



What exists in academia on work stress in accounting professionals: a bibliometric analysis

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Accepted: 31 May 2022

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Abstract

This study aims to fill a gap in the literature by conducting the scientific and bibliometric mapping of work stress in accounting professionals, using a methodological trilogy that contributes to this topic, namely the application of the ROC curve, Prisma and R bibliometric tools. Through the analysis of a sample of 103 articles, it was found that, in order to avoid and/or overcome the levels of stress in accountants, the following factors should be taken into account: (1) a high engagement with work, (2) reduced self-efficacy perception in the decision-making process, (3) adverse consequences in the management process, and (4) high-stress levels embedded in the individual's personality. Thus, it will be necessary for the accountant to apply strategies and change the way he/she works and perceives the work, avoiding stress levels and irreversible health damage. In addition, the importance of resilience in the professional context and mindfulness may prevent high levels of stress and maybe the subject of future research.

Keywords Job stress · SLR · Burnout · Accountant · Mapping · Bibliometric

Introduction

Globalisation has made the business world increasingly competitive, with new forces on the demand and supply sides. However, the competitiveness of businesses increasingly relies on their human capital as a differentiating and crucial factor for business success. This differentiation was exponentiated by the pandemic caused by the new coronavirus SARS-CoV-2, in which individuals were confronted with new forms and demands of work, which for Ayachit

and Chitta (2022) aggravated the symptoms of stress in employees of companies, urging the need to build an organizational culture that values their mental health and that these pathologies are addressed beyond the traditional model. This means that increasing emotional difficulties and feelings of anguish added to the increased workload have become common everyday experiences for professionals in any area of knowledge (Lievens, 2021), so their well-being has become a common concern for employers (Estrada, 2021). This line of thought corroborates the arguments of Borenstein (2020),

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who understood that employers should focus on the generation of more resilient human resources and provide them with personalised facilitating resources, to provide their human capital with the achievement of well-being and, also, an improvement in satisfaction with the workplace (Ayachit & Chitta, 2022), the latter being influenced by the employees' psychological capital, as they positively perceive their organisational health (Viseu et al., 2020).

In these circumstances, accounting professionals are no exception since they have always been subject to continuous changes in legislation, changes in procedures to be adopted, compliance with tight deadlines by the tax administration, whose non-compliance leads to heavy fines on their clients. This argument is mirrored in the postulated by Zanna (2007, p. 87), when he concludes that "the accounting science professional must be, therefore, the specialist who knows the doctrine and technique and, mainly, the accounting thought. Thus, to the accounting professional are required the skills of flexibility, competitiveness, ethical and social responsibility, initiative, capacity for constant updating, capacity for anticipation and prevention, the vision of the future, mastery and use of information and communication technologies, among many others (Primak, 2009). However, these work and personal demands may generate situations of tension, mistakes, risk, insecurity, and anguish when performing their tasks due to the constant demands, risks, and intense interactions with people (Maslach & Leiter, 2001).

In this context, accounting professionals invest immensely in their daily work to fulfil their obligations in a timely manner (Mihai et al., 2020). It is then perceived that these professionals are a facilitating target for stress, which has been defined as an emotional, unpleasant experience that is associated with fear, dread, anxiety, irritation, annoyance, anger, sadness, and depression (Motowidlo et al., 1986); a psychosocial risk (Sidhu et al., 2020). On the other hand, work stress is a harmful physical and emotional response, which peaks when individuals' resources or abilities are less than the demands of the job (Murphy & Sauter, 2004).

The importance of this issue led to a scientific study that adapted and applied the Leymann scale of Psychological Terror to certified accountants and found that there are problems of stress among accounting professionals (Silva et al., 2021). This means that work stress is associated with the fact that the demands of the job exceed the resources of individuals (Mullen et al., 2017), which triggers a sense of imbalance, causing adverse effects on behaviours, attitudes, emotions and physical health (Kivimäki et al., 2006; LePine et al., 2016). Additionally, work stress is a mental and physical condition that negatively impacts workers' health and, consequently, the quality of their working life (Savery & Luks, 2001). These definitions of work stress

direct towards the arguments of Menon et al. (2015), who postulated that work stress is a massive challenge for the individual, specifically for their physical and organisational health, and these are the ones adopted in the study presented here.

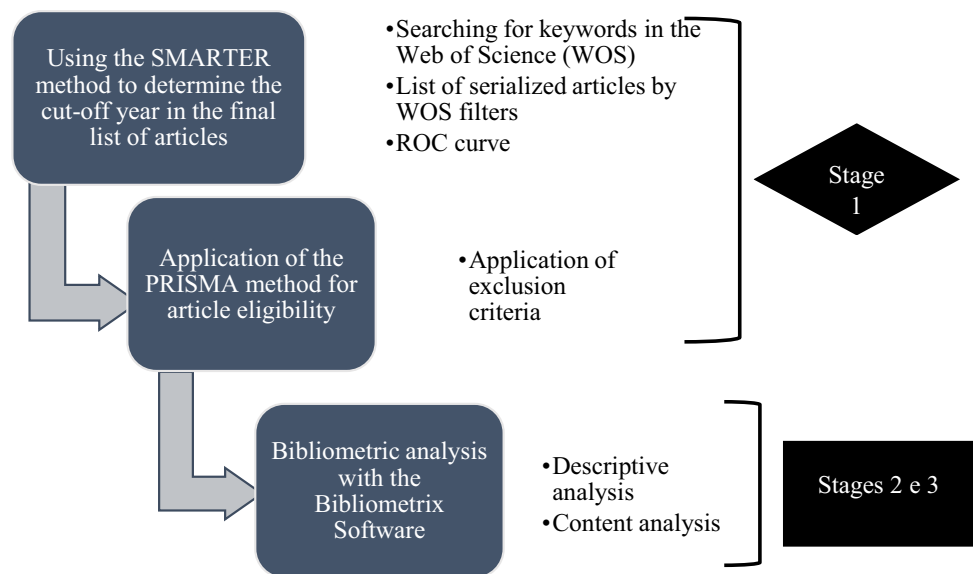
As previously mentioned, the unit of analysis of this research is accounting professionals. However, of the extensive literature on work stress, a tiny part specifically studies the work stress of these professionals empirically, which in itself justifies the relevance of this research, given that work stress is a growing phenomenon with high costs for all parties involved (Bell et al., 2012; Meri, 2020). On the other hand, previous research (e.g., Chen & Zhang, 2021; Rodríguez et al., 2019) has highlighted the pertinence of continuing empirical studies on this rapidly evolving type of stress in the face of increasingly high work demands, the gap for which for Park et al. (2020) persists in the literature. These gaps outlined the objective of this study, which aims at the scientific and bibliometric mapping of work stress in accounting professionals, using the tools ROC curve, Prisma and R bibliomerix and inherent content analysis. Therefore, the main contribution of this study lies in the confirmation of the scarcity of empirical studies on these professionals, who are subjected daily to a highly demanding and risky work, placing them in a situation of work-related stress with impacts on their mental and physical health and, also, on balance between work and family. In addition, the methodological trilogy used is an unprecedented contribution to the study of this topic.

