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Is there a relationship between organisational climate and job satisfaction? A view from a systematic review and meta-analysis

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Abstract: This study focused on determining the relationship between organisational climate and job satisfaction in education, health and other sectors, as its long-term effects can affect organisational performance. Using a PRISMA-supported systematic review method, a literature search was conducted in Scopus and Web of Science databases. Quantitative articles with correlation, regression or effect size data were included. In addition, meta-analysis was conducted in Jamovi, where the r - z coefficient was transformed using a maximum confidence estimator. The title-based search strategy yielded 112 articles, but only 30 met the inclusion criteria. The meta-analysis revealed a positive correlation between climate and job satisfaction in education, health and other sectors. It is concluded that a favourable organisational climate helps keep employees satisfied; that is, employees with an adequate organisational climate will feel more satisfied at work, whether in education, health or any other sector. Therefore, senior and middle management must ensure an appropriate organisational climate.

Keywords: organisational climate; job satisfaction; leadership; support; promotion opportunities; education sector; health sector; PRISMA; meta-analysis; systematic review.

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include linked to business and behavioural sciences, based on multivariate methodology, using structural equation modelling (SEM), supervised and unsupervised techniques and psychological networks.

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1 Introduction

For more than 30 years, practitioners, academics and researchers have intensively investigated organisational climate and job satisfaction. These constructs are latent traits that can tangibly and intangibly affect the organisation's direction, hence the importance of why they have been studied in various contexts (Ahmad et al., 2018; Vidaurre et al., 2023).

Organisational climate is understood as the shared values and underlying assumptions of a given group of people at work regarding traditions and norms (Loh et al., 2019); it also reflects employees' attitudes and beliefs, transforming them into elements of the climate and establishing a distinctive image within and outside the company (Carrillo-Carreño and Bolívar-León, 2023; Reichers and Schneider, 1990). Organisational climate is the manifestation of an employee's emotions, perspectives and behaviours and is influenced by human resource management practices, organisational values, interpersonal relationships and other policies aimed at setting goals and rewarding success (Yamassake et al., 2021); therefore, organisational climate can be affected by the work environment and employee behaviour (Hossny et al., 2023).

Job satisfaction is the result of employees' perceptions of their performance in performing tasks considered important (Rompu et al., 2018); it is also understood as a set of emotions generated by workers' experiences in individual and organisational situations, which can be positive or negative (Chiang-Vega et al., 2021).

Studies reveal the importance of having satisfied workers and an adequate organisational climate for work; however, this is not always the case. It has been revealed that 55.7% of workers are satisfied in relation to the fair and equal treatment they receive from their superiors (Carrillo-Carreño and Bolívar-León, 2023); on the other hand, another study revealed an average organisational climate, which was not the same for job satisfaction, which was slightly lower (Kim and Lee, 2018). In the same line, it was found that 71.20% of the employees had a regular perception of the organisational climate; on the contrary, job satisfaction reached 80.70% at a regular level (Dávila et al., 2021); however, it was found that 79% perceived a high organisational climate and 66% of the employees experienced job satisfaction at a satisfied level (Coronel et al., 2020).

It has become evident that the longer an employee has been working for an organisation, the better he/she will adapt to its culture, which may affect his/her perception of the organisational climate; this does not mean having an adequate level of satisfaction (Ghavifekr and Pillai, 2016), as it allows the issue of climate and job satisfaction to be very sensitive issues, since it has to do with human relations within the organisation (Osmani et al., 2022); that is why the importance and transcendence of these issues since their initial theoretical approaches, so reviewing this vast scientific literature helps to see the significant achievements they have been having.

In the scientific literature, 31 review articles have been identified that directly link the concepts of climate and satisfaction (Maji et al., 2023; Morán and Carlos, 2023; Neumann et al., 1988; Park and Lee, 2018; Thumm and Flynn, 2018; Vilariño and Lopez-Zafra, 2022; Yadav et al., 2022) but only 2 reviews considered as the main topic of study (Khun-Inkeeree et al., 2021; Neumann et al., 1988) and one research focused on systematic review in the health field, which is in the process of disseminating the results by December 2024, however, they reveal the intentions and objectives on which the study will focus (Santana and Pérez-Rico, 2023), but it does not seek to focus on a meta-analysis based on the results in the health field.

Based on this premise and the scarcity of systematic review research on organisational climate and job satisfaction, and furthermore the lack of a meta-analysis to evaluate the results of these studies and the risk of bias, it merited filling this knowledge gap under a systematic review and meta-analysis, with an emphasis on quantitative studies that revealed the correlation results; this allowed to evaluate the studies from various sectors in which they have been published and determined the important results deriving practical issues and important future lines of research.

2 Literature review

2.1 Contextualising climate and satisfaction

The organisational climate reflects the culture, values, work environment and the emotional state of individuals, under specific conditions that arise from the interaction of behaviours, values, norms, policies and work processes of the collaborators (Liang et al., 2024; Liyanagamage et al., 2023; Xia et al., 2024). In contrast, 'job satisfaction is an immediate emotional response resulting from an evaluation of a person's job or work experiences' (Liang et al., 2024, p.3); also, it is the degree of happiness, enjoyment and value that an employee has perceived through his or her daily work (Locke, 1969).

The first studies that attempted to relate climate and job satisfaction were addressed in the 20th century and published in the fields of social sciences, business, management and accounting, medicine, psychology, nursing, arts and humanities and engineering (Day and Bedeian, 1991; Donohue, 1986; Friedlander and Margulies, 1969; Gillies et al., 1990; Keller et al., 1996; Keuter et al., 2000; Lafollette, 1974; McMahon et al., 1977; Neumann et al., 1988; Payne et al., 1976; Pope and Stremmel, 1992; Pritchard and Karasick, 1973; Putti and Kheun, 1986; Putti and Singh, 1988; Salgado et al., 1996; Welsch and Lavan, 1981; Witt, 1988). These studies were carried out under theoretical proposals that by that time had already been widely disseminated, the link between climate and satisfaction based on theoretical proposals such as John P. Campbell's (Pritchard and Karasick, 1973), Mowday, Steers and Porter's and Porter and Lawler's study published in 1979 and 1968, respectively (Welsch and Lavan, 1981), Likert's

proposal in 1967 for organisational climate and Smith, Kendall and Hulin's in 1969 for job satisfaction (Payne et al., 1976), as well as the contributions on these constructs made by Litwin and Stringer in 1968 (Ahmad et al., 2018), among others (Friedlander and Margulies, 1969; James and Jones, 1974).

Generally speaking, climate is often subjective, but it embodies an organisation's work environment, making it essential to achieving employee satisfaction (Yamassake et al., 2021). This search for the relationship or association between climate and satisfaction has been addressed by various sectors and approaches. Below, the main approaches in which these concepts have been studied are prioritised: education and health.

2.2 Studies in the education sector

Studies on climate and satisfaction have been highly valued in the educational setting, where scholars and researchers have been concerned with bridging this gap in their context, as it has been found that employee engagement, job characteristics, job satisfaction and organisational climate directly impact on civic organisational behaviour (Jiang et al., 2019; Na-Nan et al., 2016); therefore, organisational climate and job satisfaction are interrelated, climate focuses on the organisational attributes of how teachers perceive them, while satisfaction addresses the attitudes and perceptions teachers have and expect about their work (Ghavifekr and Pillai, 2016; González, 2018).

