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Psychological resilience and positive mental health among food bank employees in Bogotá: a cross-sectional study

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Abstract

Introduction: Psychological resilience and positive mental health are key protective factors in demanding work environments, particularly in social sector organizations. **Objective:** To assess levels of psychological resilience and positive mental health among employees of the Bogotá Food Bank and to explore their relationship with sociodemographic and work-related variables. **Methods:** An observational, descriptive, inferential, and cross-sectional study was conducted in Bogotá, Colombia, during 2025. A total of 67 employees participated using convenience sampling. An online questionnaire was administered, including sociodemographic variables, working conditions, and two validated scales to assess resilience and positive mental health (the Connor–Davidson Resilience Scale and the Positive Mental Health Scale). Descriptive and inferential analyses were carried out. **Results:** The sample consisted mainly of young men from low and middle socioeconomic strata. Medium-high levels of resilience and positive mental health were observed. No significant gender differences were found. A moderate positive correlation between the two variables was identified. **Conclusions:** Employees showed favorable levels of resilience and positive mental health with a direct relationship between the two. Factors such as family support, spirituality, and favorable working conditions can contribute to these findings. The development of tailored occupational health strategies is recommended to strengthen workplace well-being in social sector organizations.

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Keywords (MesH)
Psychological resilience, Mental Health, Occupational health, Work stress, Well-being (Source: *MeSH, NLM*).

Resiliencia psicológica y salud mental positiva en empleados del Banco de Alimentos de Bogotá: un estudio transversal

Resumen
Introducción: La resiliencia psicológica y la salud mental positiva son factores protectores clave en entornos laborales de alta demanda, especialmente en organizaciones del sector social. **Objetivo:** Evaluar los niveles de resiliencia psicológica y salud mental positiva en empleados del Banco de Alimentos de Bogotá y explorar su relación con variables sociodemográficas y condiciones laborales. **Métodos:** Estudio observacional, descriptivo, inferencial y transversal realizado en Bogotá, Colombia, durante 2025. Participaron 67 empleados mediante muestreo por conveniencia. Se aplicó un cuestionario en línea que incluyó variables sociodemográficas, condiciones laborales y dos escalas validadas para medir resiliencia y salud mental positiva. Se realizaron análisis descriptivos e inferenciales. **Resultados:** La muestra estuvo compuesta principalmente por hombres jóvenes de estratos socioeconómicos bajos y medios. Se observaron niveles medios-altos de resiliencia y salud mental positiva. No se encontraron diferencias significativas según sexo. Se identificó una correlación positiva moderada entre ambas variables. **Conclusiones:** Los empleados presentaron niveles favorables de resiliencia y salud mental positiva, con una relación directa entre ambas. Factores como el apoyo familiar, la espiritualidad y condiciones laborales favorables podrían contribuir a estos resultados. Se recomienda el desarrollo de estrategias de salud ocupacional adaptadas para fortalecer el bienestar laboral en organizaciones del sector social.

Palabras clave (MesH)
Resiliencia psicológica, Salud mental, Salud laboral, Estrés laboral, Bienestar (Fuente: *DeCS, BIREME*).

Resiliência psicológica e saúde mental positiva entre funcionários do Banco de Alimentos de Bogotá: um estudo transversal

Resumo
Introdução: A resiliência psicológica e a saúde mental positiva são fatores de proteção essenciais em ambientes de trabalho de alta demanda, especialmente em organizações do setor social. **Objetivo:** Avaliar os níveis de resiliência psicológica e de saúde mental positiva entre funcionários do Banco de Alimentos de Bogotá e explorar sua relação com variáveis sociodemográficas e condições de trabalho. **Métodos:** Estudo observacional, descritivo, inferencial e transversal realizado em Bogotá, Colômbia, durante 2025. Participaram 67 funcionários por amostragem por conveniência. Foi aplicado um questionário online com variáveis sociodemográficas, condições de trabalho e escalas validadas para medir resiliência e saúde mental positiva. Foram realizadas análises descritivas e inferenciais. **Resultados:** A amostra foi composta principalmente por homens jovens de estratos socioeconômicos baixos e médios. Foram observados níveis moderados a altos de resiliência e saúde mental positiva. Não foram encontradas diferenças significativas segundo o sexo. Foi identificada uma correlação positiva moderada entre ambas as variáveis. **Conclusões:** Os funcionários apresentaram níveis favoráveis de resiliência e saúde mental positiva, com uma relação direta entre ambos os construtos. Fatores como apoio familiar, espiritualidade e condições de trabalho favoráveis podem contribuir para esses resultados. Recomenda-se o desenvolvimento de estratégias de saúde ocupacional adaptadas para fortalecer o bem-estar no trabalho em organizações do setor social.