Methodology

Bibliometry

The systematic literature review (SLR) should be replicable at any point in time, so all steps followed should be transparent (Briner & Denyer, 2012), data collection and serialisation should be specific (Hadengue et al., 2017), and the results obtained should be precise (Briner & Denyer, 2012). In this context, Tranfield et al. (2003) defined the stages to be followed in these reviews and which are: 1) the planning of the review, location of the studies; 2) the assessment of their contributions, and 3) a synthetic analysis of the results obtained. These stages were corroborated by Xiao and Watson (2019). In this study, these steps will be performed using several methods, as displayed in Fig. 1.

For Donato and Donato (2019), the systematic review also allows for a rigorous, unbiased, and comprehensive literature assessment. More precisely, by performing his SLR, we can investigate the following questions: Q1: *What issues related to stress work are considered when their*

Fig. 1 Systematic literature review process

consequences implicate high cost for all parties involved? And Q2: *How does work stress of accounting professionals can change their behaviour in organizational context?* Answering these research questions brings a contribution that spans both academic and practical dimensions.

In this sense, among all the existing methods, after obtaining the final list of articles filtered in the Web of Science (WoS), the SMARTER method was applied (Step 1), which assumes different criteria for the evaluation of different alternatives for differentiated lines of argument (Marques & Franco, 2020) to present a typical result (Garza-Reyes, 2015). Next, the PRISMA method was used as a support to elect the final articles to be included in the bibliometric analysis (Step 1)), which consists of a "minimum set of evidence-based items for reporting in systematic reviews and meta-analyses. PRISMA—an acronym for Preferred Reporting Items for Systematic Reviews and Meta-Analysis—consists of, among other things, a checklist and a flow chart" (Donato & Donato, 2019, p. 234). Finally, the Bibliometrix software was used to perform the bibliometric analysis (Stages 2 and 3) of the PRISMA-eligible articles. In short, this analysis allowed the scientific mapping of the topic under discussion (Connor & Voos, 1981; Garfield, 1979; Powell et al., 1996; Quinlan et al., 2008; Wasserman & Faust, 1994; White & Griffith, 1981), sustained by the development of a methodical and structured research protocol, the definition of the criteria and keywords used in the process of searching and specifying documents (Bandara et al., 2011), as well as an appropriate connection between the main topic and subtopic and inherent descriptive analysis. This means that bibliometrics follows a mixed methodology, as it provides an assessment of the qualitative and quantitative scope in a given research area (Geaney et al., 2015), which allows mapping a large

volume of information contained in databases (Merigó et al., 2015), to identify the performance of various items, such as subtopics, keywords, authors, among others, in an objective way (Nicholas & Ritchie, 1978).

Finally, bibliometrics is extremely useful for identifying trends in topics/emergence terms, i.e., "*Bibliometric research can be useful for information scientists and librarians, particularly for collection development and for identifying publication trends.*" (Green & Welsh, 1988, p. 3). This line of thought, was corroborated by Chang et al. (2015) when explaining that the use of different bibliometric analysis methods enables a holistic combination for exploring research trends on a given topic in the literature and Pasa-deos et al. (1998) advocated that bibliometric methods have become dominant and influential in defining future research on new topics. Finally, Table 1 explains the methods used in this research (see Fig. 1).

The mixed methodology displayed in Table 1 provides the analysis of the evolution of a specific research stream (Alavi & Leidner, 2001; Alavi & Joachimsthaler, 1992; Venkatesh et al., 2007), the identification of future research leads (Venkatesh et al., 2007) and the display of a conceptual framework (Joseph et al., 2007; Te'eni, 2001).

Data collection

Data collection was conducted in the WoS online database on 28 January 2022. WoS has been widely recognised as a database focused on peer-reviewed articles (Geissdoerfer et al., 2017), mostly used for bibliometrics studies as it presents more standardised and consistent data (Chen et al., 2017a, b) and has been recurrently used in recent research (e.g., Bastos et al., 2021; Golan et al., 2020; Qiu & Zuo,

Table 1 Methods used in the bibliometric analysis

- 1 – SMARTER method
- a) Mainly used in research in the area of medicine (Dolan, 2010), it has recently been used in the area of management (Marques & Franco, 2020; Rodrigues & Franco, 2022);
 - b) It is based on the multiple attribute utility theory (MAUT), as an analytical tool linked to the area of decision analysis (Keeney & Raiffa, 1976);
 - c) Use of oscillating weights (SMARTs) and exploratory channels, by resorting to distinct weighting methods, to improve and reduce the load and time of the decision-maker (Edwards & Barron, 1994);
 - d) Use of the American School Multicriteria Decision Making Method (MCDM), which advocates a multi-attribute utility function to represent the preferences of decision-makers (Barfod et al., 2016), whose premises are the comparability of alternatives, transitivity in the relationship of preference and indifference, the formation of hierarchies and the establishment of a measure of overall merit (Keeney & Raiffa, 1993);
 - e) This method is applied in the selection stage of scientific documents (Garza-Reyes, 2015), varying according to the criteria adopted (Choulak et al., 2019; Evidence-based et al., 2010; Rutten-Van Mölken et al., 2018)
- 2 –PRISMA method:
- a) It is a flow diagram (Donato & Donato, 2019);
 - b) It allows to define eligibility criteria (Adiyarta et al., 2020);
 - c) These criteria guide the selection of data (Liberati et al., 2009);
 - d) The flow chart allowed the delineation of a protocol with the eligibility criteria for the operationalization of this review, which are fundamental to obtain relevant and primary studies on the topic under study (Adiyarta et al., 2020). The Prism method consists of 5 steps followed in this research, and they are: 1) Defining eligibility criteria; 2) Defining sources of information; 3) literature selection; 4) data collection; and 5) Selection of data items (Liberati et al., 2009)
- 3 –BIBLIOMETRIX method
- a) It includes a set of tools for specific processing of all the data on the publications eligible for the analysis (Aria & Cuccurullo, 2017)
 - b) From this processing, different matrices are extracted (e.g., on authors, number of publications, networks, couplings, countries, journals) (Ekundayo & Okoh, 2018), which are preceded by similarity normalization of the publications (Aria & Cuccurullo, 2017)
 - c) Aria and Cuccurullo (2017, p. 963) emphasised that “*the existence of substantial, effective statistical algorithms, access to high-quality numerical routines, and integrated data visualization tools are perhaps the strongest qualities to prefer R to other languages for scientific computation.*” *e Bibliometrix is a package for bibliometric analysis written in R. R is an ecosystem software meaning it operates in an integrated environment consist of open-libraries, the open-algorithm, and open-graphical software.*”(Darvish, 2019, p. 7)

Table 2 Criteria

Items	Criterion
Keywords:	"job stress" or "anxiety" and "accounting firms" or "accountant" or "accounting professionals" or "employees of accounting firms"
Time horizon:	No chronological filter
Language:	English
Document type:	Article or review
Research area:	Business and Management

2022; Rodrigues et al., 2021). Thus, Table 2 displays the criteria used in the WoS search.