In this context, it has been shown that leadership can influence organisational citizenship behaviour directly through job satisfaction, while organisational climate can influence it indirectly through employee satisfaction (Wahyu et al., 2019); likewise, teacher satisfaction is affected by transformational leadership, management information systems and organisational climate (Anwar, 2019). Therefore, organisational climate and job satisfaction are mutually dependent (Carrillo-Carreño and Bolívar-León, 2023; Coronel et al., 2020).

2.3 Studies in the health sector

Another sector where research on organisational climate and job satisfaction has been prominent is the healthcare field. In this context, organisational structure, support, norms and professional status were substantially correlated with job satisfaction and organisational climate; furthermore, high and low-rated units differed in job satisfaction, organisational climate and relationships with colleagues and doctors/nurses in contrast, nurses' job satisfaction was substantially related to organisational structure, professional recognition and work relationships (Keuter et al., 2000). On the other hand, studies of job stress, quality-of-work life and organisational climate affect job satisfaction, as job demand, balanced remuneration and recognition are factors that most influence satisfaction (Rompu et al., 2018). Also, the relationship between climate and satisfaction is due to the high level of organisational climate, and its level of this is due to the employees having higher levels of job satisfaction (Chiang-Vega et al., 2021; Yamassake et al., 2021); this could lead to an improvement in the quality of services (Kim and Lee, 2018).

The literature reveals that job satisfaction plays a mediating role between organisational climate and intentions to quit (Li et al., 2020); however, commitment, values and work climate predict job satisfaction; therefore, satisfaction improvements should be based on contextual and psychological aspects of work (Caricati et al., 2014)

because of the fact that the relationship is significant (Hashish, 2017; Meeusen et al., 2011). Also, it is evident that equitable supervision can improve productivity, increase satisfaction and generate an appropriate work climate that, in effect, enables good task performance and generates helping behaviour (Wang and Ahoto, 2022).

2.4 Studies in various sectors

The literature reveals studies conducted in contexts such as municipalities, banking, industrial, service, commercial, public-sector institutions, among others. Under these contexts it is said that personality traits play a significant role in the relationship between organisational climate and job satisfaction, which is why leaders and managers must understand the causal role of personality (Ahmad et al., 2018) in influencing climate and culture on job satisfaction (Elqadri, 2015). Organisational climate and justice positively impact job satisfaction, which in turn positively influences job performance; as job satisfaction plays a mediating role in the influence of organisational climate and justice on job performance (Haryono et al., 2019); therefore, organisational climate influences job satisfaction (Pecino et al., 2019).

It has been found that there are no significant differences between men and women in organisational climate and job satisfaction. A good and sufficient organisational climate increases job satisfaction, which improves the life satisfaction of staff (Bemana, 2011). Studies show the link between organisational climate and employee satisfaction (Dávila et al., 2021; Osmani et al., 2022); however, factors such as organisational structure, identity and human relations positively affect job satisfaction, whereas equity and empowerment may affect job satisfaction (Bhutto et al., 2012); however, a positive organisational climate could lead to less stressed and burned-out workers, and, simultaneously, higher stress in the role can lead to lower job satisfaction, thus worsening employee well-being (Pecino et al., 2019).

3 Methodology

3.1 Study protocol

Prior to conducting the information search, a plan for systematic reviews was developed following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Page et al., 2021). To prepare and structure this review, the research question was developed taking into account the acronym population, intervention, comparison, outcome (PICO): How is organisational climate related to job satisfaction?

3.2 Research and selection of studies

For the present systematic review and meta-analysis, a literature search was conducted in the two main databases in the world, Scopus and Web of Science, up to July 2023. Taking advantage of the filters in these databases we only focused the search on the titles, considering the following combination of words: 'Organisational climate', 'Work climate', 'Work satisfaction', 'job satisfaction' (see Table 1).

Table 1 Search strategies by database

<i>Bibliographic database</i>	<i>Title-based search strategy</i>
SCOPUS	(TITLE ('Organizational climate' OR 'Work climate') AND TITLE ('Work satisfaction' OR 'job satisfaction'))
WOS	(TI=('Organizational climate' OR 'Work climate')) AND TI= ('Work satisfaction' OR 'job satisfaction')

Inclusion and exclusion criteria were taken into account in all phases of article screening. Some of the excluded articles were in the quality control phase, taking into account unpublished articles, experimental or pre-experimental studies, studies that are not available in full text, studies where there is no correlation or regression data between climate and satisfaction, studies that look for the relationship between factors or dimensions, articles that were initially potentially eligible but when reviewing the correlation data between variables were not found, which were excluded from the qualitative and quantitative analysis.

3.3 Data extraction

For data extraction, a table was used to list the studies that met the eligibility criteria, taking into account authors, year of publication, article title, journal, study sector, methodology, type of sample and type of statistical technique applied (see Table 2). Other data extracted in this phase were age, gender, educational level, country, dimensions or factors of organisational climate and job satisfaction. To prioritise the meta-analysis in this phase, the sample and correlation were extracted.

Table 2 Reasons for study exclusions

<i>Nº Reason</i>	<i>Type of reason</i>	<i>Quantity excluded</i>
Reason 1	Not published articles	1
Reason 2	Experimental or pre-experimental studies	2
Reason 3	Studies that are not available in full text	8
Reason 4	There is no correlation or regression data between climate and satisfaction.	15
Reason 5	Relationship between factors or dimensions	25
Total		51

3.4 Analysis of the results

In data extraction, correlation, regression or effect size data were identified; in some cases, the correlation statistic was identified directly; in other cases, the correlation statistic had to be calculated from a coefficient of determination and from the beta value effect provided by the article. Finally, the meta-analysis was carried out in the Jamovi statistical program, where the initially centralised correlation data were exported to Excel.

4 Results

4.1 Prism diagram and exclusion ratios

Figure 1 shows the studies identified through the databases and registers based on three main processes: identification, checking and the articles included. In the identification

phase, records were identified by databases, 83 were identified in Scopus, and 29 documents were identified in Web of Science, identifying 21 duplicate records. With the checking and evaluation of the records, 10 were excluded, leaving 81 documents; however, on reviewing each document and considering the inclusion and exclusion criteria, 51 excluded documents were reported (see Table 2) and only 30 scientific articles were eligible for the qualitative and quantitative analysis (see Figure 1).

Figure 1 Prism diagram of identified studies. * Books, book chapters, conferences, theses, retracted articles were excluded here (see online version for colours)