Palavras-chave (DeCS)
Resiliência psicológica, Saúde mental, Saúde ocupacional, Estresse no trabalho, Bem-estar (Fonte: *DeCS, BIREME*).

Introduction

The Bogotá Food Bank (Banco de Alimentos de Bogotá) is a non-profit organization dedicated to reducing hunger and promoting food security in Bogotá and surrounding areas. Its work involves collecting, sorting, and distributing food to vulnerable populations in collaboration with a wide network of social and community institutions (1). Working in this context is emotionally demanding as employees frequently interact with individuals affected by poverty and food insecurity. In addition, operational challenges such as limited resources, tight deadlines, and heavy workloads contribute to job strain. These conditions are associated with high levels of work-related stress, which increases the risk of burnout and negatively impacts both the mental health and overall well-being of staff (2).

In this context, two key constructs are particularly relevant: psychological resilience and positive mental health (3,4). Psychological resilience refers to the ability to adapt constructively to adversity through a dynamic process that enables individuals to cope with challenges, restore emotional balance, and transform difficult experiences into opportunities for personal growth (3). This construct encompasses biological, psychological, and social dimensions and plays a central role in overall health, especially mental health. Therefore, it is essential to examine how resilience manifests in different sociocultural contexts, especially in Latin America and Colombia, where environmental, cultural, and socioeconomic factors can influence its expression (4). On the other hand, positive mental health is not limited to the absence of mental disorders. Rather, it reflects an optimal state of psychological functioning. It includes subjective well-being (such as life satisfaction and positive affect) as well as psychological dimensions such as self-acceptance, autonomy, high-quality interpersonal relationships, sense of purpose, personal growth, and environmental mastery (5).

In recent years, the study of psychological well-being in the workplace has gained greater relevance in the fields of health promotion and organizational psychology, especially due to the growing interest in protective factors such as resilience and positive mental health in relation to work-related stress, emotional exhaustion, and burnout. Recent evidence indicates that both individual resources and supportive organizational conditions play a key role in promoting employee well-being, job engagement, and adaptive coping among employees in diverse work environments (6). However, most of this research has focused on healthcare professionals and other clinical or service-oriented settings, while evidence remains limited among workers in the social sector and non-profit organizations. These environments are characterized by the convergence of operational demands, institutional pressures, and continuous exposure to complex social problems (7). In this regard, the analysis of these constructs in employees of a food bank contributes to a broader understanding of psychological well-being in an organizational context that has been little explored in Latin America, providing context-specific empirical evidence relevant to occupational health.

For example, a report by McKinsey & Company (8) found that 88 % of leaders in non-profit organizations in Australia experience near burnout levels of stress, mainly due to chronic work pressures and lack of time and resources for recovery. This situation is associated with physical and emotional exhaustion, decreased performance, and increased psychological vulnerability. The report highlights that implementing support structures, fostering resilience, and promoting sustainable work models can significantly reduce burnout, improve mental health, and enhance adaptability in the workplace.

In the Colombian context, a study conducted in 2023 in a teleworking environment reported higher levels of stress and difficulties in balancing work and personal life, which highlights the need to strengthen approaches that align autonomy, productivity, and time management with the skills and training of workers (9). Similarly, post-COVID-19 research among healthcare workers has identified job strain, effort–reward imbalance, and systemic changes as key risk factors for mental health, while intrinsic motivation, strong social support, and effective leadership have been identified as protective factors (10).

