

Factors of Workplace Procrastination: A Systematic Review

Iraida Musteață  and Andrei Corneliu Holman * 

Department of Psychology, Faculty of Psychology and Education Sciences, Alexandru Ioan Cuza University of Iasi, 700554 Iasi, Romania; iraida.musteata@yahoo.com

* Correspondence: andrei.holman@uaic.ro

Abstract: Background: Workplace procrastination is associated with a wide range of negative organizational outcomes. Our objectives are to systematically review the factors of workplace procrastination and the instruments used to measure this construct. Methods: Following PRISMA guidelines, we searched for papers published between 2000 and 2023 through Google Scholar, Science Direct, and Taylor & Francis, using the search terms “workplace procrastination not academic” and “employee procrastination”. Results: After screening, 33 studies were retained for analysis and were also submitted to quality assessment. The factors were grouped into two main categories, i.e., employee-related and external. Several potential factors have been investigated only in a single study, while contradictory findings have been reported regarding the effect of others, especially in culturally diverse samples. Procrastination was measured using ten different instruments, with variations in their conceptual underpinnings. Conclusions: Future advancements in understanding the factors of workplace procrastination would greatly benefit from studies on employee samples from different countries. Moreover, future research should select their workplace procrastination measures based on careful consideration of the specific facets that it aims to investigate. Our findings also suggest that addressing procrastination at work requires a comprehensive approach involving different interventions at both the organizational and individual level.

Keywords: workplace procrastination; factors of procrastination; personality; job characteristics; leadership; workload; work-life balance; time pressure; demographics; systematic review



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1. Introduction

In modern organizations, time is a limited resource. Therefore, employees who use their work time efficiently contribute more to organizational efficiency, while procrastinators, who delay work despite possible adverse outcomes, are less effective in their work. by taking more time than necessary to complete the tasks. Moreover, procrastinators are experiencing increased stress levels (Wan et al. 2014), fatigue and heavier workload (DeArmond et al. 2014), which can negatively impact their mental health.

Procrastination is often defined as putting off, delaying, or postponing work or actions that would ideally be done in the present, often by engaging in nonwork-related actions (Steel 2007). More specifically, procrastination at work can manifest through several types of behavior, namely soldiering, cyberslacking (Metin et al. 2016), maladaptive emotion regulation (Prem et al. 2018; Sirois 2023), or defensive response (Rohrmann et al. 2016). Cyberslacking is the act of using the internet and technology for personal purposes., Soldiering involves refraining from engaging in work-related activities by doing other actions, such as reorganizing cubicles, engaging in excessively lengthy conversations or

gossip, or taking longer breaks (Göncü Köse and Metin 2018). Maladaptive emotion regulation is a strategy to manage perceived work stress (Sirois 2023; Wan et al. 2014) along with challenge and hindrance stressors (Prem et al. 2018). Challenge stressors relate to work characteristics associated with workload, time pressure, planning and decision-making, and problem-solving (DeArmond et al. 2014; Metin et al. 2016; Prem et al. 2018), whereas hindrance stressors relate to work characteristics consisting of role overload, role conflict, and red tape (Huang et al. 2022; Prem et al. 2018). Procrastination can also serve as a defensive response for those with an impostor self-concept, as delaying tasks allows attributing potential failure to insufficient preparation time rather than lack of ability (Rohrmann et al. 2016).

Procrastination is domain specific, but past research has focused on the academic, clinic and health domains (Klingsieck 2013). It is necessary to make the distinction between workplace procrastination from other forms, mainly because the circumstances of this behavior are different (van Eerde 2016). There are several specific features of work procrastination in comparison to procrastination in other contexts, such as academic or everyday procrastination (Hen and Goroshit 2018). Some regard the nature and the stakes of the tasks being postponed, as work procrastination specifically involves putting off job-related duties. Furthermore, most workplaces are structured with clear expectations and practical repercussions, involving direct accountability to superiors or colleagues, unlike academic endeavors and everyday tasks, which most often involve a higher degree of autonomy. Work procrastination is also distinct in its direct connection to an individual's livelihood and professional identity. Also, examining procrastination in work contexts may support the development of more reliable evaluation instruments targeting this behavior and more efficient interventions. Considering the specific features of workplace procrastination as well as the significant negative impacts that this behavior may have on employees and organizations, this study aims to systematically review the factors of workplace procrastination and the instruments that have been used in past research to measure it.

1.1. Theoretical Accounts of Procrastination

Procrastination is generally regarded as volitional (Steel 2007), which implies that it stems from the conscious decision to prioritize a behavior or task over other competing options. Procrastinators may differentially focus their energy on short-term goals, often at the expense of accomplishing key long-term tasks. Relatedly, Temporal Motivation Theory (Steel and König 2006) highlights time as a pivotal element for procrastination, indicating that individuals tend to postpone difficult or aversive tasks. This occurs especially when the anticipated benefits of task completion are far, hence prioritizing instant satisfaction (Steel et al. 2022).

Furthermore, procrastination is a multifaceted habit intricately linked to motivating factors and was defined as a form of self-regulation failure (Steel 2007). Alternatively, Self-Determination Theory (Deci and Ryan 2000) emphasizes the significance of intrinsic motivation and autonomy in task engagement. In this perspective, procrastination often occurs when people see activities as externally imposed or incongruent with their own objectives. Grund and Fries (2018) provided evidence that self-determination in everyday activities is negatively associated with momentary dilatory behavior as well as trait procrastination, and the more self-determined an activity is perceived to be, the more likely its completion. In line with this, a significant negative association was found between intrinsic motivation and procrastination at work (Hutmanová et al. 2022; Lin 2018).

Another explanation for procrastination was proposed from the perspective of the self-efficacy theory. Bandura's (1977) theory underscores the significance of an individual's belief in their capacity to effectively execute activities and attain desired results, and Singh

and Bala (2020) found that self-efficacy has a negative effect on employees' procrastination behaviors. Low self-efficacy predisposes people to see activities as daunting or unachievable, resulting in avoidance behaviors like procrastination (Steel 2007). Low self-efficacy fosters procrastination via several mechanisms. Specifically, individuals who have doubts about their ability may experience a fear of failure, leading to work avoidance as a means of protecting their self-esteem. Secondly, diminished confidence may undermine the motivation to initiate or sustain engagement in activities seen as difficult (Rozental and Carlbring 2014).

Hobfoll's (2001) Conservation of Resources Theory, which emphasizes individuals' efforts to protect and conserve resources like time, energy, and well-being, suggests that procrastination may also represent a defensive response. Oftentimes, employees involve in several tasks simultaneously and switch between them, which results in some tasks not meeting original plans, because multitasking consumes resources (Zhijie et al. 2022). When individuals feel overloaded by demanding or emotionally draining tasks, they may reduce effort and procrastinate, in order to maintain their psychological balance and avoid immediate resource depletion (Reinecke et al. 2018).

1.2. Procrastination at Work: Consequences and Factors

The literature underlines the need to achieve a balance between work and family domains, as this equilibrium is associated with greater well-being and reduced procrastination (Sharma and Sharma 2021). In the context of dual-role responsibilities, employees may engage in procrastination as a way to conserve emotional resources either to prevent further depletion (Gu et al. 2022).

Past research revealed that employees who are highly prone to putting off tasks perform poorly overall (Ariely and Wertenbroch 2002; van Eerde 2003). Procrastination at work is also associated with counterproductive work behavior, boredom, and low engagement (Metin et al. 2016). Consequently, procrastination at work is considered a suboptimal behavior that increases employer costs due to decreased individual and organizational productivity (Gupta et al. 2012). Procrastination consumes more than a quarter of most workdays, which in turn generates high costs per employee each year (Nguyen et al. 2013). Another way in which workplace procrastination affects organizational health is by inducing stress because of unmet deadlines, which impacts employee well-being and has the potential of generating burnout on the long term (Sirois 2023). These effects of procrastination at work highlight the need to identify the factors that foster it in order to develop appropriate interventions to tackle this behavioral tendency and to limit its negative influences.

Previous studies have highlighted several factors related to procrastination at work, such as workplace and task characteristics, supervisory styles, work-related states (Metin et al. 2018), situational and personal factors (Kühnel et al. 2022), emotional factors, professional role, and situational determinants (Hen 2018). It is also important to note that procrastination at work has been evaluated using several different measures across these past studies, such as Procrastination at work scale (Metin et al. 2016), Tuckman's (1991) procrastination scale, or Lay's (1986) workplace procrastination measure.

Our purpose is accordingly twofold: (a) to scope the published scientific literature in order to identify the factors of procrastination at work that have been investigated and to develop a systematic account of these factors, and (b) to review the instruments used to measure procrastination across past relevant research.

2. Methods

2.1. Eligibility Criteria and Study Selection

This review followed the PRISMA guidelines (Page et al. 2021). We performed a search for relevant studies in the Google Scholar, Science Direct, and Taylor and Francis databases, using the terms “workplace procrastination not academic” and “employee procrastination”. We also sought to identify further published research by scoping the references of the studies included in the systematic review. In terms of research timeframe, Klingsieck (2013) concluded that procrastination studies are highly prevalent in research fields such as educational, clinical, and health psychology, but scarce, at least before 2000, in industrial and organizational psychology. Therefore, we decided to examine studies published since 2000.

We included studies that met the following criteria:

1. The text was published in English and tables use the Latin alphabet;
2. Published between 2000 and 2023;
3. From the organizational field and refers to work tasks;
4. Participants are employees, older than 18 years;
5. In which procrastination was evaluated with a specific measure, and the name and authors of the instrument are presented;
6. Procrastination is the dependent variable;
7. With full text access;
8. Published in peer review journals.

The exclusion of articles after removing duplicates was based on the criteria indicated above.

2.2. Information Sources

The inclusion process of all relevant studies began by conducting a search through the following electronic databases: Google Scholar, Science Direct, and Taylor and Francis. As detailed below, the following search terms were used: “workplace procrastination not academic” and “employee procrastination—academic”. We also included as potential sources the studies referenced in the works retrieved and selected through the above search strategy, by analyzing the titles and abstract of the articles that include the words “procrastination, work, job, employees”. The final literature search reported in this study was performed in February 2023.

2.3. Search Strategy

The search process involved advanced search for each database (see Figure 1). For Google Scholar we set to find articles containing all the words “workplace procrastination not academic” with the exact expression “workplace procrastination” without words “academic” and to show articles dated 2000–2023. For Science Direct we used a quick search form field to find articles with these terms: “workplace procrastination not academic”, years 2000–2023. For Taylor and Francis, we selected search for anywhere “workplace procrastination not academic”, publication date custom range 2000–2023. The second search followed the same path but using the expression employee “procrastination”-academic, from 2000 to 2023.

