employees with ample resources for managing stressful work (Gustavsson and Lundqvist, 2021), which will contribute to the employees' wellbeing. Therefore, workplace learning is a significant way to reduce stress and improve the employees' health (Holman and Wall, 2002; Panari et al., 2010) by enhancing the employees' ability to cope with stressful situations and high work demands (Proost et al., 2012). Thus, a workplace

environment that provides learning conditions helps employees to manage stressful work by relieving the imbalance between work demands and resources (Gustavsson and Lundqvist, 2021). In addition, a compassionate work environment where there is access to learning opportunities is a crucial resource for dealing with demanding work by reducing stress (Gustavsson and Lundqvist, 2021). Such a work environment can emerge in compassionate organizations. Compassionate behaviors are learned in the organizations according to how employees interact with each other (Banker and Bhal, 2020), knowledge is shared, and employees experience open communication between them (Gustavsson and Lundqvist, 2021).

According to Banker and Bhal (2020), managers influence the creation of compassionate organizations, and sustainable leadership seems to accomplish the required qualities to it. These leaders have a long-term vision, broader goals that benefit society, ethical behavior, and social responsibility (Hallinger and Suriyankietkaew, 2018). On the contrary, leaders that are excessively focused on short-term goals, exert high pressure on employees, and are not trustable promote organizations with low levels of compassion. On the other hand, sustainable leadership influences organizational learning because of its long terms objectives (Sharma and Lenka, 2019) and the knowledge-sharing culture (Kantabutra and Avery, 2013). Sustainable leadership promotes a vision supported by organizational values, including moderation, mutual respect, and the value of individuals; these values underlie the employees' satisfaction, commitment, and performance (Hargreaves and Fink, 2007).

Sustainable leaders share a long-term vision and promote knowledge dissemination in the companies, by maintaining open communication (Park and Kim, 2018), framed in ethical behaviors (Kantabutra and Avery, 2013). Ethical practices from the leaders move their followers to become sensitized to peers' problems and be more compassionate, increasing compassion in their companies, and compassion is a driver for wellbeing (Manrique-de-Lara and Viera-Armas, 2019). Thus, sustainable leaders promote compassionate work environments through the values such as integrity, empathy, accountability, authenticity, presence, dignity (Shuck et al., 2019), empathy, ethical/moral values, and supportive organizational culture joined to favorable human resource practices (Banker and Bhal, 2020), all of which will result in the wellbeing of employees. Empathetic leaders as sustainable leaders are needed to build compassionate organizations where there is a shared moral virtue that strengthens the social and emotional relationships between employees and between them and their organizations, making virtuous organizations (Karakas et al., 2017).

Addressing compassion in healthcare organizations is especially relevant because care without compassion might prove dangerous to patients (Renzenbrink, 2011) and even unethical (Austin et al., 2009). Unfortunately, not all hospitals run with compassion, and there is insufficient knowledge to explain why despite its relevance. In this regard, Banker and Bhal (2020) stated

the necessity to identify factors that promote compassion in these organizations.

In conclusion, current study envisages that how procedural knowledge relates to compassion of health care workers in social context drawing on AMO framework (Appelbaum et al., 2000). According to AMO theory, three independent work systems which shape how an employee behave in an organizational setting are ability, motivation and opportunity accorded by employers. Sustainable leaders focus on knowledge-sharing culture and organizational learning (Kantabutra and Avery, 2013; Al-Zawahreh et al., 2019). We built arguments based on AMO theory that sustainable leaders strengthen their followers with the ability, opportunity and motivation to enhance their wellbeing by the mediating role of procedural knowledge and compassion. Following the previous arguments, we propose that the relationship between sustainable leadership and employees' wellbeing may be mediated by procedural knowledge and compassion, proposing the following hypotheses:

*Hypothesis 5:* Procedural knowledge mediates the relationship between Sustainable leadership and wellbeing.

*Hypothesis 6:* Compassion mediates the relationship between sustainable leadership and wellbeing.

*Hypothesis 7:* Procedural knowledge and compassion sequentially mediate the relationship between sustainable leadership and wellbeing.

In summary, all direct and indirect paths are visualized in Figure 1.

### 3. Materials and methods

#### 3.1. Participants and procedure

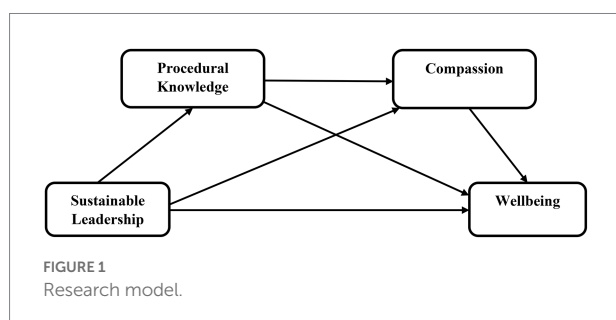
Pakistani physicians and nurses employed in public and private hospitals are the focus of the current study. Questionnaires were distributed to doctors and nurses in private and public hospitals in Lahore, Faisalabad, and Islamabad. We have gathered data from these cities because these cities (i.e., Lahore, Faisalabad and Islamabad) are deemed to be major cities

in the province of Punjab (Baig et al., 2006; Ghafoor et al., 2021; Majeed et al., 2022). The health sector is believed to have a crucial role in the industrial progress of any economy (Doeksen et al., 1997) and its social impact on the lives of individuals (Sen and Östlin, 2008). We concentrated on a particular industry because “unknown sources of variation attributable to organization type could be controlled” (Near et al., 2004). In addition, recent research has collected samples from the health sector during pandemics (Sethi et al., 2020). The data was collected during first wave of coronavirus pandemic so as to let the data reflect the true picture of the hospital works setting in the data of current study.

The same argument applies to our selection of the health industry as a study sample. Due to the unpredictability of data collection from frontline healthcare personnel during the coronavirus pandemic, a split questionnaire survey design (SQSD) is employed to collect study data. Prior research provides a foundation for employing the split-questionnaire technique to lessen respondents' answer burden (Raghunathan and Grizzle, 1995; Ahmed et al., 2015; Farooqi et al., 2017). Using SQSD, the questionnaire is divided into two portions, A and B, and sent to two distinct groups of respondents. Demographic questions were requested from both groups. The current study complies with the data collection recommendations of Podsakoff et al. (2003), which state that independent and dependent variable data should be collected at distinct times to prevent common method bias. The current study employed a two-waved time-lagged study design to reduce the source bias. At time 1 (T1), data were collected for sustainable leadership, procedural knowledge and wellbeing measures. Almost after an interval of 1 month, i.e., at time 2 (T2), data were collected for the measure of compassion from the same respondents.

In addition, respondent anonymity is ensured from the earliest phases of data collection to reduce social desirability bias (Nederhof, 1985). According to Guadagnoli and Velicer (1988), a sample size of 300 to 400 is an excellent representation of the population. Consequently, using the split questionnaire survey methodology, we presented the questionnaire to 450 participants *via* online (Google form) and printed forms. Set A of the questionnaire was administered to 225 respondents, while Set B was administered to 225 respondents. After collecting replies in hard and soft form from both sets of respondents and removing missing responses at either time (i.e., T1, T2) and outliers, we merged both datasets to get 366 total responses.

The frequency distribution of demographic responses showed that 135 male respondents represented 36.9% of the sample, while 231 female respondents represented 63.1% of the sample size. Participants were grouped into five age groups ranging from under 25 to over 55. Age distribution study reveals that most respondents were between the ages of 25 and 34. In addition, a frequency distribution of hospital categories reveals that out of 366 respondents, 248 (67.8%) belonged to public sector hospitals



and 118 (32.2%) to private sector hospitals. Furthermore, frequency analysis for marital status indicates that the majority of respondents, 223 (60.9 percent) out of 366, were married.

### 3.2. Sample size calculation

A preliminary power analysis was conducted to determine the ideal sample size. Power analyses were performed by using G\*Power (G\*Power, 2020) version 3.1.9.7 (Institut für Experimentelle Psychologie, Heinrich Heine Universität, Düsseldorf, Germany) and input parameters (effect size  $f^2=0.377$ ) for the sample size computation were based on the squared multiple correlation  $p^2$ , yielding a minimum of 34 participants. Furthermore, we also performed *a priori* sample size calculation for sample power even with a very small, i.e., 0.04 effect size, 0.05  $\alpha$  error probability, and 80% sample power, yielding a minimum of 277 participants. The large sample size makes the findings more valid and generalizable, so we targeted 450 participants. In the *post hoc* analysis, the sample of 366 participants with a small effect size  $f^2=0.05$  provided a power of 0.96, which is statistically enough to make conclusions.

### 3.3. Measures

*Sustainable Leadership* was measured by adopting a 4-item scale developed by Di Fabio and Peiró (2018). Cronbach's  $\alpha=0.93$ . *Procedural knowledge* was measured by adopting a 4-item scale developed by Akgün et al. (2008). Cronbach's  $\alpha=0.94$ . *Compassion* was measured using a 3-item scale adapted by Lilius et al. (2008). Cronbach's  $\alpha=0.75$ . *Wellbeing* was measured using a 5-item scale adopted by Han (2020). Cronbach's  $\alpha=0.91$ . A five-point Likert type scale (1 = strongly disagree to 5 = strongly agree) was used for all the measures except for wellbeing, which was measured on a seven-point Likert type scale (1 = strongly disagree to 7 = strongly agree).

### 3.4. Analytical strategy

To conduct data analysis and test the stated hypotheses, we adhered to the methods used by previous researchers. Specifically, the confirmatory factor analysis (CFA) was conducted using version 24 of the AMOS (IBM, Armonk, United States, 2014; maximum likelihood) program to assess the factorial structure and suitability of our proposed four-factor measurement model. Following the CFA, hypotheses were evaluated with the PROCESS macro analysis. The PROCESS macro (Hayes, 2012) analysis was chosen because, according to bootstrap sampling, it has been acknowledged as a reliable and rigorous method for assessing the magnitude of conditional indirect effects (Abid et al., 2020).

## 4. Results

### 4.1. Confirmatory factor analysis

Before testing the hypotheses, a measurement model was tested with the help of CFA using AMOS 21.0 to ensure the goodness of fit for the variables under study. To assess the fit indices for CFA, this study used Chi-square test statistic ( $\chi^2/df$ ), GFI (goodness of fit), AGFI (adjusted goodness of fit index), TLI (Tucker-Lewis Index), CFI (comparative fit index), and RMSEA (root mean square error of approximation). The values of Chi-square test statistic  $< 3$ , GFI, AGFI, TLI, CFI scores  $> 0.90$ , and RMSEA scores  $< 0.08$  signify an acceptable fit (Kline, 2015). The measurement model comprised of four factors: sustainable leadership, procedural knowledge, compassion, and wellbeing showed a good fit as per CFA. According to our expectations, the four-factor model representing fit the data well ( $\chi^2/df=2.54$ , GFI=0.948, AGFI=0.916, TLI=0.963, CFI=0.973, and RMSEA=0.065). Furthermore, our four-factor measurement model is considerably better than the alternate two and one-factor models (see Table 1). These results revealed that examining the four variables as separate constructs is justified.

### 4.2. Convergent and discriminant validity

Convergent validity is the measure to which a statistic significantly corresponds to other alternative measures of the same constructs (Hair et al., 2017). To demonstrate the convergent validity, average variance extracted (AVE) and composite reliability are examined (Fornell and Larcker, 1981). The value of AVE should be  $>0.50$  and composite reliability should be  $>0.70$ . All the study constructs passed the minimum AVE and composite reliability criteria, so convergent validity is achieved. Divergent validity is another name for discriminant validity; it refers to the degree to which one construct differs from the others. It is

TABLE 1 Fit indices of measurement and alternative models.

| Models             | $\chi^2/df$ | GFI   | AGFI  | TLI   | CFI   | RMSEA |
|--------------------|-------------|-------|-------|-------|-------|-------|
| Four-factor model  | 2.54        | 0.948 | 0.916 | 0.963 | 0.973 | 0.065 |
| Three-factor model | 24.43       | 0.706 | 0.551 | 0.442 | 0.569 | 0.253 |
| Two-factor model   | 27.90       | 0.651 | 0.487 | 0.359 | 0.486 | 0.271 |
| One-factor model   | 32.81       | 0.565 | 0.372 | 0.243 | 0.380 | 0.295 |

Three-factor model: sustainable leadership and procedural knowledge were combined; Two-factor model: sustainable leadership and procedural knowledge were combined and compassion and wellbeing were combined; GFI, goodness of fit index; AGFI, adjusted goodness of fit index; TLI, Tucker-Lewis coefficient; CFI, comparative fit index; RMSEA, root mean square error of approximation.



determined using the square root of the AVE. The square root of the AVE of the construct should be larger than its correlations with other variables. The result indicates that the square root of the AVE of the selected constructs is greater than the correlations of constructs (Fornell and Larcker, 1981) (see Table 2).

The descriptive statistical analysis and correlations of variables are presented in Table 3. The correlation coefficients fall in the expected direction and provide early evidence for our study's findings. Positive and significant relationships exist between sustainable leadership and procedural knowledge ( $r = 0.23, p < 0.01$ ) and sustainable leadership and wellbeing ( $r = 0.19, p < 0.01$ ). There was a positive correlation between procedural knowledge and compassion ( $r = 0.41, p < 0.01$ ) and wellbeing ( $r = 0.21, p < 0.01$ ). Moreover, there was a strong correlation between compassion and wellbeing ( $r = 0.22, p < 0.01$ ). Initial support for the postulated relations was presented by these significant correlations in the expected direction.

To test our sequential mediated model and all direct and indirect hypotheses further, we used Hayes' process (Hayes, 2012), which according to Field (2013) is "by far the best way to tackle sequential mediation." According to our hypothesized model, procedural knowledge and compassion sequentially mediate the relationship between sustainable leadership and wellbeing. Therefore, we used a Hayes process model 6 to test our theory on a sample of 366 with parameter estimates based on 2,000 bootstrap samples. The bias-corrected and accelerated 90% confidence intervals were then examined. The results of the PROCESS analysis show that sustainable leadership significantly predict wellbeing  $\beta = 0.25$ , 90% CI [0.068, 0.422],  $t = 2.28, p = 0.02$  and procedural knowledge  $\beta = 0.23$ , 90% CI [0.144, 0.315],  $t = 4.42, p = 0.00$ , hence supporting hypothesis 1 and 2, respectively (see Table 4). Furthermore, the results show the procedural knowledge significantly promote compassion among employees  $\beta = 0.30$ , 90% CI [0.231, 0.365],  $t = 7.34, p = 0.04$ , hence supporting hypothesis 3. The findings also show that compassion significantly and positively predicts wellbeing of the employees  $\beta = 0.29$ , 90% CI [0.077, 0.511],  $t = 2.23, p = 0.03$ , hence supporting hypothesis 4. The results of hypothesis testing are depicted in Figure 2.

In addition to the direct paths, we find the significant indirect effect of procedural knowledge in the relationship between sustainable leadership and wellbeing (Effect = 0.028, 90% CI

[0.006, 0.056]), hence supporting hypothesis 5. Moreover, results indicated the significant indirect effect of compassion in the relationship between sustainable leadership and wellbeing (Effect = 0.033, 90% CI [0.009, 0.063], hence supporting hypothesis 6). Finally, the results of sequential mediation of procedural knowledge and compassion in the relationship between sustainable leadership and wellbeing are also significant and positive (Effect = 0.010, 90% CI [0.002, 0.020], hence supporting hypothesis 7).

## 5. Discussion

Organizations have grown more concerned with their employees' wellbeing in recent years as it can benefit them (Bakker and Oerlemans, 2011; Taheri et al., 2019; Busch et al., 2021). The current study examined the relationship between sustainable leadership, procedural knowledge, compassion and wellbeing of employees using the AMO framework (Appelbaum et al., 2000). The results of the current study supported our hypotheses: sustainable leadership is indirectly related to employee wellbeing via the sequential mediation of procedural knowledge and compassion. Study findings suggest that sustainable leaders can trigger procedural knowledge in a stressful work environment in healthcare institutions. Further, the role of a sustainable leader in facilitating a compassionate environment to beget compassion among employees leads to their wellbeing. These findings fill in gaps in the research on employee wellbeing while adding to earlier studies.

As a matter of fact, wellbeing is considered a vital component of positive organizational psychology (Bakker, 2015; Martín-del-Río et al., 2021) and is critical to the mental health of individuals (Coverdale and Long, 2015; Wilkes et al., 2019). From the contextual point of view, our study findings suggest that the effect of sustainable leadership on wellbeing is passed through enhancing the individuals' dynamics in the wake of crises like coronavirus pandemic, i.e., via sequential mediation of procedural knowledge and compassion. In line with AMO framework (Appelbaum et al., 2000; Kellner et al., 2019), the ability of healthcare workers is enhanced as a result of procedural knowledge accorded by sustainable leaders and as a result of which, the healthcare staff is motivated enough to develop the feeling of compassion among themselves, which leads to wellbeing among them. This outcome is consistent

TABLE 2 Convergent and divergent validity.

| Variables                 | CR   | AVE  | MSV  | ASV  | 1           | 2           | 3           | 4           |
|---------------------------|------|------|------|------|-------------|-------------|-------------|-------------|
| 1. Procedural knowledge   | 0.93 | 0.82 | 0.13 | 0.05 | <b>0.91</b> |             |             |             |
| 2. Sustainable leadership | 0.92 | 0.80 | 0.08 | 0.04 | 0.14        | <b>0.89</b> |             |             |
| 3. Compassion             | 0.77 | 0.53 | 0.13 | 0.09 | 0.36        | 0.28        | <b>0.73</b> |             |
| 4. Wellbeing              | 0.76 | 0.51 | 0.08 | 0.03 | 0.13        | 0.10        | 0.28        | <b>0.71</b> |

SL, sustainable leadership; PK, procedural knowledge; comp, compassion; WB, wellbeing; CR, composite reliability; AVE, average variance extracted; MSV, maximum shared variance; ASV, average squared shared variance. The bold values means square root of average variance extracted.



TABLE 3 Mean, standard deviation, and correlations.

| Variable          | Mean | SD   | 1     | 2       | 3       | 4    | 5      | 6      | 7      | 8 |
|-------------------|------|------|-------|---------|---------|------|--------|--------|--------|---|
| 1. Gender         | —    | 0.48 | 1     |         |         |      |        |        |        |   |
| 2. Age            | —    | 0.99 | 0.12* | 1       |         |      |        |        |        |   |
| 3. Marital Status | —    | 0.53 | −0.06 | 0.32**  | 1       |      |        |        |        |   |
| 4. Hospital Type  | —    | 0.47 | −0.08 | −0.54** | −0.19** | 1    |        |        |        |   |
| 5. SL             | 3.63 | 0.73 | 0.03  | −0.11*  | −0.04   | 0.08 | 1      |        |        |   |
| 6. PK             | 3.85 | 0.74 | 0.07  | −0.01   | −0.14** | 0.06 | 0.23** | 1      |        |   |
| 7. COMP           | 3.69 | 0.63 | 0.12  | −0.02   | −0.06   | 0.01 | 0.34** | 0.41** | 1      |   |
| 8. WB             | 4.91 | 1.45 | 0.03  | −0.29** | −0.08   | 0.10 | 0.19** | 0.21** | 0.22** | 1 |

*N* = 366. SL, sustainable leadership; PK, procedural knowledge; COMP, compassion; WB, wellbeing. \*\*Correlation is significant at the 0.01 level (2-tailed).

\*Correlation is significant at the 0.05 level (2-tailed).

TABLE 4 Results of sequential mediation (direct and indirect effects).

| Model pathways          | B         | SE     | t    | p     | LLCI  | ULCI  |
|-------------------------|-----------|--------|------|-------|-------|-------|
| Direct Effect           |           |        |      |       |       |       |
| H1: SL → WB             | 0.25      | 0.11   | 2.28 | 0.02  | 0.068 | 0.422 |
| H2: SL → PK             | 0.23      | 0.05   | 4.42 | 0.00  | 0.144 | 0.315 |
| H3: PK → COMP           | 0.30      | 0.04   | 7.34 | 0.00  | 0.231 | 0.365 |
| H4: COMP → WB           | 0.29      | 0.13   | 2.23 | 0.03  | 0.077 | 0.511 |
|                         | Estimated | BootSE |      | BLLCI |       | BULCI |
| Indirect effect         |           |        |      |       |       |       |
| H5: SL → PK → WB        | 0.028     | 0.015  |      | 0.006 |       | 0.056 |
| H6: SL → COMP → WB      | 0.033     | 0.016  |      | 0.009 |       | 0.063 |
| H7: SL → PK → COMP → WB | 0.010     | 0.006  |      | 0.002 |       | 0.020 |

BootSE, Bootstrapped standard error estimate; BLLCI, Bootstrapped lower limit confidence interval; BULCI, Bootstrapped upper limit confidence interval; 90% bootstrap, 2,000.

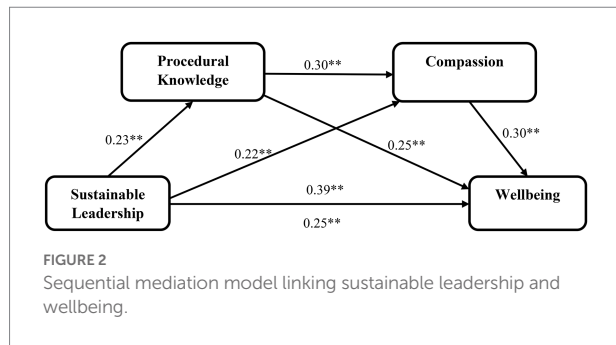
with the paradoxical view of happiness, which is understood as subjective wellbeing by literature (Martin, 2008). Further, our study findings suggest practical implications for fostering subjective wellbeing through individual dynamics.

## 5.1. Theoretical implications

The results of the current study contributed to the literature in several ways. First, previous studies have reported the predictive role of several leadership types on employee wellbeing like, ethical leadership (Kaffashpoor and Sadeghian, 2020; Sarwar et al., 2020), transformational leadership (Tafvelin et al., 2011; Hannah et al., 2020), authentic leadership (Cassar and Buttigieg, 2013; Maher et al., 2017), and servant leadership

(Panaccio et al., 2015). Furthermore, no studies have yet examined the role of sustainable leadership in fostering wellbeing among employees, especially in the healthcare context. Therefore, our first contribution is to fill this gap in the literature. Consistent with the AMO framework, the study findings demonstrated that sustainable leadership tends to enhance the ability, i.e., procedural knowledge and motivation and opportunity, i.e., compassion among healthcare workers. Sustainable leadership practices are precursors of employees' wellbeing. These findings are consistent with prior studies (Hendriks et al., 2020; Choi, 2021), asserting that contextual settings established by leadership are an excellent predictor of wellbeing.