Following the items in Table 2, the search returned 664 articles on the topic under analysis. The first article is from 1966 and the last one from 2022. This listing of articles was exported to Excel to proceed with data processing under the methodological procedures set out in Table 1. Data collection followed the criteria mentioned in Table 2 similarly to other systematic literature review studies (e.g., Rodrigues & Franco, 2022; Silva et al., 2021). In addition, the subsequent application of SMARTER allowed for a rigorous selection of the articles to be included in the review presented here,

which was used in other research studies (e.g., Marques & Franco, 2020; Megaravalli & Sampagnaro, 2019; Roberts & Goodwin, 2002). Finally, the application of Prisma, through the use of eligibility criteria, allowed the final database to be determined as an input for bibliometry, similarly to the studies mentioned above.

Smarter method

The articles eligible for inclusion in the SLR are now 664, on which the SMARTER method was applied, which assumes different criteria for the evaluation of different alternatives

for different lines of argument (Marques & Franco, 2020) and, in this way, present a typical result (Garza-Reyes, 2015), but not common (Marques & Franco, 2020). Under these circumstances, Fig. 2 shows the criteria used for the seriation of the articles.

To accomplish this method, it is imperative to define the relative importance of the criteria and their respective weights (Table 3), i.e., the exploration of criteria ordering

(Marques & Franco, 2020). According to Olson and Dorai (1992), the centroid method assigns distinct weights.

In this scenario, Table 4 summarises the steps that this method must follow strictly, in accordance with Edwards and Barron (1994).

Table 5 displays the potential alternatives (A_n) for the 664 articles (E4).

Fig. 2 SMARTER Criterion (adapted from Keeney & Raiffa, 1976)

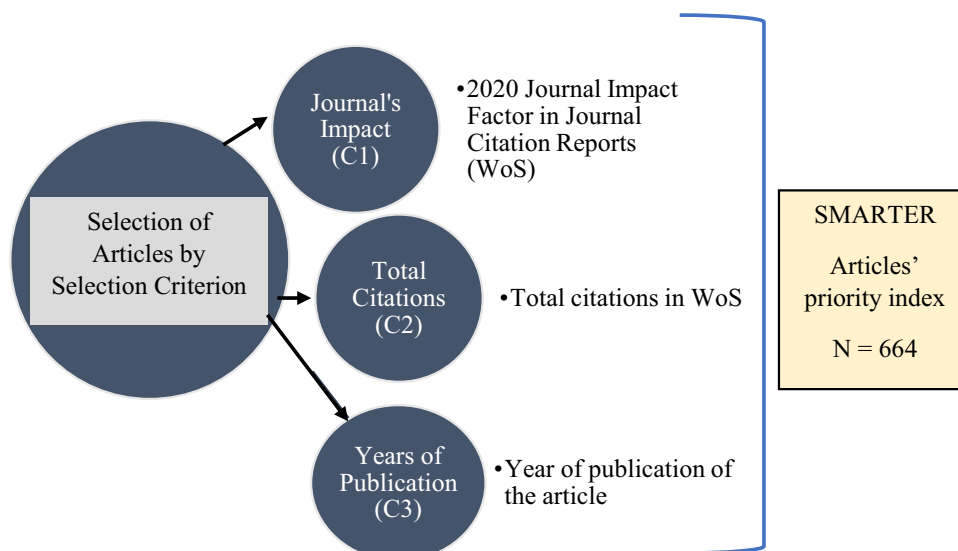


Table 3 Weights

Weights	Description	Conclusion
W1	Is the weight of the most important objective	For K objectives, we have Eqs. 1, 2 and K, the importance of the respective criteria, with the total sum of weights equal to 1 $w_1 = (1 + 1/2 + 1/3 \dots + 1/k)/k$
W2	Is the weight of the second most important objective	
Wk	For the K is the most important objective	

Source: Adapted from Olson and Dorai (1992)

Table 4 Stages(E)

E1	Objectives and decision making: the ordering of alternatives for selecting state of the art by the decision-maker
E2	Hierarchy of attributes defined for the valuation of the alternatives
E3	Alternatives of articles to be used to replicate the proposed model by searching WOS with the keywords and filters indicated in Table 2 (Table 4)
E4	Articles evaluated by type of attribute (Table 4); with n=664 potential alternatives (A_n) in accordance with $m=3$ criteria (C_m) to apply to E3
E5	Analysis of the values obtained for the criteria defined in E4
E6	Evaluation in accordance with C_m : C1 – Journal Citation Reports (WoS) e C2 – Number of citations is maximization functions, whereby the greater its value, the greater the utility; the C3 —Time, evaluates performance in qualitative terms. The weights used are those of the ROC Curve (Centride Order) (Roberts & Goodwin, 2002) (Table 5)
E7	Ordering of attributes (W_3) according to the decision-maker (Table 6)
E8	Use of Roc weights for W_3 (Table 6)
E9	Decision: calculation of all utilities for attributes (W_3): $U_j = \sum_k w_k u_{jk}$ ((Table 6)

Fonte: Adapted from Rodrigues and Franco (2022)

Table 5 Breviary of the evaluation matrix

Documents (D)	C1 (Journal Citation Report 2021)	C2 (N° Citations)	C3 Time (Publication Year)
a1	01	0	2019
D2	01	3	2019
D3	5,732	35	1997
D4	6,43	23	2002
D5	0	0	2011
D6	9,418	149	2004
D7	12,638	250	1992
D8	5,616	2	2021
D9	8,174	220	2019
D10	2,03	23	2019
...
D664	01	16	2017

The steps defined in E4 for the execution of E5 were obtained by creating a spreadsheet with the following formulas applied to all D664, as follows:

Journal Citation Report $\Leftrightarrow f(x)C10$ (Table 4) $\Leftrightarrow 0,0625$ (Table 5) (–)
Citations $\Leftrightarrow f(x)C216$ (Table 4) $\Leftrightarrow 0,4567$ (Table 5) (|)
Year $\Leftrightarrow f(x)C32017$ (Table 4) $\Leftrightarrow 0,2567$ (Table 5) (|)
RocWeights = $\sum(f(x)C1 \times W1) + (f(x)C2 \times W2) + (f(x)C3 \times W3)$ (|)
RocWeights D664 = $\sum(0,0625 \times 0,6111) + (0,2567 \times 0,2778) + (0,2567 \times 0,1111)$
 (Tables 5 and 6)
RocWeights D664 = 0,13,802,438

Table 6 Criteria evaluation analysis

Function $f(x)$	Definition	Weight
C1	Journal Citation Reports (WOS;2020)	
	4,01 or more	0,5208
	2,01 – 4,00	0,2708
	1,01 – 2,00	0,1458
	0 – 1,00	0,0625
C2	Number of citations	
	21,01 or more	0,4567
	11,01—21	0,2567
	4,01—11	0,1567
	1,01—4	0,0900
C3	0–1	0,0400
	Time Criterion (year of publication)	
	2022—2018	0,4567
	2017—2013	0,2567
	2012—2008	0,1567
	2007—2003	0,0900
	2002—1966	0,0400

Table 6 shows the ROC curve weights used for the criteria evaluation analysis (E6) defined by Roberts and Goodwin (2002).

Finally, Table 7 contains the utilities for each attribute (W_3).