Additionally, a recent study conducted among 93 young physicians in a high-complexity hospital in Bogotá examined the relationship between positive mental health and resilience using the Positive Mental Health Scale (PMH-Scale) and the Wagnild and Young Resilience Scale. The results showed a direct correlation between both constructs, suggesting that higher levels of positive mental health are associated with greater resilience. These results highlight the importance of developing strategies aimed at strengthening emotional adaptation and stress management not only in healthcare professionals but also in other occupational groups (11).

Finally, a cross-sectional study conducted in 2021 among 187 teleworkers assessed sleep quality and the presence of anxiety and depression symptoms during the

COVID-19 pandemic using the Pittsburgh Sleep Quality Index and the Hospital Anxiety and Depression Scale. The results showed that 68.9 % of participants had poor sleep quality, while 25.7 % and 11.23 % presented suggestive scores for anxiety and depression, respectively. These findings highlight the need for policies that promote psychosocial well-being in the workplace and support the continuous use of validated instruments to monitor the mental health of workers (12).

Together, these results highlight the need for specific and context-adapted strategies, since generalized approaches tend to be ineffective across diverse work environments (13,14). In particular, the focus on food bank employees arises from the unique challenges they face, given that they work in environments characterized by limited resources and high emotional demands due to their direct interaction with vulnerable populations. Despite this, there is little research specifically focused on this group, which highlights the relevance of this study and its potential to contribute to the development of context-sensitive assessments aimed at more accurately evaluating workplace well-being in this understudied population.

Therefore, the aim of this study was to assess the levels of psychological resilience and positive mental health among employees of a food bank in Bogotá. By examining these constructs in a population exposed to individuals with unmet basic needs, this study seeks to generate contextual evidence that can inform future strategies to promote mental health in non-profit work environments. To this end, two widely validated psychometric instruments were used: the Positive Mental Health Scale (15) and the Connor–Davidson Resilience Scale (CD-RISC-10) (16), which allowed for the description of score distributions and the exploration of their association. This study addresses an important gap in the local literature and contributes to the development of specific, context-adapted interventions in the field of occupational health.

Methods

Study design

A cross-sectional observational study was conducted to characterize levels of psychological resilience and positive mental health among employees of a social sector organization in Bogotá, Colombia. The study was carried out within the institutional framework of occupational health and safety, with the aim of generating evidence to support strategies for promoting mental health in the workplace (17).

Population and sample

The target population consisted of 159 active employees of the Bogotá Food Bank at the time of data collection. A non-probabilistic convenience sampling strategy was used. Inclusion criteria were being aged 18 years or older, having an active employment relationship with the organization, and providing informed consent to participate.

The final sample included 67 employees (42 % of the eligible population) who agreed to participate voluntarily and completed the questionnaire in its entirety, with no missing data in the main variables of the study. No exclusion criteria were applied beyond incomplete responses. Measures were taken to minimize information bias, including ensuring participant anonymity, using validated instruments, and administering the questionnaire in a self-report format without direct hierarchical pressure.

The sample size was determined by the number of employees who agreed to participate voluntarily during the data collection period. While a formal sample size calculation was not performed, the final sample represented 42 % of the total eligible population, which is considered acceptable for exploratory cross-sectional studies conducted in organizational settings. Non-probabilistic sampling for convenience may introduce selection bias and limit generalization of findings, but it was appropriate given the operational conditions of the organization and the exploratory nature of the study.

Data collection instruments

An online questionnaire was developed, including sociodemographic variables and psychometric scales validated in Spanish. The self-administered questionnaire was distributed through the Human Resources department using Microsoft Forms and consisted of four sections:

1. **Sociodemographic characteristics:** Included age, gender, place of birth, socioeconomic status, religion or spirituality, and living conditions, among others. These variables were collected to explore possible associations with scores of the main scale.