Second, our study extends the understanding of psychological mechanisms built in previous studies (Choi, 2021; Lee and Rhee,



2021) by which sustainable leadership, especially in hospital settings, is able to bring about subjective wellbeing among healthcare workers in times of crisis situations like coronavirus pandemic. Sustainable leadership can act as a stimulus for building procedural knowledge, which can play a crucial role in developing the feeling of compassion among healthcare workers and enhancing their motivation and opportunities in line with the AMO model. Our integrated model with sequential mediation of procedural knowledge and compassion suggested that the dynamic process of bringing wellbeing among employees is not just directly due to leadership but also creating a learning environment to enhance procedural knowledge and promote employee compassion.

Third, our results provide novel insight into the importance of contextual as well as individual dynamics in predicting wellbeing of employees in highly traumatic situations like the coronavirus pandemic. A recent study by Bialobrzeska et al. (2020) found a link between small acts of kindness and how well people feel in times of stress. In line with the AMO research framework (Appelbaum et al., 2000), we found that procedural knowledge afforded to healthcare workers create an environment of compassion, where everyone gets care from each other, hence posing a substantial contribution to the body of literature.

## 5.2. Practical implications

Our results pose practical implications for hospital administrators, policymakers and healthcare workplaces. First, to enhance the abilities and motivation of healthcare employees and improve their subjective wellbeing, hospitals must urge administrators to adopt sustainable leadership across all supervisory levels. This may require broadening their focus from merely meeting the organizational goals to caring about the wellbeing of workers. Healthcare managers must also encourage a learning, especially during traumatic situations like the coronavirus pandemic. In order to achieve this, they have to enhance the procedural knowledge through training programs about how to prevent the risks associated with the coronavirus pandemic. Similar findings were recently reported by Aharon et al. (2021), who demonstrated that training

sessions could help improve nurses' procedural knowledge. Furthermore, hospital administrators and managers might take surveys on the quality of procedural knowledge among workers to get the know-how about the effectiveness of their training.

Second, higher-level interventions should be conducted by leaders of healthcare institutions, providing more feedback to encourage frontline healthcare workers to enhance their tactical knowledge of how things are dealt with to strengthen their procedural knowledge. In this way, healthcare workers are encouraged to consider their working environment and supervisor relationship to enhance their knowledge about processes and activities. Owing to this perspective, traits of sustainable leadership can be opted for at the administrative level in times of crisis to reap the fruitful implication of the study's framework.

Third, from the point of view of compassion among healthcare workers, a supportive work climate should be promoted, which incorporates positive interpersonal relationships, consideration for one another, workplace autonomy and a specific focus on the wellbeing of workers. In addition, focused HRM practices should be done to create a learning environment to impart procedural knowledge and foster compassion in the workplace. For example, healthcare providers and hospital administrators can launch compassion training besides regular clinical training to foster a culture of kindness and compassion (Callea et al., 2022). The findings of our study reveal that compassion can have a positive relationship with subjective wellbeing, the policymakers and administrators should incorporate the element of compassion while dealing with employees.

## 5.3. Limitations and future research

Some limitations of the current study provide the scope for future research. First, cross-sectional data used in this research does not allow for establishing the casualty between sustainable leadership, procedural knowledge, compassion and subjective wellbeing fully. Although the primary direction of effect follows the direction shown by other research using the AMO framework, longitudinal analysis of the study variables in the future would yield more meaningful cause-and-effect relationships.

Second, a possible single-method bias might be present when using a self-report questionnaire. We assure anonymity to the participants of the study in order to lessen the bias caused by social desirability. Future research, however, will be able to continue the same contention using a new measuring technique, such as, for instance, a daily diary investigation of what employees perform throughout their shifts.

Furthermore, because the surveys were only given to Pakistani frontline healthcare workers, i.e., doctors and nurses, it is possible

that the results cannot be generalized to other nations. A future study might thus concentrate on specific industries while extending to other countries.

Finally, future studies using representative samples may examine the generalizability of these findings in representative groups or use additional leadership styles to learn more about how they affect subjective wellbeing in a comparative manner.

## 6. Conclusion

Sustainable leadership is receiving more attention as it is related to increasing the workers' subjective wellbeing. The AMO framework served as the foundation for this study, which focused on the significance of sustainable leadership in assisting healthcare staff in successfully achieving subjective wellbeing *via* procedural knowledge and compassion during traumatic times. Further research to improve followers' wellbeing may concentrate on developing leaders to incorporate the elements of servant, authentic and ethical leadership hence making up sustainable leadership and persuading sustainable leaders to concentrate on providing a learning and compassionate work environment.

## Data availability statement

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

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## Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

## 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.

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## Supplementary material

The Supplementary material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2022.1039456/full#supplementary-material>

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## OPEN ACCESS

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## SPECIALTY SECTION

This article was submitted to  
Organizational Psychology,  
a section of the journal  
Frontiers in Psychology

RECEIVED 30 November 2022

ACCEPTED 15 February 2023

PUBLISHED 07 March 2023

## CITATION

Bonde EH, Mikkelsen EG, Fjorback LO and  
Juul L (2023) The impact of an organizational-  
level mindfulness-based intervention on  
workplace social capital and psychological  
safety: A qualitative content analysis.  
*Front. Psychol.* 14:1112907.  
doi: 10.3389/fpsyg.2023.1112907

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# The impact of an organizational-level mindfulness-based intervention on workplace social capital and psychological safety: A qualitative content analysis

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**Background:** Through the past decades, the mental health of the European population has been continuously declining. Social relations in various spheres of life, including workplace settings, have been shown to impact mental health. Mindfulness-based stress reduction (MBSR) has been found effective in enhancing well-being, and reducing perceived stress, and symptoms of depression and anxiety. Research into mindfulness-based interventions (MBIs) in workplace settings has shown that these interventions may positively affect workplace outcomes, such as interpersonal relations. However, research regarding the organizational impacts of MBIs is still nascent. The objective of this study was to investigate how an organizational-level mindfulness-based intervention (MBI) including a workplace-adapted MBSR programme may impact workplace social capital and psychological safety.

**Methods:** Four small and medium-sized private companies were included in this study, representing 368 employees and managers. The intervention consisted of three steps: 1. Mandatory participation in introductory sessions on mental health and mindfulness, 2. Voluntary participation in a 10-week workplace-adapted MBSR programme, and 3. A workshop for selected employee representatives and managers on further implementation of mindfulness. Data was collected using pre and post-intervention focus group interviews. In total, 27 interviews including 76 respondents were conducted. Verbatim transcription was performed. Data was analyzed using deductive content analysis with theoretical frameworks for social capital and psychological safety.

**Results:** The analysis resulted in three main categories: 1. Social capital (1.1. bonding social capital, 1.2. bridging social capital, 1.3. linking social capital), 2. Psychological safety, and 3. Emergent theme: The role of lockdown on the perceived organizational impact of a workplace MBI. The greatest impact was found relating to the bridging social capital, i.e., social capital between departments, and psychological safety among colleagues at the same level of employment.

**Conclusion:** The results indicate that company participation in this organizational-level MBI including a workplace-adapted MBSR programme may positively impact social relations at work, especially the bridging social capital and psychological

safety between colleagues at the same level of employment. These results may have been influenced by lockdowns due to the COVID-19 pandemic.

#### KEYWORDS

workplace, psychosocial work environment, mindfulness, mental health promotion and prevention, qualitative methods, social capital, psychological safety

## 1. Introduction

The mental health of the European population has been eroding through the past decades (WHO, 2018), and data from the Global Burden of Disease demonstrate a global increase in disability adjusted life years (DALYs) due to mental disorders during the past 30 years (GBD Mental Disorders Collaborators, 2022). Previous research has shown social relations to be of great importance to mental well-being (Roffey, 2021). As such, positive social relations are associated with higher levels of well-being, and have been seen to have a buffering effect on mental disorders, such as anxiety (Teo et al., 2013) and depression (Santini et al., 2015). Conversely, negative social relations are associated with poor mental health outcomes and ultimately higher mortality (Holt-Lunstad et al., 2010). People engage in social relations of shorter or longer duration in a multitude of settings, including the workplace. Of the World's population, about 60% are part of the work force (ILO, 2022). Thus, interpersonal relationships in workplace settings are likely to affect the well-being of a large part of the World's population. Indeed, previous research has shown that negative social relations at work, such as interpersonal conflict, workplace bullying, social isolation, and a lack of social support pose a serious threat to the mental health of employees and managers (Mikkelsen et al., 2020; WHO, 2022). Accordingly, there is a potential preventative and health promoting gain by implementing interventions that may ameliorate or enhance social relations in workplace settings.

A relevant research area to look to when aiming to positively affect social relations in workplace setting is workplace social capital. The concept of social capital refers to “[...] features of social organisation such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit” (Putnam, 1995). Research shows that low workplace social capital may be associated with decreased well-being, and increased psychological stress and depression (Pattussi et al., 2016). Thus, impacting workplace social capital may potentially affect employees' and managers' mental health positively.

Woolcock and Narayan (2000) and Szreter and Woolcock (2004) divide social capital into three categories; bonding social capital, bridging social capital, and linking social capital. Bonding social capital refers to the social capital within a group with a shared social identity, for example, a team. Bridging social capital refers to the horizontal social capital between groups, for example, two different departments within the same organization. Linking social capital refers to the vertical social capital between people who engage in interactions characterized by a formal or informal difference in power, for example, managers and employees (Szreter and Woolcock, 2004).

The concept of social capital is multi-faceted entailing both networks, norms, and trust as key-features affecting social organizations such as workplaces. *Networks* refer to “ties that people

and organizations use over time to get access to the resources they need” (Schneider, 2009), *norms* are the normative way of doing things in an organization (Olesen et al., 2008), and trust is the willingness to be vulnerable, based on the expectations that others will react favorable to this vulnerability (Edmondson, 1999). According to Edmondson (2004), as a descriptor of the quality of interpersonal relations, trust relates to longer time perspectives, for example, several weeks from a given time point. Thus, trust entails a general feeling of trust in others to behave in a certain way, for example, to behave favorably to individual displays of vulnerability (Edmondson, 2004). However, the level of trust in a given workplace relationship does not necessarily offer insights into employees' or managers' feelings of being psychological “safe” in specific situations, for example, feeling safe that one will not be scolded for blunders at work or for raising a difficult issue (Edmondson, 2004).

When studying shared feelings of being psychological safe within given work-spheres, the concept of *psychological safety* may be employed. Psychological safety concerns the individual or shared feeling of how others (e.g., co-workers) will react when difficult subjects are raised, blunders are made, or someone suggests a different way to approach a work problem (Edmondson, 2004). As such, psychological safety is defined as “individuals' perceptions about the consequences of interpersonal risks in their work environment” (Edmondson, 2004). Hence, in groups with a high degree of psychological safety, group members, such as employees and managers within a department, would for example, feel safe to suggest new ways of doing things, and admitting to blunders. On the contrary, in groups with a low degree of psychological safety, group members may fear admitting to blunders or providing feedback to other team members. Thus, the concept of psychological safety may contribute to a more in-depth understanding of the general level of trust within an organization that might be captured by solely investigating workplace social capital.

Improving the workplace social capital and psychological safety and thereby enhancing mental well-being may be approached in a multitude of ways. Mindfulness-based interventions (MBI) have been found to be among the most effective psychological interventions to improve mental well-being (van Agteren et al., 2021). Mindfulness is defined as “... the awareness arising through paying attention on purpose in the present moment, non-judgmentally, in the service of self-understanding, wisdom, and compassion” (Kabat-Zinn, 2018). Previous research has also demonstrated MBIs in workplace settings to be effective in enhancing well-being as well as reducing perceived stress and self-reported symptoms of depression and anxiety (Vonderlin et al., 2020). Furthermore, a recent integrated review of the effect of mindfulness in the workplace demonstrated effects on both work-related well-being and organizational outcomes, such as enhanced leadership qualities and better interpersonal relationships

(Panditharathne and Chen, 2021). On the basis of findings from previous research, the World Health Organization (WHO) mentions 5 MBIs as potential beneficial interventions to strengthen mental health in the workplace in their recent publication from Autumn 2022 (WHO, 2022).

Where the effects of MBIs on the mental health of individuals are well-documented (De Vibe et al., 2017; Panditharathne and Chen, 2021; van Agteren et al., 2021), less is known about the potential impact of such MBIs on entire organizations. However, based on the evidence of effects of MBIs on individuals, Good et al. (2015) propose mindfulness to be effective in improving the psychosocial work environment. Being purposefully aware in the present moment allows individuals to notice when the attention is wandering and to kindly bring the attention back to the present moment (Dahl et al., 2020). In a study by Killingsworth and Gilbert (2010), the authors find that humans are only mentally present in what they are doing approximately half of the time (Killingsworth and Gilbert, 2010). Being on this mental time travel may have consequences for individuals' relationships. When one is unaware of thoughts, feelings, or mood, this may lead to automatic reactions and to not responding constructively to any given social situation (Kabat-Zinn, 2013; Crane et al., 2017). For example, one could be thinking about other things, while having a conversation, which would prevent one from really listening to the other person. Practicing mindfulness may cause a shift in how individuals relate to, e.g., their thoughts, perceptions and feelings as well as to outer circumstances, including social relations (Crane et al., 2017). This competence is called meta-awareness (Dahl et al., 2020). Meta-awareness may enhance individuals' possibility of responding more skillfully. Thus, when an individual is aware of his or her physical and emotional state, it allows for a greater awareness and understanding of others and how others act (Glomb et al., 2011). In social situations, these competencies may enable individuals to listen more actively and not get distracted, for example, during a conversation (Dahl et al., 2020), or to respond in a reflected manner instead of automatically reacting (Kabat-Zinn, 2013). Accordingly, in an integrative review on mindfulness and social sustainability, Sajjad and Shahbaz (2020) found that mindful individuals may affect workplaces at an organizational level by means of enhanced pro-social behavior and improved interpersonal relationships (Sajjad and Shahbaz, 2020). Proposed mediators of the association between mindfulness and interpersonal relations are, for example, reduced number conflicts, improved communication and higher levels of empathy and compassion (Good et al., 2015). Hence, mindful individuals may impact interpersonal relationships in the workplace (Sajjad and Shahbaz, 2020; Panditharathne and Chen, 2021). As workplace social capital and psychological safety are both social, interpersonal constructs, changes in relationship quality following an MBI may be reflected by changes in the workplace social capital and psychological safety.

Mindfulness-based stress reduction (MBSR) is an 8-week curriculum-based programme delivered by a trained MBSR teacher. The programme entails a total of nine sessions: eight weekly 2.5 h sessions and one 7-h silent retreat day. Importantly, MBSR is a group-based intervention delivered in groups of up to 30 individuals. The MBSR programme includes experience-based knowledge of, for example, how people perceive social situations differently, and the ability to view challenging interactions from the other person's perspective (McCown et al., 2010; Kabat-Zinn, 2013; Santorelli, 2014).

Moreover, throughout the 8-week programme, the MBSR teacher focusses on creating a safe and trusting group environment. We propose that this explicit focus on a safe and trusting environment for sharing one's experiences may have an independent influence on the workplace social capital and psychological safety as trust and safety are key elements of these two theoretical concepts (Putnam, 1995; Edmondson, 1999). According to the Medical Research Council, to support a mental health promoting environment, interventions may effectively target entire organizations and not merely selected groups within organizations (Skivington et al., 2021). By implementing interventions at an organizational-level, these interventions may facilitate system change, and hence result in healthier work environments (Skivington et al., 2021). Based on theoretical assumptions and findings from previous research, the purpose of the present study was to investigate if and how the social capital and psychological safety may be impacted by company participation in an organizational-level MBI including a workplace-adapted MBSR programme. Specifically, we propose that organizational participation in an MBSR programme may affect the psychosocial work environment through improvements in interpersonal relationships in the workplace. We propose that these improvements may be brought about by enhanced awareness of, e.g., one's own thoughts, feelings, and mood, patterns of reaction, and attention to others. Moreover, we propose that the explicit focus on creating safe environments in the MBSR programme may impact interpersonal relationships and thus influence the workplace social capital and psychological safety. Therefore, two research questions relating to how mindfulness may affect interpersonal relationships in the workplace were explored: (1) how might the organizational norms, networks, and trust be impacted by an organizational-level, mindfulness-based intervention?, and (2) how might this intervention affect employees' and managers' perception of safety regarding interpersonal risk-taking?

## 2. Methods

### 2.1. Design

The present qualitative study was part of a quasi-experimental multi-method trial that investigated the feasibility and impact of implementing workplace-adapted MBSR at organizational level in small or medium-sized Danish companies. The present study concerns the interpersonal impact. Prior to commencement, the trial was registered with the Danish Data Protection Agency (2016-051-000001/1715).

### 2.2. Participants and recruitment

To be eligible for inclusion in the trial, companies had to be small or medium-sized companies (SMEs), with 10-249 employees and managers, either partly or entirely based in Denmark. To enroll, top management in each company had to consent to the employees and managers participating in the intervention during working hours, or alternatively give monetary compensation for the time spent participating outside working hours.

In total, four SMEs enrolled in the trial, each representing a different business area: Media Company, chain of restaurants,

Production Company, and an IT-company. Company 1–3 represent companies based entirely in Denmark, while Company 4 is based partly in Denmark but operates with offices worldwide.

Multi-channel recruitment of the companies were conducted using digital newsletters from trade organizations, direct contact to seemingly relevant SMEs, social media posts on LinkedIn, Twitter and Facebook, and posts on the Danish Center for Mindfulness's webpage. Recruitment were ongoing from January 2020 to October 2020. When a company expressed interest in participating, an initial meeting was held between project manager, the last author LJ, an MBSR teacher and representatives from the company management. At this meeting, the company representatives were informed that the intervention was to be at an organization level. Hence, participation in the intervention had to be offered to all employees and managers, and not solely offered to selected groups. Furthermore, the company management were informed that, as an obligatory part of the intervention, all employees and managers were to participate in a two-hour information session during working hours. Moreover, LJ emphasized the requirement that all employees and managers should have the opportunity to participate in a 10-weeks live online MBSR programme during working hours or alternatively receive compensation for the time spend outside working hours. Upon acceptance of these terms, a contract was signed by a company representative, most often a representative of the top management.

## 2.3. Intervention

The intervention in this study was a workplace-adapted MBI in three steps: (1) an obligatory two-hour introductory session concerning mental health and mindfulness for all employees and managers in each company. (2) Participation in a 10-weeks workplace-adapted live online MBSR programme delivered *via* Zoom to all self-selected employees and managers. (3) A workshop on further implementation of mindfulness in the companies for selected employee representatives and managers.

The two-hour introductory sessions were held either live online *via* Zoom (Company 1, 3 and 4) or at a company site (Company 2) according to the company's preference. The sessions consisted of a power point presentation regarding mental health, stress, mindfulness and research within this area. Furthermore, employees and managers were invited to engage in a brief seated meditation and standing yoga

practices during the introductory sessions. At the end of the sessions, employees and managers were offered the opportunity to sign up for participation in a 10-weeks workplace-adapted MBSR programme. The purpose of the obligatory introductory sessions was to provide information about mental health and mindfulness and to ensure that all employees and managers received the same information about the intervention.

To secure that the workplace-adapted MBSR programme entailed all active components of the original MBSR programme, while also aiming for optimal contextual fit, adaptations were made using [Crane et al.'s \(2017\)](#) framework for adapting MBIs to new contexts and/or populations. Hence, the content of this workplace adapted MBSR programme was structured according to the MBSR curriculum. However, the duration of the programme was 10 weeks with weekly 1.5 h sessions. Adaptations from the original MBSR programme to the workplace-adapted MBSR programme is illustrated in [Table 1](#). A trained MBSR teacher delivered the 10-weeks workplace-adapted MBSR programme live online *via* Zoom to groups of 5–22 managers and/or employees. In two out of four companies, employees and managers were divided into different groups. In the other two companies, this division was either not feasible due to a small number of managers, or because of a request made by the company to have mixed employee-manager groups. The MBSR teaching includes an experienced-based learning approach, where participants are invited to practice mindfulness through, for example, meditation, body scan and yoga practices. Moreover, the MBSR teachers engage participants in inquiry regarding direct experiences during these mindfulness practices ([Crane et al., 2017](#)). To ensure fidelity, the third author (LOF) supervised all MBSR teachers who delivered one or more of the 10-weeks workplace-adapted MBSR programmes throughout the intervention. Supervision was done according to the Mindfulness-based interventions: teaching assessment criteria (MBI-TAC; [Crane et al., 2021](#)).

A workshop on further implementation of mindfulness in the companies was offered to all four companies. The workshop was hosted by the second author (EGM), the first author (EHB), and an MBSR teacher. At the workshop, participating employee representatives and managers engaged in in-group discussions of *if* they were interested in further implementation of mindfulness and *if* so, *how* they could imagine this might work best within their company. These in-group discussions led to plenary discussions, and ended with a drafted plan for further implementation of mindfulness in the respective company.

TABLE 1 Structural differences between the original MBSR programme and the workplace-adapted MBSR programme.

|                          | Workplace-adapted 10-weeks MBSR programme          | Original MBSR programme   |
|--------------------------|--|---|
| Duration of programme    | 10 weeks   | 8 weeks   |
| Duration of sessions     | 1.5 h  | 2.5 h   |
| Total number of sessions | 10 sessions  | 9 sessions  |
| Silent retreat session   | Imbedded within the 10 sessions<br>Duration: 1.5 h | Added as the 9th session in the 8-week programme<br>Duration: 7 h |

MBSR: mindfulness-based stress reduction.

## 2.4. Respondents

Respondents were sampled using the purposive sampling method; Matrix sampling ([Campbell et al., 2020](#)). By deploying this method at baseline, EHB reached out to a company representative, typically a person from the management team, and asked this person to invite employees and managers to engage in a focus group interview. The company representative was asked to sample employees and managers that represented both those interested in mindfulness and those not to ensure different perspectives in the focus groups and hence further discussions.

Sampling respondents for the post-intervention focus groups interviews, the Matrix sampling method was again utilized. However,



now the MBSR teachers, who had delivered one or more workplace-adapted MBSR programme(s) in the company, were asked to propose employees and managers, who in their opinion would contribute with valuable information regarding the research question. It was made clear to the MBSR teachers that the proposed respondents were to represent both those highly engaged and those who were less engaged during the 10-weeks workplace-adapted MBSR programme. Furthermore, for the post-intervention focus groups, both employees and managers who participated in a 10-week workplace-adapted MBSR programme, non-participants and those who dropped out during a 10-week workplace-adapted MBSR programme were invited to be respondents. In total, 76 respondents participated in a focus group/individual interview at baseline and/or post-intervention. Across companies, 53.9% of respondents were female.