With the results obtained with the 9 steps and through Fig. 3, it is possible to determine the cut-off year since the cut-off axis can be determined through the graphical representation of the ROC curve. This means that the ROC curve has the great advantage of allowing establishing a relationship between sensitivity and specificity and representing the entire universe of possible events (Azevedo & Pereira, 2010).

Thus, by Fig. 3 the cut-off is the penultimate point of the ROC curve, i.e., a value of 92.93 for sensitivity, of 49.58 for specificity, which means a cut-off of the ROC weights from 49.58. Specifically, the cut-off of the 664 articles is a function of time, which defined a cut-off of approximately 20 years from the date of publication (Alleyne et al. 2018). This means that the cut-off year is 2018, as this is the year of the article that has the specificity of 49.58, so the final database to include in the bibliometric review is 229 articles published between 2018 and 2022.

Prisma method

This method makes it possible to define final eligibility criteria (EC) for the 229 documents in the final base, expressed in a flowchart (Donato & Donato, 2019). In this scenario, the following criteria were defined: 1) articles containing the words related to the defined objective and no keywords from the search string in Table 2 in the title and keywords excluded (EC1); 2) Exclusion by reading the abstract (EC2). Previous research has used these definitions (e.g., Rodrigues & Franco, 2022). The mentioned flowchart is shown in Fig. 4.

By applying the PRISMA method (qualitative approach), the final listing of scientific articles is 103, given that the eligibility criteria excluded 126. Thus, the 103 articles will be scientifically and biometrically mapped in the following sections.

Scientific mapping

This mapping shows the descriptive analysis of the 103 documents on the theme under analysis, the distribution by year of publication, titles of sources and the number of citations, with the implicit content analysis.

Table 7 Order of attributes according to relevance and ROC weights, pre-defined

Order of attributes	1 Journals (C1)	2 Citations (C2)	3 Time (C3)
Weights	W1 (attribute 1) 0,6111	W2 (attribute 2) 0,2778	W3 (attribute 3) 0,1111

Fig. 3 Roc Curve (adapted from Zweig & Campbell, 1993)

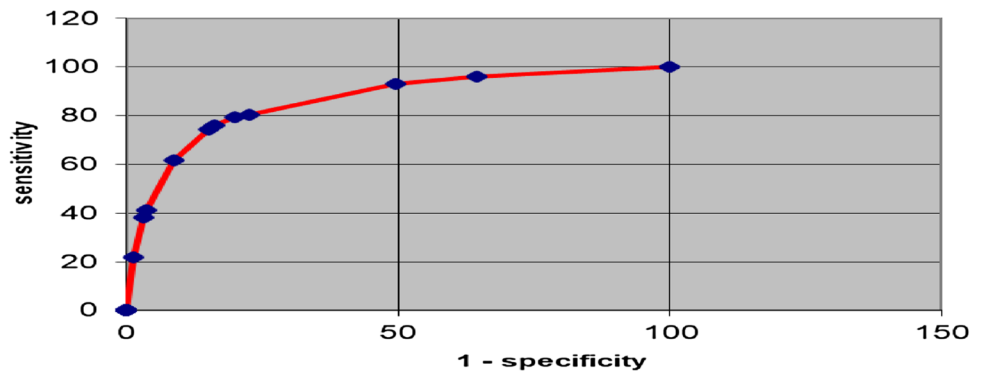
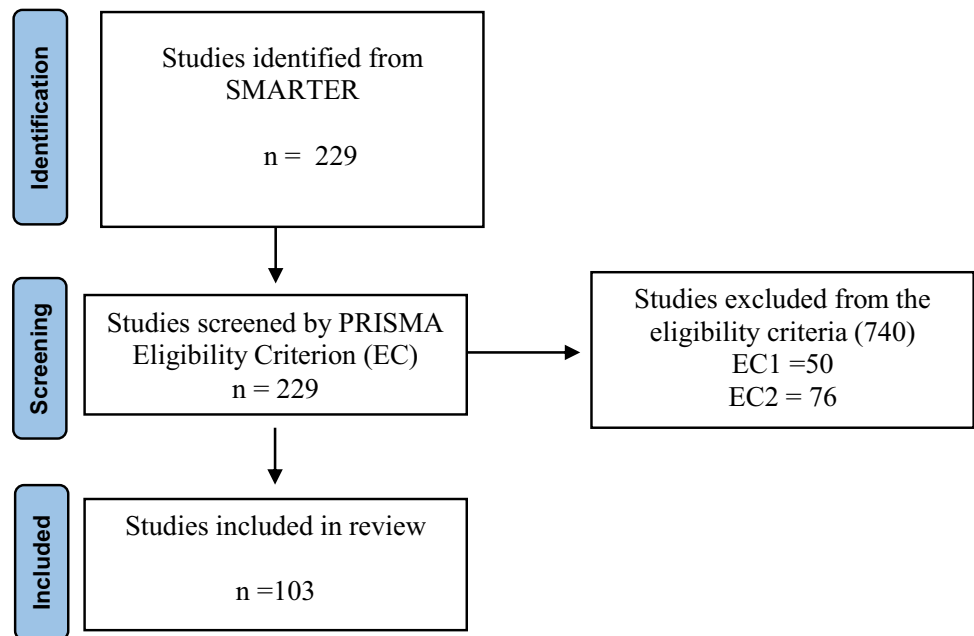


Fig. 4 PRISMA diagram (adapted from Liberati et al., 2009)



Thus, Fig. 5 displays the temporal distribution of scientific publications between 2018 and 2021.

Figure 5 shows that 2020 was the most publications, although the other years also had a significant number. Given that the SMARTER and PRISMA methods were used, the first publication on the topic under analysis in scientific academia was not identified. However, it should be noted that the article published in 2022 concerns a systematic literature review on workplace stress and burnout in the tourism sector (Ayachit & Chitta, 2022) and that the articles published between 2018 and 2021 include four conceptual articles (Gilbert et al., 2018; Lee et al., 2018; Pattaguan, 2018; Payne et al., 2020).

Of these conceptual articles, those that address accounting professionals are only two, namely 1) Payne et al. (2020), who developed a useful code of ethics for these professionals in the face of the pressures they are

subjected to, supported by legitimacy theory; 2) Pattaguan (2018) who addressed how students achieve success in the entrance examination for the profession of a certified accountant.

Additionally, of the 103 studies selected and published between 2018 and 2021 it was found that accounting and its professionals, were addressed in six articles and they are: 1) Lin and Hwang (2021) presented an empirical

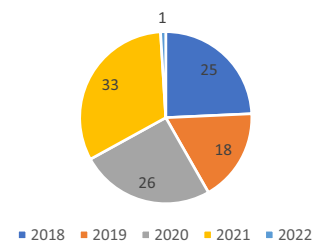


Fig. 5 Temporal distribution of scientific publications

study (quantitative approach) on how accountants manage knowledge sharing, information management and the psychological factors associated with this in the pre-pandemic and pandemic periods, concluding that information management skills and perceived image have a positive association with knowledge sharing behaviour, while reciprocity and knowledge power loss do not play a relevant role in knowledge sharing intentions; also suggest that accountants need to be increasingly resilient; 2) Feeney and Pierce (2018) empirically demonstrated (qualitative approach) that accounting is an enabler of innovation and creativity; 3) Dechawatanapaisal (2020) obtained a sample of 1137 accountants (questionnaire) to develop a model to examine whether work significantly influences career satisfaction through job integration, where the results obtained showed that the direct relationship existing between job meaning and satisfaction are measured by integration; 4) Melnyk et al. (2020) identified the current and future directions in the development of accounting; 5) Faituša et al. (2020) evaluated accounting outsourcing in Latvia and Lithuania (inductive and deductive method) and identified the personal, professional and social characteristics of certified accountants; 6) Mihai et al. (2020) investigated how the pandemic forced accountants to make a heavy investment in their work (workload), which generated stressful situations, but with a positive balance in the relationship with the family. In short, empirical studies on work stress in accounting professionals are minute, which opens space to argue that this is a fertile topic for research and to justify the essence of this study presented here as a starting point.