2. **Connor–Davidson Resilience Scale (CD-RISC-10):** A 10-item abbreviated version of the original 25-item scale used to assess resilience. Each item is scored on a 5-point Likert scale (0–4), with a total score ranging from 0 to 40, where higher scores indicate greater perceived resilience. The scale assesses dimensions such

as personal competence, tolerance to negative emotions, acceptance of change, sense of control, and spirituality. The validated Spanish version used in this study has demonstrated good internal consistency in adult populations ($\alpha > 0.85$) (16).

3. **Positive Mental Health Scale (PMH-Scale):** A unidimensional scale designed to assess overall psychological well-being. It consists of 9 items scored on a 4-point Likert scale (0–3), with a total score ranging from 0 to 27. Higher scores indicate higher levels of positive mental health. The validated Spanish version has demonstrated good internal consistency ($\alpha \approx 0.89$) and adequate convergent validity in Latin American populations (15).

4. **Work-related conditions:** Including questions about perceived physical workload, working hours, organizational factors, and frequency of interaction with vulnerable populations.

Both instruments were selected for their applicability in work settings, their brevity, their ease of administration, and the availability of validated Spanish versions. Additionally, both have demonstrated adequate psychometric properties and have been previously used in clinical and occupational research.

Data collection procedure

Data collection was carried out during an occupational health activity organized by the Human Resources and Occupational Health and Safety departments of the institution. Participants received a brief explanation of the study objectives prior to completing the questionnaire. Each participant completed the survey individually, ensuring their autonomy and minimizing potential biases in responses.

Data analysis

The data were exported and analyzed using Microsoft Excel® and Jamovi®. Initially, data cleaning procedures were carried out to identify outliers, data entry errors, and incomplete responses. Only cases with complete data for the main variables (CD-RISC-10 and PMH-Scale) were included in the analysis.

A descriptive statistical analysis was carried out to characterize the sample. For quantitative variables, measures of central tendency (mean and median) and dispersion (standard deviation and interquartile range) were calculated. Categorical variables were summarized using absolute and relative frequencies.
Inferential analyses were conducted to explore associations between sociodemographic variables and the scores obtained on the PMH-Scale and CD-RISC-10. The Mann–Whitney U test was used to compare PMH-Scale scores between groups due to non-normal distribution. An independent samples t-test (with Welch correction when necessary) was used to compare CD-RISC-10 scores between men and women, provided that assumptions of normality and homogeneity of variances were met.

Normality was assessed before inferential analysis. The correlation between PMH-Scale and CD-RISC-10 scores was assessed using Spearman correlation coefficients, given the non-normal distribution of the variables. A significance level of $p < 0.05$ was considered statistically significant. All analyses were conducted in accordance with standard statistical practices for cross-sectional studies.

Ethical considerations

This study was conducted in accordance with the ethical principles of the Declaration of Helsinki (18) and the national regulations for health research in Colombia. All participants gave their informed consent using a digital form, which ensured voluntary participation, confidentiality, anonymity, and the right to withdraw at any time without consequences.

No personal information or sensitive data were collected. The data were stored in a secure institutional cloud repository with restricted access limited to the research team. Since this study did not involve any intervention, it was classified as a no-risk study according to Article 11 of Resolution 8430 of 1993 (19). In addition, the study was conducted within the framework of Colombian regulations on occupational health and safety which promote employee well-being (20,21).

Results

The sociodemographic characterization of the sample revealed variations in gender, age, place of origin, household composition, socioeconomic status, and religiosity or spirituality. The sociodemographic characteristics and work-related conditions of the participants are summarized in Table 1. Overall, 59.7% of participants identified as male (n = 40) and 40.3% as female (n = 27). Most participants were young adults aged 20–29 years (46.3%), followed by those aged 30–39 years (23.9%) and 40–49 years (22.4%), while 7.5% were between 50 and 59 years old, indicating a predominance of a young working-age population.