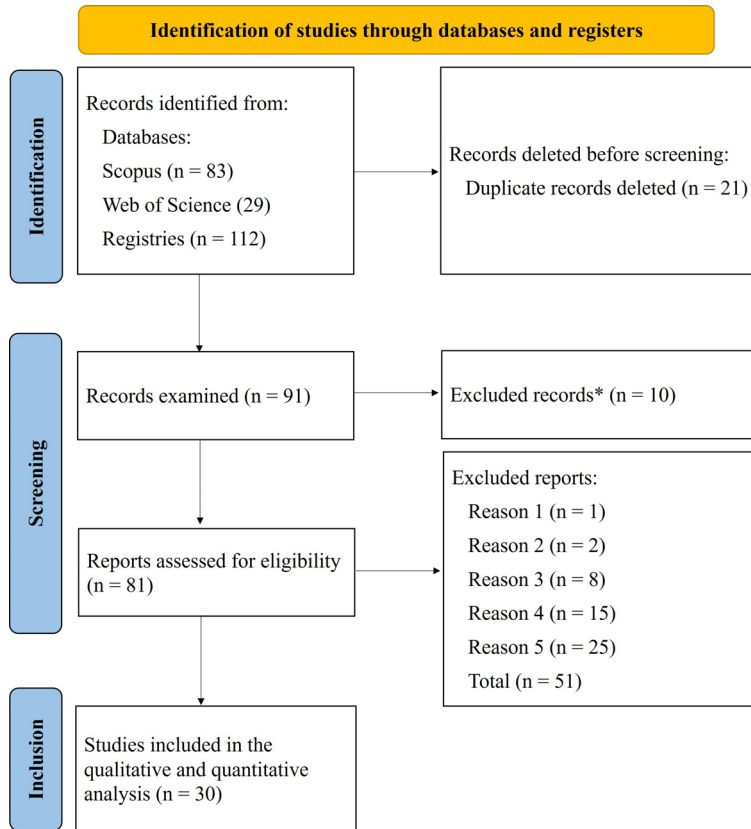


Table 3 reveals the selected articles by title and journal, where 10 potential articles were published from the health sector, 10 from the education sector and 10 from other sectors such as banking, industry, production, services, commerce and public sector, among others, were selected. These 30 selected studies had a diverse methodology, but the ones that stand out the most are descriptive, correlational and cross-sectional studies; in some cases, they do not explicitly reveal the type of research, so it is not described in this section, likewise, some of these studies revealed the type of sampling they used in which random probability sampling and those carried out at the discretion of the researcher or by convenience stand out; however the type of statistics used for the analyses are regression, factor analysis, descriptive and correlation statistics (see Table 3).

Table 3 Selected articles

<i>Author</i>	<i>Title</i>	<i>Journal</i>	<i>Sector</i>	<i>Methodology</i>	<i>Type of sample</i>	<i>Type of statistical technique</i>
(Keuter et al., 2000)	Nurses' job satisfaction and organizational climate in a dynamic work environment	<i>Applied nursing research: ANR</i>	Health	Descriptive-correlational	Convenience sample	Regression analysis
(Rompu et al., 2018)	The effect of occupational stress, quality of worklife and organizational climate on officials' work satisfaction of Regional Public Hospital of Undata Palu	<i>Indian Journal of Public Health Research and Development</i>	Health	Cross-sectional design	Proportionate stratified random sampling	Multiple linear regression
(Adeniji et al., 2018)	Survey datasets on organizational climate and job satisfaction among academic staff in some selected private universities in Southwest Nigeria	<i>Data in Brief</i>	Education	Survey method	Trial sampling method	Confirmatory factor analysis and multiple regression
(Chiang-Vega et al., 2021)	Effect of job satisfaction and confidence on the organizational climate, through structural equations	<i>Retos (Ecuador)</i>	Health	The study is cross-sectional and correlational	*	Descriptive, factorial and Structural Equations statistics
(Ahmad et al., 2018)	Organizational climate and job satisfaction: do employees' personalities matter?	<i>Management Decision</i>	Various	Cross-sectional postal survey methodology	Judgement sampling	Hierarchical multiple regression analysis
(Benana, 2011)	The relationship between job satisfaction and organizational climate in Shiraz municipality personnel in Iran	<i>Australian Journal of Basic and Applied Sciences</i>	Municipality	Descriptive-correlational	Cluster random sampling	Parametric statistics, mean, standard deviation and regression
(Bhutto et al., 2012)	A comparative study of organizational climate and job satisfaction in public, private and foreign banks	<i>Asian Social Science</i>	Banking	Quantitative, descriptive and analytical	Convenience sampling	Spearman correlation coefficient, Kruskal Wallis test and multiple regression analysis.

Table 3 Selected articles (continued)

<i>Author</i>	<i>Title</i>	<i>Journal</i>	<i>Sector</i>	<i>Methodology</i>	<i>Type of sample</i>	<i>Type of statistical technique</i>
(Na-Nan et al., 2016)	Influence of job characteristics, organizational climate, job satisfaction and employee engagement that affect the organizational citizenship behavior of teachers in Thailand	<i>Social Sciences (Pakistan)</i>	Education	Survey method	*	Descriptive Statistics and Structural Equation Modelling Analysis
(Elqadri, 2015)	The influence of organizational culture, organizational climate, and the promotion of the position of employee job satisfaction in PT. Surabaya Graphics Media Temprina	<i>Asian Social Science</i>	Industry	Quantitative and explanatory approach	Proportionate stratified random sampling	Multiple linear regression analysis
(Kim and Lee, 2018)	The influence of organizational climates and environments for social welfare worker's job satisfaction in social welfare organization -focused on the modulating effect of job identity-	<i>Indian Journal of Public Health Research and Development</i>	Health	*	*	Correlation analysis, regression analysis and hierarchical multiple regression analysis
(Ghavifekr and Pillai, 2016)	The relationship between school's organizational climate and teacher's job satisfaction: Malaysian experience	<i>Asia Pacific Education Review</i>	Education	Quantitative, descriptive, cross-sectional survey and descriptive research method	Probability sampling	Frequency, central tendency, dispersion, reliability, Pearson product-moment formula and t-test analyses.

Table 3 Selected articles (continued)

<i>Author</i>	<i>Title</i>	<i>Journal</i>	<i>Sector</i>	<i>Methodology</i>	<i>Type of sample</i>	<i>Type of statistical technique</i>
(Osmani et al., 2022)	Organizational climate and job satisfaction: empirical insights from kosovo manufacturing and service sector organizations	<i>Management (Croatia)</i>	Production and services	*	*	Confirmatory factor analysis and correlation analysis
(González, 2018)	Job satisfaction, and organizational climate in Colombian University	<i>Opcion</i>	Education	Analytical-relational type, with cross-sectional and field design	*	Frequency, reliability and correlation statistics
(Li et al., 2020)	Organizational climate, job satisfaction, and turnover in voluntary child welfare workers	<i>Children and Youth Services Review</i>	Health	*	*	Structural equation modelling
(Dávila et al., 2021)	Organizational climate and job satisfaction in a Peruvian industrial company	<i>Revista Venezolana de Gerencia</i>	Industry	Quantitative approach, non-experimental correlational and descriptive method.	Census sample	Descriptive and correlation analysis

Table 3 Selected articles (continued)

<i>Author</i>	<i>Title</i>	<i>Journal</i>	<i>Sector</i>	<i>Methodology</i>	<i>Type of sample</i>	<i>Type of statistical technique</i>
(Haryono et al., 2019)	Do organizational climate and organizational justice enhance job performance through job satisfaction? A study of Indonesian employees	<i>Academy of Strategic Management Journal</i>	Service	Quantitative research	*	Descriptive and structural equation modelling
(Madhakomala and Hanafi, 2021)	Productive teacher job satisfaction: disentangling organizational climate, facility management, and organizational citizenship behavior	<i>International Journal of Evaluation and Research in Education</i>	Education	Quantitative approach with a survey method	Purposive sampling	Path analysis
(Yamassake et al., 2021)	Job satisfaction vs. organizational climate: a cross-sectional study of Brazilian nursing personnel	<i>Revista Enfermagem</i>	Health	Cross-sectional field study with a quantitative approach	*	Descriptive analysis, association analysis and structural equation modelling
(Caricati et al., 2014)	Work climate, work values and professional commitment as predictors of job satisfaction in nurses	<i>Journal of Nursing Management</i>	Health	Cross-sectional Study	Random sampling	Descriptive statistics and correlations; structural equation modelling (SEM) using maximum likelihood estimation.
(Meeusen et al., 2011)	Work climate related to job satisfaction among Dutch nurse anesthetists	<i>AANA Journal</i>	Health	*	*	Hierarchical multiple regression and partial correlation regression
(Jiang et al., 2019)	Relationships between Kindergarten teachers' empowerment, job satisfaction, and organizational climate: a Chinese Model	<i>Journal of Research in Childhood Education</i>	Education	Relational study	*	Descriptive Statistical Analysis and Structural Equation Modelling (SEM)