The 103 articles mapped here mostly used quantitative methodology over qualitative methodology, which means that the studies have strong external validity. However, stress being a phenomenon of social nature, internal validity is

necessary for a proper insight into the causes consequences of stress and its way of mitigation or resolution.

One of the important metrics in academia is the number of citations of published articles, so Table 8 is displayed with the TOP 10 most cited articles ($n = 103$).

The most cited article is by Lee et al. (2018), with 93 citations and was published in the Annual Review of Organizational Psychology and Organizational Behavior, whose impact factor is 18.333 (Journal Citation Reports—WoS, 2020). This study explored the construct of job insecurity since 2003, through the exploratory method, to identify the antecedents and outcomes of job insecurity as an element of stress in the workplace. The importance of this construct for job stress had already been discussed by Huang et al. (2013), who considered that job insecurity is a unique type of stressor and distinct from actual job loss since people who experience it are still employed, although their future is uncertain. This stressor consumes the mental and emotional resources of insecure employees and causes reactions of physical, mental, psychological tension, damaging their mental health and well-being (Cheng & Chan, 2008; Jordan et al., 2002; Staufienbiel & König, 2010). Jahanzeb and Fatima's (2018) research, on the other hand, exhibited 40 citations and was published in the Journal of Business and Psychology with an impact factor of 6.760 (Journal Citation Reports—WoS, 2020), which focuses specifically on the geographical context of Pakistan, with 320 employees in the service sector as the unit of analysis; these authors used the Transactional Theory of Stress to study the moderating effects of defensive silence, emotional exhaustion between ostracism and interpersonal deviance and the ability to cope with these issues, however, the collectivist culture of Pakistan does not allow one to generalize the results of the mediations obtained, even with the use of scales validated in previous

Table 8 TOP 10 most cited articles in WoS

Authors	Title	Citations
Lee et al. (2018)	Job Insecurity and the Changing Workplace: Recent Developments and the Future Trends in Job Insecurity Research	93
Bani-Melhem et al. (2018) ^a	Determinants of employees' innovative behaviour	61
Jahanzeb and Fatima (2018)	How Workplace Ostracism Influences Interpersonal Deviance: The Mediating Role of Defensive Silence and Emotional Exhaustion	40
Ganster et al. (2018)	Long Working Hours and Well-being: What We Know, What We Do Not Know, and What We Need to Know	35
Curtis and Taylor (2018)	Developmental mentoring, affective organizational commitment, and knowledge sharing in public accounting firms	28
Gilbert et al. (2018) ^a	Building personal resources through interventions: An integrative review	26
Weiss et al. (2018) ^a	Authentic leadership and leaders' mental well-being: An experience sampling study	23
Elmadağ and Ellinger (2018) ^a	Alleviating job stress to improve service employee work affect: the influence of rewarding	18
Dobrodolac et al. (2018)	A model for the comparison of business units	16
Rodríguez et al. (2019)	Individual, co-active and collective coping and organizational stress: A longitudinal study	16

^aThey will be analysed in "Bibliometric analysis" section

research (Aquino et al., 1999; Ferris et al., 2008; Maslach & Jackson, 1981; Van Dyne et al., 2003) in the distributed questionnaires. Also the effects of working long hours in a row on mental health and well-being were studied by Ganster et al. (2018), whose literature review article totals 35 citations and was, also, published Journal of Business and Psychology; they explained that "the effects of working long hours are nuanced in that they may vary considerably for different working populations based on gender, age, working conditions, and other factors." (Ganster et al., 2018, p. 25). Organizational commitment in public accounting firms was another construct studied by Curtis and Taylor (2018), with 28 citations and published in the Journal of Knowledge Management (impact factor of 8.182; WoS, 2020), this construct has also been used in studies on work stress (e.g., Celma et al., 2018; Varga et al., 2021), while job stress was used as a moderating construct in the comparison of postal business unit employees by Dobrodolac et al. (2018); this publication presents 16 citations and was published in Personnel Review with an impact factor of 3.434 (WoS, 2020). Finally, the last article presented in Table 6 presents, also, 16 citations and was published in the European Management Journal with an impact factor of 5.075 (WoS, 2020).

In summary, the analysis of Table 6 provided the gauging that the stress that the demands of work cause in individuals is a topic that interests journals with relevant impact factors and been strongly cited in other studies. However, professional accountants have not been widely used as a unit of analysis of this work stress.

Table 9, on the other hand, shows the TOP 10 of the publication sources, the impact factor and the number of publications.

Table 9 shows that the journals with the most published articles have a relevant impact factor. However, there are journals with a higher impact factor with only one published article, for example, Annual Review of Organizational

Psychology and Organizational Behavior with 18,333 (Lee et al., 2018), Leadership Quarterly with 10,517 (Weiss et al., 2018), Corporate Social Responsibility and Environmental Management with 8,741 (Sorribes et al., 2021) and Journal of Knowledge Management (Curtis & Taylor, 2018).

In summary, this scientific mapping on the topic under analysis has shown that work stress is increasingly studied, which corroborates previous research (e.g., Akgunduz, 2015; Jung & Yoon, 2016; Mansour & Tremblay, 2016) by academics, albeit in fields other than accounting. This argument represents a challenge for academics in management, accounting, and business, considering the skills, resilience, and other aspects that the professional work of an accountant demands and, furthermore, when job demands cause work stress (e.g., Murphy & Sauter, 2004), which undermines organizational effectiveness and compromises personal health (Vong et al., 2018).

Bibliometric analysis

After selecting the eligible articles ($n = 103$) for inclusion in the literature review presented here, the R version 4.1.3 and RStudio 4.1.2 software and respective R Bibliometrix package were used, which allows for the application of powerful and effective statistical algorithms through the library programming code (bibliometrix) and biblioshiny (Aria & Cuccurullo, 2017) for high-quality bibliometric mapping with robust outputs, whose results and discussion are presented below.