As for the place of birth, 71.6 % (n = 48) reported being born in Bogotá, while 28.4 % (n = 19) were from other regions of Colombia or from abroad, including one participant from Venezuela. Regarding household

composition, most participants (80.6 %, n = 54) lived with their families, whereas 10.4 % (n = 7) lived alone and 9.0 % (n = 6) lived with friends or roommates.

Socioeconomic status was predominantly low to lower-middle, with the majority of participants belonging to socioeconomic stratum 2 (50.7 %, n = 34), followed by socioeconomic stratum 3 (29.9 %, n = 20), and stratum 1 (14.9 %, n = 10) -In Colombia, residential socioeconomic strata range from 1 [lowest] to 6 [highest] and are used as a proxy for socioeconomic status. - A smaller proportion belonged to stratum 4 (3.0 %, n = 2) and stratum 5 (1.5 %, n = 1). Additionally, 73.1 % of the participants (n = 49) declared practicing a religion or identified as spiritual, while 26.9 % (n = 18) did not.

Regarding working conditions, 59.7 % (n = 40) indicated that none of the factors mentioned negatively affected their working conditions. Among those who identified at least one factor (40.3 %, n = 27), the most frequently reported was a high physical workload (16.4 %), followed by unmet salary expectations (11.9 %), excessive working hours (8.9 %) and, to a lesser extent, an inadequate work environment (2.9 %).

Table 1. Descriptive analysis of qualitative variables characterizing the sample

Sociodemographic characteristics	n (%)
Gender	
Male	40 (59.7 %)
Female	27 (40.3 %)
Age (years)	
20-29	31 (46.27 %)
30-39	16 (23.88 %)
40-49	15 (22.39 %)
50-59	5 (7.46 %)
Place of birth	
Bogotá	48 (71.6 %)
Outside Bogotá	19 (28.4 %)
Socioeconomic status (stratum)	
1	10 (14.9 %)
2	34 (50.7 %)
3	20 (29.9 %)
4	2 (3.0 %)
5	1 (1.5 %)
6	0 (0 %)
Religion or spirituality	
Yes	49 (73.1 %)
No	18 (26.9 %)
Living arrangement	
Family	54 (80.6 %)
Friends/Roommates	6 (9.0 %)
Alone	7 (10.4 %)
Perceived factors affecting working conditions	
High physical workload	11 (16.4 %)
Unmet salary expectations	8 (11.9 %)
Working hours	6 (8.9 %)
Inadequate work environment	2 (2.9 %)
None of the above	40 (59.7 %)

Source: Elaboration by the Authors. Bogotá, Colombia, 2025.

Regarding the Positive Mental Health Scale (PMH-Scale), the mean total score in the sample was 22.8 (SD = 4.07), with a median of 24.0 and an interquartile range (IQR) of 6 points, indicating low to moderate dispersion within the central 50 % of the distribution. The mean and distribution of scores were consistent with moderate to high levels of positive mental health among participants, with limited variability across the sample.

Similarly, the mean total score for the Connor–Davidson Resilience Scale (CD-RISC-10), was 31.9 (SD = 5.62), with a median of 32 and an interquartile range of 7 points, indicating moderate dispersion. The observed scores were within the range that is generally considered moderate to high.

To assess possible differences in positive mental health between independent groups, the Mann–Whitney U test was applied due to the non-normal distribution of the variable and the presence of negative skewness. As shown in Table 2, no statistically significant differences were observed (U = 523; p = 0.832), with a very small effect size (rank-biserial correlation = 0.03). These results indicate that positive mental health does not differ significantly between male and female participants.

Table 2. Comparison of PMH-Scale scores using the Mann–Whitney U test

Variable	Mann–Whitney U	p-value	Median difference	Effect size (rank-biserial correlation)
PMH-Scale total score	523	0.832	≈ 0.00	0.03

Note. H_a: μ_male ≠ μ_female.
Source: Elaboration by the Authors. Bogotá, Colombia, 2025.