Table 3 Selected articles (continued)

<i>Author</i>	<i>Title</i>	<i>Journal</i>	<i>Sector</i>	<i>Methodology</i>	<i>Type of sample</i>	<i>Type of statistical technique</i>
(Pecino et al., 2019)	Organizational climate, role stress, and public employees' job satisfaction	<i>International Journal of Environmental Research and Public Health</i>	Public Sector	Cross-sectional study	*	Reliability analysis and structural equation modelling
(Wang and Ahoto, 2022)	Influence of supervisors' fairness on work climate, job satisfaction, task performance, and helping behavior of health workers during COVID-19 outbreak	<i>Frontiers in Psychology</i>	Health	Quantitative approach	Stratified sampling	Exploratory factor analysis (EFA), reliability testing and confirmatory factor analysis (CFA).
(Ben, 2018)	The contribution of job satisfaction, organizational climate and employee commitment on management innovation in Tunisian SMEs: the effect of the post-revolution environment	<i>Economics Bulletin</i>	Trade	Structural Equation Method and the PLS approach	*	Structural Equation Analysis
(Hashish, 2017)	Relationship between ethical work climate and nurses' perception of organizational support, commitment, job satisfaction and turnover intent	<i>Nursing Ethics</i>	Health	Descriptive correlational research design	*	Descriptive analysis and regression analysis
(Wahyu et al., 2019)	The role of servant leadership and organizational climate on organizational citizenship behavior with job satisfaction as mediator	<i>International Journal of Scientific and Technology Research</i>	Education	*	*	Convergent and discriminant validity, reliability statistics, correlation, and structural equation modelling.

Table 3 Selected articles (continued)

<i>Author</i>	<i>Title</i>	<i>Journal</i>	<i>Sector</i>	<i>Methodology</i>	<i>Type of sample</i>	<i>Type of statistical technique</i>
(Carrillo-Carreño and Bolívar-León, 2023)	Organizational climate and job satisfaction in the Vicerrectoría de Investigación y Extensión (VIE) of a public university in Colombia	<i>Aibi, Revista de Investigación e Ingenierías</i>	Education	Quantitative approach, descriptive, correlational, field, non-experimental transactional design.	Random sampling	Correlation and factor analysis
(Anwar, 2019)	The effect of transformational leadership, management information system, and organizational climate on lecturers' job satisfaction	<i>International Journal of Scientific and Technology Research</i>	Education	Quantitative research with survey method	Area sampling	Path analysis, linearity test and significance of regression
(Coronel et al., 2020)	Organizational climate, job satisfaction and administrative management in the support bodies of a public university	<i>Revista de la Universidad del Zulia</i>	Education	Descriptive type and employed a correlational design.	Stratified sampling	Percentage analysis and ordinal correlation coefficient analysis
(Ozsoy, 2022)	The effect of an innovative organizational climate on employee job satisfaction	<i>Marketing and Innovations</i>	Various	Designed quantitative research	*	Frequency analysis, internal consistency analysis, factor analysis, independent samples t-tests and correlations.

Note: *The article does not make this information clear and precise.

Table 4 shows the extraction of data from the research results that met the eligibility criteria, where it can be seen that the studies considered for this analysis are from different countries and the years in which they have been published range from 2000 to 2023 in which the sample size (ni), correlation (ri), ages considered, gender and educational level have been identified; however, there were studies that did not reveal this information (*) but were still considered for the qualitative and quantitative analysis (see Table 4).

Table 4 Extraction of data according to variables considered

<i>Author</i>	<i>ni</i>	<i>ri</i>	<i>Age</i>	<i>Gender</i>	<i>Educational level</i>	<i>Country</i>
(Keuter et al., 2000)	33	0.781	Average of 33.5 years	Women (97%) and men (3%)	(87.9%) had a bachelor's degree, three (1%) had less than a bachelor's degree and one (3%) had a master's degree.	USA
(Rompu et al., 2018)	247	0.815	25–31 (32%), 32–38 (33.6%), 39–45 (20.6%), 46–52 (8.9%) and >53 (4.9%)	Women (76.9%) and men (23.1%)	Secondary school (0.4%), upper secondary school (6.5%), d1/d3 (49.4%), s1 (38.5%) and s2/s3 (5.3%)	Indonesia
(Adeniji et al., 2018)	293	0.907	*	*	*	Nigeria
(Chiang-Vega et al., 2021)	344	0.362	*	*	*	Chile
(Ahmad et al., 2018)	250	0.543	20–29 (36.8%), 30–39 (43.6%), 40–49 (16.4%) and ≥ 50 (3.2%)	Women (44.8%) and men (55.2%)	*	Malaysia
(Bemana, 2011)	200	0.3	*	*	*	Iran
(Bhutto et al., 2012)	90	0.785	*	*	*	Pakistan
(Na-Nan et al., 2016)	400	0.327	*	*	*	Thailand
(Elqadri, 2015)	64	— 0.337	*	*	*	Indonesia
(Kim and Lee, 2018)	341	0.359	*	108 men (31.7%) and 233 women (68.3%)	242 university graduates (71%), 62 masters (18.2%), 32 university graduates (9.4%) and 5 PhDs (1.5%).	South Korea

Table 4 Extraction of data according to variables considered (continued)

<i>Author</i>	<i>ni</i>	<i>ri</i>	<i>Age</i>	<i>Gender</i>	<i>Educational level</i>	<i>Country</i>
(Ghavifekr and Pillai, 2016)	245	0.989	20–24 (2%), 25–29 (29.80%), 30–34 (28.60%), 35–39 (18.80%), 40–44 (14.70%), 45–49 (3.30%) and 50+ (2.90%)	Men (35.5%) and women (64.50%)	Bachelor's degree (96.70%) and Master's degree (3.30%)	Malaysia
(Osmani et al., 2022)	200	0.663	*	*	*	Kosovo
(González, 2018)	103	– 0.319	*	Men (65%) and women (38%)	*	Colombia
(Li et al., 2020)	849	0.65	18–78	Women (64.2%) and men (35.8%)	Baccalaureate (28.1%), Bachelor (10.6%), Bachelor (34.0%), Master (23.2) and others (e.g. PhD) (4.1%)	USA
(Dávila et al., 2021)	316	0.559	20–29 (31.01%), 30–39 (34.18%), 40–49 (21.83%), 50–59 (10.13%) and 60–65 (2.85%)	Men (67.72%) and women (32.28%)	*	Peru
(Haryono et al., 2019)	75	0.565	Under 30-years-old (10%), 31–40-years-old (34%), 41–50-years-old (31%) and over 50-years-old (25%)	Men (82%) and women (18%)	Diploma or Bachelor's degree (67%) and Bachelor's degrees (33%)	Indonesia
(Madhakomala and Hanafi, 2021)	270	0.044	*	*	*	Indonesia
(Yamassake et al., 2021)	226	0.424	Under 40 (27.4%), 40 to 49.9(28.3%), 50 to 59.9 (36.3%), 60 and over (8%) not reported	88.5% women and 11.5% men	Nursing assistant (7.1%), nursing technician (54.4%), nurse (37.6%) and uninformed (0.9%).	Brazil
(Caricati et al., 2014)	576	0.67	16% were 30-years-old or younger, 39.9% between 31 and 40, 35.4% between 41 and 50, and 8.6% 51 or older. 9 did not report their age.	22.5% male, 77.5% female and 20% did not report.	*	Italy