However, in view of the scientific mapping carried out in the previous section, the scarcity of scientific studies that specifically address stress in accounting professionals is denoted, since they focus on other professional areas. This means that the study presented here is unprecedented and

Table 9 Mapping of publication sources (TOP 10)

Journals	Journal Citation Reports (WoS, 2020)	No. of publications
Journal of Business and Psychology	6,760	5
Journal of Business Ethics	6,430	5
Journal of Organizational Behavior	8,174	3
Journal of Hospitality Marketing & Management	7,022	3
Personnel Review	3,434	3
Qualitative Research in Accounting and Management	1,489	3
Journal of Applied Psychology	7,429	2
International Journal of Contemporary Hospitality Management	6,514	2
Journal of Hospitality and Tourism Management	5,959	2
International Journal of Human Resource Management	5,546	2
European Management Journal	5,075	2
Chinese Management Studies	1,676	2

pertinent and will trigger the interest of academics in this topic, which significantly affects accounting professionals, as a consequence of the demands of the profession.

In other side, the main information about data provided by Rbibliometrix stands out in the collaboration index with a value of 2.83 and 296 keywords plus in all 103 articles. On the other hand, the links between these keywords are visible in the thematic map of Fig. 6. This map (Caust & Vecco, 2017) shows 4 distinct subtopics, but linked among them, obtained by analysing the field of the articles designated Keywords Plus (Della Corte et al., 2019). Della Corte et al. (2019, p. 8) explained that “those keywords are associated by Thomson Reuters editorial experts supported by a semi-automated algorithm. They review the titles of all references and highlight additional relevant but overlooked keywords that the authors did not list. Differently from the authors’ keywords, the Keywords Plus field is normalized. Keywords Plus terms are able to capture an article’s content with greater depth and variety”; “The upper-right quadrant shows the motor themes. They are characterized by both high centrality and density.”

The analysis of Fig. 7 showed that there are four motor themes and two niche and basic themes, respectively. It is noteworthy that in the driving themes, there is a relationship with the basic theme that addressed the occupational/labour stress and its association with behaviour and job satisfaction, followed by the identification of the antecedents, outcomes of this stress and the influence of individual and organizational resources offered on stress levels (e.g. Sidhu et al., 2019), whereas the niche theme relates to the importance of applying strategies in organisations to combat stress levels in employees (e.g., Hadid & Al-Sayed, 2021; Rodríguez et al., 2019; Sader et al., 2021). Therefore, this similarity directed the driving themes to the inclusion of other dimensions that may or may not have an association with workplace stress, such as individual characteristics, performance, employee engagement, and how the quality of management and even the type of leadership predict stress. The inclusion of these dimensions was analysed through a dendrogram, which generated three theme clusters: Cluster 1—Turnover intention (red colour); Cluster 2—Organizational commitment (blue colour) and Cluster 3—Job stress (green colour). However,

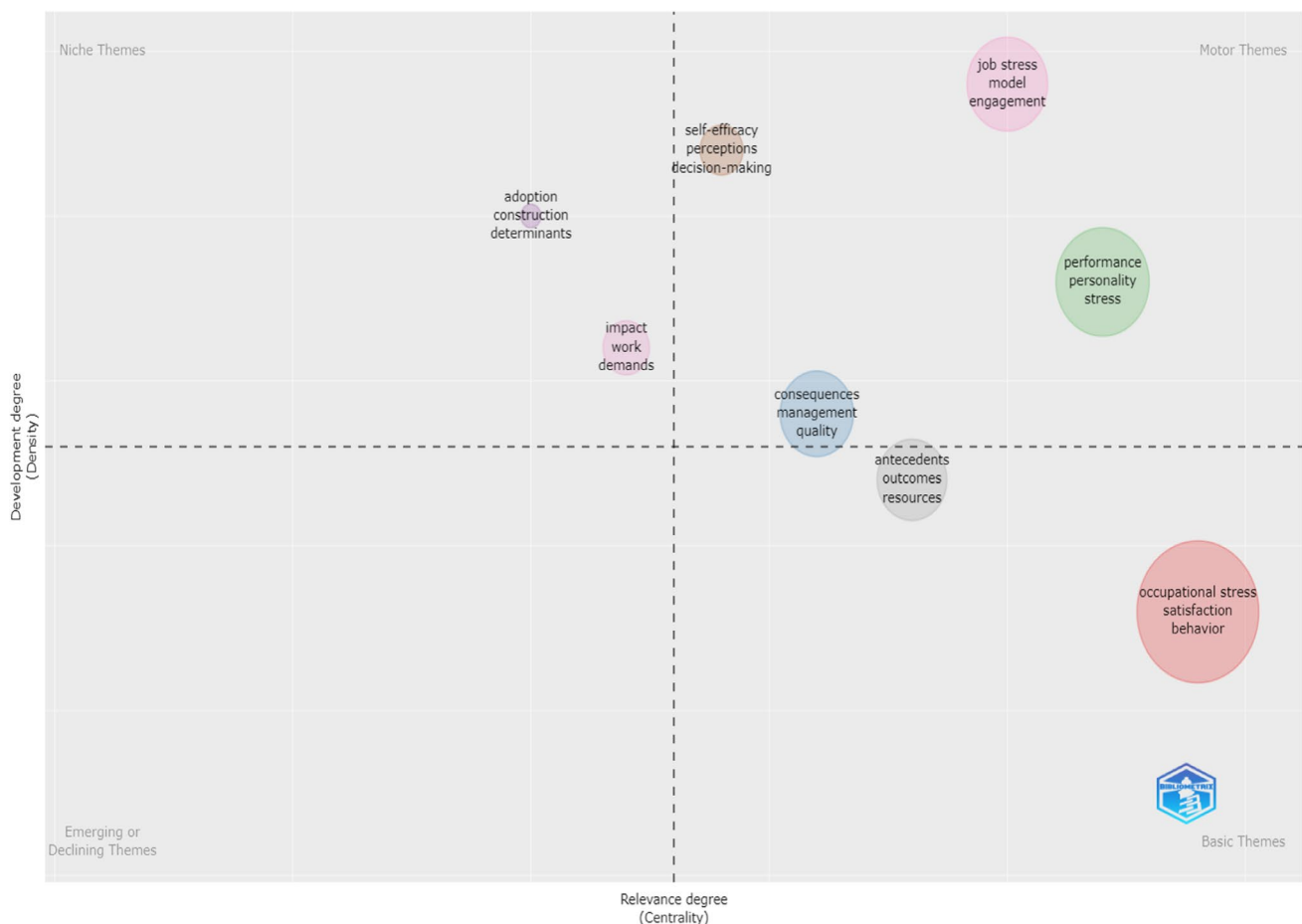


Fig. 6 Thematic map

these clusters are holistically associated as turnover intention, and organizational commitment are influenced by levels of job stress (e.g., Abdelmoteleb, 2019; Anjum & Ming, 2018; Aruldoss et al., 2021; Chapa, 2020; Levett et al., 2019; Liu & Chiu, 2020; Ma et al., 2021; Park et al., 2020; Sesen & Ertan, 2021; Sidhu et al., 2019; Sorribes et al., 2021; Tezcan Uysal, 2019; Tian & Gamble, 2018; Vong et al., 2018; Yang et al., 2021).