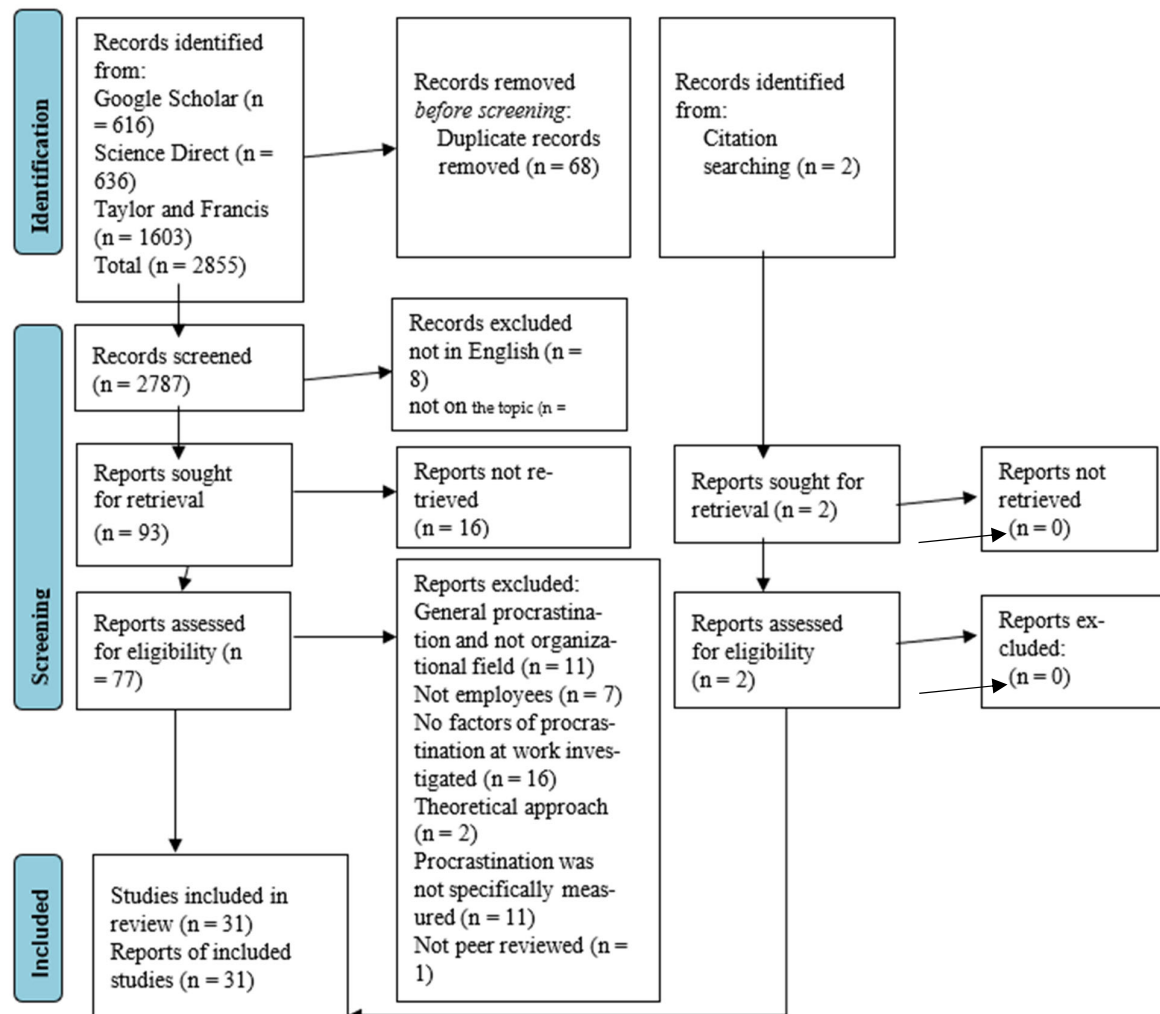


Figure 1. PRISMA diagram.

2.4. Study Selection and Data Collection

The title, author, year, and journal of all identified 2855 records were compiled into a document. The two authors independently screened the articles to determine their eligibility. Identified disparities in selection were addressed through discussion to reach a consensus. The screening was carried out in three stages. Papers were reviewed first by title, then by abstract and finally by full text. At each stage, articles were excluded if they did not meet the inclusion criteria. All the papers' titles were added in an Excel file, then were sorted in alphabetical order to simplify the identification of duplicates. 68 duplicate records were found and eliminated, and then 7 publications in that were not in English or Romanian and 1 article that had the title in English but not the abstract.

There were 2686 records that did not address workplace procrastination. These researches targeted procrastination but were conducted in fields other than organizational settings, with individuals recruited from student or general populations. The studies screened by abstract which met the inclusion criteria and those that did not mention participants being employees were included for full-text screening.

For full-text screening we were left with 93 records. We also identified 19 records to which we did not have access, and we found and contacted 9 of the authors to request access to the full text. While three authors sent us the papers, 16 studies remained without access. Our analysis of 77 full-text articles revealed that 11 reports did not address workplace procrastination, 7 studies did not involve employees as participants, 16 studies examined

procrastination at work as an independent variable or mediator without investigating its factors, 2 records were solely theoretical reviews, 11 research studies did not specifically measure procrastination, and 1 study was not published in a peer-reviewed journal. In the end, we selected 29 items for inclusion in the final report, which reported 31 studies, as two of the articles included two studies each. After conducting numerous citation searches, we were able to identify and acquire two additional articles that meet our inclusion criteria. Consequently, the total number of papers in the review increased to 31, which reported 33 empirical studies.

2.5. Study Risk of Bias Assessment

Mixed Methods Appraisal Tool (MMAT), version 2018 ([Hong et al. 2018](#)), was used independently by the authors to assess the methodological quality of the studies included in the review, and any disagreements were discussed and resolved. We identified a quantitative randomized controlled trial (an experimental study) and several quantitative non-randomized studies including a non-randomized controlled trial (a quasi-experimental study), three diary studies, and twenty-eight cross-sectional analytic studies. MMAT includes checklists for the appraisal of the methodological quality of each of these categories of quantitative studies. Before applying the checklist, two preliminary conditions must be met: the research questions must be clear, and the data collected must allow the research questions to be addressed. The MMAT checklist criteria for randomized controlled trials refer to randomization, comparable groups, blinded outcome assessors, and adherence to the assigned intervention. Concerning non-randomized studies, the criteria focus on the sample representativeness, appropriateness of measures, complete outcome data, accounting for confounders, and administered intervention or occurred exposure.

3. Results

The analysis of the articles began with a review of the abstract, methodology and text. Relevant data such as authors, country, year, type of study, sample, measures, factors of workplace procrastination and key results, are summarized in Table 1.

Table 1. Characteristics of the included studies.

Reference—Country	Factors of Procrastination Investigated	Sample	Study Design and Measures	Key Findings	Quality *
Asio and Riego de Dios (2021)—Philippines	Age; Sex, Department; civil status; Years in service	70 employees from a higher education institution Department: Administration-50%; Faculty-50%; Age: 21–30 years-41%; 31–40 years-21%; 41–50 years-24%; ≥51 years-14%; Sex: Male-59%; Female-41%; Civil Status: Single-60%; Married-34%; Others-6%; Years in Service: 1–5 years-73%; 6–10 years-16%; 11 and above-11%.	Cross-sectional design. General Procrastination Scale adapted (McCloskey 2011)	Single participants had higher tendency to procrastinate. Age was positively related to procrastination. The other factors (department, sex, and years in service) were not significantly associated with procrastination.	60%
DeArmond et al. (2014)—U.S.	Workload; Psychological detachment; Fatigue	547 U.S. residents, 70.6% women, mean age 40.8 years (SD = 11.1), mean organizational tenure 7.3 years (SD = 7.9), working at least 15 h a week in an organizational setting.	Three wave cross-sectional survey. Quantitative Workload Inventory (Spector and Jex 1998); Psychological detachment from work scale (Siegrist et al. 2004); Fatigue Scale (Chalder et al. 1993); Lay's Procrastination Scale (Lay 1986).	Fatigue was positively related to procrastination; psychological detachment had an indirect effect (via fatigue) on procrastination, as well as a direct negative effect; workload had a significant indirect effect on procrastination.	60%
De Clercq et al. (2021)—Pakistan	Perceived organizational cronyism; Leader–member exchange; Organizational disidentification	303 employees, 19% women, mean age 33 years, mean organizational tenure 5 years, from different sectors (oil and gas, banking, telecom).	Three-wave cross-sectional design. Organizational cronyism scale (Turhan 2014); Leader–member exchange scale (Graen and Scandura 1987); Organizational disidentification scale (Kreiner and Ashforth 2004); Procrastination scale (Tuckman 1991).	Perceived organizational cronyism related positively to organizational disidentification, which was positively associated to procrastination. Organizational disidentification mediated the relationship between perceptions of organizational cronyism and procrastination. High leader–member exchange mitigates this positive indirect effect of organizational cronyism on procrastination.	80%
Goroshit and Hen (2018)—Israel	Negative affect.	236 computer professionals, 64% male, aged between 22 and 71 (M = 35.7, SD = 10).	Cross-sectional design. Online Cognition Scale (OCS, Davis et al. 2002); Decisional Procrastination Questionnaire (Mann et al. 1997); Adult Inventory of Procrastination (McCown and Johnson 1989) short form of the Depression, Anxiety and Stress Scales (Lovibond and Lovibond 1995).	The three types of procrastination (online, general, and decisional) are positively and moderately interrelated with one another and with negative affect.	100%

Table 1. Cont.

Reference—Country	Factors of Procrastination Investigated	Sample	Study Design and Measures	Key Findings	Quality *
Göncü Köse and Metin (2018)—Turkey	Paternalistic leadership; transformational leadership; organizational citizenship behaviors; turnover intention.	126 full-time office employees, 72% female, mean age 39.6 years (SD = 10.8), mean organizational tenure 9.3 years (SD = 9.0).	Cross-sectional design. Paternalistic Leadership Scale (Aycan 2006). Multifactor Leadership Questionnaire (Avolio et al. 1999); Organizational citizenship behavior scale (Podsakoff et al. 1990); Turnover intentions scale (Blau and Boal 1989); Procrastination at Work Scale (Metin et al. 2016).	Transformational and paternalistic leadership styles were negatively related to employees' procrastination. The conscientiousness dimension of organizational citizenship behaviors was negatively associated with procrastination.	60%
Gu et al. (2022)—China	Job responsibility; family responsibility; Emotional exhaustion.	323 employees, 56.97% female, mean age 31.46 years (SD = 9.58); 80.19% had a bachelor's degree or higher, mean tenure 5 (SD = 2.57).	Cross-sectional design. Job-Family Multi-Role Responsibilities Scale adapted (Ruderman et al. 2002); Maslach burnout inventory—General survey adapted (Schaufeli et al. 1996); Pure procrastination Scale (Steel 2010).	Job responsibility and family responsibility were negatively associated with procrastination. Emotional exhaustion was positively correlated with procrastination. Procrastination was highest when job-family responsibilities were in congruence (high job-high family responsibilities and low job-low family responsibilities). Emotional exhaustion mediated the effect of job-family congruence/incongruence on procrastination.	100%
Gupta et al. (2012)—India	Sex; age; time perspective.	236 employees, 141 males, mean age 28.14 years (range 21–58; SD = 7.95) from seven major information technology and financial firms.	Cross-sectional design. Lay's (1986) workplace procrastination measure; Time perspective inventory (Zimbardo and Boyd 1999).	No significant sex differences in procrastination. Age was negatively correlated with procrastination. Procrastination was negatively related to future and to past negative time orientations and positively related to present-fatalistic and to past positive orientations.	60%
Hen et al. (2021)—Israel	Decisional Procrastination General Procrastination Work Procrastination	204 participants, 70% men, mean age 44 (SD = 10, range 20–70), 48% with college degrees, 53% mostly engage in office work and 47% work outside the office.	Cross-sectional design. Decisional Procrastination Scale (Mann 1982); Adult Inventory of Procrastination (McCown and Johnson 1991); Procrastination at Work Scale (Metin et al. 2016).	Decisional Procrastination and General Procrastination were positively associated with Work Procrastination. Work environment moderates these relationships: both effects are stronger for office workers.	80%

Table 1. Cont.