Table 4 Extraction of data according to variables considered (continued)

<i>Author</i>	<i>ni</i>	<i>ri</i>	<i>Age</i>	<i>Gender</i>	<i>Educational level</i>	<i>Country</i>
(Meeusen et al., 2011)	882	0.5	25 and 54 years (89.2%) and 45 to 49 years (21.2%)	48.87% women and 51.13% men	*	Netherlands
(Jiang et al., 2019)	206	0.47	Under 23 (2.91%), 23–29 (44.66%), 30–40 (37.86%) and 40 and over (14.56%)	99.5% women and 0.5% men	Baccalaureate and lower (8.76%), vocational training (62.62%), university degree (27.17%) and master's degree or higher (0.97%).	China
(Pecino et al., 2019)	442	0.746	5.7% under 36 years, 57.7% between years 36 and 45 years, 31.2% between 46 years and 55 years and 5.4% over 55 years.	50.7% women and 49.3% men	11.5% no education, 25.8% high school, 61.1% bachelor's degree and 1.6% Ph.	Spain
(Wang and Ahoto, 2022)	349	0.839	17% 18- and 25-years-old, 37.8% 26- and 35-years-old, 32.4% 36- and 45-years-old, 11.2% 46 and 55-years-old and 0.9% over 55-years-old	61.3% women and 38.7% men	8.9% had no formal education, 17.8% a high school diploma, 42.4% a diploma and 30.9% a bachelor's degree.	Ghana
(Ben, 2018)	78	0.775	*	*	*	Tunisia
(Hashish, 2017)	500	0.2	*	*	*	Egypt
(Wahyu et al., 2019)	90	0.414	*	*	*	Indonesia
(Carrillo-Carreño and Bolívar-León, 2023)	70	0.749	50% 18- and 30-years-old, 24.30% 31- and 40-years-old, 20% 41- and 50-years-old, 4.30% 51- and 60-years-old, 1.40% 61- and 70-years-old and 0% > 70-years-old	27.10% men and 72.90% women	26% secondary school, 14.30% technical, 8.60% technological, 17.10% professional, 20% specialist, 8.60% master and 5.70% doctorate.	Colombia

Table 4 Extraction of data according to variables considered (continued)

<i>Author</i>	<i>ni</i>	<i>ri</i>	<i>Age</i>	<i>Gender</i>	<i>Educational level</i>	<i>Country</i>
(Anwar, 2019)	131	0.83	*	*	*	Indonesia
(Coronel et al., 2020)	86	0.29	*	*	*	Peru
(Ozsoy, 2022)	222	0.51	Mean = 31.90; ds = 5.39)	41.9% men and 58.1% women	9.9% high school, 21.2% diploma, 64.4% undergraduate and 4.5% postgraduate degrees	Turkey

Note: *The article does not make this information clear and precise.

Other data extracted were the factors or dimensions of climate and job satisfaction considered in the studies, where studies on job satisfaction were based on theories that support promotion, work, remuneration, salary, supervision and opportunities. These are the most notorious words in the factors considered for this latent trait. On the other hand, the climate studies were based on theories that have involved more factors of organisational climate that have to do with support, leadership, structure, communication and innovation (see Table 5).

Table 5 Climate and satisfaction factors

<i>Author</i>	<i>Organisational climate factors</i>	<i>Job satisfaction factors</i>
(Keuter et al., 2000)	Structure, support and standards	Professional status, autonomy, organisational policies, nurse/ nurse interactions and doctor/ nurse interactions.
(Rompu et al., 2018)	*	*
(Adeniji et al., 2018)	Promotion, salary package and communication	*
(Chiang-Vega et al., 2021)	Autonomy, cohesion, trust, pressure, support, recognition, equity and innovation.	Work in general, physical work environment, the way work is performed, development opportunities, relationship with the boss and pay
(Ahmad et al., 2018)	Structure, rewards, accountability and support	Work, supervision, remuneration, promotion and co-workers
(Bemana, 2011)	Coping, accountability, standards, rewards, organisational clarity, support and leadership	Pay, promotion, supervision, employees, work, relationship, administrative procedures and rewards
(Bhutto et al., 2012)	Structure, responsibility, rewards, initiative, support, support, norm, conflict, identity, leadership, empowerment, human relations, communication, decision making and fairness	Work, salary, promotions and co-workers

Table 5 Climate and satisfaction factors (continued)

<i>Author</i>	<i>Organisational climate factors</i>	<i>Job satisfaction factors</i>
(Na-Nan et al., 2016)	Supervisory stimulus, organizational stimulus, working group support and scientific resources	Overall job satisfaction, in general I like my current job and in general I like working at this school.
(Elqadri, 2015)	*	*
(Kim and Lee, 2018)	Autonomy, organizational structure, level of understanding and interaction with employees	*
(Ghavifekr and Pillai, 2016)	Institutional vulnerability, collegial leadership, teachers' professional behaviour and performance pressures	Supervision, colleagues, working conditions, remuneration, responsibility, work itself, promotion, safety and recognition.
(Osmani et al., 2022)	Management style, fringe benefits, personnel policies, workplace conditions, employee participation in decision-making and frustration.	Salary package, communication channels, development and promotion opportunities, appropriate management style, feedback on performance results and management support
(González, 2018)	Prevailing factors of organisational climate and types of organisational climate	Work motivation and work incentives
(Li et al., 2020)	Role, job, organisation and supervisor	Payment, promotion and benefits
(Dávila et al., 2021)	Self-realisation, involvement, monitoring, communication and motivation	Significance of tasks, working conditions, personal and social recognition and economic benefit
(Haryono et al., 2019)	Structure, accountability, support and commitment	Monthly salary, promotion received by employee, co-workers, supervision received by employee and work itself
(Madhakomala and Hanafi, 2021)	Physical environment, social environment and physical condition of the organisation's members	The work itself, superiors, co-workers, promotion and salary received.
(Yamassake et al., 2021)	Leadership, professional development, relationships and team spirit, community relations, job security, strategy and remuneration	Satisfaction with hierarchical relationships, satisfaction with the physical work environment and intrinsic job satisfaction.
(Caricati et al., 2014)	*	*
(Meeusen et al., 2011)	Expectations, instruments and tools, use of best capabilities, recognition, appreciation, fostering development, feedback, mission statement, quality work, best friend, progress and learning and growing.	Satisfaction with the job, satisfaction with the organisation and satisfaction with the atmosphere in the department.
(Jiang et al., 2019)	Supportive climate, academic climate and empowerment climate.	To education, employment and the employment situation
(Pecino et al., 2019)	Support, objectives, innovation and standards	Equipment, remuneration, means and conditions, intrinsic, company, workload, autonomy and objects

Table 5 Climate and satisfaction factors (continued)

<i>Author</i>	<i>Organisational climate factors</i>	<i>Job satisfaction factors</i>
(Wang and Ahoto, 2022)	Role, work, organisation and supervisor	Salary, promotion, supervision, benefits and nature of work
(Ben, 2018)	One-dimensional	One-dimensional
(Hashish, 2017)	Instrumental, care, independence, law and professional code and standards.	One-dimensional
(Wahyu et al., 2019)	Structure, performance standards, responsibilities, recognition/rewards, support and commitment	Salary, the job itself, co-workers, opportunities for promotion and supervision.
(Carrillo-Carreño and Bolívar-León, 2023)	Motivation, leadership, reciprocity, participation and communication.	Cognitive, affective and behavioural
(Anwar, 2019)	Responsibility, identity, warmth, support, leadership and conflict	Wage/salary, working conditions, supervision, co-workers, job content, job security and promotion opportunities.
(Coronel et al., 2020)	Autonomy, cohesion, trust, pressure, support, recognition, equity and innovation.	Satisfaction with the job in general, satisfaction with the physical work environment, satisfaction with the way the job is performed, satisfaction with development opportunities, satisfaction with the subordinate/supervisor relationship and satisfaction with remuneration.
(Ozsoy, 2022)	Support for innovation and provision of resources	One-dimensional

Note: *The article does not make this information clear and precise.