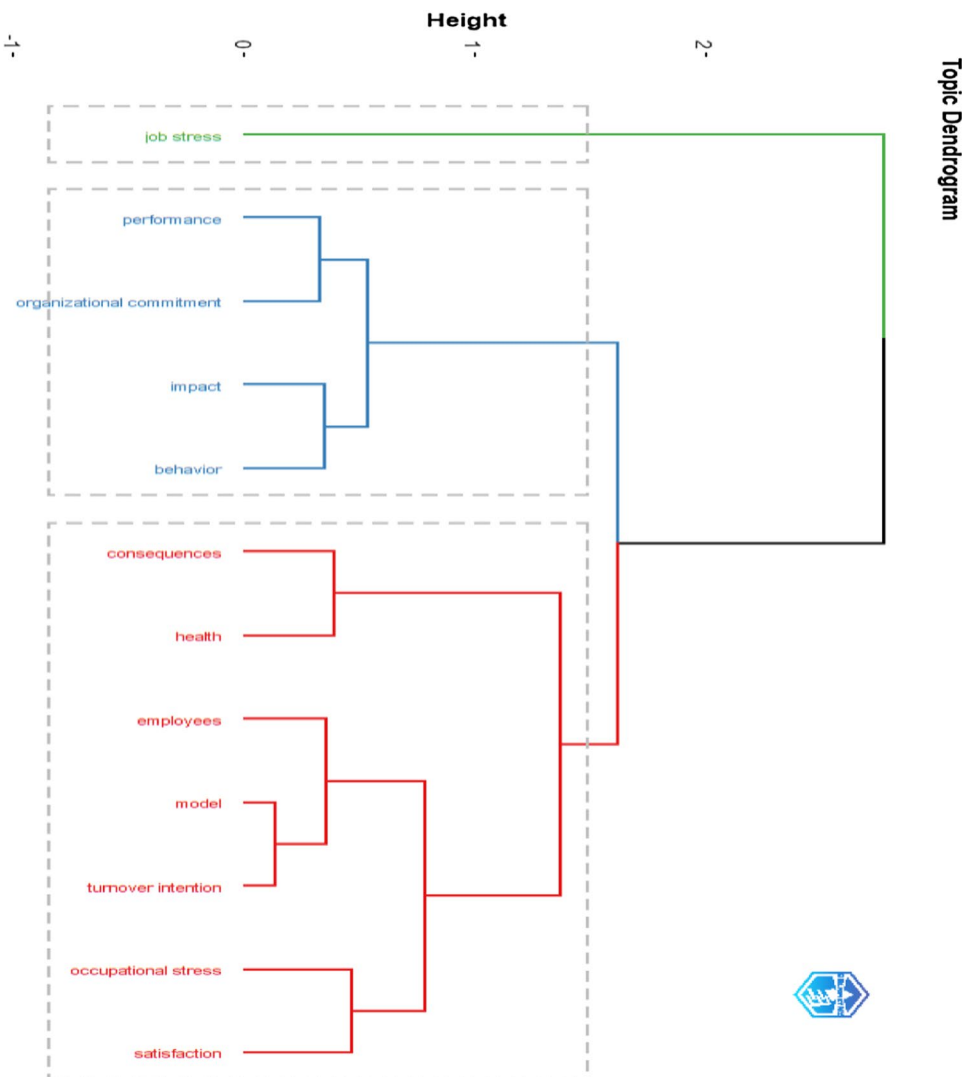
Understandably, studying work stress in any profession is shrouded in complexity by the volume of variables that can be associated with it, so a synopsis of these, reported in the database presented here ($n = 103$), is presented in the following paragraphs.

The type of leadership has been pointed out as a source of stress for the leaders themselves in an organisation, where Weiss et al. (2018) explained that authentic leadership reduces leaders' stress and increases their organisational commitment to work, but mediated by leaders' mental exhaustion, which relates to their followers and their interactions. On

the other hand, the type of leadership exercised determines whether employees' contributions in the decision-making process are valued. Siddique and Siddique (2020) means that their non-valuation negatively influences job satisfaction, organizational commitment, performance, and innovative human behaviour resource practices. Uysal (2019), on the other hand, explored the effect of job stress on job satisfaction and argued that it is influenced by organisational behavioural factors, in which stress is the most prominent; that an increasingly stressful environment is causative of chronic problems in employees in the medium and long term—burnout; that failure to reduce job stress, employees, perceive negative leadership and develop a negative belief towards the leader—toxic leader.

In short, job stress negatively influences organizational commitment and job satisfaction (Abdelmoteleb, 2019), where toxic environments have a relevant relationship with productivity, mediated by the level of job stress (Anjum & Ming, 2018). Here the question of employee resilience

Fig. 7 Dendrogram ($n = 103$)



arises, as it promotes improvements in their well-being. However, it does not assist in reducing their work stress (Thanki & Pestonjee, 2021), which for Ganster et al. (2018) can be overcome by positive community relationships that provide, employees with resources to build their resilience to work stress. Notably, the study of Parveen and Adeinat (2019) advocated that transformational leadership increases job stress in employees but improves emotional burnout, which was contradicted by Rajesh et al. (2019) when considering emotional intelligence as a moderating factor and instrumental of job stress, which showed that this type of leadership provides positive affective experiences in the workplace, allowing followers to adequately monitor their emotions, actions and behaviours, which fosters job satisfaction and reduces job stress.

Peer support, well-being, and affections have been other variables associated with job stress, for example, Bani-Melhem et al. (2018) demonstrated that happiness in the workplace is a strong determinant of employees' innovative behaviour and that job stress alone is not a mediating factor for this behaviour; Liu and Chiu (2020) developed a mediation model to explain how job stress influences performance and turnover intention through positive affect, where the empirical results obtained showed that the mediation of positive affect and a perceived benevolent climate influence employees' turnover intention and performance as a consequence of decreasing job stress. These two studies included two emotional constructs—happiness and affections—as important in positively altering job stress when faced with physical, psychological and organisational work demands, which can lead to adverse outcomes in job stress levels (Chapa, 2020). Levett et al. (2019), meanwhile, studied the effects on employees of introducing wellness programs in the workplace and demonstrated that they positively impacted job stress and job satisfaction. Additionally, wellness programmes had a positive impact on turnover intention, job stress and perceived organisational support (Varga et al., 2021). Also, Sader et al., (2021) concluded that these dimensions show a dual effect, exemplifying that bonding with colleagues can increase or decrease stress, depending on the type of social connection, which affects their well-being in the same sense. Finally, Aruldoss et al. (2021) evidenced that quality of work life is negatively related to job stress but has a positive relationship with job satisfaction and organisational commitment. However, Sorribes et al. (2021) pointed out that the facilitation of work-family balance influences the level of work stress of employees that telecommuting increases this level because of the difficulty of reconciling this balance.

In summary, the literature highlighted here strongly emphasises that work stress has consequences at the personal and organisational levels, which are interconnected with each other. Work stress compromises organizational involvement, sharpens job turnover, affects mental health,

physical and psychological well-being of employees and employers in any professional area, and therefore accounting professionals are no exception, although studies on them are scarce, as already mentioned. Importantly, resource conservation theory (Dechawatanapaisa, 2020; Ghafoor & Haar, 2021; Liu & Chiu, 2020; Sarwar et al., 2019), social capital theory (Sader et al., 2021), contingency theory (Hadid & Al-Sayed, 2021), job demands-resources theory (Park et al., 2020), organizational theory (Siddique & Siddique, 2020), social exchange theory (Bani-Melhem et al., 2018; Sesen & Ertan, 2021), self-determination theory (Abdelsalam et al., 2020), transactional theory of stress (Jahanzeb & Fatima, 2018; Ma et al., 2021), ethical climate theory, were widely used in the selected studies for theoretical support of the obtained results. Additionally, Ayachit & Chitta (2022) concluded that resource conservation theory and job demands resources theory have been the most widely used theoretical frameworks in job stress studies.

