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Human resources well-being in innovative start-ups: Insights from a systematic review of the literature

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ABSTRACT

This study aims to unify the fragmented knowledge on human resource (HR) well-being in innovative start-ups, a critical factor in their success. Through a systematic literature review, we analysed 42 peer-reviewed articles using MySLR software to identify key themes and dimensions in this area. Our findings suggest that HR well-being in start-ups can be understood as a higher-order construct, encompassing three main dimensions: job satisfaction, psychological well-being, and work-life balance, including gender-related considerations. The study's implications are significant for academics and practitioners; as such, the proposed framework serves as a reference model for future research and a practical guide for start-up managers to improve employee well-being. The originality of this study lies in its comprehensive approach to synthesising existing research on HR well-being in start-ups, providing a unified framework that clarifies previously unclear and fragmented findings in the literature.

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Introduction

In recent years, innovative start-ups have emerged as key drivers of economic growth, job and wealth generation. These companies are characterised by their agility, flexibility, and willingness to take risks in pursuit of breakthrough innovations and sustainable business models (Corvello et al., 2023). Innovative start-ups are often at the forefront of technological advancements and seen as vehicles for social change, addressing societal challenges and creating value for communities.

However, the success of these start-ups depends not only on their ability to develop innovative products and services but also on their ability to attract, retain, and develop talented employees (Harlin & Berglund, 2021). Among the reasons for the success of many start-ups is the enthusiasm and commitment of the founders and early employees (Margherita & Verrill, 2021). The literature highlights the importance of the enthusiasm, involvement, and effort produced by these people (Andries & Czarnitzki, 2014). For this reason, understanding human resources (HR) well-being in context is vital because the well-being of employees directly impacts their motivation, engagement, and productivity, which are crucial for the success of

start-ups (Wiklund et al., 2019). On the other hand, understanding how HR well-being can be promoted is also fundamental as start-ups often impose high levels of stress and demand, potentially leading to burnout and other negative consequences. Therefore, addressing HR well-being is not merely a matter of individual welfare but a strategic necessity for the long-term success of start-ups.

Start-up culture is often associated with a high degree of uncertainty and intense work. In particular, in the early stages of a start-up, there is often a great deal of uncertainty surrounding the viability of the business model, the market demand for the product or service, and the availability of funding. This uncertainty can create a sense of urgency among start-up employees, who may feel that they need to work long hours and take on multiple roles to ensure the success of the company (Mukul & Saini, 2021).

While the intensity of start-up culture can be motivating for some employees, the pace of intense work and uncertainty about results can put staff and entrepreneurs under pressure with negative effects on their well-being. In fact, in uncertain working contexts, cases of burnout are not rare, and entrepreneurial work makes it difficult to balance work activity with private life. Employees in start-ups may feel pressure to constantly iterate and improve their products or services, which can result in long hours and high stress levels. In addition, start-up employees may feel that they need to constantly

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stay up-to-date with the latest industry trends and developments to remain competitive. This can take a toll on the well-being of start-up employees (Omrane et al., 2018).

Start-up entrepreneurs need to be mindful of the impact that their culture and work environment can have on employee well-being and take steps to promote work-life balance and employee satisfaction. This can include offering flexible work arrangements, providing opportunities for professional development and growth, and creating a supportive and collaborative work environment. By prioritizing employee well-being, start-ups can create a sustainable culture that promotes innovation and growth, while also valuing the health and happiness of their employees.

Despite the recognized success of start-ups in generating economic value, the quality of working life for employees and entrepreneurs remains largely unexplored. Unlike established private and public companies, start-ups operate in environments marked by high uncertainty, intense work demands, and diverse role expectations, all of which can lead to significant challenges to well-being. Most existing research on HR well-being focuses on established organizations, leaving a critical gap in the understanding how these findings apply to start-ups. The unique traits of start-ups call for a specialized approach to studying HR well-being.

This study aims to progress existing global knowledge by providing a systematic review that consolidates fragmented research on HR well-being in the context of start-ups, identifying key dimensions, antecedents, and outcomes, and proposing a unified framework for future research.

The study of HR well-being in the specific context of start-ups is particularly relevant given that start-ups are unique organizational entities that operate under different conditions compared to traditional firms. Understanding these unique challenges and how they affect HR well-being can help start-up founders and managers develop better strategies to support their employees, enhance productivity, and ultimately drive the success of their ventures.

Having this in mind, in this study, we addressed the following research questions:

- RQ1: how does the existing literature address the concept of HR well-being in start-ups?
- RQ2: what are the main antecedents and outcomes of HR well-being in start-ups identified by the literature?

In response, we conducted a systematic analysis of the literature (Snyder, 2019; Kraus et al., 2020) that deals with the HR well-being of new and young enterprises. To our knowledge, this is the first systematic review to specifically address the theme of HR well-being in innovative start-ups, aiming to provide a comprehensive/integrated analysis exploring the topics, trends, methods/variables, and constructs used in prior studies. We analyzed 42 articles from the Scopus and WoS databases, using a text-mining approach, namely latent Dirichlet allocation (LDA) before going on to analyze the full text. Based on the results of the study we propose the concept of HR well-being in start-ups a higher-order concept that helps explain behaviors and expectations of HR involved in this type of firms.