4.2 Correlation coefficients (r , N)

Results were analysed using Fisher's transformed r to z correlation coefficient. A random effects model was fitted to the data. The restricted maximum likelihood estimator estimated the amount of heterogeneity (τ^2) (Viechtbauer, 2010). The heterogeneity test Q (Cochran, 1957) and the I^2 statistics are also presented. If heterogeneity is detected ($\tau^2 > 0$), a prediction interval is provided for the true results. To determine whether studies are typical or influential in the model environment, residuals and Cook's distances are used. Potentially outliers are included for studies with a residual greater than $100 \times (1 - 0.05 / (2 \times k))$ of a normal distribution. Bonferroni correction with two-tailed $\alpha = 0.05$ is used for k meta-analysis studies. Influential studies have a Cook's distance greater than the median five times the interquartile range of the Cook's distances. The correlation and regression test, using the standard error of the observed results, tests for funnel plot asymmetries.

A total of $k = 30$ studies were included for the meta-analysis. The observed Fisher r to z transformed correlation coefficients ranged from -0.3507 to 2.5987 , where almost all estimates were positive (93%). Based on a random effects model we found 0.6929 (95% $IC : 0.4913$ to 0.8946), where the mean result differed significantly from zero ($z = 6.7344$, $p < 0.0001$) (see Table 6). In the same vein, the Q -test showed that the true results appear to be heterogeneous ($Q(29) = 1937.7841$, $p < 0.0001$, $\tau^2 = 0.3107$, $I^2 = 98.7959\%$) (see Table 7). Furthermore, it was found that a 95% prediction interval for the actual results is given by -0.4180 to 1.8039 . The result was indeed estimated to be positive, although in some studies it turned out to be negative. An examination of the residuals studied revealed that one study (Ghavifekr and Pillai, 2016) had a value greater than ± 3.1440 and may be a possible outlier in the context of this model. Based on Cook's distances, one study (Ghavifekr and Pillai, 2016) could be considered overly influential Figure 2(a). No asymmetry was found in the funnel plot based on the rank correlation and regression test ($p = 0.7889$ and $p = 0.7783$), respectively (Table 8 and Figure 3(a)).

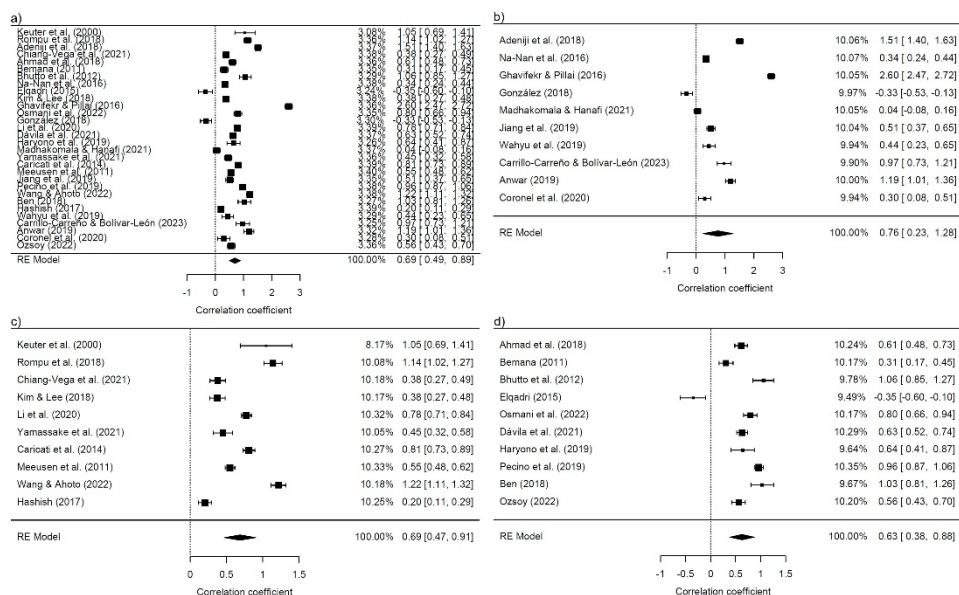
Table 6 Random effects models by sector

<i>Sector</i>	<i>Models</i>	<i>Intercept</i>	<i>Estimate</i>	<i>SE</i>	<i>Z</i>	<i>p</i>	<i>CI Lower Bound</i>	<i>CI Upper Bound</i>
General	Random-Effects Model ($k = 30$)	Intercept	0.693	0.10	6.73	<.001	0.49	0.90
Education	Random-Effects Model ($k = 10$)	Intercept	0.758	0.27	2.83	0.005	0.23	1.28
Health	Random-Effects Model ($k = 10$)	Intercept	0.688	0.11	6.13	<.001	0.47	0.91
Various	Random-Effects Model ($k = 10$)	Intercept	0.629	0.13	4.95	<.001	0.38	0.88

Note: τ^2 Estimator: Restricted Maximum-Likelihood.

Table 7 Heterogeneity statistics by sector

<i>Sector</i>	τ	τ^2	I^2	H^2	df	Q	p
General	0.56	0.3107 (SE= 0.0834)	98.80%	83.05	29	1937.78	<.001
Education	0.84	0.7104 (SE= 0.3384)	99.22%	128.74	9	1361.48	<.001
Health	0.35	0.121 (SE= 0.0593)	98.05%	51.16	9	370.81	<.001
Various	0.39	0.1538 (SE= 0.0762)	96.57%	29.11	9	156.83	<.001

Figure 2 a) Consolidated forest plot; b) Education forest plot; c) Health forest plot; d) Diverse forest plot (without education and health data)

In that sense and understanding that in general there may be outliers such as the one reported, it was necessary to perform the analysis by sector in order to closely observe the results and identify publication biases by sector; furthermore, to account for which group provides the best result. The following paragraphs show these results by sector analysed.