## 2.5. Data collection

Data was collected using semi-structured focus group interviews with 2–5 respondents in each. Focus groups were chosen to enable investigation into the reported individual experiences and shared meaning between respondents. In one of the companies, there was only one manager, and hence, both baseline and post-intervention management interviews in this company was conducted as individual semi-structured interviews. EGM and EHB collected all data, with EGM as the primary moderator and EHB as substitute moderator and observer. In total, 14 baseline interviews (13 focus groups, and 1 individual), and 13 post-intervention interviews (12 focus groups, and 1 individual) were conducted between March 2020 and May 2021. Upon commencement of each interview, respondents were informed about the purpose of the study, their possibility to withdraw at any time, and of the use and storage of data. Oral informed consent was obtained from all respondents.

EGM is an organizational psychologist and researcher. Moreover, EGM is a skilled interviewer and moderator with an extensive amount of experience in establishing safe interview environments. EGM has no previous either personal or professional experience with mindfulness. EHB has an MSc in Public Health, and has both knowledge of, and personal and professional experience with mindfulness and MBIs.

At baseline, the 14 interviews were conducted prior to implementation of the first intervention element. The interviews were performed using a semi-structured interview guide. The interview guide consisted of nine themes, four of which related to workplace social capital and psychological safety: (a) Company prioritization of employee well-being, (b) Collaboration, (c) Tone and communication, (d) The company's feedback culture. A question related to workplace social capital was, for example, *"How would you characterize working relationships in your company – do you collaborate well or is there sometimes problems?"*, while a question about psychological safety was, for example, *"If something needs to be corrected – or needs to be criticized – how is that done?"*

Post-intervention, the 13 interviews were performed following the workshop on further implementation of mindfulness. However, one of the companies did not wish to participate in such a workshop, and hence, the interviews were conducted following the 10-weeks workplace-adapted MBSR programme. The entire interview guide consisted of eight themes, of which three were related to the workplace

social capital and psychological safety: (a) Relations within the company, (b) prioritization of well-being and feedback culture, (c) how employees and managers experience the narrative of the intervention within the company. A question related to workplace social capital was, for example, *"Do you feel that the mindfulness course has affected the way you work together in your company? If yes, how?"*, while a question related to psychological safety was, for example, *"Since the course started, have you then noticed any changes in how you or other people give or receive criticism?"*

Baseline interviews in the four companies took place from February 2020 to November 2020. Post-intervention interviews were conducted from June 2020 to May 2021. Due to the Covid-19 pandemic, two major lockdowns affected this study. Therefore, 19 interviews (70.4%) were performed live online *via* Zoom. These interviews were all recorded using the record function in Zoom and downloaded to a secure drive immediately after the interview. Eight interviews were conducted in-person at the respective workplace sites. These interviews were recorded using Dictaphone and uploaded to the same secure drive and subsequently deleted from the Dictaphone. Throughout the interviews, EHB took notes on atmosphere, sense of tone and appearances, and made initial analytical remarks in the notes.

## 2.6. Analysis

Initially, EHB performed verbatim transcription of all focus group interviews and individual interviews, including noting breaks, length of pauses and tone of voice. Primary analysis was performed using deductive content analysis (Elo and Kyngäs, 2008). This method was chosen because it offers a systematic approach to condensing large amounts of data and enables discussion of possible explanations of why and how mindfulness may impact social capital and psychological safety (Lyhne and Bjerrum, 2021). Hence, two structured categorization matrices were made; one for social capital (Table 2) and one for psychological safety (Table 3) (Elo and Kyngäs, 2008). The matrix for social capital was constructed according to work of

TABLE 2 Categorization matrix, social capital.

|   | Type of social capital                                     |   |   |
|---|--|---|---|
|   | Bonding  | Bridging  | Linking   |
| What characterizes the experienced social capital of the participating companies? | What characterizes the networks within teams/ departments? | What characterizes the networks between teams/ departments? | What characterizes the networks between managers and employees? |
|   | What characterizes the norms within teams/ departments?    | What characterizes the norms between teams/ departments?    | What characterizes the norms between managers and employees?    |
|   | What characterizes the trust within teams/ departments?    | What characterizes the trust between teams/ departments?    | What characterizes the trust between managers and employees?    |

TABLE 3 Categorization matrix, psychological safety.

|   | Psychological safety   |                                      |   |
|---|--|--------------------------------------|---|
|   | To which extent does one feel, he or she can ask for help on a specific problem? | How are mistakes or errors received? | How is the feedback culture; appraisal and criticism? |
| What characterizes the degree of experienced psychological safety within participating companies? |  |                                      |   |

TABLE 4 Examples of the use of research questions from the categorization matrices to identify and extract meaning units.

| Theoretical construct | Research question  | Meaning units  |
|-----------------------|--|--|
| Social capital        | What characterizes the networks between teams/departments?                       | <i>"[Department X] and [Department Y] had a good collaboration before, (...) but as I say, I also think, it's become closer, well we talk even more now, eh, and spar a lot more now, I think, during the past three months"</i> (Male office employee, Company 1) |
| Psychological safety  | To which extent does one feel, he or she can ask for help on a specific problem? | <i>"Yeah, I think we have become like, a bit more open towards each other, also about things that may be a little vulnerable. That we can use each other. That we can lean on each other"</i> (Female middle manager, Company 2)                                   |

Woolcock and Narayan's on the three types of social capital; bonding, bridging and linking social capital (Woolcock and Narayan, 2000). The matrix for psychological safety was constructed according to the work of Edmondson on psychological safety within teams and organizations (Edmondson, 1999; Nembhard and Edmondson, 2011). Firstly, EHB carefully read through all transcript, and preliminary analytical notes were made. Secondly, meaning units from the transcripts were categorized using the categorization matrices. The categorization matrices were developed using theory of the constructs of workplace social capital (including bonding, bridging, and linking social capital) and psychological safety. The categorization matrices were used to enable identification and extraction of interviewee responses that informed of either the workplace social capital

(bonding, bridging, and linking) or psychological safety. Thus, transcripts were read through with the research questions from the categorization matrices in mind. Each time an interviewee response informed of either the workplace social capital or the psychological safety, this meaning unit was extracted. Meaning units were then categorized according to which research question they informed of (workplace social capital, including bonding, bridging, and linking, or psychological safety). For examples of the use of the categorization matrices (see Table 4). EHB and EGM independently categorized a part of the data, and subsequently compared categorized meaning units. Whenever there was divergence in categorization, agreement was reached upon discussion. EHB then conducted the categorization on the rest of the data. Following categorization, inter-coder validation between EGM and EHB was performed. This resulted in an inter-coder agreement of 72.2%. Disagreement was most often caused by differences in interpretation. Hence, agreement was reached on all categorizations upon consultation with notes, full transcripts, and discussion. Throughout the analysis, EGM and EHB remained open to emerging themes of importance to the research question.

### 3. Results

Firstly, an overview of the baseline social capital and psychological safety in the workplaces will be presented. Secondly, results from the analysis of post-intervention data are presented in three main categories 1. Social capital (with three sub-categories: 1.1. Bonding social capital, 1.2. Bridging social capital, 1.3. Linking social capital), 2. Psychological safety, and 3. Emergent theme: The role of lockdown on the perceived organizational impact of a workplace MBI.

#### 3.1. Overview of the social capital and psychological safety at baseline

Pre-intervention focus groups provided insights to the social capital (bonding, bridging and linking) and the psychological safety in the companies at baseline. Across companies, employees and managers indicated a high level of bonding social capital within team/departments, where employees took notice of one another and offered help to those who needed it. A male employee in Company 4 exemplified this:

"I ... just to see if there is anything, we could do to help. Just to ease off ... ease off their workload" (Male office worker, Company 4)

However, the bridging social capital was strained at baseline in all four companies. Across the four companies, employees and managers reported difficulties in the collaboration between departments. Thus, the interdepartmental networks were under pressure. The strained collaborations were mainly centred on a lack of understanding of why the employees in the other departments acted the way, they did, as illustrated by a female employee in Company 3:

"(...) we're in the [x department] and those, who are in [y department], (...) we don't think alike. So, we're often like ... it might be a bit exaggerated, but we don't understand why they're not [delivering] what we need" (Female office worker, Company 3)

Yet, in Company 2, the interviewees expressed that the collaboration between departments was good, illustrated by descriptions of how they would help each other out. Nonetheless, during work intensive times, this ability to help each other appeared to diminish.

The linking social capital was high at baseline in all four companies with managers expressing that they cared about their employees and their well-being. Importantly, employees echoed this experience across companies, especially regarding their immediate manager. Thus, the norm in all four companies was that the management cared about the employees' well-being, and the employees trusted that their manager did indeed care. In Company 3, however, a female production worker reported not knowing if top management was interested in employee well-being, indicating a lower level of trust between employees and top management:

*"I think, well, I feel, that my immediate manager focusses on it [employee wellbeing, red.], (...) but the top manager, I have no idea, that's for sure" (Female production worker, Company 3)*

With respect to psychological safety, interviewees from one company expressed that the psychological safety at baseline was high. This high degree of safety was exemplified by feeling safe approaching one's immediate manager, talking about difficult subjects such as stress as well as acknowledging each other for a job well done. Interviewees from the remaining companies initially reported that it was acceptable to make mistakes and safe to provide negative feedback to colleagues. However, as each interview progressed, interviewees from three companies gave examples of strained psychological safety, for example, that they feared expressing disagreement with the top management, or feared social stigmatization if they violated group norms. Furthermore, two employees at Company 2 independently expressed not wanting to tell anyone at work if they felt stressed, as others might perceive them as being incompetent:

*"I think, if you tell someone that you're stressed, it's like saying 'I don't know how to do what I'm doing' (...). I don't think anyone wants to tell if they're stressed" (Male employee, Company 2).*

## 3.2. Post-intervention categories

Using deductive qualitative analysis, two main categories and three sub-categories were deduced; (1) *Social capital* with the subcategories: (1.1) *Bonding social capital*, (1.2) *Bridging social capital* and (1.3) *Linking social capital*, and (2) *Psychological safety*. Throughout the analysis, EGM and EHB were open to emerging themes. Thus, an emergent theme resulted in a third main category; (3) *Emergent theme: The role of lockdown on the perceived organizational impact of a workplace MBI*. In only one instance, an employee reported having experienced a potential negative impact on bonding social capital. Neither employees nor managers reported any other potential negative effects. Some respondents reported not having noticed any changes. However, the majority of respondents

offered multiple examples of positive changes in both the social capital and psychological safety.

### 3.2.1. Social capital

#### 3.2.1.1. Bonding social capital

At baseline, employees and managers across companies demonstrated a high degree of bonding social capital, expressed by, for example, helping colleagues within one's own department. Following the intervention, employees and managers in all four companies reported not having experienced any changes in these regards. However, in Company 1 and Company 4, one or more employees described a positive change concerning their relationship with immediate colleagues, such as, for example, feeling closer to them:

*I (interviewer): "... as a result of this course, have you then become more aware of how your colleagues are doing, or is it the same as before?"*

*IP: "Especially those that I have worked with most. (...) those people, I'm now more in touch with [how they're doing] (Female office employee, Company 1)*

Results thus indicate that participation in the workplace-adapted MBI may positively influence the bonding social capital at team and departmental level—even when the bonding social capital was high at baseline. This effect was, however, limited to strengthened *networks* within teams or departments. Based on the questions posed, and the interviewees' responses, there were no indications of changes to norms or trust within teams or departments. Furthermore, as mentioned one employee from Company 4 mentioned frictions between those team members who participated in an MBSR programme, and those who did not:

*"(...) I brought it [further implementation of mindfulness in the organization] up at a Teams meeting, I had with my team, and [I] experienced several people who objected to it and asked how they [non-participants] could be compensated for the time, we [participants] spend practicing mindfulness" (Male office employee, Company 4)*

#### 3.2.1.2. Bridging social capital

Analyses of baseline groups interviews revealed strained interdepartmental collaborations across all four companies, as expressed primarily by an experienced lack of understanding of each other's work tasks between departments. However, in post intervention interviews, managers and employees across companies expressed that collaboration between departments had increased just as interdepartmental relations had been improved. In Company 1 and Company 4, employees explicitly described how collaboration had improved because of an increase in interdepartmental conversations, which also resulted in constructive discussions concerning work related tasks. A male office employee in Company 1 expressed the following:

*"[Department X] and [Department Y] had a good collaboration before, (...) but as I say, I also think, it's become closer, well we talk even more now, eh, and spar a lot more now, I think, during the past three months" (Male office employee, Company 1)*

In Company 2 and Company 3, changes directly related to relations between departments were mainly apparent within management groups. Compared to baseline, relations between managers representing different departments improved following the intervention. These changes in bridging social capital indicated a higher level of interdepartmental trust, illustrated by a manager experiencing a greater ability to approach other managers.

*"... well ... we can easily walk up to each other and talk. We can come and say: 'Hey, do you have five minutes?', or 'I need some help'" (Male middle manager, Company 2)*

Moreover, managers in Company 3 also described an improved interdepartmental collaboration between managers. According to the interviewees, an increased understanding for each other's work tasks, resulting in better communication and fewer interdepartmental "clashes", was the main driver of this improvement.

*"I actually think that my work relationship with one of the others, who's also in the manager group, has improved, where sometimes, we've had some misunderstandings or clashes, (...) and he's gotten a better understanding of the context, I'm a part of" (Female manager, Company 3)*

While the above quote might be analyzed as an expression of bonding social capital within the manager group, it was clear from the interviews that the managers primarily identified themselves as being part of their respective departments, not the management team.

These examples of enhanced bridging social capital—at both employee level and management level—may be felt directly on, for example, improved understanding of each other's work tasks resulting in improved collaboration, as described above. However, an indirect effect of the intervention on the bridging social capital was evident in all four companies, where participation in the workplace-adapted MBI resulted in an enhanced feeling of knowing one's colleagues and—as illustrated here—a greater sense of connectedness within the company:

*"I feel, I bring it [mindfulness] with me to work, when I share it with others because of these [mindfulness sessions], and I think, that's such a good thing to share. Well, we know that we've been to the same place. That, I think, actually creates a sense of connectedness" (Female office employee, Company 4)*

Hence, owing to enhanced trust and/or networks between departments, the bridging social capital may be improved between employees as well as between managers through company participation in this organizational level, workplace adapted MBI. Furthermore, this improvement in bridging social capital may be demonstrated both directly through enhanced interdepartmental collaborations as well as indirectly *via* improved interdepartmental connectedness.

### 3.2.1.3. Linking social capital

At baseline, managers described that the linking social capital was high across all four companies, primarily indicated by a shared norm of caring about one's employees' well-being. Employees shared this experience. Hence, room for improvement was small in this regard. Following the intervention, there was still a feeling among employees in all companies, that their managers genuinely cared about the well-being of their employees, and that implementation of the intervention had emphasized this feeling. Moreover, one employee described experiencing his immediate manager as more able to listen to others and generally more caring:

*"now, we have a very strict boss, and she's very ... she's very strict with us, but as soon as you've got something that you want to unload, she's really sweet and really good at listening. And I don't know if this mindfulness has made her a better listener, but (...) she seems a lot more loving now and [more] listening" (Male employee, Company 2)*

An enhanced ability to listen to one's employees may facilitate greater trust between managers and employees. However, the respondents did not directly express this.

Across companies, several managers utilized skills learned through participation in the 10-weeks MBSR programme, such as enhanced awareness, when interacting with their employees, for example in one-to-one conversations:

*"I think, for me, it's [how mindfulness has affected the way you work] really the way I work with my employees. Well, (...) I continuously try to be aware when I have one-to-ones with them" (Female manager, Company 3)*

This renewed focus on being aware in meetings with one's employees may foster a strengthened relationship between management and employees. This could happen *via* changes in the norms of how managers and employees engage in these one-to-ones. Thus, participation in this workplace-adapted MBI may impact the linking social capital even in organizations with a high degree of linking social capital at baseline.

### 3.2.2. Psychological safety

Baseline group interviews revealed that in three of the companies, the psychological safety was strained in some regards. As such, employees reported not wanting to share with managers or colleagues if they felt stressed. Post-intervention interviews pointed to some improvements on psychological safety in these companies. As such, the psychological safety between colleagues appeared to have improved in most of the companies, with interviewees reporting a mutual feeling of being able to share with colleagues how they were feeling or if they had a bad day. Also, they reported being able to bring up difficult topics with colleagues:

*"(...) I feel that I can very easily tell my colleagues if I'm having a bad day (...). I feel like I can share everything with them, actually" (Female employee, Company 2)*



This feeling of psychological safety was also evident among manager colleagues within management, especially in Company 2. Here, the management team had increased their ability to make use of each other's strengths and actively share experiences:

*"Yeah, I think we've become like, a bit more open towards each other, also about things that may be a little vulnerable. That we can use each other. That we can lean on each other" (Female middle manager, Company 2)*

However, a subgroup of employees from one department in one company expressed that that it might not be legitimate to share how they were doing:

*"I don't think, we do that [share how we're doing]. This is a ... there might be some girls here, but it's a male dominated workplace" (Female production employee, Company 3)*

The above quote seems to indicate that the interviewed subgroup of women felt that the possible impact of this workplace-MBI on psychological safety may have been hampered as a consequence of the department culture being male dominated. In this particular department, only a small proportion of the employees participated in a 10-weeks MBSR programme. Thus, an additional explanation to the lack of perceived impact on psychological safety might be that only few employees in this department participated in a 10-weeks MBSR programme.

At baseline, interviewees in all four companies described that it was acceptable to make mistakes and to provide feedback to one's colleagues, which is an indication of high psychological safety. At post-intervention, no changes regarding the acceptability of mistakes or feedback culture were evident in these companies. Yet, as was seen at baseline, employees from one company still expressed a fear of providing feedback to top management:

*"(...) and then I thought that actually I didn't dare approach her [manager] myself, because I had heard other stories about [how] you got your head ripped off, and that it's not the easiest conversation to have with her" (Female office employee, Company 1)*

Hence, interviews indicate that company participation in this workplace adapted MBI may impact the psychological safety between colleagues at the same level of employment. However, across the four companies, no impact was evident in the expressed psychological safety between management and employees.

### 3.2.3. Emergent theme: The role of lockdown on the perceived organizational impact of a workplace MBI

Through the analysis, it became apparent that the lockdowns due to the COVID-19 pandemic may have affected the impact of the intervention on, for example, workplace social capital and psychological safety. The intervention was provided to the four participating companies over the course of 13 months, from March 2020 to April 2021. Hence, the intervention was delivered during several lockdowns due to COVID-19 restrictions. Our analysis gave insights into how these lockdowns may have affected interviewees' perceptions of the interventions' impact on social capital and

psychological safety. Three out of four companies were particularly affected by lockdowns with employees and managers working from home during the intervention. An objective of this workplace-MBI was to enhance social relations through improved workplace social capital and psychological safety. With employees and managers working from home, and thus being isolated physically from each other, this enhancement in social relations may be challenged, since the amount of social contact was reduced to a minimum. This tendency may also affect how well the impact among participating employees and managers diffuses to the non-participants and thereby the entire organization. A non-participating male employee from Company 3 talked about this potential lack of diffusion:

*"I think that if we'd been together, and we'd sat together in the canteen and the like, well, then there would probably have been some talk [relating to mindfulness]. But seeing we've all been isolated, then it becomes very ... well ... when you're in a meeting and the like, then it's only work-related and talk about the things we need to solve" (Male employee, Company 3)*

As such, in these companies, the interventions' impact on organizational outcomes might in fact be lower than what could have been the case, if employees had been able to meet at work had there not been lockdowns during the intervention period. However, the effect of COVID-19-lockdowns on this study's results remains unknown and a cause for speculation.

## 4. Discussion

The main purpose of this study was to examine the potential impact of an organizational-level workplace-MBI including a workplace-adapted MBSR programme on social capital and psychological safety. By applying deductive content analysis to the transcribed pre and post intervention focus group interviews, we gained insight into how this intervention could potentially impact the psychosocial work environment following changes in the social capital and psychological safety.

In this study, interviewees expressed a high degree of both bonding and linking social capital at baseline, leaving only a small room for improvement within these domains. However, the bridging social capital was strained in all four companies. Post-intervention data indicate that the bridging social capital may have been improved across companies, and that both managers and employees reported experiencing small positive changes to the bonding and linking social capital. The psychological safety was somewhat strained at baseline in three of the included companies. Post intervention, the psychological safety at the same level of employment—manager to manager or employee to employee—appeared enhanced.

Albeit the research area of mindfulness in the workplace is a budding field, the impact of mindfulness on specific psychosocial factors, such as social capital and psychological safety, is an even more uncharted territory. However, the results of the present study indicate changes in these two theoretical concepts following a workplace-MBI including a workplace-adapted MBSR programme. Thus, company participation in this intervention may have the potential to enhance workplace relations affecting the social capital and psychological safety in the workplace. Previous research on



mindfulness in workplace settings has found similar positive relational effects. Hence, mindfulness training has been found to foster intergroup prosocial behaviour (Berry, 2017; Sajjad and Shahbaz, 2020). The promotion of such behavior is proposed to be facilitated *via* enhanced empathy and reduced tendency to engage in “them” versus “us”-thinking (Berry, 2017). Similar to the present study, such prosocial behaviour may result in enhanced interdepartmental collaboration, understanding and trust. Moreover, research on mindfulness in workplace settings has demonstrated associations between high levels of mindfulness and lower levels of enacted incivility at work (Hülshager et al., 2021) as well as less moral disengagement (Brendel and Hankerson, 2021). Minimizing these negative relational characteristics may in effect enhance the psychosocial work environment and hence improve the mental well-being of employees and managers. In the present study, managers expressed being more aware and listening when they engage in conversation with their employees. In a qualitative study of a workplace-MBI on leader capabilities by Rupprecht and colleagues, the authors found similar results (Rupprecht et al., 2019). Similar to the present study, Rupprecht et al. (2019) found that managers experienced enhanced abilities to listen actively when engaging in conversations, and greater ability to maintain their attention during social interactions, such as in meetings. Hence, the relational impact of this workplace-MBI including a workplace-adapted MBSR programme is in line with previous research. Moreover, the quality of interpersonal relations—also in the workplace—impacts greatly on mental health and well-being (Holt-Lunstad et al., 2010; Teo et al., 2013; Santini et al., 2015; Dahl et al., 2020; Roffey, 2021; WHO, 2022). Therefore, the relational effects regarding especially bridging social capital and psychological safety between same-level colleagues may have the potential to contribute to improved mental health of employees and managers in workplaces.