Reference—Country	Factors of Procrastination Investigated	Sample	Study Design and Measures	Key Findings	Quality *
Huang et al. (2022)—China	Perceived red tape Perceived overqualification Role overload	751 public employees, 54.5% male, mean age 32.51 years (SD = 10.65), 89.9% with a bachelor's degree, 54.7% had less than seven years' tenure, and 43% had tenures of over seven years.	Two-wave cross-sectional. Perceived red tape scale (Jacobsen and Jakobsen 2018); Perceived overqualification scale (Maynard et al. 2006); Role overload scale adapted from Schaubroeck et al. (1989) and Beehr et al. (1976); Procrastination scale (Tuckman 1991).	Perceived red tape, role overload and perceived overqualification were positively correlated with procrastination. Role overload mediated the relationship between perceived red tape and procrastination. The indirect effect of perceived red tape on procrastination via role overload is stronger when perceived overqualification is high.	100%
Jones (2020)—US, China	Harmonious job passion; obsessive job passion (OJP); job satisfaction; salary level.	The US sample: 300 retail employees, 50% women, mean age 39.66 years (SD = 12.94), mean tenure 8.38 years (SD = 7.80), average annual salary US\$ 44,845. The China sample 300 employees, 50% women, mean age 38.15 years (SD = 11.31), mean tenure 15.83 years (SD = 11.05); average annual salary US\$ 14,913. Both income distributions represent lower middle class in their respective countries.	Cross-sectional design. Job passion (harmonious and obsessive) Scale (Vallerand et al. 2003) adapted to the retail context (Ho et al. 2011); Procrastination at work scale (Mann et al. 1997); Job satisfaction scale (Saks 1995).	Negative relationship between harmonious job passion and procrastination in both national samples. Obsessive job passion had a positive relationship with procrastination in China but a non-significant relationship in the US. Significant three-way interaction of job satisfaction–salary level–obsessive job passion in both national samples: high obsessive job passion x low salary level x low job satisfaction strengthens procrastination.	80%
Kanten and Kanten (2016)—Turkey	Conscientiousness; Extraversion; Agreeableness; Neuroticism; Self-efficacy; Self-esteem.	300 employees from four hospitals, 55% female, aged 35–49 years; 65% have been working for 2–6 years, 12% for more than 7 years, and 23% for less than 1 year in the same hospital.	Cross-sectional design. Big Five Personality Scale (Yoo and Gretzel 2011); General Self-Efficacy Scale (Schwarzer and Jerusalem 1995); Rosenberg Self-Esteem Scale (Rosenberg 1965); Procrastination Scale (Tuckman 1991).	In the correlational analysis, conscientiousness, extraversion, and agreeableness were negatively related to procrastination. Neuroticism was positively related to procrastination. In the multiple regression analysis, conscientiousness retained its negative effect on procrastination, and neuroticism its positive effect. Self-efficacy beliefs and self-esteem had a negative relation with procrastination.	60%
Khoshouei (2017)—Iran	Job characteristics (feedback, autonomy, task significance, task identity, skill variety) locus of control (internal, external).	193 nurses, 172 females (89.1%) aged 23 to 49 years, mean age 37.92 (SD 7.42), mean tenure 12.77 (SD 9.69).	Cross-sectional design. General procrastination scale (Lay 1986); Job cognition questionnaire; Work locus of control scale (Spector 1988).	Negative relationship between procrastination and feedback as a job characteristic. Positive relationship between procrastination and external locus of control.	80%

Table 1. Cont.

Reference—Country	Factors of Procrastination Investigated	Sample	Study Design and Measures	Key Findings	Quality *
Kühnel et al. (2022)—Germany	Study 1. Positive affect, Time pressure. Study 2. Work-related positive affect, time pressure.	Study 1. 108 self-employed and employees from companies, 46% women, mean age 41 years (SD = 10). Study 2. 154 self-employed and employees from companies, 50% women, mean age 38 years (SD = 13).	Diary study. Study 1. Positive and Negative Affect Schedule scales (Watson et al. 1988); Day-specific procrastination Tuckman's (1991) scale adapted (Kühnel et al. 2016); Day-specific time pressure scale (Semmer et al. 1999). Study 2. Positive affect in the work domain were assessed with the three vigor items of the UWES-9 (Schaufeli et al. 2006); Day-specific procrastination (Kühnel et al. 2016; Tuckman 1991); Day-specific time pressure scale (Semmer et al. 1999).	Study 1. Negative relationship between positive affect and procrastination and between day-specific time pressure and procrastination. The negative relationship between day-specific time pressure and procrastination was moderated by positive affect, such that it is less strong for individuals with higher levels of positive affect. Study 2. Work-related positive affect (vigor) was negatively related to procrastination. Time pressure was negatively related to procrastination. Work-related positive affect was a cross-level moderator of the day-specific relationship between time pressure and procrastination.	80%
Lin (2018)—China	Inclusive leadership; intrinsic motivation; perceived insider status.	327 employees working in different industries, 167 women, aged 21 to 30 years, mean age 29.99 years; 21.1% engaged in service work, 19.9% in managerial work, 17.7% marketing work and 14.1%, in research and development work.	Cross-sectional design. Irrational Procrastination Scale (Steel 2007); Inclusive leadership (Carmeli et al. 2010); Intrinsic motivation (Van Yperen and Hagedoorn 2003) Perceived insider status (Stamper and Masterson 2002).	Inclusive leadership negatively influenced procrastination behavior, and intrinsic motivation mediated this effect. Perceived insider status moderated the relationship between intrinsic motivation and procrastination behavior.	80%
Metin et al. (2016)—The Netherlands and Turkey	Study 1. Boredom at work; Counterproductive Behavior; Work engagement. Study 2. Besides the factors investigated in Study 1: Job resources (autonomy and opportunities for learning and development); Job demands (workload and mental demands).	Study 1. 384 Dutch white-collar employees, 51% male, mean age 40.1 years, (SD = 12.8), mean tenure 8.4 years (SD = 10.4). On average participants worked 32.9 h per week (SD = 10.6 h) with an average of 5 h overwork (SD = 1.1). Study 2. The Dutch sample is the same as in study 1. The Turkish sample: 243 white-collar employees, 56% female, mean age 36.3 years (SD = 10.34). On average the Turkish employees worked 8 h more than the Dutch sample (M = 41.15 h, SD = 9.70), with 6.4 h of overwork per week (SD = 8.83).	Cross-sectional design. Study 1. Dutch Boredom Scale (Reijseger et al. 2012); Counterproductive Behavior Checklist (Spector et al. 2006); Avoidance Reactions to Deadline Scale (van Eerde 2003); Utrecht Work Engagement Scale (UWES; Schaufeli et al. 2006); Procrastination at Work Scale (Metin et al. 2016). Study 2 added Job Resources and job demands (Van Veldhoven and Meijman 1994).	Study 1. Procrastination at work was positively related with general procrastination, counterproductive behavior, and boredom, and negatively associated with the subdimensions of work engagement. Study 2. Boredom was positively linked to procrastination at work and to counterproductive behavior in Dutch and Turkish samples. Procrastination at work and counterproductive behavior were positively associated in both national samples. A significant positive relationship between resources and procrastination was found in the Dutch sample. Boredom mediated the relationship between workload and procrastination at work, in the Dutch but not in the Turkish sample.	60%

Table 1. Cont.

Reference—Country	Factors of Procrastination Investigated	Sample	Study Design and Measures	Key Findings	Quality *
Metin et al. (2018)—The Netherlands	Job crafting; authenticity; work engagement; performance.	380 white-collar full-time employees, 50% men, mean age 42.1 years (SD = 12.4), mean tenure 11.6 (SD = 10.9) years. On an average, respondents reported they worked 33.9 h (SD = 7.1) per week, with an average of 4 h of overwork per week.	Cross-sectional design. Job crafting questionnaire (Petrou et al. 2012); Individual Authenticity Measure at Work (Van den Bosch and Taris 2014a); Utrecht Work Engagement Scale (Schaufeli and Bakker 2003); Procrastination at Work Scale (Metin et al. 2016); Individual Work Performance Questionnaire (Koopmans et al. 2012).	Work engagement was negatively linked to procrastination. Performance and procrastination were negatively related. No mediation was found for the indirect path from job crafting and authenticity to procrastination via work engagement.	60%
Moharram-Nejadifard et al. (2020)—Iran	Cognitive behavioral therapy mainly aiming to develop participants' self-esteem and their abilities to regulate negative emotions and tolerate disturbances.	21 participants in the cognitive behavioral treatment group, 20 in the control group, all midwives working in public and private hospitals, mean age 31.52 (SD 5.82) and 35.75 (SD 8.04) years, mean work experience 7.43 (SD 5.21) and 11.24 (SD 7.96) years.	Experimental study. Tuckman procrastination scale (TPS, Tuckman 1991); Depression, Anxiety, and Stress Scale (Lovibond and Lovibond 1995); Decisional Procrastination Scale (Mann 1982) Procrastination at Work Scale (Metin et al. 2016).	Cognitive behavioral group therapy is significantly associated with the diminishments in workplace procrastination, soldiering, cyberslacking, and decisional procrastination, respectively.	100%
Mosquera et al. (2022)—Portugal	Boredom at work; work stress; job satisfaction.	287 participants, 94 males, mean age 34.5 years (SD = 11.97), 78.3% had a bachelor's degree or above.	Cross-sectional design. Boredom at work scale (Reijseger et al. 2012). Procrastination at Work Scale (Metin et al. 2016).	Boredom at work increases cyberslacking and soldiering.	60%
Nguyen et al. (2013)—US	Job characteristics; employment status; income; gender; age.	22,053 individuals, 44.9% males, 7.8% unemployed, 15.1% working part-time, 77% working full-time, Annual income: Less than \$10,000 = 18.4%; \$10,000 to \$20,000 = 9.7%; \$20,000 to \$30,000 = 9.1%; \$30,000 to \$40,000 = 8.8%; \$40,000 to \$50,000 = 8.9%; \$50,000 to \$60,000 = 8.3%; \$60,000 to \$75,000 = 9.2%; \$75,000 to \$100,000 = 10.8%; \$100,000 to \$200,000 = 12.7%; \$200,000+ = 4.2%.	Cross-sectional design. Irrational Procrastination Scale (Steel 2010); Using respondents' open-ended job descriptions, two authors independently linked occupations with O*NET job codes and then to the job characteristics required for the assessment, including work value, work style, occupational interest, and constraint, using the protocol proposed by Meyer et al. (2009).	Procrastination is associated with lower income. Gender moderates the relationship between procrastination and income such that it is stronger for men than women. Procrastination is associated with a reduced period of employment. Procrastinators are more likely to be unemployed than working full-time, and, if working, working part-time rather than full-time. Procrastination is negatively correlated with work values. Procrastination is negatively correlated with investigative occupations. Procrastination is negatively correlated with achievement/effort, social influence, adjustment and conscientiousness. Procrastination is positively associated with constraint.	60%

Table 1. Cont.

Reference—Country	Factors of Procrastination Investigated	Sample	Study Design and Measures	Key Findings	Quality *
Pearlman-Avnion and Zibenberg (2018) —Israel	Agreeableness; Conscientiousness; neuroticism; dis-regulation of anxiety.	107 Israeli employees, 80% working full-time, 62.7% women, mean age 45.11 years (SD = 10.24).	Cross-sectional design. Lay's (1986) Procrastination Scale Big Five Inventory (John and Srivastava 1999); Dis-regulation of anxiety scale (Assor et al. 2009).	Conscientiousness and agreeableness are negatively associated with procrastination. Neuroticism is positively associated with procrastination. Among participants with low dis-regulation of anxiety, there was a positive relationship between agreeableness and procrastination, but among the participants with high dis-regulation of anxiety, there was a negative relationship between agreeableness and procrastination. Among the employees with high dis-regulation of anxiety, there was a stronger relationship between conscientiousness and procrastination, compared to those with low dis-regulation of anxiety.	80%
Prem et al. (2018) —Germany	Problem solving; Time pressure; Planning and decision-making; Challenge appraisal; Hindrance appraisal; Self-regulation effort.	110 employees, 77.3% females, mean age 35.1 years (SD = 10.0).	Diary study design. Work Design Questionnaire (Morgeson and Humphrey 2006). The instrument for stress-oriented job analysis adapted (Semmer et al. 1999). Intensification of Job Demands Scale (Kubicek et al. 2015); Challenge appraisal, Hindrance appraisal (Searle and Auton 2015); Self-control demands Questionnaire adapted (Schmidt and Neubach 2010); Workplace procrastination (Tuckman 1991).	Day-level work characteristics, i.e., (a) time pressure, (b) problem solving, and (c) planning and decision making, have a negative serial indirect effect on daily workplace procrastination via increased challenge appraisal and consequently reduced self-regulation effort. Time pressure also has a positive serial indirect effect on daily workplace procrastination via increased hindrance appraisal and consequently increased self-regulation effort.	80%
Sharma and Sharma (2021) —India	Work-life balance.	104 office employees, 63 males, aged 27 to 44 years.	Cross-sectional design. Procrastination Scale (Lay 1986); Work-life balance scale (Pareek et al. 2011).	Work-life balance was negatively correlated with procrastination.	60%
Shaw and Choi (2022) —US	Conscientiousness; Emotional Stability; Extraversion; Openness to Experience; Agreeableness.	173 white-collar corporate employees in lower-to-middle level positions, mean age 29.05 (SD = 2.82 years, 52% male, in their current job for over a year, most of them had worked with the current supervisor for approximately one year.	Cross-sectional design. Supervisor-reported personality traits of the employees and employees self-rated personality traits using the International Personality Item Pool scale (Goldberg et al. 2006); Active procrastination scale (Choi and Moran 2009).	Extraversion and emotional stability positively predicted active procrastination across both rating sources. In the supervisor-rating results only, agreeableness emerged as another (negative) predictor of active procrastination.	60%

Table 1. Cont.