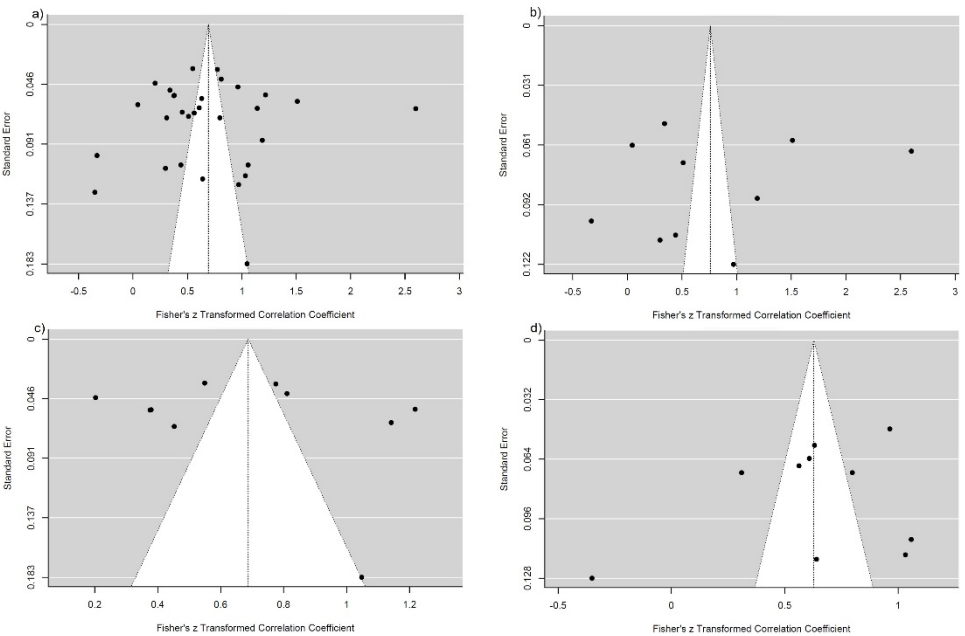
A total of $k=10$ studies belonging to the education sector were included for the meta-analysis. The observed Fisher r - z transformed correlation coefficients ranged from -0.3305 to 2.5987 , where most of the estimates were positive (90%). The mean estimated correlation coefficient based on the random effects model was 0.7581 (95% CI : 0.2330 to 1.2833), where the mean result differed significantly from zero ($z = 2.8295$, $p = 0.0047$) (see Table 6). The results of the Q -test are true and appear to be heterogeneous ($Q(9) = 1361.4815$, $p < 0.0001$, $\tau^2 = 0.7107$, $I^2 = 99.2232\%$) (see Table 7). A 95% prediction interval for the actual results was also found to be -0.9753 to 2.4916 ; although the estimator is positive, in some cases it may be negative. An examination of the residuals studied revealed that one study (Ghaviyekr and Pillai, 2016) had a value greater than ± 2.8070 and may be a potential outlier in the context of this model. Based on Cook's distances, one study (Ghaviyekr and Pillai, 2016) could be considered overly influential (see Figure 2(b)). Neither the rank correlation nor the regression test indicated any asymmetry in the funnel plot ($p = 1.0000$ and $p = 0.4684$), respectively (Table 8 and Figure 3(b)). Therefore, in the education sector studies, (Ghaviyekr and Pillai, 2016) research was identified as revealed in the total studies, which has a potential outlier under the context of the model.

Table 8 Assessment of publication bias by sector

Test name	General		Education		Health		Various	
	value	<i>p</i>	value	<i>p</i>	value	<i>p</i>	value	<i>p</i>
Fail-Safe <i>N</i>	38240	<.001	4128	<.001	6204	<.001	2744	<.001
Begg and Mazumdar Rank Correlation	0.035	0.789	0.022	1	0.067	0.862	−0.225	0.369
Egger's Regression	−0.28	0.778	−0.73	0.468	1.014	0.31	−0.772	0.44
Trim and Fill Number of Studies	7	.	2	.	0	.	0	.

Note: Fail-safe *N* calculation using the Rosenthal approach.

Figure 3 a) Consolidated funnel diagram; b) Education funnel diagram; c) Health funnel diagram; d) Miscellaneous funnel diagram (without education and health data)



For the meta-analysis of the identified studies in the health sector, a total of $k=10$ studies were included. The observed Fisher's r -transformed to z -transformed correlation coefficients ranged from 0.2027 to 1.2178, where almost all estimates were positive (100%). Based on a random effects model we found 0.6848(95% *IC* :0.4677 to 0.9078), where the mean result differed significantly from zero ($z = 6.1256$, $p = 0.0001$) (see Table 6). In the same vein, the Q -test showed that the true results appear to be heterogeneous ($Q(9) = 370.8050$, $p < 0.0001$, $\tau^2 = 0.1210$, $I^2 = 98.0455\%$) (see Table 7). A 95% prediction interval for the actual results is given by −0.0285 to 1.4041. However, despite

assuming that the average impact is positive, the actual result may have a negative impact. Based on an analysis of the residuals of the studies, none had a value greater than ± 2.8070 ; consequently, no outlier indicators were available for this model. Cook's distances dictate that none of the studies can be considered overly influential (Figure 2(c)). According to the regression test and rank correlation, skewness was obtained in the funnel plot ($p = 0.8618$ and $p = 0.3103$, respectively) (Table 8 and Figure 3(c)).

For the meta-analysis of research from various sectors, a total of $k=10$ studies were included (education and health studies were excluded for this analysis). The observed Fisher r to z transformed correlation coefficients ranged from -0.3507 to 1.0583 , and almost all estimators were positive (90%). The estimated mean transformed correlation coefficient estimate based on the random effects model was 0.6288 (95% CI: 0.3797 to 0.8780). Consequently, the mean result differed from zero ($z = 4.9467$, $p = 0.0001$) (see Table 6). In the same vein, the Q -test showed that the true results appear to be heterogeneous ($Q(9) = 156.8296$, $p < 0.0001$, $\tau^2 = 0.1538$, $I^2 = 96.5652\%$) (see Table 7). As a 95% confidence interval, the actual results have been given a range of -0.1792 to 1.4368 . In this case, although the mean result is thought to be positive, the actual result may be negative in some studies. A look at the residuals studied showed that one study (Elqadri, 2015) had a value higher than ± 2.8070 , which could be a potential outlier for this model. According to Cook's distances, none of the studies had an excessive effect (Figure 2(d)). The rank correlation test and the regression test showed no difference in the funnel plot ($p = 0.3692$ and $p = 0.4400$, respectively) (Table 8 and Figure 3(d)).

5 Discussion

This study aimed to analyse how organisational climate is related to job satisfaction based on a systematic review and meta-analysis. With data extraction, sufficient studies from the education, health and other sectors were identified to apply the meta-analysis. The general meta-analysis of all the studies was carried out, in which it was found that organisational climate is related to job satisfaction. In this regard, it is specified that organisational climate can be subjective; however, it represents the atmosphere of the organisation, therefore, it is a basic aspect to achieve job satisfaction (Yamassake et al., 2021).

Organisational climate and job satisfaction in studies conducted in the education sector show that the constructs are correlated. This relationship (González, 2018) from the education sector means that it is because the school focuses on the organisational attributes that teachers perceive, while job satisfaction focuses on the perceptions and attitudes that teachers exhibit about their work (Ghavifekr and Pillai, 2016), where workers' psychological well-being and employee happiness mediate the positive attachment (Jianchun, 2024; Yiming et al., 2024). These findings are partially related to what was reported by Na-Nan et al. (2016) and Jiang et al. (2019), where they state that job characteristics, satisfaction, organisational climate and job commitment impact organisational citizenship behaviour; however, employee commitment to the organisation affects job characteristics and organisational climate.

The study by Madhakomala and Hanafi (2021) contrasted in the positive results of the meta-analysis, in the sense that they found that organisational climate and job satisfaction are not related; the authors specify that it may be because of ineffective leadership applied in the academic context of East Jakarta, which makes the organisational climate not conducive for faculty, given that leadership is a generator of organisational climate. Leadership can affect behaviour through job satisfaction, but climate could have an indirect effect, since to reach it must go through employees' job satisfaction (Carrillo-Carreño and Bolívar-León, 2023; Wahyu et al., 2019); however, teachers' job satisfaction is affected by transformational leadership, management information systems and organisational climate (Anwar, 2019), however, correlation results are evident in this sector (Coronel et al., 2020) and its effect of climate on satisfaction should be taken with caution, as it may be affected by the type of leadership and information systems (Anwar, 2019; Carrillo-Carreño and Bolívar-León, 2023; Wahyu et al., 2019), as well as student climate, decision-making, educational innovation, collaboration and school resources (Khun-Inkeeree et al., 2021).