As this paper addresses a critical gap by exploring the unique challenges and needs specific to start-ups, it also contributes to a more nuanced understanding of HR management in dynamic, high-risk environments. The findings from this study have broader implications beyond the context of innovative start-ups, offering insights and a conceptual framework that can be adapted to other industries or regions characterized by high uncertainty and intense work environments, such as high-growth sectors, technology hubs, or emerging markets.

Overall, this paper makes several key contributions. First, it provides a comprehensive conceptualization of HR well-being in start-

ups, identifying essential dimensions such as job satisfaction, psychological well-being, work-life balance, and gender-related issues. Second, it outlines the antecedents and outcomes of HR well-being, offering a framework that can guide future research and inform practical strategies for improving employee welfare in start-ups. Lastly, the study proposes an agenda for future research, emphasizing the importance of longitudinal studies and cross-cultural comparisons to deepen our understanding of HR well-being in these unique organizational settings.

Methodology

A Systematic Literature Review (SLR) was conducted to provide an overview of scientific literature on HR well-being in innovative start-ups. In line with the SLR principles provided by Tranfield et al. (2003), the research protocol adopted consists of three main steps: paper location and selection, paper analysis, and results presentation/analysis. These three steps have been carried out with the support of the MySLR software platform (Ammirato et al., 2023), a semi-automated tool supporting researchers in performing SLRs. Fig. 1 shows the research workflow adopted in the research.

Papers location and selection. We defined two sets of keywords to identify the core literature that considers the concepts of HR well-being and innovative start-ups, respectively. To ensure a thorough search, the keywords were reviewed and updated to encompass a wide range of studies pertinent to HR well-being in start-ups. The revised search strategy included terms such as "HR well-being," "start-ups," "employee satisfaction," "work-life balance," and "psychological well-being." This method aimed to identify all relevant studies, regardless of the specific terminology used. The search string was crafted to yield papers containing at least one term from each set in the title, abstract, or keywords.

The search was conducted using Google Scholar, Scopus, and Web of Science (WoS), regarded as the most important and comprehensive databases in managerial studies (Bhimani et al., 2019). These databases were chosen for their extensive coverage of high-quality academic journals and their ability to provide a broad view of the research field. The search took place at the end of March 2023. The study period was justified by the growing relevance of start-ups from 2000 to 2023, capturing the field's evolution over more than two decades. Consequently, only articles published between 2000 and 2023 were included to ensure that the review covered the most recent and pertinent research. We initially found 152 papers from Scopus and 63 from WoS. The selection criteria for papers to be analysed included the following conditions: the papers were written in English, published in scientific journals, and indexed within the business, management, and economics of the study (Felicetti et al., 2024). At the end of this step, we found 63 papers from Scopus and 29 papers from WoS.

Results from these two scientific databases were merged, resulting in 72 unique papers. We manually analysed the title and the abstract of each article, to verify if it falls within the scope of our study (Christofi et al., 2021). This allowed us to exclude papers that do not fit within the conceptual boundaries of the study, despite search terms being present in the title, abstract, or keywords. The final set consists of 41 papers.

Paper analysis. We utilized a text-mining approach based on latent Dirichlet allocation (LDA) to reveal the research topics in the context of legal and regulatory innovation. The LDA technique gives as output k sets of relevant keywords (where each set represents a topic) and the document-term matrix, i.e., describing how much each paper is devoted to a specific topic (i.e. topic proportion). Following Blei (2012), we selected k , i.e. the number of topics to be extracted, by evaluating multiple LDA results with k ranging from 2 to 20. We chose k and the LDA algorithm to guarantee a sufficiently high value