Reference—Country	Factors of Procrastination Investigated	Sample	Study Design and Measures	Key Findings	Quality *
Singh et al. (2021)—India	Management by exception passive leadership; Laissez-faire style of leadership.	268 men, middle-level textile managers; Age: 25–30 years = 58 (21.6%); 30–35 years = 166 (61.9%); 35–40 years = 35 (13.1%); 40–45 years = 9 (3.4%). Experience (years) <5 = 88 (32.8%) 5–10 = 144 (53.7%) 10–15 = 28 (10.4%) >15 = 8 (3%)	Cross-sectional design. Irrational Procrastination Scale (Steel 2010); Multifactor Leadership Questionnaire (Avolio and Bass 2004).	Management by exception passive leadership style is a positive predictor of perceived procrastination in leaders. Laissez-faire style of leadership increases perceived procrastination in leaders. Laissez-faire style of leadership does not moderate the relationship between management by exception passive style of leadership and perceived procrastination in leaders.	60%
Singh and Bala (2020)—India	Conscientiousness; Self-efficacy.	255 textile managers/executives, all men, mean age 32.5 (SD 6.4), mean work experience 6.5 (SD 1.80).	Cross-sectional design. Personality inventory (John and Srivastava 1999); Irrational procrastination scale (Steel 2010); General self-efficacy scale (Romppel et al. 2013).	Self-efficacy and conscientiousness have negative relationships with procrastination. Self-efficacy mediates the relationship between conscientiousness and procrastination. Conscientiousness also has a direct effect on procrastination.	60%
Šuvak-Martinović and Zovko (2017)—Bosnia and Herzegovina	Gender; Age; Type of employment; Civil status; Presence of children; Job demand-control; Self-Efficacy; Depression; Anxiety.	70 teaching assistants, 46 employed full time, 44 women, mean age 30.22 years (SD = 1.87), 29 married, 19 had children.	Cross-sectional design. The Avoidance Reactions to a Deadline Scale (van Eerde 2003); The Job Demand-Control Scale (Gregov and Šimunić 2012); General Self-Efficacy Scale (Schwarzer et al. 1997; adapted by Ivanov 2002); Lovibond's Depression Anxiety Stress Scale adapted (Reić Ercegovac and Penezić 2012).	No significant differences in procrastination according to gender, age, type of employment, civil status, or presence of children. In the bivariate correlation analysis, job demands, depression and anxiety symptoms were positively associated with procrastination, while perceived job control and general self-efficacy were negatively related to procrastination. In the multiple regression analysis, the only significant predictor of procrastination was perceived job control, while self-efficacy, depression and anxiety and job demands were not significant predictors.	60%
Tandon et al. (2021)—US	Exhibitionism; Voyeurism; Fear of Missing Out; Compulsive use of social media.	312 full time employees, 51.3% male, 48.7% females, age: 25–34 years 60.3%; 35–44 years 24.4%; 45–54 years 15.4%; Total work experience 1–3 years 9.0%; 3–5 years 9.0%; 5–7 years 10.6%; 7–9 years 10.9%; >9 years 60.6%.	Cross-sectional design. CB-SEM, Path analysis Exhibitionism Scale (Mäntymäki and Islam 2016); Voyeurism Scale (Mäntymäki and Islam 2016); Fear of Missing Out (Przybylski et al. 2013); Compulsive use of social media (Andreassen et al. 2012); Work performance decrement (Cao et al. 2016; Kuvaas 2006); Procrastination due to social media use at work adapted by Tandon et al. (2021).	Individual tendencies of exhibitionism and voyeurism act as stressors and strain the individual's psychological state, represented by Fear of missing out, which translates into adverse psychological (Compulsive use of social media) and behavioral (procrastination and work performance decrement) outcomes.	80%

Table 1. Cont.

Reference—Country	Factors of Procrastination Investigated	Sample	Study Design and Measures	Key Findings	Quality *
Tudose and Pavalache-Ilie (2021)—Romania	Age; Gender; Work satisfaction.	109 employees from public and private sector, 71 women, mean age 33.58 (SD = 7.56)	Cross-sectional design. Job satisfaction scale (Warr et al. 1979); Procrastination at Work Scale (Metin et al. 2016).	No significant association between employee satisfaction and procrastination at work. Men had higher scores on the cyberslacking subscale of the procrastination measure compared to women. The youngest employees (18–25) years scored higher than those in the 45–55 age group on procrastination.	60%
Uysal and Yilmaz (2020)—Turkey	Hierarchical career plateau.	367 employees, 49.6% male, 81.8% aged 21 to 40 years, 67.3% university graduates, 89.9% with more than 1 year of work experience.	Cross-sectional design. Hierarchical career plateau scale adapted (Allen et al. 1999); Procrastination Scale (Lay 1986).	Positive correlation between the hierarchical career plateau and workplace procrastination. Workplace procrastination did not vary depending on work experience, monthly income, age or gender.	60%
van Eerde (2003)—The Netherlands	Time management; worry; Peer ratings of orderliness.	37 employees in the treatment group and 14 in the control group, 75% men, mean age 37 years, 75% with a college degree, average age was 37, average tenure 5.9 years.	Quasi-experimental study. Berkeley Personality Profile (Harary and Donahue 1994); Time Management Behavior Scale (Macan 1994); VBBA (Van Veldhoven and Meijman 1994); Avoidance reactions (van Eerde 1998); Peer ratings of employee orderliness.	The time management intervention increased time management behavior in the treatment group, while no change was found in the control group. The treatment group also reported a decrease in worrying whereas the control group did not report any change. The avoidance reactions (procrastination) of the treatment group decreased, whereas avoidance reactions in the control group remained stable. Peer ratings of orderliness were correlated negatively with procrastination.	60%
Wan et al. (2014)—Australia	Boredom; job stress; non-work related presenteeism; emotional intelligence.	184 employees, 57 males aged from 23 to 61 years (M = 38.61, SD = 1.36), and 127 females aged from 22 to 67 years (M = 40.99, SD = 1.02).	Cross-sectional design. Genos EI Inventory Scale (Gignac 2010); Procrastination scale (Tuckman 1991); Boredom Proneness Scale; (Farmer and Sundberg 1986); Role Stress Measures (Beehr et al. 1976); Engaging in personal activities while at work (D'Abate and Eddy 2007).	Non-work related presenteeism is positively related to procrastination. Emotional intelligence is negatively related to procrastination. There are positive relationships between job stress and procrastination, and between procrastination and boredom. No significant difference between females and males on all five outcome measures (including procrastination).	60%

* Total score of the quality appraisal assessed using Mixed Method Appraisal Tool (MMAT 2018). The score can range from 20% to 100%.

3.1. Quality Assessment

The outcomes of the quality appraisal using MMAT ([Hong et al. 2018](#)) are presented in Table 2. All the studies met the first two MMAT screening criteria, including clear research questions and collecting data allowing to address them. These two mandatory conditions were followed by five evaluation criteria, which varied in accordance with the study design. The maximum score of the MMAT appraisal is 100%, with 20% for each criterion. Four of the studies were evaluated at 100%, ten at 80%, and nineteen at 60%.

Several aspects of the methodology of all studies were strong. Firstly, each study included complete outcome data. Secondly, the measurements used were appropriate regarding both the outcome and the intervention. Thirdly, the intervention in the quasi-experimental study was administered as intended, while in the experimental study, participants showed good adherence to the intervention. Additionally, in the analytical investigations, participant exposure occurred naturally without any changes. However, most studies used a convenience sample that could impact the generalization of the findings, while in only three studies ([Goroshit and Hen 2018](#); [Huang et al. 2022](#); [Khoshouei 2017](#)), participants were representative of the target population. Also, only some of the studies accounted for confounders ([De Clercq et al. 2021](#); [Goroshit and Hen 2018](#); [Gu et al. 2022](#); [Hen et al. 2021](#); [Huang et al. 2022](#); [Jones 2020](#); [Kühnel et al. 2022](#); [Lin 2018](#); [Pearlman-Avni and Zibenberg 2018](#); [Prem et al. 2018](#); [Tandon et al. 2021](#)). The randomization was appropriately performed in the experimental study ([Moharram-Nejadifard et al. 2020](#)), and the control and treatment groups were comparable at baseline.

The majority of the studies reported risk of bias related to cross-sectional design, self-reported measures, and common method bias. Some of the research showed strategies to lower the risk. In order to address the limits related to the use of self-reported measures, studies included supervisor-rated measures ([Shaw and Choi 2022](#)) and peer ratings ([van Eerde 2003](#)), the measurement of the variables at different points in time ([Gu et al. 2022](#); [Huang et al. 2022](#); [De Clercq et al. 2021](#); [DeArmond et al. 2014](#)), or their daily measurement ([Kühnel et al. 2022](#); [Prem et al. 2018](#)). Regarding the research design, some articles tested for common method bias through a full collinearity assessment approach and all the variance inflation factor values (VIF) indicated low risk of bias ([Mosquera et al. 2022](#)), others examined multivariate normality through Rayston's test, then used Harman single factor analysis to compare and ensure per the recommended threshold value ([Gu et al. 2022](#); [Huang et al. 2022](#); [Singh and Bala 2020](#)), while others used the common latent factor method to confirm that common method variance has no meaningful impact on the study outcomes ([Jones 2020](#)).

Table 2. Results of the MMAT risk of bias assessment.

Category of study designs	Author, year, country	Are there clear research questions?	Do the collected data allow to address the research questions?	Is randomization appropriately performed?	Are the groups comparable at baseline?	Are there complete outcome data?	Are outcome assessors blinded to the intervention provided?	Did the participants adhere to the assigned intervention?
Quantitative randomized controlled trials	Moharram-Nejadifard et al. (2020) . Iran	yes	yes	yes	yes	yes	yes	yes
Category of study designs	Author, year, country	Are there clear research questions?	Do the collected data allow to address the research questions?	Are the participants representative of the target population	Are measurements appropriate regarding both the outcome and intervention (or exposure)	Are there complete outcome data?	Are the confounders accounted for in the design and analysis?	During the study period, is the intervention administered (or exposure occurred) as intended?
Non-randomized controlled trials	van Eerde (2003) The Netherlands	yes	yes	no	yes	yes	no	yes
Cross-sectional	Asio and Riego de Dios (2021) Philippines	yes	yes	no	yes	yes	no	yes
Cross-sectional	DeArmond et al. (2014) U.S.	yes	yes	no	yes	yes	no	yes
Cross-sectional	De Clercq et al. (2021) Pakistan	yes	yes	no	yes	yes	yes	yes
Cross-sectional	Göncü Köse and Metin (2018) Turkey	yes	yes	no	yes	yes	no	yes
Cross-sectional	Goroshit and Hen (2018) Israel	yes	yes	yes	yes	yes	yes	yes
Cross-sectional	Gu et al. (2022) China	yes	yes	yes	yes	yes	yes	yes
Cross-sectional	Gupta et al. (2012) India	yes	yes	no	yes	yes	no	yes
Cross-sectional	Hen et al. (2021) Israel	yes	yes	no	yes	yes	yes	yes
Cross-sectional	Huang et al. (2022) China	yes	yes	yes	yes	yes	yes	yes
Cross-sectional	Jones (2020) US, China	yes	yes	no	yes	yes	yes	yes
Cross-sectional	Kanten and Kanten (2016) Turkey	yes	yes	no	yes	yes	no	yes

Table 2. Cont.