Based on bibliometry, a conceptual framework of constructs to be taken into account in future studies on the work stress of accounting professionals is presented (Fig. 8).

The stress of accountants is mainly caused due to the high job demands, namely to be every time up-to-date regarding procedures and disclosure statements. In addition, accountants feel the need to keep the due dates which causes high impacts on physical and mental health, as they constantly live with high pressure. Furthermore, due to the very close concurrence and consequently the reduced prices, accountants have usually a high workload to maximize their monetary outcome. Beyond the stress and anxiety, accountants have to keep continuously learning to be up-to-date in their field and dominate atypical customer characteristics. Customers often want to avoid the correct taxation, which brings accountants to an ethical dilemma. On one side, accountants want to provide a service that engages the customer, but, on the other side, they feel stuck in the middle while thinking about their

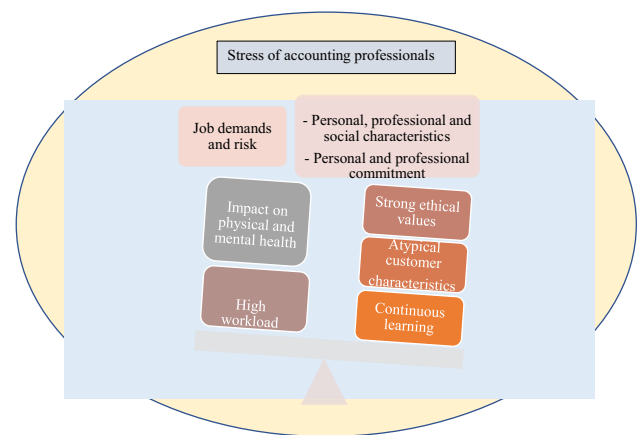


Fig. 8 Constructs for the analysis of stress in accounting professionals

ethical attitudes and behaviour. All in all, accountants feel the need to interlink their personal, professional and social characteristics to their personal and professional commitment, which sometimes is not fitting and causes additional stress beyond the stress related to their professional tasks. Linking all these emotions, several accountants feel nervous stressed and achieve burnout levels.

Implications for theory and practice

As main contributions and implications, this study developed a theoretical model about the constructs for the analysis of stress in accounting professionals, demonstrating factors and the consequences that derive from them. This framework provides for the scientific community to know the main issues discussed, the findings, the ambiguities and what still needs to be done. The analysis of the issues addressed by the literature and the challenges identified were the building bases for future. The analysis of the issues addressed by the literature and the challenges identified were the building bases for future research presented.

From the literature reviewed, it was found that the most commonly used theories to support the objective outlined were conservation of resources theory, social capital theory, contingency theory, job demands-resources theory, organizational theory, theory of managerial behaviour, social exchange theory, self-determination theory, and transactional theory of stress. All these theories were crucial to support the empirical evidence obtained. However, work-related stress is primarily influenced by the individual, i.e. by his/her ability to cope with stress and his/her ways of combating it before it develops into chronic illnesses. In other words, the absorptive capacity (Cohen & Levinthal, 1990) of work stress and its antecedents can guide employees and employers towards creative actions to resolve this stress and generate synergies to develop organisational strategies to reduce the factors that cause this stress and, consequently, improvements in organisational commitment and job satisfaction.

On the other hand, this study supports some contributions and implications for practice, specifically for accounting professionals. The first one lies in the demonstration that work stress in these professionals has not been much empirically researched, since the main units of analysis in the literature reviewed are professionals in the hotel, restaurant, health, and education sectors, among others, which shows the relevance of this systematic literature review. The second is related to the urgent need to justify why the accounting profession generates high levels of work-related stress, which, if we consider the personal (e.g., diversified skills, risk-taking, responsibility, continuous learning), professional (e.g., identification and resolution of daily problems) and social

(e.g., communication, cooperation) characteristics of the profession. In order to avoid and overcome stress levels, the mapping should be done by identifying the antecedents that resulted in high levels of stress and job satisfaction. Most of these stress levels result from one or several of the following factors simultaneously, namely i. high work engagement, ii. low perceived self-efficacy in the decision-making process, iii. adverse consequences in the management process, and iv. high levels of stress embedded in the personality of the individual. Thus, it will be necessary for the accountant to apply strategies and change the way he/she works and perceives the work to not reach stress levels and an irreversible state of health. The importance of resilience in the professional context and mindfulness could be two ways for accounting professionals to avoid high stress levels.

The present study identified the main contributions of empirical research related to work stress literature. Consequently, we identified the main factors influencing this phenomenon in accounting professionals. In addition, these concerns have implications and proves valuable for developing internal policies and decision-making by the organizations. The contributions also apply to other type of professionals. By knowing the stress factors of other types of professionals and observing the consequences here presented, the managers and decision-makers may be able to identify the necessary strategies to minimize the work stress.

Limitations and future agenda

As with any study, this one is not without limitations. The first is the methods used, as many others could have been used, suggesting that Vosviewer, CiteSpace for billiometry should be used in future studies. Also, the search terms are a limitation, so subsequent reviews could include the terms burnout, job satisfaction and occupational stress.

In addition to future suggestions to address the limitations mentioned above, it is suggested that empirical studies be conducted using the qualitative method, as this is a social phenomenon, and it is essential to understand how and why work stress is one of the pathologies of the current era in accounting professionals, which has been exponentiated by the work demands caused by the pandemic. Studies addressing resilience, the effects of mindfulness, wellness intervention programmes and ethics on work-related stress in this profession would be relevant. In addition, a study to develop a composite index to measure work-related stress and its impact on turnover intention, organisational commitment, job satisfaction, and work-family balance would be an added value for scientific academia.

This topic is promising for future research, provided that it specifically focuses on accounting professionals, since, as revealed in the research presented here, there is still a lack

of scientific knowledge on the subject. Thus, it is suggested to launch a questionnaire addressed to the orders/chambers/associations of these professionals (e.g. Order of Certified Accountants in Portugal) on their degree of stress before the pandemic (2019) and during the pandemic (March 2020), in view of the innumerable demands placed on them to help their clients survive financially. This study should adopt a mixed approach, with some interviews until saturation, because we are facing an exponential social phenomenon, in which the case study method will allow us to answer the how and why. Additionally, studying the stress of accountants in multinationals will be another interesting topic, in which case studies are considered to be the most appropriate method.

Acknowledgements The authors are grateful to the anonymous referees of the journal for their extremely useful suggestions to improve the quality of the paper. The authors gratefully acknowledge financial support from National Funds of the FCT – Portuguese Foundation for Science and Technology within the project «UIDB/04007/2020».

Data availability The data that support the findings of this study are available in anonymised form on reasonable request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Declarations

Conflicts of interest The authors declare no conflict of interest.

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