A t-test of independent samples was conducted to compare resilience scores between men and women (Table 3). Levene's test indicated unequal variances ($p < 0.05$). Therefore, Welch's correction was applied. No statistically significant differences were observed between groups ($t(65) = 0.43$; $p = 0.668$), with a mean difference of 0.61 points and a small effect size (Cohen's $d = 0.11$). These findings suggest that resilience levels were comparable between male and female participants in the analyzed sample.

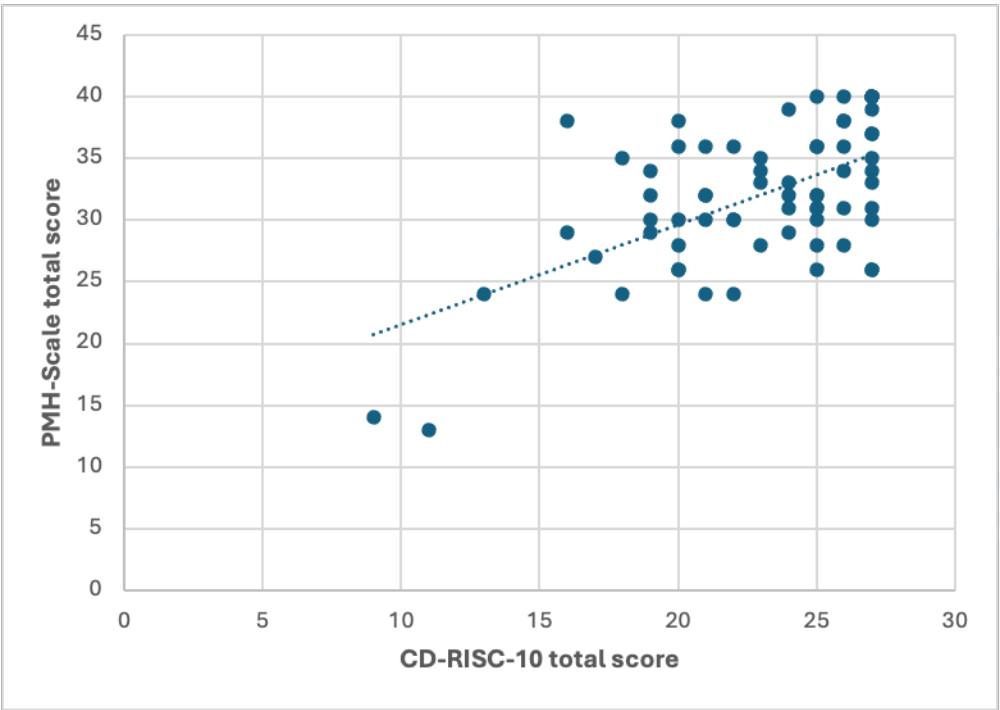
Table 3. Comparison of CD-RISC-10 scores by gender using an independent samples t-test

Variable	t (Welch)	df	p-value	Mean difference	SE of difference	Effect size (Cohen's d)
CD-RISC-10 total score	0.43	65	0.668	0.61	1.41	0.11

Note. H_a: μ_male ≠ μ_female. Levene's test indicated unequal variances ($p < 0.05$); therefore, Welch's correction was applied.
Source: Elaboration by the Authors. Bogotá, Colombia, 2025.

Finally, to examine the relationship between positive mental health and resilience, a scatter plot was constructed (Figure 1). A positive association between both variables was observed, indicating that higher CD-RISC-10 scores were associated with higher scores on the PMH-Scale. The analysis showed a moderate positive correlation ($r = 0.58$), suggesting a direct relationship between the two constructs.

Figure 1. Relationship between PMH-Scale and CD-RISC-10 scores



Source: Elaboration by the Authors. Bogotá, Colombia, 2025.

Discussion

The findings of this study describe a predominantly male workforce in active working age, mostly belonging to low- to middle-low socioeconomic strata, consistent with profiles reported in national literature (22). While most participants did not perceive adverse working conditions, a significant proportion reported difficulties related to physical workload, salary expectations, and extended working hours. These factors, recognized as determinants of workplace well-being, provide an important context for interpreting the observed levels of resilience and positive mental health.