Cross-sectional	Khoshouei (2017) Iran	yes	yes	yes	yes	yes	no	yes
Cross-sectional	Lin (2018) China	yes	yes	no	yes	yes	yes	yes
Cross-sectional	Metin et al. (2018) The Netherlands	yes	yes	no	yes	yes	no	yes
Cross-sectional	Metin et al. (2016). Study 1 The Netherlands	yes	yes	no	yes	yes	no	yes
Cross-sectional	Metin et al. (2016). Study 2 The Netherlands, Turkey	yes	yes	no	yes	yes	no	yes
Cross-sectional	Mosquera et al. (2022) Portugal	yes	yes	no	yes	yes	no	yes
Cross-sectional	Nguyen et al. (2013) US	yes	yes	no	yes	yes	no	yes
Cross-sectional	Pearlman-Avnion and Zibenberg (2018) Israel	yes	yes	no	yes	yes	yes	yes
Cross-sectional	Sharma and Sharma (2021) India	yes	yes	no	yes	yes	no	yes
Cross-sectional	Shaw and Choi (2022) US	yes	yes	no	yes	yes	no	yes
Cross-sectional	Singh et al. (2021) India	yes	yes	no	yes	yes	no	yes
Cross-sectional	Singh and Bala (2020) India	yes	yes	no	yes	yes	no	yes
Cross-sectional	Šuvak-Martinović and Zovko (2017) Bosnia and Herzegovina	yes	yes	no	yes	yes	no	yes
Cross-sectional	Tandon et al. (2021) US	yes	yes	no	yes	yes	yes	yes
Cross-sectional	Tudose and Pavalache-Ilie (2021) Romania	yes	yes	no	yes	yes	no	yes
Cross-sectional	Uysal and Yilmaz (2020) Turkey	yes	yes	no	yes	yes	no	yes

Table 2. Cont.

Cross-sectional	Wan et al. (2014) Australia	yes	yes	no	yes	yes	no	yes
Diary	Kühnel et al. (2022) study 1 Germany	yes	yes	no	yes	yes	yes	yes
Diary	Kühnel et al. (2022) study 2 Germany	yes	yes	no	yes	yes	yes	yes
Diary	Prem et al. (2018) Germany	yes	yes	no	yes	yes	yes	yes

3.2. Study Design and Participants of the Included Studies

The majority of studies (28) used a cross-sectional design, 3 were daily diary studies, one was experimental, and one was a controlled non-randomized (quasi-experimental) study. The total sample size of the reviewed studies includes 29,662 participants, 50.51% men, while one study did not report participants' gender. Their ages ranged from 19 to 73 years. Respondents were from 14 countries: Australia, Bosnia and Herzegovina, China, Germany, India, Iran, Israel, The Netherlands, Pakistan, Philippines, Portugal, Romania, Turkey, and the United States.

Twenty-one papers reported that their study participants were working in education, management, business, finance, banking, telecom, tourism, health, insurance, industry, marketing, sales, social services, public relations, public administration, research and development, human resources, information technology, computer professionals such as computer support specialists, software developers and programmers, network and computer system administrators, computer tellers, production, construction, manual labor occupations, oil and gas, or are self-employed. The other 10 papers did not specify the work field of the employees included in their samples.

3.3. Measurement of Procrastination

In the studies reviewed, procrastination was measured using ten different instruments, i.e., Mann's Procrastination scale (Mann 1982), Lay's procrastination scale (Lay 1986), Adult inventory of procrastination (McCown and Johnson 1989), Tuckman's procrastination scale (Tuckman 1991), Avoidance reactions (van Eerde 2003, 1998), Active procrastination scale (Choi and Moran 2009), Irrational procrastination scale (Steel 2010), Pure procrastination scale (Steel 2010), Procrastination at work scale (Metin et al. 2016), Procrastination due to social media use at work (Tandon et al. 2021).

3.4. Factors of Procrastination

The identified factors of procrastination were grouped into two main categories, based on the locus of their provenience. The first category includes employee-related factors of procrastination at work. This in turn contains several subcategories such as demographic characteristics, personality factors, self-concept, emotional factors, work-related internal factors, cognitive factors, work-life balance and the personal tendency to procrastinate. The second category includes external factors of workplace procrastination, belonging to several specific subcategories: work and job characteristics, workload, time pressure, leadership style, and work context.

3.5. Employee-Related Factors of Procrastination

3.5.1. Demographic Factors

Several demographic factors did not emerge as significantly related to procrastination, i.e., gender (Asio and Riego de Dios 2021; Goroshit and Hen 2018; Gupta et al. 2012; Kühnel et al. 2022; Metin et al. 2016; Shaw and Choi 2022; Šuvak-Martinović and Zovko 2017), child presence (Šuvak-Martinović and Zovko 2017), department (Asio and Riego de Dios 2021), years in service (Asio and Riego de Dios 2021; Huang et al. 2022; Uysal and Yilmaz 2020), and type of employment (Huang et al. 2022; Šuvak-Martinović and Zovko 2017). While some investigations (Huang et al. 2022; Šuvak-Martinović and Zovko 2017) found no association between civil status and workplace procrastination, Asio and Riego de Dios (2021) found that single individuals show a higher tendency to procrastinate. Similarly, monthly income did not emerge as related to procrastination in some investigations (Uysal and Yilmaz 2020), while others found higher procrastination in participants with lower income (Jones 2020). Furthermore, gender was found to moderate the relationship between procrastination and workplace performance.

tionation and income, as this relationship was stronger for men than women in the [Nguyen et al. \(2013\)](#) study. Employees with lower tenure ([Gu et al. 2022](#)) and those employed part-time ([Nguyen et al. 2013](#)) also emerged as higher in workplace procrastination.

While some results on US ([Shaw and Choi 2022](#)), Turkish ([Uysal and Yilmaz 2020](#)), Israeli ([Goroshit and Hen 2018](#)), and Croat ([Šuvak-Martinović and Zovko 2017](#)) samples indicated no age differences in work procrastination, others found that younger employees have stronger tendencies to procrastinate on samples from German ([Kühnel et al. 2022](#)), Chinese ([Gu et al. 2022](#); [Huang et al. 2022](#)), Israeli ([Hen et al. 2021](#)), Romanian ([Tudose and Pavalache-Ilie 2021](#)), Turkish ([Göncü Köse and Metin 2018](#)), and Indian ([Gupta et al. 2012](#)) populations. Conversely, a study on the Philippine population ([Asio and Riego de Dios 2021](#)) found a positive association between age and procrastination, with younger individuals being less prone to procrastinate at work.

3.5.2. Big-Five Personality Factors

Several studies have linked employee procrastination to the personality traits defined by the Big Five model ([McCrae and Costa 2008](#)). Firstly, conscientiousness, i.e., the individual's tendency to be organized, responsible, and goal oriented, emerged repeatedly as a strong and negative predictor of procrastination in samples from India ([Singh and Bala 2020](#)), Israel ([Pearlman-Avnion and Zibenberg 2018](#)), Turkey ([Göncü Köse and Metin 2018](#); [Kanten and Kanten 2016](#)) and USA ([Nguyen et al. 2013](#)). Contrarily, another study ([Shaw and Choi 2022](#)) on a US sample found no significant relationships between conscientiousness and active procrastination, neither using self-rated or supervisor-rated measures in the US sample.

Secondly, agreeableness, which reflects traits like kindness, cooperativeness, and a tendency to avoid conflict, emerged as negatively related to passive procrastination when self-reported measures were used ([Pearlman-Avnion and Zibenberg 2018](#)). Passive procrastinators are individuals who delay predominantly due to their task aversiveness and indecision (or even mental paralysis), despite being aware that the delay will result in a worse outcome ([Steel 2007](#)). Agreeableness was also negatively related to active procrastination in a US sample when the latter was assessed using supervisor-rated measures, but no statistically significant relationships were found using self-rated measures ([Shaw and Choi 2022](#)). Active procrastinators intentionally postpone action on a task while reprioritizing others in order to enhance their overall work efficacy. However, they do so without expecting that they will experience poor performance or psychological repercussions ([Chu and Choi 2005](#)).

Thirdly, extraversion is a personality trait characterized by seeking social stimulation, enjoying being around others, and the tendency to be more assertive and talkative in social contexts. Extraversion was found to be negatively correlated with passive procrastination in a Turkish sample ([Kanten and Kanten 2016](#)). It also emerged as a positive predictor of active procrastination when using both self-rated and supervisor-rated measures ([Shaw and Choi 2022](#)).

Fourthly, neuroticism reflects a tendency toward experiencing negative emotions like anxiety, fear, moodiness, worry, and insecurity, and was found to be a positive predictor of procrastination in both Israeli and Turkish populations ([Kanten and Kanten 2016](#); [Pearlman-Avnion and Zibenberg 2018](#)). Contrarily, other studies ([Shaw and Choi 2022](#)) found that low neuroticism, i.e., emotional stability, positively predicts active procrastination. Lastly, openness was not found to have a significant association with active procrastination ([Shaw and Choi 2022](#)).

3.5.3. Self-Concept

Two types of employee self-views have been examined as factors of workplace procrastination, i.e., self-efficacy and self-esteem. Firstly, self-efficacy beliefs refer to an individual's confidence in his capacity to achieve desired goals, and they influence the effort and perseverance in overcoming obstacles (Bandura 2006). Self-efficacy beliefs were found to have a negative effect on employees' procrastination behaviors in studies on Indian (Singh and Bala 2020), Croat (Šuvak-Martinović and Zovko 2017) and Turkish (Kanten and Kanten 2016) samples. They also emerged as having an indirect effect in the relationship between conscientiousness as a personality facet and procrastination (Singh and Bala 2020). Secondly, self-esteem, which refers to an individual's subjective evaluation of his or her worth as a person (Orth and Robins 2014), was found to be negatively related to procrastination behaviors (Kanten and Kanten 2016). Moreover, the results of a study (Moharram-Nejadifard et al. 2020) examining the potential of a cognitive behavioral therapy intervention to reduce procrastination in Iranian midwives by improving their self-esteem among other dimensions suggest the effectiveness of this approach.

3.5.4. Emotional Factors

We identified several categories of emotional factors that have been linked with workplace procrastination across the studies reviewed. Most findings pertain to emotional states, either negative or positive. In the first category, job stress (Wan et al. 2014), stress induced by excessive social media use (Tandon et al. 2021), general negative affect (Goroshit and Hen 2018), symptoms of anxiety and depression (Šuvak-Martinović and Zovko 2017) and emotional exhaustion (Gu et al. 2022) emerged as fostering procrastination. Another relevant negative emotional state is boredom at work, which represents a mental and motivational state where individuals experience low levels of engagement and stimulation due to their tasks or environment, leading to feelings of dissatisfaction and disinterest in work activities. Positive relationships between boredom at work and procrastination were found on Dutch and Turkish (Metin et al. 2016), Australian (Wan et al. 2014), and Portuguese (Mosquera et al. 2022) samples. There is only one study testing the effectiveness of interventions aiming to develop employees' abilities to regulate their negative emotions and tolerate disturbances, conducted by Moharram-Nejadifard et al. (2020). The intervention examined and found effective in their research also targeted participants' ability to tolerate and overcome their unpleasant emotional states that usually motivate them to procrastinate.