The finding that climate and satisfaction are related for the context of health sector workers is significant (Chiang-Vega et al., 2021; Keuter et al., 2000; Meeusen et al., 2011), which specifies that the higher the climate, the higher the satisfaction of health sector workers (Kim and Lee, 2018; Vidaurre et al., 2023; Yamassake et al., 2021). The research also reveals that this relationship is due to various factors; for example, professional status, support, organisational structure and norms contribute to this relationship; however, in the case of nurses they highly value structural aspects based on professional recognition, labour relations, leadership style and innovation that improve their satisfaction (Chiang-Vega et al., 2021; Keuter et al., 2000; Sung and Lin, 2024), in contrast, for public servants the drivers of satisfaction lie in labour demand, balanced remuneration and recognition, but job stress, organisational climate and quality of life must be taken into account since they have a simultaneous effect on satisfaction (Li et al., 2020; Rompu et al., 2018), where the latter allows to alleviate the physician-patient work exhaustion, which, according to nurses, is not very satisfying due to the lack of time for direct patient care (Liang et al., 2024; Serewa and Szpakow, 2024). Moreover, this relationship of the constructs could lead to an improvement in the quality of social welfare services (Kim and Lee, 2018; Yamassake et al., 2021).

The results should be taken into account for decision-making, but it is important to pay attention to certain factors that can improve or reduce the level of job climate and job satisfaction. In the same vein, staff commitment, organisational climate and values are important factors in nurses' job satisfaction, as these constructs interact with each other, suggesting that improving job satisfaction involves considering contextual and psychological aspects of the job (Caricati et al., 2014); in addition, supervisor fairness is crucial for productivity, job satisfaction and a positive work environment that promotes task performance and helpful behaviour (Wang and Aphoto, 2022).

It was shown how climate and satisfaction of studies are correlated in various sectors. In this regard, the meta-analysis allowed to verify the correlation in which it is supported that there is a correlation, and in some studies, it is specified that there is not only a correlation but a causal relationship between the organisational climate and job satisfaction (Ahmad et al., 2018; Dávila et al., 2021; Elqadri, 2015; Osmani et al., 2022; Pecino et al., 2019). The results of this study highlight that the relationship may not only be direct but that there are variables that can moderate its effect, such as personality traits (Ahmad et al., 2018); a good organisational climate increases job satisfaction (Bemana,

2011). However, factors such as organisational structure, identity, and human relations are directly correlated with job satisfaction, while equity and empowerment can affect job satisfaction (Bhutto et al., 2012). Another aspect to take into account is that culture and organisational climate influence job satisfaction, which can affect performance; however, job satisfaction can be affected by climate and organisational justice, and performance can play a mediating role in the relationship (Elqadri, 2015; Haryono et al., 2019). However, a positive organisational climate can reduce stress and anxiety among workers, while increased stress can lead to lower job satisfaction and worsen employee well-being (Pecino et al., 2019).

Climate, demographic characteristics, and the importance of professional values impact job satisfaction; however, organisational climate, identity, support and emotional environment are related to job satisfaction, providing empirical evidence from other contexts and units of analysis (Melo, 2018; Tomažević et al., 2019). Other studies also support this research in that they explain the relationship between job satisfaction and employee retention, indicating that organisational climate commitment helps the mediating variable to retain employees in the same sector (Vidhya et al., 2019); furthermore, leadership, rewards, management systems and motivation can explain employee job satisfaction (Pedraza, 2020; Tsai, 2014). In general, job satisfaction could improve performance, organisational climate and organisational justice can improve job satisfaction (Haryono et al., 2019); to improve employees' job satisfaction, attention should be paid and job satisfaction should be improved in order to improve organisational climate variables related to job satisfaction or job satisfaction (Elqadri, 2015). It is important for managers and leaders to understand the personality of their employees as it is one of the main causes between climate and satisfaction; this will allow a better understanding of how organisational climate can have a different effect on different people (Ahmad et al., 2018).

6 Conclusions

The literature review and meta-analysis allow us to conclude that organisational climate is significantly related to job satisfaction, whether in the results by education sector, health and companies in other sectors. However, although the health and education studies seem to have a risk of publication and selection bias, the correlation results are significant, as studies with negative correlation were found, so it is inferred that other factors may be intervening in the results.

6.1 Theoretical and practical implications

The findings reported here have both theoretical and practical relevance. Our findings have important theoretical implications, particularly for studies examining the mechanisms and boundaries of the relationship between organisational climate and job satisfaction, as well as the implications of organisational climate and the factors that foster optimal climate. Our findings have important practical implications for helping managers, supervisors, managers, coordinators and other workers create evidence-based strategies to improve organisational climate, which in turn improves employee job satisfaction.

6.2 *Limitations and future research*

Studies on organisational climate and job satisfaction are extensive, as the scientific literature reveals. The present systematic literature review and meta-analysis identified several methodological problems, e.g., studies were identified that did not clearly specify the method and type of sampling used (Ben, 2018; Chiang-Vega et al., 2021; González, 2018; Haryono et al., 2019; Hashish, 2017; Jiang et al., 2019; Kim and Lee, 2018; Li et al., 2020; Meeusen et al., 2011; Na-Nan et al., 2016; Osmani et al., 2022; Ozsoy, 2022; Pecino et al., 2019; Wahyu et al., 2019; Yamassake et al., 2021); some did not report age (González, 2018; Kim and Lee, 2018), gender or educational level (Ahmad et al., 2018; Caricati et al., 2014; Dávila et al., 2021; González, 2018; Meeusen et al., 2011) and in some of the cases no information on sample characteristics was found (Adeniji et al., 2018; Anwar, 2019; Bemana, 2011; Ben, 2018; Bhutto et al., 2012; Chiang-Vega et al., 2021; Coronel et al., 2020; Elqadri, 2015; Hashish, 2017; Madhakomala and Hanafi, 2021; Na-Nan et al., 2016; Osmani et al., 2022; Wahyu et al., 2019), valuable information that could have been necessary to observe the moderating role in the relationship between climate and job satisfaction; in addition, some studies did not identify the factors of organisational climate and job satisfaction, which would have been very valuable to determine other influential factors on these variables (Adeniji et al., 2018; Caricati et al., 2014; Elqadri, 2015; Kim and Lee, 2018; Rompu et al., 2018).

It should be pointed out that one of the limitations of the present study was to focus the search on two databases, which, despite being the most representative in science, it is necessary to suggest that in a subsequent systematic review, more search engines should be included to avoid selection biases. Likewise, future research on organisational climate and job satisfaction should include studies from a qualitative approach to evaluate the qualities and feelings of employees in relation to these constructs. It is also important to evaluate external variables such as stress, job performance, anxiety and well-being, among other variables, from a systematic review and meta-analysis study in order to analyse the moderating or mediating role they can play in the relationship between work climate and job satisfaction.

Another conclusion is that some of the studies that were identified lack scientific rigour as some relevant data is not shown in the publication, which could be a reason to bias the results of this meta-analysis despite the fact that the meta-analyses by the sector have been explored; we consider that the results of this study could be taken with caution; in addition, decisions should be taken on individual issues to propose strategies to improve the behaviour in terms of climate and satisfaction of employees in a given sector.

Declarations

All authors declare that they have no conflicts of interest.

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