No statistically significant differences were found in resilience or positive mental health by gender, suggesting a relatively homogeneous distribution of these psychological resources in the population. However, a moderate positive correlation was observed between resilience and positive mental health, indicating that greater adaptive capacity is associated with greater psychological well-being. These findings suggest that both constructs may function as complementary resources in the workplace, jointly contributing to coping and adaptation to work-related stress.

Taken together, these results support the conceptualization of resilience and positive mental health as interrelated but distinct dimensions within the frameworks of occupational well-being, reinforcing their joint role in adaptive functioning under conditions of work-related stress.

This association is consistent with previous studies in the healthcare sector and other occupational groups, where resilience has been identified as a key factor linked to better mental health outcomes and coping skills (11). However, the strength of the correlation also indicates that other variables can influence positive mental health, highlighting its multifactorial nature.

Variables such as family support (80.6 %), religiosity or spirituality (73.1 %), and the absence of perceived adverse working conditions (59.7 %) could be associated with the observed levels of resilience and positive mental health. These findings are consistent with previous research highlighting the role of social and contextual factors in psychological well-being (11). However, these associations should be interpreted with caution, given the cross-sectional design of the study.

From an occupational health perspective, these findings support the importance of developing context-specific strategies aimed at strengthening both individual and organizational resources. Promoting resilience and psychological well-being can contribute to improved mental health outcomes and organizational functioning, especially in demanding work environments.

Future research should explore the role of additional sociodemographic and organizational variables (such as job tenure, type of contract, and workload) and assess the longitudinal impact of interventions aimed at psychological well-being.

Among the strengths of this study is the use of validated instruments (CD-RISC-10 and PMH-Scale) in a real organizational environment, which improves the applicability of the findings. However, limitations include the cross-sectional design, which prevents causal inference, the use of convenience sampling, which can limit generalization, and reliance on self-reported data, which can introduce biases, including the potential influence of social desirability, particularly in organizational contexts.

Conclusions

This study provides an initial characterization of psychological resilience and positive mental health among employees of a food bank in Colombia, a work environment characterized by high emotional demands and limited resources. The findings indicate moderate to high levels of resilience and positive mental health, with a homogeneous distribution across genders and a significant positive correlation between both constructs. This association supports their role as relevant factors linked to occupational well-being and coping in demanding work environments (11,13)

While overall scores were favorable, areas for improvement were identified, such as maintaining a positive mood, self-confidence, effective stress coping, and managing frustration. The findings also suggest that organizational context, along with factors such as family support and religiosity or spirituality, may be associated with the observed levels of resilience and positive mental health (11).

These results provide new evidence in the field of occupational health within food bank organizations in Colombia, a population that has been little explored in the literature. In this regard, it is recommended that occupational health and safety policies incorporate comprehensive strategies aimed at promoting psychological well-being adapted to the operational realities of non-profit organizations, including preventive actions, psychosocial support, and periodic monitoring of workers (23).

Despite the inherent limitations of the cross-sectional design and the use of non-probabilistic sampling, this study provides a contextualized basis for the development of strategies that strengthen resilience and positive mental health. These approaches can have a positive impact not only on individual well-being, but also on productivity, team cohesion, and the long-term sustainability of institutional missions in demanding environments.

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Author contributions

Francisco Palencia-Sánchez (https://orcid.org/0000-0002-8126-7748): Conceptualization, methodological guidance, review of manuscript drafts, and final approval of the version to be published. Coordination with the organization where the study was conducted.
Sofía Pérez-Lalinde (https://orcid.org/0009-0005-3975-0620): Led the study design and methodology, participated in data collection, performed data analysis and statistical procedures, developed tables, and drafted the manuscript, including integration of revisions and editorial feedback.
Catalina Pinto-Rodríguez (https://orcid.org/0009-0002-1443-4363): Contributed to data collection, development of tables and statistical figures, and formulation of recommendations for the Bogotá Food Bank.

Conflicts of interest

The authors declare no conflicts of interest.

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