In the category of positive emotions, the work-related positive affect known as vigor was found to be an inhibiting factor of workplace procrastination and to also protect the individual from the effects of day-specific time pressure. Specifically, the negative relationship between time pressure and procrastination emerged as less strong for individuals with higher levels of positive affect in a German sample (Kühnel et al. 2022). Lastly, employees' emotional intelligence, an emotion-related personal factor, also emerged as negatively related to procrastination in an investigation on Australian employees (Wan et al. 2014).

3.5.5. Work-Related Internal Factors

Overall, past research found that the internal factors that sustain employee engagement in his/her work behaviors also deter procrastination. Specifically, intrinsic motivation (Lin 2018), job satisfaction (Jones 2020), work engagement (Metin et al. 2016; Metin et al. 2018), perceived job control (Šuvak-Martinović and Zovko 2017), and perceived job performance (Metin et al. 2018) have emerged as negatively related to workplace procrastination. Also, psychological detachment, entailing the ability to mentally disconnect from work-related thoughts and concerns during non-work hours, was found to be negatively correlated with procrastination (DeArmond et al. 2014). Similarly, Jones (2020) found that a harmonious job

passion, which translates into a balanced work dedication, had a negative relationship with procrastination, especially in employees with high job satisfaction. Conversely, obsessive job passion, entailing compulsive engagement in work activities, emerged as positively related to procrastination, but this result was significant only in the Chinese sample and not in the US sample.

Perceived organizational cronyism, referring to the perception or belief of favoritism within a company, and organizational disidentification, i.e., the psychological dissociation from the organization, were also found to be positively associated with procrastination behaviors (De Clercq et al. 2021). Similarly, perceived overqualification, involving the subjective evaluation of being overqualified and underemployed as a result of a mismatch between an individual's skill levels (education, experience, knowledge) and job demands, also fosters workplace procrastination (Huang et al. 2022; Maynard and Parfyonova 2013). Other positive factors of procrastination highlighted by past studies are fatigue (DeArmond et al. 2014), non-work-related presenteeism (Wan et al. 2014), i.e., being physically present at work but not being able to perform effectively due to a lack of focus, often caused by the employee being involved in personal activities (D'Abate and Eddy 2007; Johns 2011), and counterproductive work behavior, characterized by withdrawal and abusive behavior (Metin et al. 2018).

Work styles are important determinants of how well an individual's personality or values align with those of their profession or organization. O*NET (the Occupational Information Network) describes six work styles: achievement/effort, entailing goal setting and striving for work competence; social influence, defined by energy and taking charge; interpersonal orientation, entailing working with others and being cooperative; adjustment, i.e., maturity and self-control in emotionally challenging situations; conscientiousness, defined by dependability and job commitment; practical intelligence, entailing logical thinking and finding innovative solutions (Nguyen et al. 2013). Procrastination was found to be negatively correlated with several work styles, i.e., achievement and effort, social influence, interpersonal orientation, practical intelligence, and adjustment (Nguyen et al. 2013).

Job crafting (physical and cognitive modifications that individuals implement within the task or relational boundaries of their work, Wrzesniewski and Dutton 2001) and authenticity at work (experiencing one's true self at work; Van den Bosch and Taris 2014b) were also studied as factors of procrastination. Metin et al. (2018) found that several dimensions of job crafting, i.e., resource seeking, challenge seeking, and demand reducing, were weakly positively related to soldiering at work. Authenticity at work was weakly negatively related to this type of procrastination. Cyberslacking at work also emerged as positively related to resource seeking and challenge seeking.

3.5.6. Cognitive Factors

Two factors pertaining to employee's beliefs have been related to procrastination at work in the studies reviewed, specifically locus of control and time perspective. Locus of control refers to an individual's beliefs regarding the causes of their experiences and the factors to which they attribute their successes and failures (Grimes et al. 2004). A weak but positive relationship was found between external locus of control and procrastination in an Iranian sample (Khoshouei 2017).

Time perspective reflects stable, individual differences in how people perceive and relate to time (Zimbardo and Boyd 1999). Four dimensions of time perspective were identified as predictors of procrastination (Gupta et al. 2012). Individuals with future orientation, who actively plan for and strive to meet future goals, and those with a dominant past negative orientation, who tend to have a pessimistic, negative, or aversive attitude

toward the past, were found to procrastinate less. Conversely, present-fatalistic orientation, i.e., beliefs that believe that the future is predestined and cannot be changed by our actions, and the past positive orientation, i.e., the appraisal of the past as glowing and positive, were positively related to procrastination.

3.5.7. Work-Life Balance

[Greenhaus et al. \(2003\)](#) define work-family balance as the degree to which a person is equally engaged in and satisfied with his or her job and family roles. [Sharma and Sharma \(2021\)](#) found that work-life balance was a negative predictor of workplace procrastination. Relatedly, job responsibility and family responsibility were found to be negatively associated with procrastination, while employee procrastination behavior emerged as highest when employees' job and family responsibility are at similar levels, both low or both high ([Gu et al. 2022](#)).

3.5.8. Personal Tendency to Procrastinate

The last subcategory of employee-related factors includes employees' personal procrastination tendencies, which exert their influence across all types of situations they encounter in their everyday lives. These have been approached as either general procrastination or as decisional procrastination tendencies. General procrastination is a trait, a chronic tendency to voluntarily and unnecessarily postpone intended and significant tasks in order to regulate one's immediate mood, despite the adverse consequences of this postponement for the future ([Sirois and Pychyl 2013](#)). Decisional procrastination is typically regarded as a particularized form of procrastination that is either a stable individual variable characterized by delays in making decisions, particularly under stressful circumstances, or as a response to a specific problem ([Tibbett and Ferrari 2015](#)). Work procrastination and online procrastination at work were found to be positively associated with both decisional procrastination ([Goroshit and Hen 2018](#); [Hen et al. 2021](#)) and general procrastination ([Goroshit and Hen 2018](#); [Hen et al. 2021](#); [Metin et al. 2016](#)).

3.6. External Factors of Procrastination

3.6.1. Work and Job Characteristics

Problem solving is a qualitative demand indicator that describes the extent to which a job necessitates unique ideas or solutions and reflects the more active cognitive processing requirements of a job. Planning and decision-making, on the other hand, refer to the extent to which employees are expected to plan and structure their workday, determine how to handle their work tasks, and decide on the priority of work tasks independently. These day-level work characteristics were found to exert a negative serial indirect effect on daily workplace procrastination by increasing challenge appraisal (i.e., perceiving challenges as opportunities) and consequentially reducing self-regulation effort ([Prem et al. 2018](#)).

Some investigations ([Metin et al. 2016](#)) found that job resources as autonomy and opportunities for learning and development were negative predictors of procrastination in a Dutch sample, while these relationships did not emerge as significant in Turkish or Iranian samples ([Khoshouei 2017](#)). On the other hand, other research has examined the links between procrastination at work and job constraints, which entail the degree to which employees' flexibility and decision-making are restricted. In positions with significant constraints, external elements such as policies, procedures, and regulations may evolve into excessive bureaucracy, resulting in duties that are either boring or overpowering. Close monitoring and strict environment diminish the significance of motivational disparities ([Meyer et al. 2009](#)), and employees in jobs with high constraints were found to procrastinate more ([Nguyen et al. 2013](#)). Other characteristics such as skill variety, task identity, and task significance were not found to be significantly related to procrastination, while feedback

had a weak negative relationship with it ([Khoshouei 2017](#)). Relatedly, there are jobs that require employees to refrain from procrastinating as a core condition of employment, while other occupations are more tolerant. In this respect, [Nguyen et al. \(2013\)](#) found that investigative occupations, involving such a proactive approach on procrastination, were negatively correlated with these behaviors.

Another framework of job characteristics that has been linked to work procrastination is that of work values, defined as the extent of the job's potential motivational qualities ([Nguyen et al. 2013](#)). These entail several specific dimensions, such as accomplishment and application of one's skills (achievement), employee creativity and personal initiative (independence), status and prestige (recognition), collegial relationships and social service (relationship), predictability and stability (support), appropriate supervising and training, comfort and a variety of work with little stress (working conditions). All these specific work values emerged as negatively correlated with procrastination in a US sample ([Nguyen et al. 2013](#)).

3.6.2. Workload

Workload refers to the number of tasks within a specific timeframe and has a positive direct effect on procrastination ([Metin et al. 2016](#)) and an indirect positive effect via psychological detachment and fatigue ([DeArmond et al. 2014](#)). Role overload, entailing the feeling of being overwhelmed due to the volume or complexity of role responsibilities, also emerged as positively associated with procrastination ([Huang et al. 2022](#)). Relatedly, other studies examined excessive bureaucracy or "red tape", which entails rules and procedures that create a burden of compliance but don't effectively serve their intended purpose. Instead, they delay results, as they require employees' to invest additional energy, time, and psychological resources to comply with such burdensome, unnecessary, and ineffective organizational policies and procedures ([Blom et al. 2021](#)). Perceived red tape was found to be positively correlated with employee procrastination ([Huang et al. 2022](#)).

3.6.3. Time Pressure

Time pressure and procrastination were found to be negatively related ([Kühnel et al. 2022](#)), and [van Eerde \(2003\)](#) found in a quasi-experimental investigation that time management training decreases procrastination, an effect associated with a decrease in worrying. Investigating time pressure as a day-level work characteristic, [Prem et al. \(2018\)](#) discovered that time pressure exerts parallel opposite influences on daily workplace procrastination. Specifically, time pressure had a negative indirect effect through increased challenge appraisal and reduced self-regulation effort. This was accompanied by a positive indirect effect by increasing hindrance appraisal (i.e., perceiving challenges as obstacles) and, as a result, increasing self-regulation effort.

3.6.4. Leadership Style

Most studies in this subcategory have investigated the variations of employees' procrastination behaviors in relation to the specific leadership styles employed by their managers. Transformational leadership, characterized by leaders' ability to inspire and motivate their followers to achieve exceptional performance and growth by promoting innovation, creativity, and a shared vision ([Bass and Avolio 1990](#)), was found to be negatively related to employees' procrastination ([Göncü Köse and Metin 2018](#)). Inclusive leadership, which entails positive interactions with employees, characterized by openness, availability, and accessibility ([Carmeli et al. 2010](#)), was also found to have a small negative influence on procrastination behavior ([Lin 2018](#)).

Paternalistic leadership involves a hierarchical dynamic where the leader assumes responsibility for providing care, protection, and guidance not only within the work do-

main but also beyond, in the personal lives of employees. Simultaneously, subordinates are expected to display loyalty and deference toward the leader within this relationship structure (Aycan 2006). Paternalistic leadership was weakly negatively related to employees' procrastination (Göncü Köse and Metin 2018). Finally, management by exception is characterized by a leader's tendency to act only when it becomes unavoidable, while laissez-faire leadership refers to leaders who avoid actions, deny their responsibilities, and procrastinate. Singh et al. (2021) found both leadership styles to be positive predictors of perceived procrastination in leaders.

Besides these specific leadership styles, leader-member exchange, which refers to the relationship between a leader and each individual member within a group or team, was also found to be a negative factor of procrastination (De Clercq et al. 2021).

3.6.5. Work Context

Work context, i.e., office vs. non-office jobs, was found to moderate the effects of decisional and general procrastination on work procrastination, as both effects were stronger for office workers (Hen et al. 2021).

4. Discussion

The current systematic review investigated the possible determinants of workplace procrastination as examined by past research and developed through a descriptive analysis a classification of these factors by summarizing the extant relevant empirical findings.