It is noteworthy that MBSR is a complex intervention consisting of a number of activities. Hence, MBSR includes, for example, both the active ingredient, practice of mindfulness, and a group-based approach. One might argue that positive changes in the workplace social capital and psychological safety might have been brought about by simply creating a space for employees and managers to interact outside regular work related meetings or the likes. Put differently; might the same results have been obtained without the active ingredient, that is mindfulness? With no active control group, this question will inevitably remain unanswered. Nevertheless, according to mindfulness theory and previous research, mindfulness is linked to enhanced relational outcomes by means of, for example, increased self-regulation, attention, active listening as well as understanding and compassion for others (Glomb et al., 2011; Kabat-Zinn, 2013; Good et al., 2015; Rupprecht et al., 2019; Dahl et al., 2020). Some of these underlying competencies are also evident in the results of the present study, for example, improved active listening and understanding for and of others. Also demonstrated in another study from the present research project, participation in this workplace-MBI may improve the mental health skills of employees and managers (Bonde et al., 2022). Mental health skills are here understood as skills that serve as protection of one's mental health, such as emotion regulation, and engagement in social relations (WHO, 2012). Findings from that study indicate that following this workplace-MBI, employees and managers may develop an increased awareness of how others perceive things

differently from one self and be more responsive instead of reactive in social interactions (Bonde et al., 2022). These acquired skills are thus also in line with mindfulness theory and previous research. Therefore, it seems unlikely that the impact on workplace social capital and psychological safety could have been obtained without the active mindfulness component. However, the group-based mode of delivery is an intrinsic part of the MBSR programme, and hence, results from following an MBSR programme entails effects related to the intervention being group based (Mccown et al., 2010; Kabat-Zinn, 2013). Adding to this, the explicit focus on creating safe and trusting group environments that facilitates sharing of experiences, may also serve as an important component of the intervention to impact social relations in the workplace. This only strengthens the notion that MBSR may be merited even more in organizations, such as workplaces, where relations are of long duration and of great importance to our well-being.

Through the analysis it became apparent that the Covid-19 pandemic and the lockdowns resulting thereof might have affected the diffusion of organizational effects, causing potential dilution of the impact on workplace social capital and psychological safety. However, a more critical theoretical stance could be that the effects might be magnified by the lockdowns. This could be the case if colleagues had been separated for longer periods of time, and that simply re-connecting with one's colleagues might cause the perceived impacts on the workplace social capital and psychological safety. Yet, referring to the above argument that specific competencies related to mindfulness theory and findings from previous research (Glomb et al., 2011; Kabat-Zinn, 2013; Good et al., 2015; Rupprecht et al., 2019; Dahl et al., 2020) are evident in the results of this present study, this is deemed unlikely.

## 4.1. Strengths and limitations

This study was conducted in a close collaboration between mindfulness experts and an experienced work and organizational psychologist. Therefore, in-depth knowledge of both mindfulness and workplaces where represented in the research group, ensuring that both knowledge of the intervention, mechanisms and, context were sufficiently represented. Furthermore, one of the main strengths of this study was that the intervention was offered to all employees and managers in the respective four companies. By deploying this population-based approach, no groups were singled out as having a special need for this intervention, and were thus not stigmatized (Rose et al., 2008). Also, the workplace-adapted MBSR programme was systematically developed using best practice when adapting MBIs to specific contexts (Crane et al., 2017). Moreover, the study includes data from 76 respondents from four companies representing different business areas with interviews from both baseline and post-intervention. This has resulted in a large data material allowing for thorough understanding of how the social capital and psychological safety may be impacted by this workplace-MBI across business areas. Lastly, EGM did not have any pre-existing experience with mindfulness, neither personal nor professional. Hence, close collaboration between EGM and EHB ensured that the analysis did not rely on a preunderstanding of how mindfulness might

impact psychosocial factors such as social capital and psychological safety. Four companies representing different business areas were included in this research project. Similar patterns in impact on workplace social capital and psychological safety were seen across companies. Hence, this may indicate that the results presented in this study are not limited to specific companies or business areas.

Still, the included companies were all self-selected, and chose to either actively seek out to be part of the research project or expressed interest upon direct contact from a representative of the research group. Thus, the results of this study may be restricted to companies with a preceding interest in mindfulness or mental health promotion. Moreover, interview questions relating to workplace social capital and psychological safety could have benefitted from being more systematically included in the interview guide. As such, questions related to workplace social capital might, for example, have been structured in interview questions divided into networks, norms, and trust. Yet, the interview guide was formulated to capture psychosocial factors such as workplace social capital and psychological safety in broad terms and therefore captured essential data needed for interpreting the impacts on these two theoretical concepts. Furthermore, by the words of Edmondson & Lei “... *psychological safety is essentially a group-level phenomenon*” (Edmondson and Lei, 2014). Hence, the psychological safety may vary across teams, departments, between managers and employees and so on. Thus, it may be problematic to conclude on the psychological safety for an entire organization, since this entails multiple teams and levels of hierarchy. Therefore, the analysis of psychological safety would have benefitted from data collected within teams with several team members from each team. Instead, focus groups in this study consisted of, respectively, employees and managers from different teams and departments. Thus, this study does not provide information of the impact of this workplace-adapted MBI on team psychological safety. Hence, future research may benefit from including focus group interviews within teams. However, it is unknown whether employees and managers in this study intuitively provided answers based on their experiences within their respective teams when engaging in a focus group interview. Moreover, the majority of focus group interviews were conducted live online *via* Zoom. This digital format made it difficult to interpret body language and inter-respondent interactions when respondents were not in the same room. However, beyond the difficulties in interpreting these non-verbal interactions, EGM and EHB did not experience any complications conducting focus groups live online. Yet, conducting focus group interviews live online does have potential positive aspects (Flayelle et al., 2022). By using the online format, we were able to reach more respondents and gain access to international managers and employees, we normally would not have had access to (Flayelle et al., 2022). Furthermore, the online format was both time and cost effective and allowed for EGM and EHB to communicate occasionally *via* the chat function when needed during the interviews (Flayelle et al., 2022). Lastly, in this study, one employee reported having experienced some negative effects in the bonding social capital relating to frictions between participants and non-participants within his department. Such frictions could cause

disruption in the networks within a team or department and thus possibly negatively affect the bonding social capital if not dealt with properly. These frictions may pose a barrier to further implementation of mindfulness in an organization. Therefore, future research ought to investigate facilitating and obstructing factors that may influence the impact of a workplace-adapted MBI.

## 4.2. Implications and perspectives

According to the results of the present study, the utilized MBI seems to have a potential for facilitating a positive impact on workplace social capital as well as psychological safety among people at the same level of employment. Thus, this study contributes with knowledge to the budding field of potential organizational impacts of MBIs delivered in a workplace setting. Hence, this study adds to the notion that mindfulness training in a workplace setting not only has the capacity to improve individual well-being or mental health skills (Good et al., 2015; Vonderlin et al., 2020; Bonde et al., 2022), but that it may also have the potential to contribute to improved psychosocial work environments. For employees and managers workplace-MBIs may lead to improved mental health skills (Bonde et al., 2022). For organizations, workplace-MBIs may contribute to healthier psychosocial work environments adding to improved individual mental well-being (WHO, 2012; Mikkelsen et al., 2020; WHO, 2022). Furthermore, the study provides additional knowledge of the ways that MBIs may affect the psychosocial work environment. These insights may be used for developing program theories for future research both in the fields of mindfulness, and work and organizational psychology. Future research would benefit from investigating barriers and facilitators to implementing mindfulness in workplace settings in order to gain insight into what works for whom and under what circumstances.

## 5. Conclusion

The aim of this study was to investigate how an organizational-level workplace-MBI including a workplace-adapted MBRS programme may impact on workplace social capital and psychological safety, potentially leading to improved individual mental health. Compared to baseline, a positive impact on especially the bridging social capital was seen in all included companies. Moreover, small positive changes to the psychological safety between people at the same level of employment were uncovered. The perceived impact may be affected by the COVID-19 pandemic and following lockdowns. However, it is deemed unlikely that this would lead to an exaggeration of the intervention impact. Thus, this workplace-MBI appear to have a positive impact on workplace social capital and psychological safety, which may in turn contribute to improved mental well-being of employees and managers. However, even though the study included companies representing different business areas, the results may be limited to companies that have a pre-existing interest in either mindfulness or workplace well-being. Future

research should include a range of different types of companies, and investigate facilitators and barriers of implementing mindfulness-based interventions in workplace settings.

## Data availability statement

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

## Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent for participation was not required for this study in accordance with the national legislation and the institutional requirements.

## Author contributions

LJ and EGM designed the study. The interview guide was developed by EGM and EHB, who also collected the data analyzed in the present study. EHB was responsible for the transcription of the interviews. EGM and EHB performed initial coding of part of the data. EHB subsequently performed coding and categorization of all the data. In collaboration, EGM and EHB performed inter-coder reliability tests to ensure validity of the categorization. EGM and EHB were in continuous dialogue through the analysis process. The final results were discussed with LJ and LOF. LJ, LOF, EGM, and EHB collectively decided on the focus of the present publication. EHB drafted the manuscript, while EGM, LJ, and LOF made invaluable comments and corrections. All authors contributed to the article and approved the submitted version.

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## Funding

This study was funded by The Velliv Association. Award number: 19-0506.

## Acknowledgments

The authors would like to thank all participating companies, employees and managers. The authors would also like to thank MBSR teachers, Mie Glud Pedersen, Camilla Victoria Marcinkowski and Bente Pedersen for their vital involvement and collaboration in developing the systematically workplace-adapted MBSR programme, and for taking part in delivering the intervention. Furthermore, the authors would also to thank The Velliv Association for funding the development of the intervention, data collection and data analysis.

## Conflict of interest

The Danish Center for Mindfulness, Department of Clinical Medicine, Aarhus University offers revenue-funded MBSR programmes and MBSR teacher training.

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.

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## OPEN ACCESS

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## SPECIALTY SECTION

This article was submitted to  
Organizational Psychology,  
a section of the journal  
Frontiers in Psychology

RECEIVED 21 November 2022

ACCEPTED 02 March 2023

PUBLISHED 30 March 2023

## CITATION

Storti BC, Sticca MG and  
Pérez-Nebra AR (2023) Production and  
reception of human resource management  
practices for health promotion.  
*Front. Psychol.* 14:1104512.  
doi: 10.3389/fpsyg.2023.1104512

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# Production and reception of human resource management practices for health promotion

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Organizations thrive when there is a healthy relationship between people, i.e., where there is high social capital. Human resource management practices (HRMP) contribute to promoting social capital and mental health in organizations. However, there remains a gap in the literature on practices to promote mental health, as well as on the difference in perception of the function of the practices between those who promote them and those who receive them. Thus, this study aimed to identify what HRMP oriented toward mental health promotions are, how they are perceived, and whether there is variation among these perceptions. Twenty managers and 11 subordinates were interviewed. To achieve the first two objectives, a content analysis was performed, and for the last, a lexical analysis. In the content analysis, the following categories emerged for both groups: work organization and idiosyncratic deals and affective social support. Only in the managers did the categories of informational support, communication, and maintaining good interpersonal relationships emerge. The lexical analysis suggested that managers perceive task-related practices as promoting mental health, while teams attribute importance to affective social support practices. HRMP psychological principles were described. Social support practices should be adopted as human resource protective strategies for mental health.

## KEYWORDS

human resource management practices, managers, teams, mental health, social support, universities, well-being

## Introduction

High levels of social capital in organizations have been associated with better mental health and well-being rates among individuals (Clausen et al., 2019). Moreover, promoting health and well-being for all (United Nation Organization, 2015) is among the United Nations Sustainable Development Goals (SDGs). The 2030 Agenda sets out to lead the world on a path of resilience by promoting sustainable development under the guidance of five principles: people, planet, prosperity, peace, and partnerships aiming for the global well-being of this and future generations (Sianes et al., 2022). Organizations (Serafini et al., 2022) and particularly universities for their educational, scientific, technological, and innovative character (Bal et al., 2019) are among the actors responsible for achieving these goals. Among the goals of SDG 3, which aims to “ensure healthy lives and promote well-being for all at all ages” is the promotion of mental health and well-being (United Nation Organization, 2015). Considering that the SDGs require the efforts of organizations of various kinds and of universities to achieve them (Sianes et al.,



2022), this goal can be better accomplished in work environments where people trust each other and help each other, i.e., where there is social capital. The prevalence of social capital in organizations makes them more likely to thrive, and it contributes positively to increased well-being and reduced rates of absence (Kiss et al., 2014) and suicide among their employees (Diener and Seligman, 2004). Human resource management practices (HRMP) gather some evidence as one of the ways to foster social capital in organizations and increase workers' well-being and mental health (He et al., 2019); however, it lacks typification (Bowen and Ostroff, 2004) and understanding of its function, even more so in non-WEIRD (Western, Educated, Industrialized, Rich, Democratic; Henrich et al., 2010) cultures (Wang et al., 2020), presenting cultural distance (Muthukrishna et al., 2020), and less supportive contexts (Pérez-Nebra et al., 2021a,b) as Brazil.

The work in universities is shrouded by aspects that have led to the compromising of the health and well-being of its workers, with increasing rates of Burnout Syndrome and mental problems (Levecque et al., 2017), also with evidence in Brazil (Cassandre, 2011; Carlotto and Câmara, 2017). According to Bal et al. (2019) efforts to improve the work environment should begin within the university itself, since these institutions have been established around an unhealthy system that has been making people sick all over the world. The authors suggest the need for human resources protection practices, given the importance of such actions in crisis contexts (Bal et al., 2019). Thus, this study identified which HRMP promotes mental health, how these practices are perceived, and how they vary across actors. To test its proposition, the article presents the Brazilian university context, a literature review that explores the characteristics of work in universities, the impacts that these aspects have caused on workers' mental health, and recent studies on HRMPs in view of their potential for promoting mental health in organizations.

## The university context in Brazil

Work in universities is immersed in a system that drives overload, competitiveness, and scarcity, and puts the mental health and well-being of academics at risk globally due to the burnout that results from exposure to these factors (Bal et al., 2019). Their activities are diverse and permeate teaching and research as well as administration. In addition to producing knowledge, they also engage in funding opportunities and other managerial services that lead them to play multiple roles: they are writers, teachers, collaborators, administrators, researchers, conveners, supervisors, leaders, entrepreneurs, negotiators, and advisors (Subban et al., 2022).

Among all these demands and their effects on the mental health of academics is the logic of the "publish or perish" system, which evaluates academics through their publications, and the overvaluation of metrics that measure the performance of these professionals, which leads them to search for limited spaces to publish their work and incurs competition. In addition, the current publishing model resembles a "business" in which journal editors use the free labor of academics, leading to professional burnout (Bal et al., 2019). Currently, countries such as the United States, China, and Germany, in this order, are at the top of the ranking that quantifies the world scientific production (CGEE, 2021) and as a consequence of this logic that involves the work of academics, studies conducted around the world, including these countries, show that university workers are feeling

themselves increasingly pressured and show signs of Burnout Syndrome, anxiety, and psychological stress, in addition to demonstrating job insecurity (García et al., 2016; Carlotto and Câmara, 2017; Tian and Lu, 2017; Cladellas-Pros et al., 2018; Bal et al., 2019).

In Brazil, as in many other countries, the number of publications in international scientific production has grown considerably in recent decades. The scientific production had a 32% increase between 2015 and 2020 that placed it in the 13th position of world production of scientific articles indexed in the Web of Science base. This performance singled out Brazil in isolation from the other Latin American countries (CGEE, 2021), as Brazilians publish many more articles than the other countries in this region (Web of Science Group, 2019). Yet, the resources invested by the Brazilian government in science and technology have been known worldwide as an issue for years, as they have, conversely, decreased (Meis et al., 2003; Web of Science Group, 2019). These data are important, because besides being part of the non-WEIRD countries, where studies on people management practices are rare (Bonache et al., 2012), the expressive academic production that the country presents at a global level (CGEE, 2021) and the scarcity of resources directed to Brazilian public universities (Meis et al., 2003) that reflects in the working conditions made available (Souza et al., 2020) and in the mental health of Brazilian academics (Cassandre, 2011; Carlotto and Câmara, 2017; Kanan et al., 2018), add up as factors of relevance for the exploration of the theme through this study. This contraposition intensifies the margins for competitiveness in universities, due to the scarcity of resources and the precarious conditions that make it difficult for academics to work (Souza et al., 2020) and make them must work increasingly hard to survive professionally.

Because they are inserted in this competitive and demanding environment, the daily work of Brazilian academic professionals is surrounded by several factors that can harm their mental health, leading to stress and psychological distress (Kanan et al., 2018). In addition to the excessive pressure for publications that makes the reported system of "publish or perish" operate in a biased manner (Diele-Viegas et al., 2022) and surprisingly perceived as useful and fair (De Queiroz et al., 2020), the highly bureaucratic processes, the need to work with scarce resources, the expectations for results, the constant updating of technological changes, as well as the diversity of the students' profile, the search for constant improvement in the quality of education, the demand for internationalization, the absence of support, as well as the increase in external control that has led to a discussion about the autonomy of universities, are also configured as risks that compromise the mental health of these professionals (Cassandre, 2011; Wilhelm and Zanelli, 2013).

Although performance and the metrics used to evaluate work are important for the success of organizations, their shortsighted prioritization in universities at the expense of other types of performance and the well-being of academics should be considered (Bal et al., 2019). The health harms caused by the current management system at universities make the performance of workers unviable and unsustainable. In contrast to the obsessive paradigm of performance, the literature points to High Well-being Model as a model that can contribute positively to workers' health, as it fosters a culture of collective happiness and improves people's well-being through aspects such as flexibility, optimism, trust, commitment, security, and learning (Ravina-Ripoll et al., 2019),

which are vectors that also promote social capital. The HRMP can play a prominent role to develop the High Well-being Model, through the mechanisms that constitute it and mitigate the impacts caused by universities on the mental health of workers, as they contribute to positive organizational changes amidst the crisis taking place in academia (Bal et al., 2019). However, despite its relevance for Brazil due to the worrying scenario about the mental health of universities workers, the studies found in the literature on HRMP reveal that there is a concentration in samples from North American, European, and Asian countries, while in Latin America its frequency is scarce, performance-oriented (Oliveira et al., 2023) and, above all, theoretical. This imbalance limits the possibilities of guidance on the effectiveness of HRMP in countries located in this region (Bonache et al., 2012) and can also be problematic due to the impact that cultural, social, economic, and value differences between countries can have on managerial behavior and, consequently, on the HRMP adopted in organizations (Lenartowicz and Johnson, 2003).

## Human resource management practices

The origin of the studies in the HRMP area are predominantly from WEIRD countries located in North America, Europe, and Australia, it is still the case that often the results of these research studies are generalized to a broad population while in fact they refer to only around 12% of the world's population (Henrich et al., 2010). This makes the conclusions that researchers reach about work-related human behavior not necessarily useful and representative to non-WEIRD countries (Muthukrishna et al., 2020; Pérez-Nebra et al., 2021a,b), such as Latin American (e.g., Brazil), because these nations have their unique historical development, which may lead them to resist the imposition of foreign HRMPs, such as those of the Anglo-European model (Posthuma et al., 2014). Thus, the prevalence of the lack of research on HRMP with this population specifically, makes the knowledge and theoretical and practical contributions regarding the topic insufficient for most of the world, since they do not fit into this small slice of research.

Over the past three decades, models of HRMP applied in organizations have explored the association between practices and employee performance, commitment, and engagement (Bal et al., 2019). However, the purpose of HRMP has been changing, and with it their priorities in terms of goals. The possibility of mutual gain between the organization and the employee is sought, and while mutual gain is not an outcome, it may be a priority goal (Guest, 2017). Furthermore, despite the knowledge achieved about the contributions of HRMP to the promotion of well-being (He et al., 2019), it is still unclear what these practices are, how they are perceived by managers and employees, the possible divergence of function, and how this occurs in a work context where the physical and mental health of employees has been put to the test, as in the case of Brazil (Pérez-Nebra et al., 2021a,b).

When using the term HRMP, the literature refers to the smallest part of the human resource management strategies and policies implemented by organizations and defines them as the routine actions, the daily activities that allow such policies and strategies to be executed (Martín-Alcázar et al., 2005). The literature review conducted by Van Beurden et al. (2020) on employee perceptions of HRMP suggests that

they are related to three perspectives, depending on their focus, and reported more broadly, these being: social exchange, communication, and occupational health. These perspectives are supported by theories that ground the allocation of HRMP based on different conceptual models.

In exchange relationship practices, organizations provide incentives to people and people contribute to organizations based on how they perceive those incentives and reciprocate (Van Beurden et al., 2020). Social Exchange theory claims that interpersonal relationships are basically composed of costs and rewards, i.e., people offer each other material or immaterial goods and services that entail a cost and expect to receive a reward in return. These are the actions of the individual, who is motivated to do them by the expectation of the other's reward for his action, which is usually fulfilled. Reciprocity is the main premise of the theory, since it presupposes the acts of giving and receiving (Blau, 1964). Social Exchange Theory can be verified in the indicators of people's engagement at work, which is directly linked to the HRMP adopted by organizations. Thus, when people perceive that they are valued, trusted, and treated as partners, they respond positively to organizations through their work engagement (Tensay and Singh, 2020; Teo et al., 2020). Linked to the social exchange theory, the Equity Theory (Adams, 1965) studies the factors that lead to the perception of fairness or unfairness in exchange relationships and how people feel affected when they perceive unfair outcomes. As such, the theory assesses the fairness of these outcomes, which is done by comparing the individual's costs with those of another person in similar situations and the rewards obtained by each. Therefore, they negatively impact their behaviors which could be favorable to organizational outcomes if people perceive the practices as fair (Madison et al., 2018). The Equity Theory also contributes to the understanding of psychological contracts, since they resemble each other in terms of the expectation for exchanges due to the consideration given by an individual to another party (Rousseau, 1989). Psychological contracts originate from individual beliefs in a reciprocal obligation between the individual and the organization and arise from subjective perceptions and unwritten expectations between the two. They are tied to the individual's commitment to the organization and act as an important determinant of people's work behavior (Rousseau, 1989). To HRMP are important for the development and cultivation of psychological contracts, and so is investigating people's perceptions of these practices, because when they are perceived and evaluated positively, due to the sense of belonging and appreciation they trigger, they contribute to work engagement, since they lead to people's need to reciprocate what the organization offers them (Katou and Budhwar, 2012; Soares and Mosquera, 2019). Finally, the person-environment fit theory describes the match between people (their needs, values, and goals) and the characteristics of the organizational environment in which they are embedded (rewards, job demands, and cultural values) (Kristof-Brown et al., 2005). Alignment between the parties benefits both organizations and employees and positively influences their attitudes and behaviors. Furthermore, research suggests that HRMP are conducive to making this adjustment happen, and empirical results have already been found in line with this statement (Boon et al., 2011; Mostafa and Gould-Williams, 2014).