The first general category of this classification includes several types employee-related factors of workplace procrastination. They include demographic characteristics, personality factors, self-concept, emotional factors, work-related internal factors, cognitive factors, work-life balance and the personal tendency to procrastinate. Regarding demographics, several potential factors, i.e., gender, child presence, department, years in service or type of employment did not emerge as significantly related to workplace procrastination in any of the studies reviewed. Regarding age, civil status, tenure and income, the results are controversial. In some studies age was not associated with procrastination (Goroshit and Hen 2018; Shaw and Choi 2022; Šuvak-Martinović and Zovko 2017; Uysal and Yilmaz 2020), others report a negative relationship (Göncü Köse and Metin 2018; Gu et al. 2022; Gupta et al. 2012; Hen et al. 2021; Huang et al. 2022; Kühnel et al. 2022; Tudose and Pavalache-Ilie 2021), while others found positive relationships between the two (Asio and Riego de Dios 2021). Similarly, the findings that single employees have a higher tendency to procrastinate (Asio and Riego de Dios 2021), that procrastination is negatively associated to monthly income and years in service (Gu et al. 2022; Jones 2020; Nguyen et al. 2013) did not replicate in other investigations (Huang et al. 2022; Šuvak-Martinović and Zovko 2017; Uysal and Yilmaz 2020).

These contradictory results can be attributed to several methodological differences between studies related to the characteristics of the samples, including their organizational settings, and research designs. First, sample sizes vary from small samples (Asio and Riego de Dios 2021; Göncü Köse and Metin 2018; Šuvak-Martinović and Zovko 2017; Tudose and Pavalache-Ilie 2021) to large samples (Nguyen et al. 2013). Second, age distributions differ notably from studies including younger employees (Gupta et al. 2012, $M = 28.14$; Shaw and Choi 2022, $M = 29.05$) to those including older participants (Hen et al. 2021, $M = 44$; Jones 2020, $M = 39.66$). Third, there are substantial variations between participants' work sectors, such as public and governmental (Hen et al. 2021; Huang et al. 2022; Tudose and Pavalache-Ilie 2021; Uysal and Yilmaz 2020), healthcare (Göncü Köse and Metin 2018), education (Göncü Köse and Metin 2018; Šuvak-Martinović and Zovko 2017), IT (Goroshit and Hen 2018; Gupta et al. 2012; Shaw and Choi 2022), finance (Gupta et al. 2012), tourism (Göncü

Köse and Metin 2018), retail (Jones 2020), or the private sector without other specifications (Tudose and Pavalache-Ilie 2021; Uysal and Yilmaz 2020). Finally, one study adopted a diary design (Kühnel et al. 2022), which captures daily fluctuations in procrastination and provides greater temporal sensitivity, while the others employed cross-sectional designs.

This heterogeneity of findings may also stem from cultural differences between study samples. The research literature we reviewed includes only a few studies performed on samples from different countries, which allows a deeper understanding of the cross-cultural variations of the impacts of the factors investigated. For instance, Jones (2020) found that obsessive job passion is positively related to procrastination in Chinese sample, but not in the US sample. This suggests that Chinese employees perceive more external pressure to perform, which consumes their self-control resources, leading to procrastination. Overall, country—level differences in procrastination have been highlighted by previous studies (Mann 2016; Steel and Ferrari 2013), and they were suggested to be linked to divergent beliefs on time orientation and the emphasis on collectivism versus individualism as described by the model elaborated by Hofstede et al. (2010). These studies found that in cultures with low long-term orientation (e.g., Iran, Pakistan, Romania, Turkey), high uncertainty avoidance (e.g., Bosnia and Herzegovina, Israel, Pakistan, Portugal, Romania, Turkey), high collectivism (e.g., India, Iran, Pakistan, Philippines), and low achievement motivation (e.g., Pakistan, Portugal), procrastination is more common. The explanation relates to short-term focus, impulsiveness, fear of failure, tolerance of procrastination, inconsistent supervision, unclear directions and low performance pressure, factors that are more prevalent in these cultures and that reduce motivation to act. In contrast, individuals in cultures with high long-term orientation (China, The Netherlands, Germany), high individualism (The Netherlands, Germany, Australia, US), and strong achievement focus (China, Germany, US) tend delay gratification for future success, stigmatize procrastination, take greater personal responsibility, and have tolerance for ambiguity (Hofstede et al. 2010), cultural tendencies that discourage procrastination. Given the scarcity of such cross-cultural comparisons in this area and the contradictory nature of many findings about the influence of several factors, especially those pertaining to employees' demographic and personality characteristics, the importance of future investigations examining these relationships in diverse national samples needs to be stressed.

Among the personality traits considered by the reviewed studies, conscientiousness has emerged as a consistent negative factor of general work procrastination (Kanten and Kanten 2016; Nguyen et al. 2013; Pearlman-Avnion and Zibenberg 2018; Singh and Bala 2020), and neuroticism as a positive predictor (Kanten and Kanten 2016; Pearlman-Avnion and Zibenberg 2018). These two personality facets were found to impact work procrastination across investigations using different instruments for procrastination. On the other hand, studies focused on active procrastination found different results, specifically no relationship between this type of procrastination and conscientiousness, and its negative association to neuroticism (i.e., low emotional stability) (Shaw and Choi 2022). This highlights the difference between the two types of procrastination (active and passive) and the importance of considering them distinctively in future research. Relatedly, a longitudinal study (Wessel et al. 2019) examined the relationships between active procrastination and passive procrastination tendencies and actual delay, which refers to putting off the start or the completion of an action, and found significant associations of delay only with passive procrastination. Similarly, other studies have observed substantial negative effects of this type of procrastination for both the employee (Huang et al. 2023) and the company (Nguyen et al. 2013), highlighting the need for future interventions focused on this specific behavior. At the same time, the research on the other type of employee procrastination, i.e., active procrastination, is scarce, as also indicated by the inclusion of only one study (Shaw and

[Choi 2022](#)) addressing it in our review. Therefore, it is necessary to continue exploring both the specific factors of active procrastination among employees and its effects on their well-being and on organizations, as well as developing adequate tools for assessing each type of procrastination and targeted intervention strategies.

The research reviewed ([Kanten and Kanten 2016](#); [Singh and Bala 2020](#); [Šuvak-Martinović and Zovko 2017](#)) consistently found that self-efficacy and self-esteem are factors reducing work procrastination ([Kanten and Kanten 2016](#)). According to Self-efficacy theory ([Bandura 1977](#)) employees with low self-efficacy are predisposed to see tasks as difficult or unachievable, which results in workplace procrastination. More studies are needed to explore and understand these connections between different self-concepts and procrastination, as well as to examine potential intervention strategies to tackle work procrastination tendencies by targeting specific areas of employees' self-concept.

The studies reviewed also indicate that employees who experience emotional states such as general negative affect ([Goroshit and Hen 2018](#)), anxiety, depression ([Šuvak-Martinović and Zovko 2017](#)), job stress ([Wan et al. 2014](#)) and emotional exhaustion caused by job and family responsibilities ([Gu et al. 2022](#)) or boredom at work ([Metin et al. 2016](#); [Mosquera et al. 2022](#); [Wan et al. 2014](#)) procrastinate more. This suggests that procrastinating behaviors may be used by employees in the attempt to regulate their negative emotions or to conserve their resources when they feel that they are under the threat of depletion, in line with the Conservation of resources theory ([Hobfoll 2001](#)). Relatedly, procrastination can be a result of performing monotonous tasks ([Loukidou et al. 2009](#)), employees seeking more interesting activities, such as taking longer coffee breaks to avoid boredom ([Reinecke et al. 2014](#)). In this context, the finding that employees high in emotional intelligence are less prone to procrastinate at work may be related to their ability to cope better with stress and boredom ([Wan et al. 2014](#)). This suggests the importance of emotional intelligence as a modifiable factor targeted by future organizational interventions against procrastination. At the opposite end of emotional valence, the research on positive emotions as factors of work procrastination is scarce, as only vigor has been investigated in this respect ([Kühnel et al. 2022](#)). Future research should enlarge the scope of the positive emotions examined as potential protective factors against procrastination, especially since their findings could inform tailored organizational interventions.

We also found several internal work-related factors suggested by past studies as effective in reducing work procrastination, such as intrinsic motivation ([Lin 2018](#)), job satisfaction ([Jones 2020](#)), work engagement ([Metin et al. 2016](#); [Metin et al. 2018](#)), perceived job control ([Šuvak-Martinović and Zovko 2017](#)), perceived job performance ([Metin et al. 2018](#)), psychological detachment ([DeArmond et al. 2014](#)), and harmonious job passion ([Jones 2020](#)). Overall, these findings align with the implications of Self-Determination Theory ([Deci and Ryan 2000](#)), which underlines the importance of intrinsic motivation for task engagement and procrastination at work. Furthermore, these relationships suggest that recruitment professionals should consider how well the person fits the role from the selection and interview stage ([Astakhova and Porter 2015](#)). Specifically, they should appraise to what extent the candidate's values match the company values, and the employee's expectations can be supplied by the organization, as these aspects influence passion at work ([Astakhova and Porter 2015](#)) and consequently intrinsic motivation ([Gkorezis et al. 2021](#); [Lin 2018](#)) and work engagement ([Metin et al. 2016, 2018](#)). In addition, an employee who fits the role and shares the organization's values will be less prone to procrastinate at work due to low organizational disidentification ([De Clercq et al. 2021](#)).

Past research has also highlighted work-related factors conducive to procrastination as a response to organizational practices, such as fatigue induced by increased workload ([DeArmond et al. 2014](#)) and perceived organizational cronyism, generated by employees'

suspensions of favoritism-based decision making and resource draining (De Clercq et al. 2021). These findings further emphasize that procrastination is often a response aimed at conserving and protecting employees' resources and psychological balance in relation to their organization (Hobfoll 2001; Reinecke et al. 2018). An obvious suggestion is to prevent overload by distributing adapted work tasks and setting attainable deadlines, as well as discouraging overtime to prevent fatigue.

Relatedly, work-life balance significantly impacts procrastination (Sharma and Sharma 2021), as the latter emerged as positively related to the subjective experience of a less balanced life. The other study (Gu et al. 2022) looking into this relationship found a complex pattern of effects of the two types of employees' responsibility, i.e., job and family responsibility, suggesting that both high and low levels of job and family responsibility stimulate work procrastination. While the effects of high responsibility are probably due to the task overload that they involve, those of low responsibility are more surprising, and further research is needed to explore the psychological dynamics conducive to work procrastination in these employees. These findings also suggest that a moderate level responsibility may positively influence the reduction of procrastination. Furthermore, Organizations should encourage a balance between work and family to ensure that employees' responsibilities are calibrated to diminish, rather than exacerbate, their procrastination tendencies.

The second general category of our classification includes several types of external factors, i.e., work and job characteristics, workload, time pressure, leadership style and work context. In the first category, past research suggests that employees in jobs demanding problem solving and planning and decision-making, time management limit the tendency to procrastinate (Prem et al. 2018; van Eerde 2003). Furthermore, work tasks performed under time pressure generally limit procrastination (Kühnel et al. 2022), but when time pressure becomes a stressor it can have the opposite effect, increasing employees' self-regulation effort and consequently leading to procrastination as a self-regulation failure (Prem et al. 2018). Oppositely, high constraints positions, workload and hindering job demands such as bureaucratic "red tape" consume significant psychological resources. In response, employees tend to procrastinate more in order to conserve their personal resources (Cooke et al. 2019; Huang et al. 2022; Nguyen et al. 2013).

Job resources can help employees reduce the negative effects of high job demands and their psychological costs, although we noted some country differences in the impact of job resources on procrastination in the study findings reviewed (Khoshouei 2017; Metin et al. 2016). Another type of resource that the reviewed research indicates as limiting workplace procrastination is leadership. Specifically, employees working in teams led in a transformational style, emphasizing inspiration, motivation, and clear communication (Göncü Köse and Metin 2018), or inclusive style, focused on ensuring a work environment addressing employees' psychological needs, are less inclined to procrastinate (Lin 2018). At the opposite end, laissez-faire leadership and management by exception increase employees' workplace procrastination, as these leadership styles involve delaying decision-making and denying responsibility by managers themselves (Singh et al. 2021).