Communication practices are related to what and how organizations communicate with their employees (Van Beurden et al., 2020) and are usually oriented to clarify what the social norms are and

what is expected of each party, providing coherence and consistency (Mortensen and Cialdini, 2010; Miller and Prentice, 2016). Bowen and Ostroff (2004), in the strength of the human resource (HR) management system model, described the characteristics of a HR management system that cooperate for a strong organizational climate, in which people share a common interpretation of expected and rewarded behaviors, which when reproduced, collaborate to organizational performance. The model is based on attribution theories (Kelley, 1967) that help identify the characteristics that lead to communication messages between employees and the organization to be interpreted uniformly from causal explanations to behaviors and situations according to their degree of distinctness, consistency, and consensus. The higher these degrees, the stronger the HR management system (Bowen and Ostroff, 2004), because “it enhances clarity of interpretation which allows similar cognitive maps to develop among employees and creates an influence situation that causes employees to understand and yield to messages regarding appropriate behavior” (Gill et al., 2018, p. 312). In relation to HRMP, attribution theories contributed to the creation of the concept of HR attributions (Nishii et al., 2008), which refers to the reasons organizations adopt HR practices. Research points out that employees perceive and interpret in different ways the same HRMP deployed by organizations (Hewett et al., 2018), and that these attributions relate distinctly to aspects such as performance, commitment, and satisfaction depending on how the practices are attributed (Shantz et al., 2016). The social information processing theory (Salancik and Pfeffer, 1978) may help understand the difference between these interpretations since it explains the process under which the understanding of communication and the environment occurs. In this model, the social component exerts a strong influence on individuals’ attitudes, which become products of the processing of the information to which they have access (Zalesny and Ford, 1990). Therefore, people’s perceptions of their surroundings vary, because they result from how they interpret such information and thus make sense of what happens around them (Jiang and Li, 2018). Finally, the signaling theory also helps to understand individuals’ perceptions of HRMP, since it seeks ways to reduce the information asymmetry between the senders and receivers of information through signaling (Spence, 2002). That is, in organizations, the theory can be transposed by considering that practices are the signals that managers (senders) send to employees (receivers), and the way these signals are sent (frequency, channel, modality) can influence the perception of employees and, consequently, the organization’s communication (Wang et al., 2020).

Occupational health practices are interpreted from the demands and resources that exist from work, the more resources there are (material, social, personal, etc.), the more likely the negative effects of work on people’s well-being will be reduced (Van Beurden et al., 2020), and the basic principle guiding these practices is that of resource scarcity. Three models are related in this category: (1) Job Demand-Resources (JD-R) by Demerouti et al. (2001): this model classifies job characteristics as demands or job resources, with demands requiring effort and being associated with possible compromises in workers’ health, while resources contribute to work engagement and to an intrinsic and extrinsic motivational process (Demerouti and Bakker, 2011; Bakker and Demerouti, 2017). Considering this premise of the JD-R model about work arrangements as a mechanism for providing resources, HRMPs are also configured as such, because through their implementation workers’ needs are

more likely to be met and the effects of this application are perceived through employees’ engagement and performance with work (Stirpe et al., 2022); (2) Job Demand-Control (JD-C) by Karasek (1979), in which control is defined according to the extent to which the individual has decision making about his or her work in relation to skill use (i.e., learning, repetitiveness, creativity, task variety, skill development) and the autonomy for their own decision-making and; (3) Resource Conservation Theory (RCT), which posits that people are motivated to protect their current resources and acquire new resources, and these vary across individuals and are directly linked to their personal experiences and situations (Halbesleben et al., 2014).

Thus, the study starts from the hypothesis (H1) that HRMP’s perspectives of social exchanges, communication, and occupational health (Van Beurden et al., 2020) will be found in participants’ descriptions.

According to Guest (2017), models of HRMP are still oriented toward increasing performance and workers’ issues are still a secondary issue in the models. Therefore, the prioritization of workers’ well-being and health is put into focus only when perceived to affect performance. It turns out that different reviews already present poor results of the relationship between well-being and performance (García-Buades et al., 2020; Peiró et al., 2021; Pérez-Nebra et al., 2021a,b) negatively impacting the prioritization of practices focused on the care of workers’ health and well-being. However, considering that well-being is a result of human, social, and ethical interests, besides being a bridge to performance, it is necessary to seek work that offers dignity to the human being (Bal, 2020), pursuing practices oriented to health, care, and quality of life, among others, including within universities, where precarious working conditions and their harmful consequences on the mental health of workers around the world have already been identified (Carlotto and Câmara, 2017; Levecque et al., 2017; Tian and Lu, 2017; Cladellas-Pros et al., 2018).

Boon et al. (2019) reviewed several scales of measures on HRMP and found that most were performance-oriented practices and that scales oriented to incorporate protective practices or foster mental health or social capital in organizations are rare. The authors distinguished practices in their levels of analysis between intended, implemented, and perceived practices. The practices reported by managers usually show what is intended and what is actually offered in organizations; however, when employees make this report, they report how they perceive and experience these practices, which opens up room for differences to be observed between these actors’ perceptions and discourses about HRMP (Boon et al., 2019). The difference between practices implemented and perceived by managers and employees is already noted in the literature, including due to the attributions made by employees regarding their role (Beijer, 2014; Woodrow and Guest, 2014) which, because they are divergent, may cast doubt on the effectiveness of their implementation and their associated outcomes.

Thus, it is hypothesized (H2) that managers’ perceptions of the role of HRMPs identified differ from those of teams (Boon et al., 2019; Van Beurden et al., 2020) and (H3) the differences between these perceptions are statistically significant.

Given that HRMP contribute to the promotion of people’s well-being (He et al., 2019; Bal, 2020) and that the results found on HRMP in non-WEIRD countries also make up this demand, actions related to working conditions, which are linked to the well-being and health of workers, require greater investment. This need can be extended to



higher education institutions, since research on the topic in this environment represent only 4% of all sectors analyzed, which may suggest a lack of knowledge about practices aimed at promoting the health of these workers (Demo et al., 2018).

In this sense, once the contribution of HRMP to the well-being of workers is verified, with a focus on the promotion of mental health and social capital in public universities, a greater proximity to the theme becomes necessary. Thus, in this study, it will be possible to identify which HRMP have been perceived in these organizations to contribute to the mental health of workers. This study also proposes to test three hypotheses: (1) the perspectives of social exchanges, communication, and occupational health of Van Beurden et al. (2020) study will be found across types of HRMP; (2) managers' perceptions of the role of HRMP identified differ from the perceptions of the teams and; (3) the differences between these perceptions are statistically significant. To test these hypotheses, which are still mostly limited in non-WEIRD countries, exploratory qualitative research proves to be the appropriate approach for this investigation.

## Methodology

### Study design and sample

The approach used for the research was qualitative, which means that the research aimed to investigate the perceptions and experiences of the participants on the investigated topic.

Semi-structured interviews were conducted between the months of May to August 2022 to access detailed and in-depth information on HRMP adopted and perceived in the context of the participants' work that contributes to promoting employee mental health. The study sample was composed of 20 educational managers who worked within Brazilian public universities, 12 men (60%) and 8 women (40%), in different positions, 16 (80%) at the tactical level (i.e., course coordinator) and 4 (20%) at the strategic level (i.e., pro-rector) and 11 members of these managers' teams (i.e., professors and technical-administrative secretaries). The interviewees were from different regions of the country, 3 from the state of São Paulo (33%), 4 from the state of Minas Gerais (44%), 1 from the state of Ceará (11%), and 1 from the state of Goiás (11%).

To fit the sample criteria, the managers had to have been working in management positions on the date of the interview for at least 3 months and had to have at least one employee under their responsibility. Regarding team members, they should also have worked in the manager's team for at least 3 months. Initially, the participants were invited to participate in the study by means of individually forwarded e-mails accessed through the websites of several public universities in the country. Due to the low return on these e-mails and the difficulty of access to university managers, those who responded and agreed to participate in the research were asked at the end of the interview to indicate the contact of other fellow managers of the same or other universities so that the invitation to participate in the research could be made to them. Also, after each interview, the managers were asked to indicate the contact details of at least one member of their team so that data could also be collected by this part of the sample.

We used an interview script based on a model of HRMP and mental health promotion validated by two judges, represented by the

first two authors of the article, whose choice criteria were based on their contributions to this production. Thus, after the script was structured and validated by the first judge, the second judge also evaluated it to avoid possible biases in the established questions, limitations, or ambiguities that could affect the answers' quality and the participants' understanding. In case of disagreements, a third judge, represented by the third author of the article, would be invited to evaluate the interview script, but this process was not necessary at this stage. Therefore, each interview involved researchers and participants engaging in an informal, casual conversation, exploring each participant's personal experience of HRMP and mental health promotion.

Participants received information about the study and gave written consent before the interviews were conducted. Data on age, sex, time in the organization, and job title were also collected on the consent form to report the demographic details of the sample. All interviews were recorded, online, and completely transcribed.

## Measures

### Interview script

Two semi-structured interview scripts were developed based on the dimensions proposed by Van Beurden et al. (2020), relating the questions to management and mental health practices, one for managers and another for teams. At this stage, content validation was performed with 2 expert judges in the field who received the digital document and provided feedback on the semantic validation, quality, and purpose of the questions. The judges requested the inclusion of a definition of well-being to improve the understanding of the questions and proposed changes in the format of some questions to avoid laconic answers. We also conducted a pilot study with 5 managers to check for understanding and comprehension of the terminologies and the clarity of the questions. These managers were recruited by convenience (through ease of access by the researcher) but had to meet the following criteria: they had been working in the public sector in a management position for at least 3 months and had at least one subordinate linked to their management. It was found that the participants in the pilot interviews had difficulties relating the characteristics of the work and the practices they adopted in management to their effects on the mental health of the team, so some changes were made in the questions to facilitate this understanding. For example, changes were made to broader questions (e.g., it was explained what the term "mental health" referred to, citing the interference of work in aspects such as mood, emotions, thoughts, and reactions of the participants concerning situations exemplified by them that impacted their mental health, and examples of the situations experienced were requested to describe the human resource management practices adopted to promote employee mental health, asking about daily actions taken by them that made the team feel less anxious, more relaxed).

The focal questions included in the managers' interview script explored (1) task characteristics and impacts on mental health (e.g., What are the main activities developed by your team? Do you perceive that the activities performed by your team impact their mental health?); (2) management practices and mental health (e.g., Which human resource management practices do you adopt to minimize work impacts and promote the team's mental health?).

The focal questions included in the team members' interview script explored (1) task characteristics and impacts on mental health (e.g., What are the main activities developed by your team?; Do you notice if any of the activities you perform at work impacts your mental health?); (2) management practices adopted by managers and mental health (e.g., Which human resource management practices does your manager adopt to minimize work impacts and promote your team's mental health?).

## Data collection

Initially the participants were invited to participate in the study by individually forwarded e-mails that were accessed using the websites of several public universities in the country.

The interviews were conducted online *via* Google Meet, and the interview script was previously sent *via* email to each participant before the interviews, to facilitate their approach and preparation. We also sent a formal invitation *via* e-mail. With the participants' consent, all interviews were audio-recorded. Each recording was transcribed with the help of a piece of software to simplify the process and verify the total reliability of the information collected.

In the case of the staff interviews, from the beginning the participants were again informed about the secrecy and confidentiality of their answers. This was done to minimize the risk that their reports may be biased by the fact that it was their manager who referred them to participate in this study and, therefore, they could be subject to possible harm as a result of their answers if they were unfavorable to the performance of the manager as to the HRMP adopted.

## Data analysis

### Categorical content analysis

All interviews were manually transcribed in their entirety and categorical content analysis according to Bardin's (1977) hypotheses was used to test H1. This analysis was divided into three stages: First, the data was reread to acquire more familiarity with the content collected and then to identify all the HRMP mentioned by the participants. This information was separated by tabs for the organization of which practices were mentioned by the managers and which were mentioned by the teams. This first organization led to the creation of an initial category called "general practices." The frequency with which each HRMP appeared in the narratives of the managers and teams was quantified.

In the second stage, the practices that emerged from the interviews were grouped together and the categories created from this process were named in line with the management competences to which they were related. For example, the practice identified and described as "being available to talk, listen and intervene on the team's demands" was grouped with the "affective social support" competence.

Finally, the last grouping that originated the final categories of the HRMP identified in this content analysis had the categories proposed by Van Beurden et al. (2020) as theoretical support, including social exchange, communication, and occupational health, fundamentally oriented toward the function of the practice for the belonging group. Therefore, social support for one group may be based on reciprocity and for another, on occupational health, depending on the repercussion and the individual's expectation discourse about the behavior.

The content analysis of the managers' narratives led to the identification of six intermediate categories of HRMP adopted by the managers to promote the team's mental health. Five of these categories were grouped into three final categories, which were: idiosyncratic deal (social exchange); communication, and affective social support (communication), and work organization and informational support (occupational health) and friendliness. The categories of HRMP identified by the teams' narratives were: work organization (occupational health); idiosyncratic deal (social exchange), and affective social support (communication).

For this classification, the study also counted on the participation of the two mentioned judges, who had simultaneous access to the data collected and cross-checked them to compare the categorizations performed with each other and avoid biases, detect omissions and ensure constancy (Gibbs, 2009). Disagreements that emerged between the two judges were solved by convoking a third judge (and third author of the article) who also evaluated the organization of the categories. After collective discussions, decisions about the final categorization were made by consensus among the judges.

### Lexical analysis

We transcribed all the interviews literally. After the transcription, we organized the corpus. We did it by standardizing the Portuguese language and connecting keywords. For example, mental health had to be rewritten as mental health.

The lexical analysis was conducted using Iramuteq and the Camargo and Justo (2018) Iramuteq protocol. We conducted 31 interviews, with 366 segments, 12,583 occurrences, and a total of 676 hapaxes. We also conducted Reinert Classification with Descendent Hierarchical Classification (DHC) and Correspondence Factor Analysis (CFA).

### Lexical analysis comparison

To compare the classes of the lexical analysis with both clusters, we conducted a chi-square analysis, which allowed us to identify the differences between groups. It was a similarity analysis conducted on an absence/presence of the group, which crosses the selected units in a row and the active forms of the class in a column. Those differences were considered significant when the test is greater than 3.84, based on 1 degree of freedom and  $p < 0.05$ . This analysis was used to test hypotheses 2 and 3.

## Results

The categorical content analysis led to the organization of the results under the categories of HRMP from the study by Van Beurden et al. (2020). This result corroborates H1, suggesting that the study's three dimensions would be found in the HRMP cited by the participants. In the managers' narratives, the practices of affective social support and communication were allocated in the "Communication" category. The informational support and work organization practices were related to the "Occupational health" category, and the idiosyncratic deal practices were framed in the "Social exchanges" category (Table 1). The practices identified by the teams' discourse were: work organization (related to the "occupational health" category), affective social support (related to "communication"), and idiosyncratic deal (related to the "social exchanges" category) (Table 2).



TABLE 1 Human resource management practices adopted according to the managers' perception.

| Human resource management practices adopted according to the managers' perception |                                    |   |          |          |   |
|---|------------------------------------|---|----------|----------|---|
| Final categories  | Intermediate categories            | Initial categories  | <i>n</i> | <i>f</i> | Examples of narratives  |
| Communication   | Affective social support practices | (1) Be available to talk, listen and intervene on the team's needs*                           | 1        | 7        | "Being on their side, showing trust, partnership, relying on them, on the capacity they have, and (...) definitely counting on us."   |
|   |                                    | (2) Promote situations on a daily basis to socialize with the team*                           | 2        | 3        | "There are the moments when we involve the whole team to set up a Christmas tree, organize a festivity. In find that has a very positive impact."   |
|   | Communication practices            | Maintain clear and transparent communication, with cordiality and politeness**                | 3        | 4        | "Then I called the teacher, listened to everything he had to say, and I was very calm like, 'try to do a little bit differently here.'"   |
| Social exchange   | Idiosyncratic deal practices       | Substitute classroom teachers*  | 4        | 1        | "If the teacher is going to be late, I go to the classroom. He tells me the subject he is going to deal with and I go and talk to the students until the teacher arrives."  |
|   |                                    | Give the team autonomy at work  | 5        | 4        | "They have total autonomy, I like to stress, as long as there is no conflict with the university regiment or statute."  |
|   |                                    | Provide flexibility in working hours and schedules*   | 6        | 2        | "If he can't go in a given time it's okay, because that's it, he's not a person who doesn't perform."   |
|   |                                    | Assisting/instructing them to perform specific tasks*   | 7        | 2        | "They ask: can't you extend the deadline? And we say: no, we need it, it must be fast. We have already done this before, I will send you the spreadsheet that I've done, and you fill it in."   |
|   |                                    | Share the demands to solve them with the team to create a sense of belonging*                 | 8        | 1        | "I always ask, 'what would you do?' And people feel more like they belong to the management and not just as the role doers, but as the ones who will solve the problems."   |
|   |                                    | Be available to talk, listen and intervene on the team's needs*                               | 9        | 1        | "You give space, you respect. Of course there are moments of exchange, there are moments that I have to listen and there are moments when they have to listen to me."   |
| Occupational health   | Work organization practices        | Arrange for interns/staff to assist in task distribution                                      | 10       | 2        | "We have interns to help. We try to get more staff to help them."   |
|   |                                    | Guide them to delegate what is possible / discard unimportant tasks                           |          | 1        | "Whatever activities we can discard we discard, and I tell them to outsource whatever is not pertinent to them."  |
|   |                                    | Promote improvements in health resources and physical workspace                               |          | 1        | "We are implementing an agreement with a university here in town that has a psychology course, to deliver preventive group courses."  |
|   |                                    | Centralize decisions for you / Filter the demands to the team / Reduce the number of meetings | 11       | 3        | "I don't overburden them. Collegiate meeting I call only once a month, when I do. Only when I have to decide something quite big, otherwise, if I can decide alone, I decide."  |
|   |                                    | Do not send messages "after hours" and on weekends (and tell them not to answer)              | 12       | 3        | "WhatsApp can be bursting with messages when you're off, you don't have to answer. No one will be bothered on the weekend."   |
|   |                                    | Saving psychologically vulnerable people from the most stressful activities                   | 13       | 1        | "She has already said she can't, so we'll go. I have already agreed with the academic director to send it to me, to spare her, not to send it to her."  |
|   |                                    | To be flexible on deadlines, deliveries and schedules   | 14       | 3        | "I ask: 'You will be responsible for doing this. Then the person says, 'When?' I say, 'Yesterday, but I understand that's not possible. How much time do you need?'"  |
|   |                                    | Replace teachers in the classroom*  | 15       | 1        | "In the case of this teacher who forgot her class, she called me, apologized, and I said, 'it's okay, it happens, go rest. I was there, so I took over her class.'"   |
|   |                                    | Making working hours and schedules more flexible*   | 16       | 1        | "There was one person who had a miscarriage and it was very difficult. She had a leave of absence, but it wasn't enough for her to get well. So I didn't give her the same deadlines as the others, but that wasn't disclosed to the team." |

(Continued)

TABLE 1 (Continued)

| Human resource management practices adopted according to the managers' perception |  |   |          |          |   |
|---|--|---|----------|----------|---|
| Final categories  | Intermediate categories                  | Initial categories  | <i>n</i> | <i>f</i> | Examples of narratives  |
|   | Informational support practices          | Share the demands to solve them with the team to create a sense of belonging*                   | 17       | 1        | "We always try to talk to him to try to make him understand that it's not all his responsibility."  |
|   |  | Improve team work processes and instruments to lighten related demands                          | 18       | 1        | "We improved the forms to fix some issues so that there wouldn't be so much demand for something that could be solved with the provision of a rule."  |
|   |  | Assisting/instructing them to perform specific tasks*   | 19       | 2        | "I try to share the task, including myself, being part of the whole."   |
|   |  | Provide the necessary information for the team to solve their demand                            | 20       | 2        | "I tell him where he can look for, that there will be a person who will have that information for him."   |
|   |  | Help them prioritize tasks / set limits on demands / make a delivery schedule                   | 21       | 3        | "That's what I'm trying to do. She really understands that it's not like having 5 or 6 demands coming in and they all have to be answered simultaneously. Prioritize and go."   |
|   |  | Respond to staff as soon as possible, even outside working hours or through personal contact    | 22       | 1        | "I don't get upset about having to respond after hours, as I know it's an urgent demand, I try to resolve it for them as quickly as possible."  |
|   |  | Maintain clear and transparent communication, with cordiality and politeness*                   | 23       | 1        | "I try to be a friendly person with her. I try to spare her from certain issues."   |
| Friendliness  | Maintaining good interpersonal relations | Be available to talk, listen and intervene on the team's needs*                                 | 24       | 1        | "In two years, I won't be there anymore (...) I will be a teacher who will demand from him as the others do (...) He has a sofa there, God forbid, I'm almost calling the cleaning crew to clean it. Other coordinators have already told him off about this. He said: what's up, professor? I said: what I need is for you to do your job. What you do during your break is no problem. Every administration has its own style, and this is mine." |
|   |  | Promote situations in daily life to socialize with the team*                                    | 25       | 1        | "I have tried a socialization in non-work actions. There is a very close relationship of assigning tasks, this is part of management. And to try... I consider myself a relatively sociable person and I'm also talking about very pleasant people, it's no effort for me when I bring my coffee here for us to drink together, because I think this closeness strengthens."  |
|   |  | Replace teachers in the classroom   | 26       | 1        | "In every individual meeting I have with a professor, I try to show that I have empathy for him or her. I arrive to talk to him as a co-worker, exposing the situation (...) I can exchange time with a teacher, give up my class, replace a professor."  |
|   |  | Centralize decisions for you / Filter the demands to the team / Decrease the number of meetings | 27       | 1        | "They all ask me to be the manager again. So I feel that they like me, they like the way I do it (...) I have professors that participate in other collegiates, and they tell me "I can't stand collegiate meetings anymore". And I don't do this kind of thing anymore. So, I think they realize that I hang in there a lot, so as not to get to them. And I think this contributes in a way."   |
|   |  | Assisting/instructing them to perform specific tasks*   | 28       | 1        | "I often say that we have to try to do for people what we would like them to do for us (...). I try to share the task, including myself, being part of the whole."  |

\*Practices perceived by managers with different functions and therefore allocated in more than one category. *n* refers to the number of practices found and *f* the frequency of description of those practices.

The results show that a total of 28 managers' narratives practices, the occupational health category, which is related to reducing demands and/or increasing work resources, emerged with greater

variability of practices ( $n = 14$ ) and a reasonably distributed frequency among them. Practices related to work organization were the most cited ( $f = 17$ ) in the category. Among the communication practices in

TABLE 2 Human resource management practices adopted according to the teams' perception.

| Human resource management practices adopted according to the teams' perception |                                    |  |          |          |  |
|--|------------------------------------|--|----------|----------|--|
| Final categories   | Intermediate categories            | Initial categories   | <i>n</i> | <i>f</i> | Examples of narratives   |
| Occupational health  | Work organization practices        | Requests more personnel to assist the team                             | 1        | 1        | "She seeks, they made this request for more technicians, so now the Dean's office knows that we are in a big deficit."   |
|  |                                    | Promotes improvements/ achievements to the physical work space         | 2        | 1        | "I stayed in a precarious room, but with a lot of struggle my room finally came out and it was my manager who helped provide it."  |
|  |                                    | Assists the team in demands/ doesn't delegate everything*              | 3        | 2        | "Many things he does too, he doesn't leave everything to us, so I think that helps a lot too."   |
|  |                                    | Intermediates/ Delimits the demands and situations of the team's work* | 4        | 1        | "He buys our fights, like: 'such and such must be done and it is urgent'. He says: 'no, we are not going to do it, you can put it under my responsibility because there is no way.'"   |
|  |                                    | Respects/ provides flexible schedules and deadlines*                   | 5        | 1        | "He worries about this issue of respecting schedules. Because it is a position of trust, we have to be available to meet demands if they are urgent. But he respects this issue."  |
|  |                                    | Shows empathetic, open to dialogue/ team support*                      | 6        | 1        | "The coordinator went through some health issues. She got sick to the point she didn't want to hear about the college. So there was a change in the administration, and the deputy chief couldn't be reappointed because he was in another position, but he took over the responsibility from the coordinator, and even though he is deputy chief, he is the one who solves everything." |
| Communication  | Affective social support practices | Shows empathetic, open to dialogue / team support*                     | 7        | 4        | "She is very supportive, any problem you can talk to her, she is empathetic, she says: we'll find a way, don't worry. She doesn't make you feel guilty."   |
|  |                                    | Intermediates/ Delimits the demands and situations of the team's work* | 8        | 1        | "When a student's problem comes up and I can't solve it, besides her having a different outlook for being outside the problem, when she helps me solve it, I feel her support."  |
|  |                                    | Respects/ flexibilizes schedules and deliveries*                       | 9        | 3        | "But, who is going to apply this activity? Sometimes we can't, and then the coordination is available. Of course everyone is required to have their own schedule, to perform their own activities, but we have flexibility and that is very good."   |
| Social exchanges   | Idiosyncratic deal practices       | Gives feedback/ recognizes the work done                               | 10       | 2        | "We get together sometimes, he gives me some very gentle nudges. But how does he help me? We talk about my reports, and I take some of his suggestions."   |
|  |                                    | Gives autonomy/ demonstrates trust in the team                         | 11       | 3        | "She said: You don't even have to tell me, if you think it's a task that you can pass on to them, do it. You don't even have to go through me."  |
|  |                                    | Communicates clearly and objectively so as not to prolong meetings     | 12       | 1        | "Whenever we have meetings, we already have a pre-established agenda, it is very succinct, objective, and this makes our lives easier with such a long workload."  |
|  |                                    | Assists the team in demands/ doesn't delegate everything*              | 13       | 2        | "Several times during that period, she did my turns. I have to deliver the diploma of the graduates of the program, and since I have comorbidity, she never let me do that."   |
|  |                                    | Intermediates/ Delimits the demands and situations of the team's work* | 14       | 1        | "Whenever we talk to her, she says: 'we'll find a way, I'll talk to the specialized care center that works with psychological health.'"  |
|  |                                    | Shows empathetic, open to dialogue/ team support*                      | 15       | 5        | "She calls beforehand, tries to find out individually if we can, and we go to the meeting with things already more or less defined. And we also have time to think, sometimes we even change our minds, decide to take on what we didn't want before."   |

\*Practices perceived by the teams in different ways and therefore allocated in more than one category. *n* refers to the number of practices found and *f* the frequency of description of those practices.

this group, those linked to affective social support, and particularly the practice of “being available to talk, listen and intervene about the needs of the team,” obtained the highest frequency among the managers ( $f=7$ ). Finally, in the category of social exchanges, the practices related to trust and the autonomy that the manager claims to give to his team were seen by these actors as favorable to the mental health of their employees ( $f=4$ ).

In relation to the team practices' narratives ( $n=15$ ), it was the category of social exchange that emerged with the greatest variability of practices ( $n=7$ ) and also with the highest frequency of responses ( $f=17$ ). Social exchange practices refer to the negotiations and agreements that are made between managers and employees based on the costs and “efforts” of both parties expecting rewards for these actions that are usually voluntary. Their prominence in the teams' narrative may suggest a representativeness of this group's perception regarding how they see these practices contributing to the promotion of their mental health.

Another interesting result of the content analysis was that, in addition to the functions of HRMP provided in the categories according to Van Beurden et al. (2020), something also emerged from the managers' narrative that seems to be intended to make the employees “like” them due to the practices adopted to contribute to the promotion of the team's mental health. Although in relation to their frequency the function of these practices is incipient, this finding led to the creation of the category Friendliness for the allocation of these practices (which were framed in more than one category), since Van Beurden et al.'s (2020) typification between practices of social exchanges, communication, and occupational health, would not support this other function found for some of the same practices already previously classified.

The Descending Hierarchical Classification (DHC) organized the lexicons into three classes. The presentation of the results of this analysis also allowed the naming of the classes in line with the dimensions of HRMP of Van Beurden et al. (2020). Class 1 was named “Task support” because the words that emerged are related to practices whose focus was on the tasks of the team's work. Class 2, “Social exchanges,” was so named because it highlights words that suggest practices regarding negotiations between managers and teams. Class 3, “Affective social support,” was so named because the emerging lexicons relate to HRMP focused on the interpersonal aspect between the two groups. The inference made

between the actors' narratives and the types of practices most frequently cited by each of them also allows us to relate the results of the content analysis to those of the descending hierarchical classification.

The words emerged in the lexical analysis show proximity between Class 1 and the category Occupational health of the content analysis. This means that in both analyzes, the participants' narratives were more directly related to the practices adopted by managers through the acquisition of resources and/or the reduction of demands of the teams' work aiming at the promotion of mental health of these people. The same occurs with Class 2 and the category Social exchanges, as well as with Class 3 and the category Communication. In Class 2, the lexicons suggest an exchange relationship between the interviewed groups, and the flexibility practices that fall into this category demonstrate the negotiations and agreements established between managers and teams that are seen positively by them in terms of mental health. The adoption of these practices leads to a perception of reciprocity and, consequently, expectations and a kind of Commitment to be followed by both parties through these exchanges. Finally, the Class 3 results are linked to Communication practices since they suggest in the discourse of the groups the notion of social norms, care and support, which favors the social environment by providing support and a sense of unity, and thus increases the chances of positively influencing the attitudes and behaviors of people within organizations because of how this support can be perceived in terms of protecting and promoting mental health (Figure 1).

There was a difference between the results identified in the content analysis and the descending hierarchical classification regarding the category of Social exchange. Although in the DHC the results of this category were not significant, in the content analysis its frequency was expressive, especially in the narratives of the teams. Moreover, as suggested in H2, a difference was found in the actors' perception regarding the typification of the practices mentioned. Table 3 shows some examples of narratives from each category. These narratives are extracted from Iramuteq, which provides verbal reports in descending order of the most representative excerpts of each class of words.

The difference analysis between groups suggests that there were significant differences between Classes 1 and 3, with Group 1 (managers) showing higher frequency in Class 1 - Task support, and Group 2 (teams) showing higher frequency in Class 3 - Affective social support. Class 2 - Social exchanges - did not show significant

TABLE 3 Narratives related to each class.

| Classes                      | Examples of narratives  |
|------------------------------|---|
| (1) Task support             | “He respects this issue very much, so he understands very well that given our schedule here, we also need to engage in other activities, and not get too attached to the work here.”  |
|                              | “We try to take in what is requested and also try not to bring more problems. We also try to understand them, talk to them, try to give them an understanding of what is happening in general, because this suffering is not only theirs.”  |
| (2) Social exchanges         | “The coordinator is a manager who avoids handing over too much to others. I think she even overloads herself a lot, I've already told her too, but she spares us a lot.”  |
|                              | “We had two professors who had their doctoral defenses. Theoretically, the institution does not oblige me to give them a day, but I say: ‘people, for God's sake, we have already been through this. So we gave her the previous day off.’” |
| (3) Affective social support | “Within my management, what I have done is when we identify a teacher who is ill as a result of work, we take a collective measure in the sense of sparing the person.”   |
|                              | “Valuing people. I try to do this because I think it is important. I think that if the person is here to do a job, he or she is competent. Sometimes what they need is support, someone to be by their side.”                               |

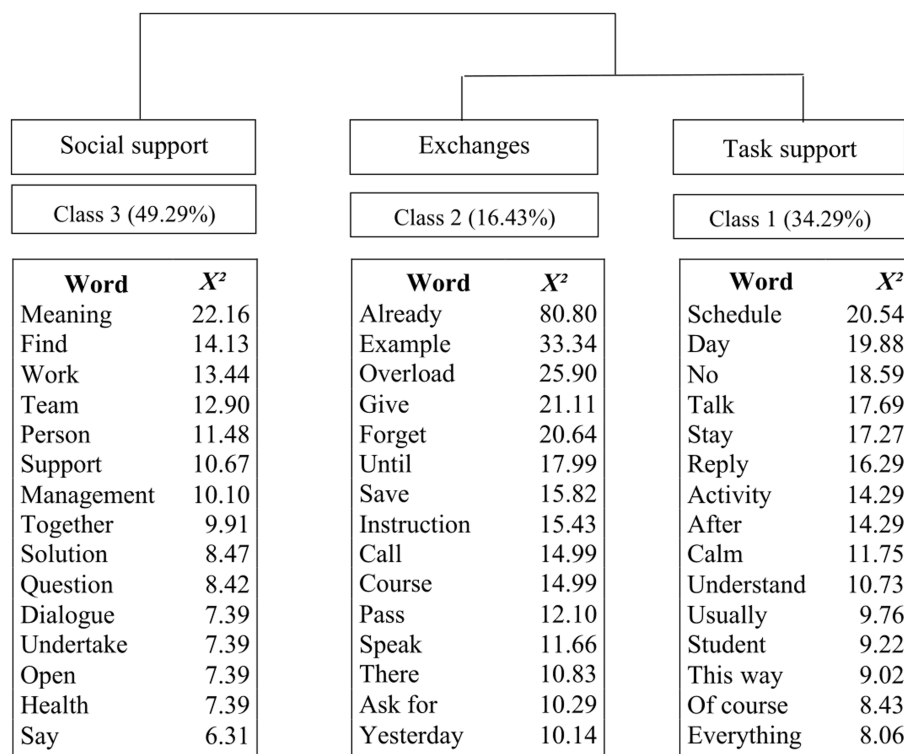


FIGURE 1  
Descending hierarchical classification (DHC) dendrogram.

differences (Figure 2). Thus, the results of this analysis give partial support to H3.

## Discussion

This study aimed to identify HRMP that contribute to the promotion of mental health of workers in Brazilian public universities and it is understood that this objective was met. Three of the four categories of practices that emerged in the study were typified according to the study by Van Beurden et al. (2020), that is, as exchange relationship practices, communication practices, and/or occupational health practices supporting H1. Furthermore, there was variation between managers' and employees' perceptions of these practices again supporting H2. In addition to the fact that some of them were mentioned in the narratives of one group and not in the narratives of the other, the function that these practices fulfilled also presented variations among the participants in relation to the same practice. Finally, not all classes of the descending hierarchical classification presented significant differences, offering partial support to H3.

Previous studies pointed out that specific management practices, defined through managers' concrete behaviors, contribute to the management of work stressors on managers' and staff's mental health because they predict well-being and overall health (Bouchard and Meunier, 2022). Three principles emerge as relevant to thinking about HRMP: the principle of reciprocity, consistency, and scarcity. These psychological principles have been widely examined in the field of social psychology (e.g., Petty and Briñol, 2012) and marketing (Cialdini, 2009) and emerged among the categories presented by Van

Beurden et al. (2020). It is noteworthy, however, that in the case of managers in Brazil, there is another principle that emerges transversely, which is linked to the principle of liking, i.e., the manager strives to make people like him or her and thereby wants to do something for this person for the simple fact to be liked and prefer positions which "they think would be ingratiating and avoid those that would make them look bad" (Petty and Briñol, 2012, p. 234). This principle has been reported before in the literature of HRMP, usually coming from the worker, a tactic called ingratiation (Ferris et al., 1999; Bolino et al., 2008), but also friendliness as a component of success for the manager in some cultures (Smith et al., 2012).

From this perspective, the category Friendliness that emerged from the managers' narratives received empirical support. In the case of this study, the friendliness principle, especially, was found in the context in which managers report the search for a partnership with the collegiate, since "everyone is in the same boat" concerning the challenges experienced within public universities and that "today they are managers, but tomorrow they will be teammates again," due to the turnover of professors who have to take over management positions. Cialdini's (2009) friendliness principle says that individuals, in general, prefer to say yes to the demands of people they like. In this sense, by adopting practices that are "approved" by the teams, managers are more likely to receive acceptance and friendliness from their collegiate members. From this standpoint, the practices classified in the categories of social exchanges and communication (especially in relation to social support), seem to be rather close to the category of friendliness, since the function and intentionality with which each practice is applied can even be confused with the manager's need to "be liked" - although this does not cancel out the other possible



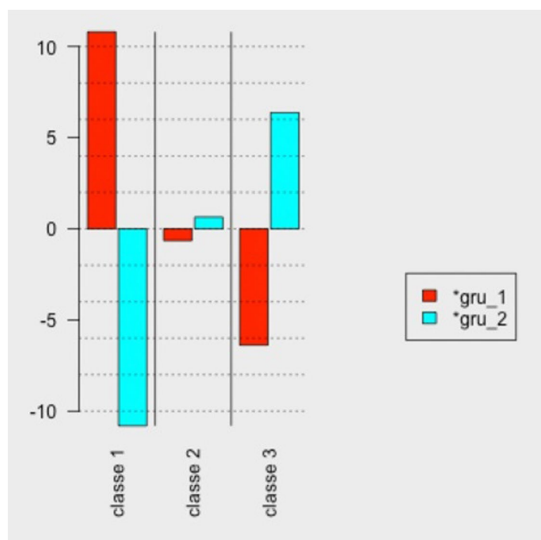


FIGURE 2  
Chi-square of the difference between groups and lexicon classes.

contributions of the practices cited. As an example, it is possible that this dynamic is related to the statements found in the managers' narratives about a certain "avoidance" of resisting, hindering, or not making certain concessions to professors both in relation to work and to personal demands - as shown in the intermediate category of idiosyncratic deal - having in mind, on the other hand, the possible idea of the manager that "if tomorrow this teacher is my manager, I could also be harmed."

Regarding the results of the teams, which highlighted the role of social exchange practices through what we categorized in this study as Idiosyncratic deals, we verified the perceived importance of negotiating adaptations and customizations in their work according to their needs, which, therefore, was seen as favorable to the promotion of mental health. Although they are not *per se* a HRMP, idiosyncratic deals seem to "blend in" and be favored by them, besides benefiting individuals and organizations. On the one hand, since it is a proactive behavior, which usually starts from the employee to the supervisors, the results derived from the HRMP adopted (i.e., autonomy, motivation, engagement, commitment) enable this attitude of employees that resonates in terms of performance for the organization. On the other hand, the pursuit of these negotiations exposes the active role of employees in HRMP in relation to seeking to adjust job characteristics to meet their needs (Villajos et al., 2019; Latorre et al., 2021). Therefore, the findings of this study seem to offer some support that the application of idiosyncratic deals and their relationship with exchange practices lead to a win-win situation between managers and teams. However, the literature related to idiosyncratic deals and well-being (in which mental health is included) is still incipient, and what we see is that the main variables studied in association with this construct are still predominantly related to performance, as already found by Boon et al. (2019) in terms of practices.

Finally, the comparison between groups showed statistically significant differences between the groups in Classes 1 (task support) and 3 (affective social support). The variation in the actors' perceptions

of HRMP and their role reported in this study, corroborates with the literature that already pointed to this possible divergence (Beijer, 2014; Woodrow and Guest, 2014; St-Hilaire et al., 2018; Boon et al., 2019). In the managers' view, it is the practices related to occupational health that contribute to the promotion of employee mental health. On the other hand, the teams consider that the practices of exchange and communication (in particular, social support) bring this contribution the most. For managers, the practices that emerged among the most cited seem to be related to what we categorized in this study as occupational health (i.e., task support, workload management, working time, and holidays). For subordinates these practices also stood out, but those suggesting affective social support were more frequent (i.e., valuing and recognizing work, interacting, initiating relationships, dialoguing and promoting participation, disclosing, empowering, representing). The findings converge with the results of the Descending Hierarchical Classification that found the relevance of reducing demands and/or increasing resources in the view of managers, and the contribution of the sense of team (communication practices) on the part of employees for the promotion of mental health.

The convergence between the findings of the present study and the results of St-Hilaire et al. (2018) are interesting and lead to another possible reading, in that the considerable frequency with which practices related to social support appear in both, while for managers the reduction of demands is mostly seen as able to promote mental health. It is possible that the place from which the managers "speak" to the teams, closer to information about the limited resources available in public universities, makes them seek in the reduction of these demands a way to mitigate the impacts of the work on people's mental health, wherever possible. However, the teams bring in their report the awareness that the manager usually has few tools to offer more resources and balance these demands, and consequently, they recognize a more effective help in situations in which he is willing to give an even affective support to the team.

There is evidence that the implementation of HRMPs can strengthen employees' well-being (Sora et al., 2021), health, motivation and skills, bringing benefits to both individuals and organizations, as they result in higher productivity and less sick leave (Ybema et al., 2020). However, the results pointed out above reinforce the need highlighted in previous studies (Van Beurden et al., 2020), about the importance of listening to employees in search of understanding about the functions that these practices fulfill for them, because it is their perceptions about the practices that influence their behavior and, therefore, will obtain the expected potential in promoting their mental health. Consequently, if these perceptions are not aligned, as the actors' narratives suggest, the likelihood of the practices not fulfilling their possible contributions will be increased and their effectiveness, on the contrary, reduced. Thus, in addition to not effectively contributing to the promotion of the mental health of the team, the adoption of HRMP misaligned to the needs of individuals may even have an effect contrary to the goals of organizations because the more aligned to the needs of individuals, the more likely the HRMP will positively influence the engagement and proactive behavior, but when this adjustment does not occur, engagement decreases and exhaustion levels increase (Van Beurden et al., 2022), which also influences employee well-being.

The presentation of the HRMP identified in this study also leads to the suggestion of what are the possible psychological mechanisms that link these practices to their results, i.e., that make them protective to the mental health of employees. What can be inferred from our

findings is that, beyond the differences found between managers and teams, there is a consensus on the perception by managers that such practices may, and, really seem to produce the feeling of belonging, welcoming, trust, recognition, consideration, partnership, exchange, and unity in the perception of individuals. Therefore, these are the aspects that become “the fuel of the practices,” the mechanisms by which they are remembered and mentioned by the individuals as favorable to the promotion of their mental health. Thus, the importance given by managers and teams to show their peers that they are together, that the well-being of one is important to the other, and that they can support each other, reflects the characteristics of collectivist cultures such as Brazil (Hofstede, 1984; Gouveia and Clemente, 2000; Smith et al., 2012). In them, individuals are led to think collectively, seek harmony, value communication, relationships precede the priority of tasks, management is done for groups, and the relationships between employee and employer are seen even as a family bond (Hofstede, 1991), as suggested in several excerpts of the interviewees’ narratives.

The circumstances of the context of Brazilian public universities presented by the literature for years have already pointed out the risks that this environment offers to the mental health of workers, mainly due to the high demands on the work and performance of academics in the socioeconomic scenario where these organizations are located, which go against the provision of various resources that could assist in achieving these expectations in a healthier way (Cassandre, 2011; Wilhelm and Zanelli, 2013; Kanan et al., 2018). Although they were not the focus of this investigation, living with these risks permeates the discourse of the interviewees, who are invariably reminded when talking about the impacts of work on their mental health. In the midst of this problematic, HRMP such as those cited in this study emerge as a simple, but effective possibility to mitigate the impacts caused by the working conditions of Brazilian public universities on people’s mental health. Although they should not be considered as the only solution for all the shortcomings that universities face, the essentially collaborative aspect that guides most of the HRMP adopted is potentially protective to the competitive and often solitary environment in which academic work takes place, which can be mitigated, with some evidence, by the care with people within by the management.

## Practical implications

This study contributes to the sustainable performance of academic managers by presenting which HRMP adopted in their daily work contributes to mental health promotion in universities. Therefore, access to the practices identified and detailed through concrete behaviors as done in this study, can assist managers in efforts to promote staff mental health from their daily actions (Bouchard and Meunier, 2022).

In addition, studies that have conducted this type of investigation have found that the practices adopted focus more on performance than on people’s well-being and mental health (Boon et al., 2019). In this sense, from the intersection of the perceptions of managers and teams, this study also makes practical contributions to this existing gap in the literature on HRMPs aimed at promoting the mental health of university employees, because, in addition to identifying them, it also specifies the functions that such practices fulfill when they are implemented. This enables them to be more effective in relation to

outputs, as it avoids both misalignments between how they are intended and received, and the waste of resources spent by universities for them to be adopted - which is also relevant, given the problematic shortage of resources for years present in Brazilian public universities (Meis et al., 2003; Souza et al., 2020).

## Limitations and future directions

From a practical standpoint, strategies can be developed to allow managers to develop social exchanges more effectively. Within the workplace, the literature points out that individual strategies such as emotional regulation (Kim et al., 2014) can help improve manager and team health. Moreover, although previous studies have been devoted to investigating employees’ perceptions of HRMPs implemented in organizations, the typification, principles, and functions they fulfill to people are still unclear.

Social support practices, widely cited in the health literature as protective strategies for physical and mental health, emerge again as important strategies with different functions in the organizational context. It is worth mentioning that although they occur, the systematization of these practices is still incipient and depends on each dyad and the idiosyncratic deals. In addition, although ingratiation has emerged as a HRMP, it requires care not to be confused with self-promotion. The literature on impression management suggests that joking can be beneficial, but caution is needed, particularly in a collectivist culture where if perceived as false, “liking” can be harmful and have a reverse effect to that expected.

The most frequent practices are those oriented toward reciprocity and the longer and more mutually contributing to the relationship, the higher perception that a growing social capital is built in the organization. Higher education institutions in the Brazilian context comprise a group that has been living together for several years and the scarcity of public contests in universities and of resources has generated a context of competitive strategies, segregation patterns and an absence of management and inclusion of the difference (there are no policies related to affirmative actions beyond those provided by law). Detecting HRMP that are protective to the group will foster social capital and a more solid public institution in the medium long term, consistent with the goal of sustainable development 3 and 16 to promote good health and well-being and peace, justice and strong institutions.