Overall, workplace procrastination was analyzed from several perspectives across the studies reviewed, specifically as a self-regulation failure (DeArmond et al. 2014; Nguyen et al. 2013; Prem et al. 2018), as an intentional task delay (De Clercq et al. 2021; Göncü Köse and Metin 2018; Jones 2020; Kanten and Kanten 2016; Khoshouei 2017; Lin 2018; Metin et al. 2018, 2016; Moharram-Nejadifard et al. 2020; Mosquera et al. 2022; Pearlman-Avni and Zibenberg 2018; Sharma and Sharma 2021; Tandon et al. 2021; Tudose and Pavalache-Ilie 2021; Uysal and Yilmaz 2020; Wan et al. 2014), even strategic delay (Shaw and Choi 2022) or an irrational delay (Singh et al. 2021; Singh and Bala 2020), or as a resource conservation (Gu et al. 2022; Huang et al. 2022).

Analyzing employee-related and external factors separately enables a clearer understanding of the distinct mechanisms contributing to workplace procrastination. This distinction also facilitates the development of targeted interventions and provides a foundation for future models that integrate these dimensions to explore their interactive effects. Even though this review presented separately employee-related factors and external factors to enhance clarity, the systemic nature of work-related dynamics highlights the importance of integrating both categories of factors to better understand workplace procrastination. Drawing on Conservation of Resources (COR) theory, procrastination can be seen as a defensive response to resource depletion when employees face stressors. Self-regulation and self-efficacy play key roles in shaping how individuals respond to these demands, those with higher self-efficacy are more confident in their ability to complete tasks and are therefore less likely to procrastinate. Additionally, Self-Determination Theory (Deci and Ryan 2000) suggests that when psychological needs such as autonomy, competence, and relatedness are unmet, motivation declines, increasing procrastination risk. Temporal Motivation Theory (Steel and König 2006) further explains how delay is shaped by time sensitivity, task value, and expectancy. Together, these frameworks underscore that procrastination results from dynamic interactions between employee-related factors (personal traits, self-concept, emotional factors, work-related internal factors, cognitive factors, work-life balance, and the personal tendency to procrastinate) and external factors of workplace procrastination (work and job characteristics, workload, time pressure, leadership style, and work context), supporting the need for context-sensitive, person-environment approaches in future research and workplace interventions.

Our second aim was to review the instruments used to measure workplace procrastination. We identified the following self-report scales used in past research: Mann's Procrastination scale (Mann et al. 1997; Mann 1982), Lay's procrastination scale (Lay 1986), Adult inventory of procrastination (McCown and Johnson 1989), Tuckman's procrastination scale (Tuckman 1991), Avoidance reactions (van Eerde 2003, 1998), Irrational procrastination scale (Steel 2010), Pure procrastination scale (Steel 2010), Procrastination at work scale (Metin et al. 2016), Procrastination due to social media use at work (adapted by Tandon et al. 2021). Besides these self-report scales, one study (Shaw and Choi 2022) included additional supervisor-rated measures of employee procrastination. Generally, self-report measures are associated with a series of limits, such as potential social desirability and memory recall biases, although Krause and Freund (2014) showed that self-reported measures of procrastination were even more reliable than behavioral measures. Furthermore, we noticed that the name of some used scales varied across studies. For example, Lay's procrastination scale (DeArmond et al. 2014; Pearlman-Avnion and Zibenberg 2018; Sharma and Sharma 2021; Uysal and Yilmaz 2020) was reported under different names in other works, such as the work procrastination measure (Gupta et al. 2012) or General Procrastination Scale (Asio and Riego de Dios 2021; Khoshouei 2017). Similarly, some researchers used the name Mann's procrastination scale, other used Decisional Procrastination Scale (Hen et al. 2021; Moharram-Nejadifard et al. 2020; Goroshit and Hen 2018) or Procrastination at work scale (Jones 2020) to label the same instrument. Such variation in the names of the scales may generate confusion, and homogeneity in this respect would be recommended.

It is also important to note that several of these different instruments address distinct facets of workplace procrastination. As previously stated by Svartdal and Steel (2017), p. 1, "measurement of self-reported procrastination in tests and questionnaires focuses on different areas in which unnecessary delay expresses itself. Although the aspects of procrastination are closely related, they may still be differentiated and are often measured by different instruments." For instance, Mann's procrastination scale is also used under the name the Decisional Procrastination Scale (Mann et al. 1997; Mann 1982) and focuses

on cognitive delay in planning and decision-making, whereas general procrastination scales such as the General Procrastination Scale (GPS; Lay 1986) address implemental or behavioral delay. Similarly, the Adult Inventory of Procrastination Scale (AIP; McCown and Johnson 1989) completes this picture by including items related to promptness, meeting deadlines, and timeliness. By combining items from the Adult Inventory of Procrastination, Mann's Decisional Procrastination Scale, and Lay's General Procrastination Scale, Steel (2010) developed the Pure Procrastination Scale (PPS), which measures a united construct of dysfunctional procrastination that includes decisional, action, and readiness delays. Other scales address specific facets of this behavioral tendency, such as the Procrastination at Work Scale, which distinctively measures soldiering and cyberslacking (Metin et al. 2016). Other instruments focus on specific aspects within the general behavioral scope of workplace procrastination. For instance, the Irrational Procrastination Scale (IPS, Steel 2010) focuses on implemental attributes of procrastination with an emphasis on "irrational" delay, "irrational" referring to voluntary delay despite expecting it to be disadvantageous. On a different note, the growing interest in trait procrastination is illustrated by the increased use of Lay's General Procrastination Scale (GPS; Lay 1986), the most widely used and validated measure of trait procrastination (Sirois et al. 2019). Tuckman's procrastination scale (Tuckman 1991), which focuses on behavioral procrastination, including the tendency to delay, avoid, and postpone task completion, was adapted to measure day-related work procrastination used for diary studies (Kühnel et al. 2022; Prem et al. 2018). In comparison with the aforementioned instruments, the Active Procrastination Scale examines procrastination as a strategic delay through four dimensions: outcome satisfaction, preference for pressure, intentional decision to procrastinate, and ability to meet deadlines (Choi and Moran 2009). Because these tools measure a wide range of different aspects of procrastination in the workplace, future studies should explain and defend the choice of the procrastination measures based on their specific research goals and the aspect of procrastination that they set to study.

Practical Implications

Analyzing and classifying the factors that determine procrastination at work enhances the understanding of the reasons employees procrastinate and underlines the focus of future intervention. The findings of this review suggest that in order to address these determinants, interventions should be implemented at both the employees and the organizational level. At the employees-level, our results highlight the potential benefits of interventions promoting employees' focus on future goals and developing their decision-making and goal-setting skills, as well as their emotional regulation, time management and planning abilities. At the organizational level, reducing the structural factors of workplace procrastination entails optimizing job design to guarantee task clarity and a suitable workload, minimizing bureaucratic obstructions, and simplifying processes through essential and clear instructions. Furthermore, promoting a fair and transparent work environment through predefined selection criteria, transparent promotion pathways, and reliable performance evaluation standards can reduce perceptions of favoritism and increase employee engagement and accountability and consequently hold potential for reducing workplace procrastination.

Secondly, our review of the instruments developed to measure procrastination highlights the multifaceted nature of procrastination and advocates for researchers and practitioners to select instruments that correspond to the particular behavioral aspects and environments that they target. This may entail, for instance, distinguishing between decisional procrastination (addressed by Mann's Procrastination Scale), behavioral procrastination (measured by Tuckman's Procrastination Scale) and general procrastination (addressed by Lay's Procrastination Scale or McCowen's Adult Inventory of Procrastina-

tion), or between passive versus active procrastination (Choi and Moran 2009). Moreover, context-specific tools like the Procrastination at Work Scale and Social Media Procrastination Scale are particularly helpful for designing workplace productivity strategies. Overall, considering the focus, strengths, and limitations of each scale facilitates the development of successful, context-sensitive interventions, improves diagnostic accuracy, and enables informed measurement decisions.

5. Limitations

This review's findings might reflect associated biases resulting from the authors' interpretations, the limited choice of databases and the few search terms used, without the use of Boolean operators, thus limiting the scope of our exploration of the literature. Also, the exclusion of articles not written in English or Romanian and of the gray literature may have severely limited the representativeness of our findings by introducing a language bias. Another limitation is related to the exclusion of studies that did not employ procrastination instruments with explicit names and authors, and that evaluated procrastination through qualitative or behavioral items. As a result, qualitative and mixed-method studies, which could offer valuable and nuanced insights into the phenomenon of workplace procrastination, were not included in our analysis. Another methodological limitation of our review is the use of only three scientific databases, omitting others of high relevance for the research in industrial psychology, such as PsycINFO or Scopus. Moreover, the inclusion of studies retrieved through Google Scholar, an indexing platform that is not particularly concerned with scientific curation, may have led to the selection of lower quality studies. Also, procrastination at work was examined only as a dependent variable, not a mediator or moderator, restricting an extended analysis that would have increased the validity of our conclusions.

The literature search followed PRISMA guidelines on systematic review, included three databases and as well as the manual scanning of reference lists. Nonetheless, access constraints created study limits, as some 16 papers, that could enrich the number of factors, remained unavailable in full text.

Furthermore, the limitations of this review reflect those associated with the research considered, such as the use of self-report scales and the variety of instruments measuring workplace procrastination. Also, the cross-sectional nature of most of the investigations reviewed prevents the establishment of causal relationships. It is also important to consider that more than half of the studies were evaluated through the MMAT as having medium quality, which emphasizes the need for more rigorous research designs to be employed by future investigations. Finally, while all the studies were performed on employee samples, the variety of work domains and professions among participants could contribute to the inconsistencies that our findings highlighted in the links between demographic factors and workplace procrastination. Each occupation and even individual organization have specific task demands and characteristics, pressures, more flexible or tight deadlines and accountability structures, and more or less severe consequences of task delay. These discrepancies further suggest that the results of our comparisons among the reviewed studies should be interpreted cautiously.

Finally, our review did not include studies focused on hybrid or remote work, contexts that may involve different factors of procrastination. For instance, recent findings suggest that working from home can significantly increase the risk of procrastination due to lack of structure, raised stress levels, and distractions which increase difficulties in self-regulation, delay starting tasks and deter maintained focus (Yao et al. 2024). Future research should explore this topic, as well as other highly relevant issues for contemporary work contexts

that may also influence employees' tendency to procrastinate in their work tasks, such as job insecurity.

6. Conclusions

Our results summarized the findings from 31 studies published between 2000 and 2023 on the factors of workplace procrastination in a classification of these factors in two general categories, i.e., employee-related and external factors. Our findings indicate that several factors have been investigated in relation to workplace procrastination only in a single study. At the same time, contradictory findings have been reported regarding the effect of other factors, especially in culturally diverse samples. These results highlight the need for future methodologically robust cross-cultural research that would examine the influences of these potential determinants of workplace procrastination in employee samples from different unexplored countries (e.g., from Africa, Southeast Asia, and South America). Also, adopting experimental and longitudinal designs would help to establish causality and to identify behavioral patterns of procrastination at work and extend the set of possible determinants considered. Furthermore, there is a large heterogeneity in the measures of workplace procrastination used in this research, with variations in the conceptual underpinnings of these measures and in the actual facet of procrastination that they address. Therefore, these specificities should be carefully considered in the selection of the instruments to be used in research or practice. Concerning the design of practical interventions addressing procrastination at work, our findings suggest that such efforts may involve both organizational interventions focused on developing a supportive work environment and promoting fairness and transparency, and individual—level interventions fostering adaptative coping strategies, self-regulatory skills, and managing time and workload effectively. Organizations and individuals can work collaboratively to create conditions that minimize procrastination and promote a positive and productive work environment.

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