Finally, whether they have an implicit or explicit agreement of reciprocity, practices have trust and justice underlying this contract (Rousseau, 1989; Dalal, 2005). There are two types of trust, cognition-based trust and affect-based trust, i.e., competence-based and integrity-based. In the first case, the one who violated the trust has an aspect of competence, and in the second, morality (Cropanzano et al., 2017). In this case, what was observed in the narratives was of the second type, moral. Thus, supervisor trust is related to more positive leadership (Schyns and Schilling, 2013), and trustworthy is related to reduced dishonesty, secrets, and knowledge hiding (Colquitt, 2001; Connelly et al., 2012) and to increased organizational citizenship and perceived ethical leadership (Xiao et al., 2020). Therefore, increased trust will promote an increase in positive responses with the manager (Cropanzano et al., 2017), however, it is unknown whether increased trust in the organization would also promote the same, given that there are no reports of perceptions of

institutionalized practices or the HR management area by any of the organizational actors.

## Conclusion

This work provided support for different groups of HRMP already described in the literature, such as social exchange practices, communication practices, and occupational health practices (Van Beurden et al., 2020). These have reciprocity, consistency, and scarcity as their principle; however, the present study included one additional group of practices that come in the sense of bonding and friendship, one that is oriented to providing an environment in which health occurs because people like each other, because they trust each other, so it is related to a process of building social capital. These results also suggest that managers and workers have different perceptions of HRMP but do agree that social support is a frequent and relevant practice for protection and promotion of mental health at work.

## Data availability statement

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

## Ethics statement

The studies involving human participants were reviewed and approved by Research Ethics Committee of the Universidade de São Paulo number 4.342.411. The patients/participants provided their written informed consent to participate in this study.

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## Author contributions

MS and AP-N: conceptualization. BS: data curation, funding acquisition, investigation, and resources. AP-N: formal analysis, validation, visualization, and writing–review and editing. BS, MS, and AP-N: methodology. MS: project administration and supervision. BS and MS: writing–original draft. All authors contributed to the article and approved the submitted version.

## Funding

This research was financially supported by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), Brazil (Finance Code 001). BS received a grant from the Coordination of Superior Level Staff Improvement (CAPES), number: 88887.600233/2021-00.

## 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.

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## OPEN ACCESS

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RECEIVED 03 January 2023

ACCEPTED 10 April 2023

PUBLISHED 28 April 2023

## CITATION

Martínez-Díaz A, Díaz-Fúnez PA,  
Salvador-Ferrer CM, Hernández-Sánchez BR,  
Sánchez-García JC and  
Mañas-Rodríguez MÁ (2023) Mediating effect  
of job crafting dimensions on influence of  
burnout at self-efficacy and performance:  
revisiting health-impairment process of JD-R  
theory in public administration.  
*Front. Psychol.* 14:1137012.  
doi: 10.3389/fpsyg.2023.1137012

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# Mediating effect of job crafting dimensions on influence of burnout at self-efficacy and performance: revisiting health-impairment process of JD-R theory in public administration

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**Introduction:** In recent years, job crafting has greatly interested Work and Organizational Psychology. Different research studies have shown its positive impact on people and organizational performance. However, it knows little about the differential effect of the two dimensions that make up this variable (prevention-focused and promotion-focused) and its role in the health-impairment spiral process of the job demand-resources theory (JD-R).

**Method:** This research aims to analyze the mediating effect of the different dimensions of job crafting on the influence of burnout on performance and self-efficacy in the workplace. The study used a sample of 339 administrative employees of a university.

**Results:** The results indicate that promotion-focused job crafting is a mediating variable in the relationship between the influence of burnout on performance and self-efficacy. Unexpectedly, prevention-focused job crafting does not have this mediating role in the same relationship.

**Discussion:** These findings confirm the adverse impact of burnout on personal and organizational improvement, while showing the absence of prevention/protection responses of employees when they are burned out. The theoretical and practical implications show an advance in knowledge about the process of health deterioration and about the spiral of health deterioration in the JD-R theory.

## KEYWORDS

burnout, job-crafting, self-efficacy, performance, public administration

## 1. Introduction

According to the World Health Organization (WHO), work is essential for people's well-being (World Health Organization, 1976). This means placing occupational health strategies as the key to research in the promotion of well-being in the workplace. The International Labor Organization (International Labour Organization, 2009) and the WHO define occupational

health as the promotion of physical, mental, and social well-being of employees. These factors, added to the increase in resources such as team climate, and the reduction of job demands, are crucial elements in organizations for workers to feel self-efficacious and perform successfully in their work (Mañas-Rodríguez et al., 1999; Pecino et al., 2019; Martínez-Díaz et al., 2020).

The theoretical framework that has received the most attention in studies on the promotion of employees' well-being is the job demands-resources theory (JD-R theory; Bakker and Demerouti, 2013). According to this theory, job characteristics can be organized into demands and resources (see Figure 1; Tims et al., 2012).

Bakker and Demerouti (2014) define job demands as the physical, psychological, organizational, or social aspects of work that require sustained effort and entail both physiological and psychological costs. These are the main threat to the promotion of occupational health and the well-being of employees. Instead, the job resources are described by Bakker and Demerouti (2017) as the physical, psychological, organizational, or social aspects existing in the work context that can reduce these demands and the physiological and psychological costs associated with the work environment. The JD-R theory states that the dynamic relationship between job demands and resources triggers started a health impairment or a motivational process (Bakker et al., 2022).

This research focuses on how the health impairment process influences the worker's responses at the organizational level. Faced with a negative context, workers act by changing aspects of their job, choosing tasks, negotiating work content, or assigning new meanings to their work (Albrecht et al., 2015). This adaptation of the position by the worker to fit the work context is called job crafting (Wrzesniewski and Dutton, 2001). This term is used in the JD-R theory as an explanatory variable by the spiral gain and impairment process (Bakker and Demerouti, 2013). This theory proposes that job crafting is a proactive behavior defined as "the changes that workers make to align their demands and personal job resources with their own needs and capabilities" (Tims and Bakker, 2010, p. 3).

One aspect to consider in job crafting is the need for the worker to present three individual characteristics (Wrzesniewski and Dutton, 2001). First, there must be active participation on the part of the

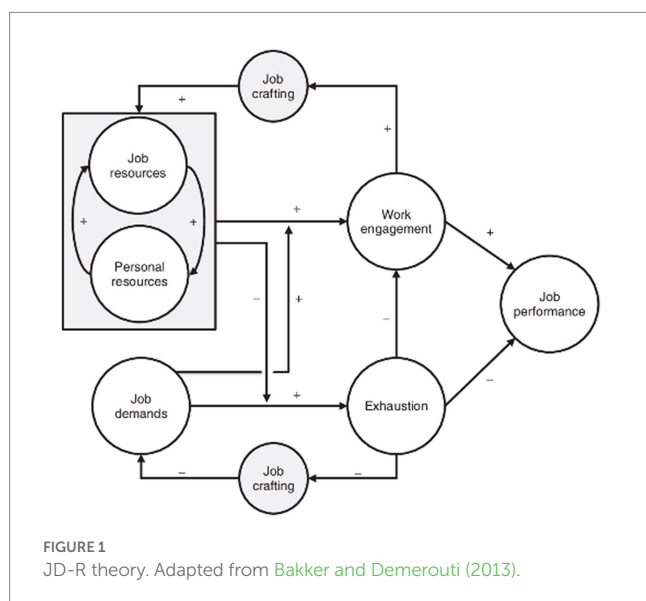
worker to control certain aspects of the work avoid negative consequences. Second, workers must be motivated to change elements of their job to have a more positive view of themselves. Thirdly, it must allow an increase in social involvement since there is a perception of connection with others. But little is known about the response produced in job crafting when the organizational context is negative.

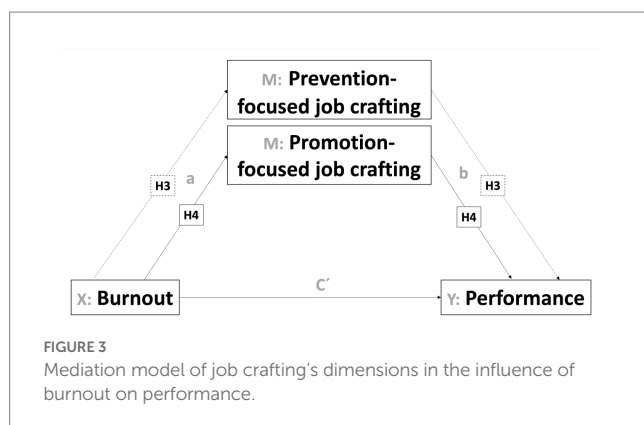
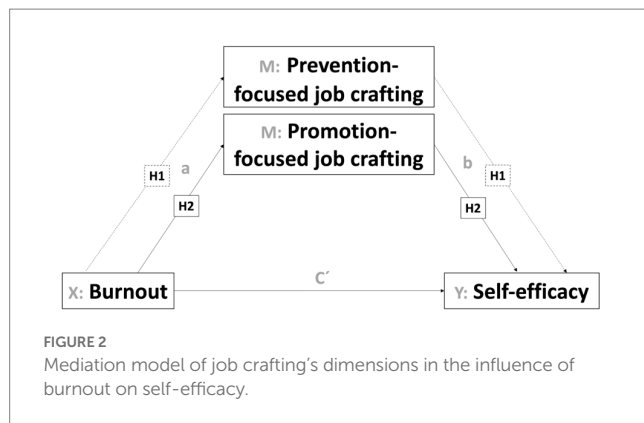
Research has proposed an evolution in understanding the concept of job crafting. Initially, Petrou et al. (2012) defended a global conceptualization of it, where people want to modify certain aspects of their work to create conditions where they can work healthier and more motivated. Tims et al. (2012) proposed the existence of four different behaviors to carry out these changes: (a) increase structural job resources; (b) increase social job resources; (c) increase challenging job demands, and (d) reduce job demands that are an obstacle. One of the most recent approaches to job crafting is developed by Lichtenthaler and Fischbach (2019). These authors distinguished between two job crafting processes: prevention-focused and promotion-focused.

Prevention-focused job crafting could be defined as employees' protecting behaviors, avoiding obstacles and end demands, in which they anticipate discomfort from non-compliance, stagnation, difficulties, and loss of energy, health, or safety. On the other hand, promotion-focused job crafting encompasses the changes through which workers achieve positive end states, anticipate achievement, learning, and growth, and gain exciting tasks, social relationships, and other motivating aspects of work. Integrating these two concepts with the typology of job crafting behaviors proposed by Tims et al. (2012), prevention-focused job crafting will be related to decreasing obstacle job demands and the impairment health process. Promotion-focused job crafting will be related to increasing structural job resources, growth of social job resources, and a rise in challenging job demands.

The distinction between prevention-focused and promotion-focused job crafting is of great research interest, as its determinants will influence differently depending on the distribution of positive or negative emotions in the work context (Dubbelt et al., 2019; Lazazzara et al., 2020). Authors such as Singh and Singh (2018) suggest that employee perceptions are among the most determining factors of job crafting. The JD-R theory confirms that a worker with negative emotions can modify his job in two ways: increasing the resources available to deal with them or reducing the influence of these emotions (Bakker and Demerouti, 2017). Changes in their job position would largely determine that the demands would facilitate goal achievement, with desirable consequences for both the worker and the organization (Tims et al., 2021). These are called challenge demands by LePine et al. (2005). Conversely, some demands are perceived by employees as hindering and may be detrimental to work readiness behaviors. These demands are called hindrance demands.

One emotional consequence of obstacles that has been shown to influence job crafting is burnout (Bakker and de Vries, 2021). However, researchers do not clarify how this variable affects the prevention-focused and promotion-focused dimensions of job crafting in the impairment health process. Research findings suggest that prevention-focused job crafting behaviors could increase in the face of the employee's perception of burnout (Zhang and Parker, 2019; Singh and Rajput, 2021). In contrast, promotion-focused job crafting behaviors would decrease (Lichtenthaler and Fischbach, 2019). At this point, it is worth asking what effect burnout will have on the prevention and promotion dimensions of job crafting on employees and their performance. JD-R theory has provided an answer to this question. This theoretical framework proposes that the effects of job





crafting will have a direct impact on the gain (work engagement-job crafting-new resources influence) or the impairment (exhaustion-job crafting-new demands influence) spirals in the work context (Bakker and Demerouti, 2013). Tims et al. (2014) researched the consequences of job crafting and found that these behaviors have a high level of influence on the employee's resources, specifically on the perception of self-efficacy.

Although the JD-R theory does not directly pose this, some studies have shown the influence of job crafting on organizational objectives such as performance. This effect was in research such as that developed by Tims et al. (2014) or the study by Miraglia et al. (2017) on 465 public administration workers. Their results confirm the positive influence on the performance of workers over time.

The review of burnout has also revealed the weight of this requirement on performance and self-efficacy perceptions, with a negative sign. For example, Hosseini et al. (2017) showed a negative influence between burnout and nurses' performance, highlighting that high burnout could drastically reduce performance. In another research, Aftab et al. (2012) indicate a statistically significant and negative relationship between these two variables assessed in a medical worker group.

Other theories that explain the effect of burnout on the rest of the study variables are the Yerkes-Dodson theory (1908) and the conservation resources theory (Hobfoll, 1989). In these theories, the equity hypothesis (Taris et al., 2002) determines that an unbalanced perception of job demands reduces well-being. However, the degree of burnout defines the balance level of a workplace context, and its effect on job crafting employees' responses, due to the sensitivity to emotional events (Baumeister et al., 2001). In this sense, the increase

in burnout employees' perceptions would also mean an increase in their level of prevention job crafting behaviors and a decrease in promotion job crafting intentions acting as a challenging demand.

As we have seen, there is evidence linking burnout with job crafting and of both variables on the perception of self-efficacy and performance, but with a positive impact in the case of job crafting and a negative impact concerning burnout. The JD-R theory supports both influences. But this theory does not propose a direct effect of job crafting on performance. These effects would use different pathways: the positive ones would come from the motivational process and the negative ones from the health deterioration process.

Thus, the objective of this paper focuses on analyzing the role of two different types of job crafting as mediators in the influence of burnout on the perception of self-efficacy and performance. The health impairment process of the JD-R theory (Bakker and Demerouti, 2013) and the approaches of Lichtenthaler and Fischbach (2019) are a reference, from which the following hypotheses are proposed (see Figures 2, 3).

**H1:** Burnout will have a positive and significant effect on prevention-focused job crafting. Prevention-focused job crafting will act as a mediating variable in the influence of burnout on self-efficacy.

**H2:** Burnout will negatively and significantly influence promotion-focused job crafting. Promotion-focused job crafting will act as a mediator of the influence of burnout on self-efficacy.

**H3:** Burnout will have a positive and significant effect on prevention-focused job crafting. Prevention-focused job crafting will act as a mediator in the influence of burnout on performance.

**H4:** Burnout will have a negative and significant influence on promotion-focused job crafting. Promotion-focused will be a mediator in the influence of burnout on performance.

In this research proposal, the novelty of this contribution concerns other investigations concerning resources in the negative spiral posed by the deterioration of the health process in the theory of resources and labor demands (Bakker and Demerouti, 2007). Within this process, the present study tries to clarify three aspects. First, it delves into the influence of burnout on the dimensions of job crafting (prevention and promotion), which will allow increasing knowledge about the antecedents related to the reduction of these employee behaviors. Secondly, it aims to broaden the range of backgrounds in job crafting. Most previous publications have focused their interest on individual traits, such as personality, or ones, such as the exhaustion of the JD-R theory (Hosseini et al., 2017) as determinants of these behaviors in employees. This study proposes as an antecedent a state generated by the configuration of work characteristics, such as the worker's perception of being burned out at work, thus giving a broader perspective to the process of health deterioration. Third, the study aims to demonstrate the mediating influence exerted by the job crafting dimensions between a negative state of the work environment (burnout) and two results in the organization: the intention of performance by the worker and their perception of self-efficacy (Lichtenthaler and Fischbach, 2019). In other words, it is proposed to analyze whether job crafting responses will be one of how burnout influences individual performance and self-perception of employee

efficacy, thus completing the spiral of health deterioration posed in the article. Bakker and Demerouti model (2007).

## 2. Materials and methods

### 2.1. Participants and procedure

In this descriptive study, data were collected through online questionnaires. In total, 402 public employees were invited to participate, who were distributed in 33 work teams with an average unit size of 18.08 ( $SD = 10.86$ ). University Bioethics Committee approval was obtained for this study (UALBIO2018/002).

All the questionnaires collected, 339 (84.32%) were correctly completed and could be included in the analysis. Age was distributed within four intervals (from 26 to 35 years = 1.8%, 36 to 45 = 14.1%, 46 to 55 = 64%, and 56 or older = 20.1%). Regarding sex, 52% were men, and 48% were women. The level of education was distributed in these categories: Elementary school (10.3%), higher education (23%), College (63.4%), and master's degree/Ph.D. (14.3%).

### 2.2. Instruments

#### 2.2.1. Prevention-focused and promotion-focused job crafting

Prevention-focused and promotion-focused job *crafting* was measured using the Spanish adaptation of the Job Crafting Scale made by Bakker et al. (2018). Prevention-focused dimension comprises six items (i.e., I make sure that my work is mentally less intense), promotion-focused dimension comprises fifteen items (i.e., I try to develop my abilities). Response options are delivered on a Likert scale ranging from 1 (never) to 7 (always), with higher scores indicating a higher level of job crafting. Prevention-focused scale obtained Cronbach's alpha reliabilities of 0.89. Promotion-focused scale achieved Cronbach's alpha reliabilities of 0.80.

#### 2.2.2. Burnout

Burnout was evaluated using the Spanish adaptation (Gil-Monte and Moreno-Jiménez, 2005) of the Maslach Burnout Inventory (MBI) developed by Maslach and Jackson (1981). This tool has three underlying dimensions: Exhaustion, which is composed of three items (i.e., I feel emotionally drained from my work); cynicism, composed of seven items (i.e., I have become less enthusiastic about my work); and efficacy, which consists of three items (i.e., I can effectively solve the problems that arise in my study/work). All items are scored on a 5-point frequency rating scale ranging from 1 (strongly disagree) to 5 (strongly agree). High scores on exhaustion and cynicism and low scores on efficacy are indicative of burnout (i.e., All efficacy items are reversibly scored). The internal consistency (Cronbach's  $\alpha$ ) of the scale was 0.80.

#### 2.2.3. Self-efficacy

Self-efficacy was measured using the Spanish adaptation (León-Pérez et al., 2017) of the Psychological Capital Questionnaire (PCQ12) developed by Luthans et al. (2007). Self-efficacy comprises three items (i.e., I think I would represent my work group well in meetings with management). All items are scored on a 6-point frequency rating scale

ranging from 1 (strongly disagree) to 6 (strongly agree). The internal consistency of the scale was 0.77.

#### 2.2.4. Performance

Performance was measured using the dimension in the Work Unit Performance Scale by Goodman and Syvante (1999). The scale consists of three items that analyze actions in formal job descriptions and increase organizational effectiveness (i.e., "I willingly attend functions not required by the organization but help in its overall image"). Participants responded on a seven-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). The internal consistency of the scale was 0.91.

#### 2.2.5. Control variables

Because the evaluation of the work context is sensitive to the sex and age of the employees (Bertolino et al., 2011), we control for these two demographic characteristics. A dichotomy scale ("Woman versus man") was used for gender and a Likert scale with five categories (1: "18–25 years," 2: "26–35 years," 3: "36–45 years," 4: "46–55 years," and 5: "56 years or more") to measure age.

### 2.3. Statistical analysis

Data were analyzed using IBM SPSS 27. After computing descriptive data, Cronbach's alphas, and zero-order relationships between all constructs, mediation, and moderation analyses were conducted (see Figures 2, 3). Following the recommendations of Cristea et al. (2013), a multi-step mediation analysis was used to test whether the effect of burnout on self-efficacy and performance is mediated by prevention-focused job crafting and promotion-focused job crafting. Mediation analyses were conducted to estimate direct and indirect influence using the non-parametric bootstrapping procedure in the PROCESS package. The suggestion of Hayes (2017) was followed by conducting a multi-step mediation analysis to find the mediation effect (Model 4 in PROCESS).

Indirect and conditional influences were deemed significant if the 95% bias-corrected (BC) bootstrap confidence intervals (CI) based on 10,000 samples did not include. The fully standardized indirect effect ( $ab_{cs}$ ) was used to calculate mediation effect sizes, with 95% baseline confidence intervals for BC (Hayes and Matthes, 2009; Preacher and Kelley, 2011). This measurement is based on the product of the betas for routes a and b, which provides us with the expected change in the dependent variable (i.e., self-efficacy or performance) for each unit in which it varies in the predictor variable (i.e., burnout) indirectly through the mediator (i.e., prevention-focused, or promotion-focused job crafting).

## 3. Results

The results structure is two sections: First, present the descriptive results and correlations between the variables included in this study. Second, the results of the regression models where the influences of the prevention-focused job crafting and the promotion-focused job crafting on self-efficacy and performance are tested, in this order.

The descriptive data and the correlations between the study variables are provided in Table 1. The mean scores obtained have been



prevention-focused job crafting (3.45), promotion-focused job crafting (4.46), burnout (2.08), self-efficacy (4.40), and performance (4.78). Except for the mean burnout scores, all the others exceed the mean value of the scale, being this 3 (burnout), 3.5 (self-efficacy), 4 (promotion-focused job crafting), 4 (prevention-focused job crafting), and 4 (performance).

Regarding the correlation results, prevention-focused job crafting indicates a significant positive correlation with performance (0.506\*\*). The promotion-focused job crafting also shows a significant and positive correlation with prevention-focused job crafting (0.591\*\*) and performance (0.391\*\*). Meanwhile, burnout presents a significant and negative correlation with self-efficacy (−0.165\*\*), prevention-focused job crafting (−0.484\*\*), promotion-focused job crafting (−0.256\*\*), and performance (−0.457\*\*). For its part, self-efficacy presents a significant and positive correlation with prevention-focused job crafting (0.604\*\*), promotion-focused job crafting (0.457\*\*), and performance (0.310\*\*). The relationship between control variables and burnout, promotion focused job crafting, prevention focused job crafting, performance and self-efficacy were not significant.

Table 2 shows the multi-step mediation analysis of job crafting prevention behavior on the influence of burnout on self-efficacy. As

indicated by the data from regression 1  $X \Rightarrow M$  (a), the burnout variable does not have a significant influence on the mediating variable prevention-focused job crafting ( $B = 0.024$ ,  $SE = 0.101$ ;  $t = -0.236$ ,  $p = 0.813$ ).

Table 3 shows the multi-step mediation analysis of job crafting promotion behavior in the influence of burnout on self-efficacy. In regression 1  $X \Rightarrow M$  (a), burnout shows a significant effect on the mediating variable promotion-focused job crafting ( $B = -0.337$ ,  $SE = 0.069$ ,  $t = -4.865$ ,  $p < 0.01$ ). Regression 2  $X, M \Rightarrow Y$  (c' & b) shows a complete mediation of the promotion-focused job crafting on the influence of burnout on self-efficacy. The independent variable becomes non-significant when the mediating variable is included in equation regression. Regression 3 total effect shows that the total influence of burnout on self-efficacy was significant and negative ( $B = -0.241$ ,  $SE = 0.078$ ,  $t = -3.068$ ;  $p = 0.002$ ).

Table 4 shows the multi-step mediation analyses. We analyzed the influence of burnout on performance, including the effect of prevention-focused job crafting as a mediator. In regression 1  $X \Rightarrow M$  (a), the variable burnout shows no significant influence on the mediating variable prevention-focused job crafting ( $B = 0.024$ ,  $SE = 0.101$ ;  $t = -0.236$ ,  $p = 0.813$ ).

TABLE 1 The means, standard deviations, and correlations between variables.

|                          | <i>M</i> | <i>SD</i> | 2        | 3        | 4        | 5        | 6 | 7      |
|--------------------------|----------|-----------|----------|----------|----------|----------|---|--------|
| 1. Burnout               | 2.08     | 0.69      | −0.165** | −0.256** | −0.484** | −0.457** | – | 0.004  |
| 2. Self-efficacy         | 4.40     | 1.01      |          | 0.457**  | 0.604**  | 0.310**  | – | −0.023 |
| 3. Promotion focuses JC  | 4.46     | 0.89      |          |          | 0.591**  | 0.391**  | – | −0.011 |
| 4. Prevention focuses JC | 3.45     | 0.82      |          |          |          | 0.506**  | – | −0.002 |
| 5. Performance           | 4.78     | 1.04      |          |          |          |          | – | 0.033  |
| 6. Gender                | –        | –         |          |          |          |          |   | –      |
| 7. Age                   | 4.10     | 1.00      |          |          |          |          |   |        |

\*\* $p < 0.001$ ; JC, Job crafting.

TABLE 2 Analysis of prevention-focuses job crafting mediation on the influence of burnout on self-efficacy (simple mediation model for prevention-focuses job crafting).

| Regression 1 $X \Rightarrow M$ (a)         |  |           |          |          |
|--|--|-----------|----------|----------|
| Predictor                                  | Outcome = <i>M</i> (prevention-focused job crafting) |           |          |          |
|  | <i>B</i>   | <i>SE</i> | <i>t</i> | <i>p</i> |
| <i>X</i> (burnout)                         | 0.024  | 0.101     | −0.236   | 0.813    |
| Constant                                   | 0.084  | 0.068     | 0.121    | 0.903    |
| Regression 2 $X, M \Rightarrow Y$ (c' & b) |  |           |          |          |
| Predictor                                  | Outcome = <i>Y</i> (self-efficacy)                   |           |          |          |
|  | <i>B</i>   | <i>SE</i> | <i>t</i> | <i>p</i> |
| <i>X</i> (burnout)                         | −0.239   | 0.078     | −3.057   | 0.002    |
| <i>M</i> (prevention-focused job crafting) | 0.091  | 0.042     | 2.155    | 0.031    |
| Constant                                   | 4.402  | 0.053     | 82.082   | 0.000    |
| Regression 3 total effect (c)              |  |           |          |          |
| Predictor                                  | Outcome = <i>Y</i> (self-efficacy)                   |           |          |          |
|  | <i>B</i>   | <i>SE</i> | <i>t</i> | <i>p</i> |
| <i>X</i> (burnout)                         | −0.246   | 0.078     | −3.068   | 0.002    |
| Constant                                   | 4.403  | 0.053     | 81.658   | 0.000    |

*B*, Beta; *SE*, Standard error; Bootstrap sample size = 10,000.



**TABLE 3** Analysis of promotion-focuses job crafting mediation on the influence of burnout on self-efficacy (simple mediation model for promotion-focuses job crafting).

| <b>Regression 1 <math>X \Rightarrow M</math> (a)</b>                                       |  |           |          |          |
|--|--|-----------|----------|----------|
| Predictor  | Outcome = M (promotion-focuses job crafting) |           |          |          |
|  | <i>B</i>                                     | <i>SE</i> | <i>t</i> | <i>p</i> |
| X (burnout)  | −0.337                                       | 0.069     | −4.865   | 0.000    |
| Constant   | 4.426  | 0.047     | 93.291   | 0.000    |
| <b>Regression 2 <math>X, M \Rightarrow Y</math> (<math>c'</math> &amp; <math>b</math>)</b> |  |           |          |          |
| Predictor  | Outcome = Y (self-efficacy)                  |           |          |          |
|  | <i>B</i>                                     | <i>SE</i> | <i>t</i> | <i>p</i> |
| X (burnout)  | −0.075                                       | 0.073     | −1.020   | 0.308    |
| M (promotion-focused job crafting)   | 0.494  | 0.055     | 8.857    | 0.000    |
| Constant   | 2.214  | 0.251     | 8.793    | 0.000    |
| <b>Regression 3 total effect (<math>c</math>)</b>  |  |           |          |          |
| Predictor  | Outcome = Y (self-efficacy)                  |           |          |          |
|  | <i>B</i>                                     | <i>SE</i> | <i>t</i> | <i>p</i> |
| X (burnout)  | −0.241                                       | 0.078     | −3.068   | 0.002    |
| Constant   | 4.403  | 0.053     | 81.658   | 0.000    |

B, Beta; SE, Standard error; Bootstrap sample size = 10,000.

**TABLE 4** Analysis of prevention-focuses job crafting mediation on the influence of burnout on performance (simple mediation model for prevention-focuses job crafting).

| <b>Regression 1 <math>X \Rightarrow M</math> (a)</b>                                       |   |           |          |          |
|--|---|-----------|----------|----------|
| Predictor  | Outcome = M (prevention-focused job crafting) |           |          |          |
|  | <i>B</i>                                      | <i>SE</i> | <i>t</i> | <i>p</i> |
| X (burnout)  | 0.024   | 0.101     | −0.236   | 0.813    |
| Constant   | 0.084   | 0.068     | 0.121    | 0.903    |
| <b>Regression 2 <math>X, M \Rightarrow Y</math> (<math>c'</math> &amp; <math>b</math>)</b> |   |           |          |          |
| Predictor  | Outcome = Y (performance)                     |           |          |          |
|  | <i>B</i>                                      | <i>SE</i> | <i>t</i> | <i>p</i> |
| X (burnout)  | −0.680  | 0.075     | −9.074   | 0.000    |
| M (prevention-focused job crafting)  | 0.094   | 0.040     | 2.299    | 0.022    |
| Constant   | 4.781   | 0.051     | 92.649   | 0.000    |
| <b>Regression 3 total effect (<math>c</math>)</b>  |   |           |          |          |
| Predictor  | Outcome = Y (performance)                     |           |          |          |
|  | <i>B</i>                                      | <i>SE</i> | <i>t</i> | <i>p</i> |
| X (burnout)  | −0.686  | 0.075     | −9.096   | 0.000    |
| Constant   | 4.784   | 0.052     | 91.101   | 0.000    |

B, Beta; SE, Standard error; Bootstrap sample size = 10,000.

Table 5 shows the multi-step mediation analyses. We analyze the influence of burnout on performance, including the effect of promotion-focused job crafting as a mediator. In Model 1, the burnout variable shows a significant influence on the promotion-focused job crafting mediator variable ( $B = -0.349$ ,  $SE = 0.071$ ,  $t = -4.863$ ;  $p = 0.000$ ). According to Regression 2  $X, M \Rightarrow Y$  ( $c'$  &  $b$ ), it shows us the partial significant mediator effect of the promotion-focused job crafting variable, since the coefficient decreases concerning the total effect model of the independent variable when the mediator is added, the significance does not change. The Regression 3 total effect shows

that the total influence of burnout on performance was significant ( $B = -0.686$ ,  $SE = 0.075$ ,  $t = -9.096$ ;  $p = 0.000$ ).

Table 6 shows the indirect effects (IE) of each analyzed regression. The IE2 and IE4 models are the only ones that show significance (IE2:  $-0.254/-0.088$ ; IE4:  $-0.198/-0.051$ ) with coefficients in terms of indirect influence of  $-0.167$  (IE2) and  $-0.115$  (IE4) respectively. Its fully standardized direct effects ( $ab_{cs}$ ) of  $-0.113$  (95% BC CI of  $-0.171$  to  $-0.059$ ) for IE2; and from  $-0.059$  (95% BC CI of  $-0.105$  to  $-0.022$ ). On the other hand, Models IE1 and IE3 do not present indirect effects since they do not meet the mediation criteria.

**TABLE 5** Analysis of promotion-focuses job crafting mediation on the influence of burnout on performance (simple mediation model for promotion-focuses job crafting).

| Regression 1 $X \Rightarrow M$ (a)         |  |       |        |       |
|--|--|-------|--------|-------|
| Predictor                                  | Outcome = M (promotion-focused job crafting) |       |        |       |
|  | B  | SE    | t      | p     |
| X (burnout)                                | −0.349                                       | 0.071 | −4.863 | 0.000 |
| Constant                                   | 0.014  | 0.049 | −0.293 | 0.769 |
| Regression 2 $X, M \Rightarrow Y$ (c' & b) |  |       |        |       |
| Predictor                                  | Outcome = Y (performance)                    |       |        |       |
|  | B  | SE    | t      | p     |
| X (burnout)                                | −0.571                                       | 0.074 | −7.675 | 0.000 |
| M (promotion focuses job crafting)         | 0.329  | 0.056 | 5.843  | 0.000 |
| Constant                                   | 4.789  | 0.049 | 96.939 | 0.000 |
| Regression 3 total effect (c)              |  |       |        |       |
| Predictor                                  | Outcome = Y (performance)                    |       |        |       |
|  | B  | SE    | t      | p     |
| X (burnout)                                | −0.686                                       | 0.075 | −9.096 | 0.000 |
| Constant                                   | 4.784  | 0.052 | 92.101 | 0.000 |

B, Beta; SE, Standard error; Bootstrap sample size = 10,000.

**TABLE 6** Indirect effects of the serial multiple mediator model of the effect of burnout (x) on self-efficacy (Y) and performance (Z) through prevention-focused job crafting (M1) and promotion-focused job crafting (M2).

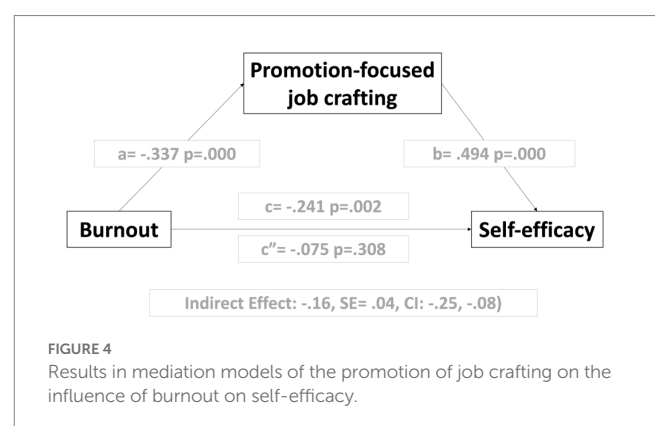
| Bootstrapping BC 95% CI               |             |       |        |        |
|---------------------------------------|-------------|-------|--------|--------|
|                                       | Coefficient | SE    | Lower  | Upper  |
| IE1: $X \Rightarrow M1 \Rightarrow Y$ | −0.002      | 0.013 | −0.021 | 0.025  |
| IE2: $X \Rightarrow M2 \Rightarrow Y$ | −0.167      | 0.042 | −0.254 | −0.088 |
| IE3: $X \Rightarrow M1 \Rightarrow Z$ | −0.005      | 0.011 | −0.035 | 0.018  |
| IE4: $X \Rightarrow M2 \Rightarrow Z$ | −0.115      | 0.037 | −0.198 | −0.051 |

IE, Indirect effect; M1, Mediator 1; M2, Mediator 2; SE, Standard error; Bootstrap sample size = 10,000.

In summary, when we study the dimensions of job crafting as mediating elements, we find that prevention-focused job crafting does not act as a mediator between burnout and self-efficacy, nor between burnout and performance. However, when we analyze promotion, the data indicate just the opposite. Promotion-focused job crafting is a mediating variable in the relationship between burnout and self-efficacy and the relationship between burnout and performance (see Figures 4, 5).

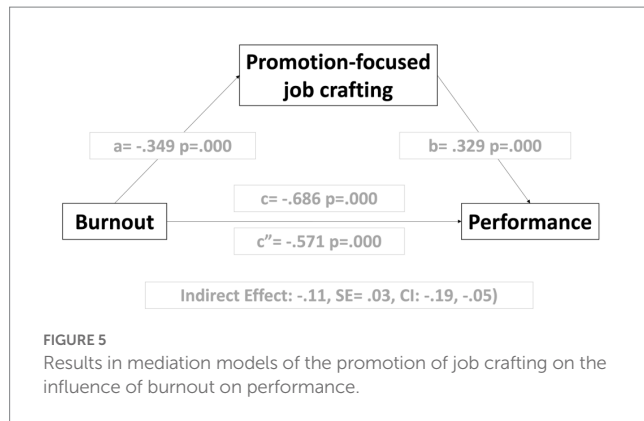
## 4. Discussion

Throughout this work, we seek to deepen the knowledge about the concept of job crafting and its dimensions, as well as its role in the process of health deterioration proposed by JD-R theory (Bakker and Demerouti, 2013). The objective has been to analyze whether the different dimensions of job crafting mediate the influence of burnout on self-efficacy and performance. This research has been carried out based on the dimensions of existing job crafting, as proposed by Lichtenhaler and Fischbach (2019): Prevention-focuses and promotion-focuses. The objective raises the influence of burnout on prevention-focused job crafting would be positive. In promotion-focused job crafting, this influence would be negative. The results



found partially support the proposed general objective. Only the promotion-focused dimension showed a mediating function in the effect of burnout on performance and self-efficacy.

The first hypothesis raised that burnout would have a positive and significant impact on prevention-focused job crafting and that it would act as a mediator in the influence of burnout on self-efficacy was refuted. Specifically, the data indicate that this job crafting dimension



does not present an indirect effect. We found similar data for hypothesis 3, which stated that burnout has a positive and significant influence on the prevention of job crafting and that it would mediate the impact of burnout on performance. As there is no mediation of job crafting prevention, this hypothesis is also not confirmed.

Concerning hypotheses of the promotion-focused job crafting (hypotheses 2 and 4) were confirmed. Hypothesis 2 established that burnout has a negative and significant influence on promotion-focused job crafting and that it will be a mediator in the impact of burnout on self-efficacy. Hypothesis 4 predicted that burnout has a negative and significant effect on promotion job crafting and that it will be a mediator in the relationship of the impact of burnout on performance.

The results confirming hypotheses 2 and 4 agree with the key findings of Lichtenthaler and Fischbach (2019), who found that promotion-focused job crafting is negatively related to burnout. In addition, it represents an advance in the knowledge of how burnout acts on the behavior and perception of employees. Specifically, these data indicate that the process through which burnout negatively affects workers' performance and self-efficacy is by reducing promotion-focused job crafting, that is, learning, achievement, personal growth, and motivational aspects. However, these workers do not use prevention strategies to protect themselves against negative states. They do not anticipate discomfort or loss of energy and health.

It can be drawn four implications from these results. First, when a worker is burning at work does not have a positive effect on his prevention responses. It can interpret that the employee gives the fact of being in a state of burnout and does not make self-protective responses. It may assume they are going through apathy, with an increasingly negative effect on the worker and on the organization. One possible explanation is the conservation or resources theory (Hobfoll, 1989). When an employee is burned out, he tries not to spend resources or protect himself.

Second, promoting job crafting is key to obtaining results and increasing employees' personal resources. The results of this study have shown the great sensitivity of these behaviors to the negative situations that the worker experiences in his work context, highlighted by his performance and the employee's resources. These findings support previous research that has shown the effect negative of burnout on job crafting (Yerkes and Dodson, 1908; Hobfoll, 1989; Baumeister et al., 2001; Taris et al., 2002; Lichtenthaler and Fischbach, 2019).

Third, the results confirm the negative consequences that burnout seems to exert on self-efficacy and performance. This influence is through job crafting behavior and occurs actively in the reduction of

promotion-focused job crafting and passively in the absence of effect on prevention-focused job crafting. These data support previous research that has shown the negative impact of burnout on the workplace's positive consequences (Aftab et al., 2012; Tims et al., 2014; Hosseini et al., 2017).

Fourth, promotion-focused job crafting is a mediator in the relationship between burnout, self-efficacy, and performance. Burned workers reduced their growth strategies and positive adaptation to their job.

The promotion-focused job crafting has shown a total mediation on the improvement workers' perception of self-efficacy. In contrast, the mediation effect of this dimension of job crafting is partial to the performance. The results of this paper indicate that all the influence of burnout on self-efficacy is due to the impact of the former on promotion-focused job crafting. In contrast, the effect of burnout on performance partially depends on promotion-focused job crafting. These findings partially support the health impairment process of JD-R theory (Bakker and Demerouti, 2013).

Finally, it is important in the discussion to keep in mind that the results obtained from this research should be interpreted in relation to the characteristics of the sample. In this study, it was observed that the most representative group was comprised of individuals between 46 and 55 years of age and with a high educational level, employed in a public administration. This may imply that the levels obtained in the study variables are affected by the characteristics of the sample. However, comparing the results obtained in this work with previous studies in samples of both public administration and private entities (Mañas-Rodríguez et al., 2020; Martínez-Díaz et al., 2020, 2021; Díaz-Fúnez et al., 2021) there do not seem to be significant differences in the results of these variables.

## 4.1. Theoretical implications

This study presents two proposals for advancing scientific knowledge around the health impairment process proposed by the JD-R theory (Bakker and Demerouti, 2013) and sheds light on the spiral of health deterioration in the JD-R theory (exhaustion-job crafting-new demands influence). First, these results suggest the existence of unresolved demands, which cause burnout syndrome, and this negative emotion affects the worker's self-protective behavior. The results found that workers will stop giving protective responses aimed at preventing the incidence of demands in their daily lives (job crafting prevention). They make the protective effect of prevention-focused job crafting disappear.

Second, the growth-oriented behaviors associated with job crafting (promotion) are reduced when burnout appears. In this situation, the adverse effects of this disorder increase. Since not only does the worker stop protecting himself through prevention actions, but there is also a lack of growth, typical of promotion actions. This situation generates a direct effect of reducing the perception of self-efficacy. At the same time, it presents a direct consequence on performance, and it is not proposed in the JD-R theory since this does not show a direct effect of job crafting on performance.

These theoretical suggestions suppose a detailed analysis of job crafting dimensions from the JD-R theory (Tims et al., 2014) and the partial refutation of the previous results of Lichtenthaler and Fischbach (2019).

Despite corroborating the negative influence of burnout on promotion job crafting, and its measuring effect on self-efficacy and

performance. When workers are burnout, they do not show an impact on prevention-focused job crafting, cutting off this pathway of influence on self-efficacy and performance.

## 4.2. Practical implications

Employee burnout at work negatively affects performance and self-efficacy. Organizations must prevent their employees from reaching this situation, both due to the adverse effects on the development of the employee and the organization itself and due to the apathy generated in the worker to reduce the rest of the demands. For example, a burned-out worker stops growing professionally but is also more affected by the new demands in the work context by not carrying out prevention behaviors. Establishing the necessary corrective measures to prevent this syndrome from appearing is key.

Another practical implication is the central role of promotion-focused job crafting in public management. In this sense, if it wants to prevent burnout in this work context, another way is to offer promotion strategies. For example, it can promote actions of growth, learning, and career development of employees. These findings lead us to value professional careers as a strategy to prevent employee burnout in the workplace.

## 4.3. Limitations and future research

However, the results obtained in this study must be considered under three limitations. Firstly, the results were obtained from online self-reports and could be affected by common method variance. However, the results of the Harman test (Podsakoff et al., 2003) showed that the exploratory factor analysis with all the study variables produced values in the first factor that did not exceed 50% of the variance between the variables (46.2%; Podsakoff and Organ, 1986). Furthermore, a poor model fit was revealed ( $X^2 = 11231.553$ ,  $p < 0.001$ ), which means that common method variation would not be a serious deficiency in this study.

Second, the sample is very specific, limited to the group of administration and service personnel of a public administration. Therefore, the results should be generalized to other types of organizations with caution. However, the results are interesting as inputs for interventions to improve employee well-being and develop healthy public organizations.

Third, the study design is cross-sectional, which prevents conclusions from being drawn about the temporal order of effects and causal relationships. However, the longitudinal effects of the test were not the main objective of this study, since we tested a mediation model of job crafting dimensions in employees.

Following the above limitations, we suggest other forms of data collection using records obtained through direct observation or critical incident assessment interviews. This would provide complementary measures to corroborate the goodness of the data used.

Second, it might be convenient to increase the sample spectrum of the study (e.g., compare samples from public and private administration) for a multivariate investigation. Longitudinal studies are needed to analyze the evolution and causal influences on the health impairment process by JD-R theory.

Finally, other variables could be incorporated in future studies to have extended models. For this, leadership style could be a critical

variable. It is well known that the behavior of leaders has an important influence on employees. Consequently, different leadership styles (e.g., transformational) could be investigated as moderators of the effect of burnout on job crafting dimensions. Another relevant variable may be the organizational climate or culture. Authors such as Wei et al. (2021) have already shown how this variable adds valuable information to understand the impact of different perceptions of the organizational environment of public employees.

## 5. Conclusion

The results indicate the high sensitivity of job crafting behaviors (both prevention-focused and promotion-focused) in situations of employee exhaustion, such as burnout syndrome. Specifically, this study presents how the absence of prevention responses and the negative effect on promotion behaviors are two of the ways through which burnout negatively influences the organization and employees.

## Data availability statement

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

## Ethics statement

The studies involving human participants were reviewed and approved by University of Almería Bioethics committee. The patients/participants provided their written informed consent to participate in this study.

## Author contributions

AM-D, PD-F, and MM-R contributed to conception and design of the study. BH-S and JS-G organized the database. BH-S and PD-F performed the statistical analysis. PD-F, MM-R, and JS-G wrote the first draft of the manuscript. AM-D, CS-F, BH-S, and PD-F wrote sections of the manuscript. All authors contributed to the article and approved the submitted version.

## 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.

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