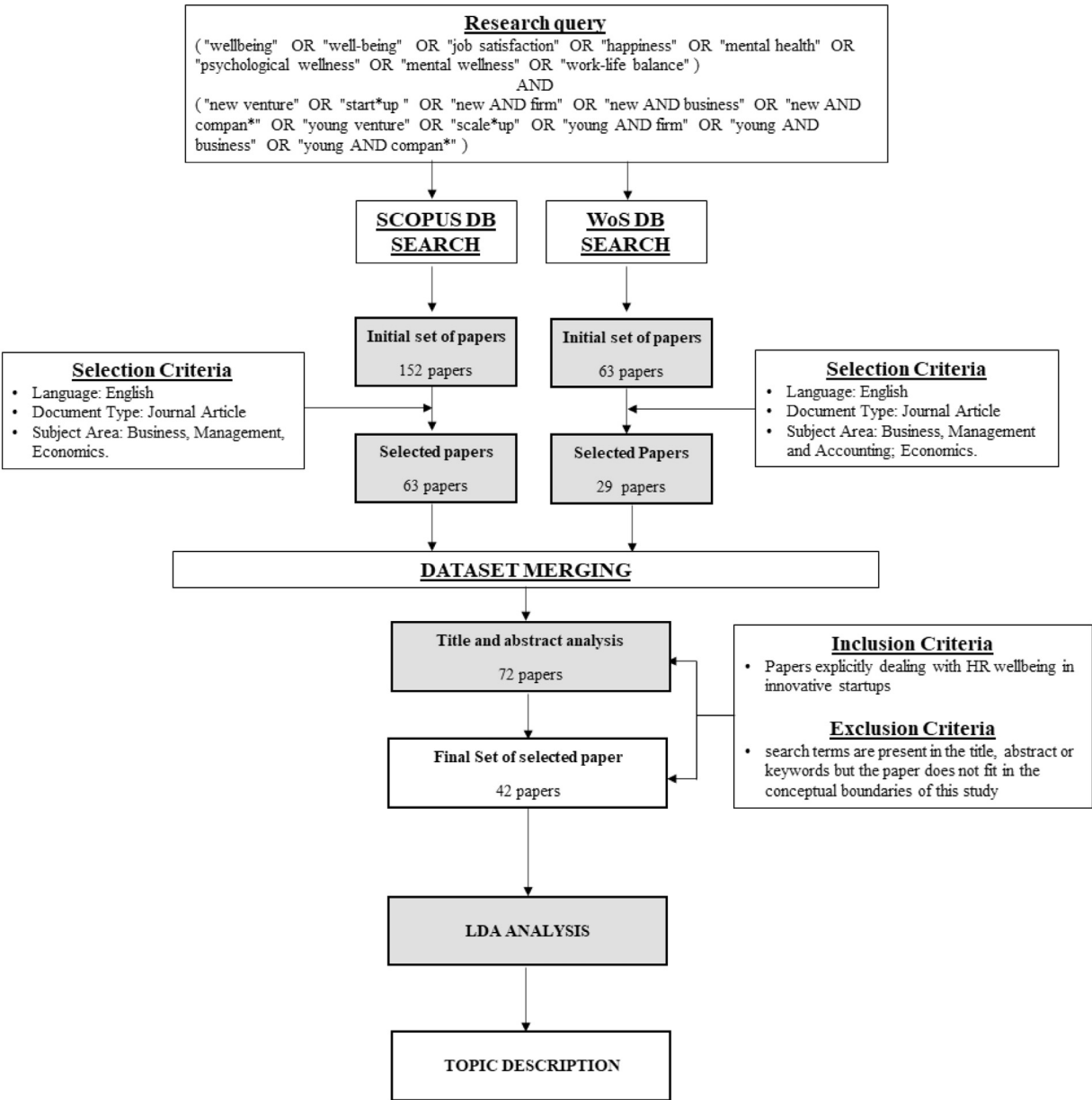


Fig. 1. The research workflow.

of topic coherence (Chen & Liu, 2014) and, at the same time, a simple interpretation of the results for a human reader. The most meaningful set of topics was achieved with $k = 3$.

Results synthesis Four topics have been identified through the LDA procedure,

In Fig. 2, the intertopic distance map, a visualization of the topics in a two-dimensional space, is provided.^a The map would seem to

suggest a high degree of polarization of the terms on the individual topics. Fig. 3 shows the t-distributed stochastic neighbour embedding (t-SNE) map.^b The map suggests that the papers assigned to a topic have little to do with the other topics.

^a The intertopic distance map, illustrated in Fig. 2, serves as a graphical tool to visualize the spatial relationships between topics identified through the Latent Dirichlet Allocation (LDA) analysis. Each circle on the map corresponds to a distinct topic within the dataset, with the size of the circle representing the prevalence of that topic across the analyzed documents—larger circles indicate topics that are more dominant in the reviewed literature. The distance between the circles reflects the degree of similarity between the topics: topics positioned closer together share more keywords and thematic content, suggesting they are more closely related, while those spaced further apart are more distinct from one another. This map is particularly useful for identifying how topics cluster and where there might be overlaps or gaps within the research field. It enables readers to quickly discern which areas of HR well-being are interconnected and which are treated as more isolated subjects in the literature.

^b t-SNE Map. The t-distributed Stochastic Neighbor Embedding (t-SNE) map, depicted in Fig. 3, is a widely used technique for visualizing high-dimensional data in a two-dimensional space. In our study, the t-SNE map was employed to cluster and visually depict the relationships between different research topics identified through Latent Dirichlet Allocation (LDA). Each point on the map corresponds to a research paper, with the proximity of points indicating similarity in the topics they address. Papers that appear closer together on the t-SNE map are more similar in content, while those that are more distant from each other cover more distinct topics. By examining the clusters that emerge on the t-SNE map, we can identify which research areas are closely related and those more isolated, potentially highlighting gaps or underexplored topics.

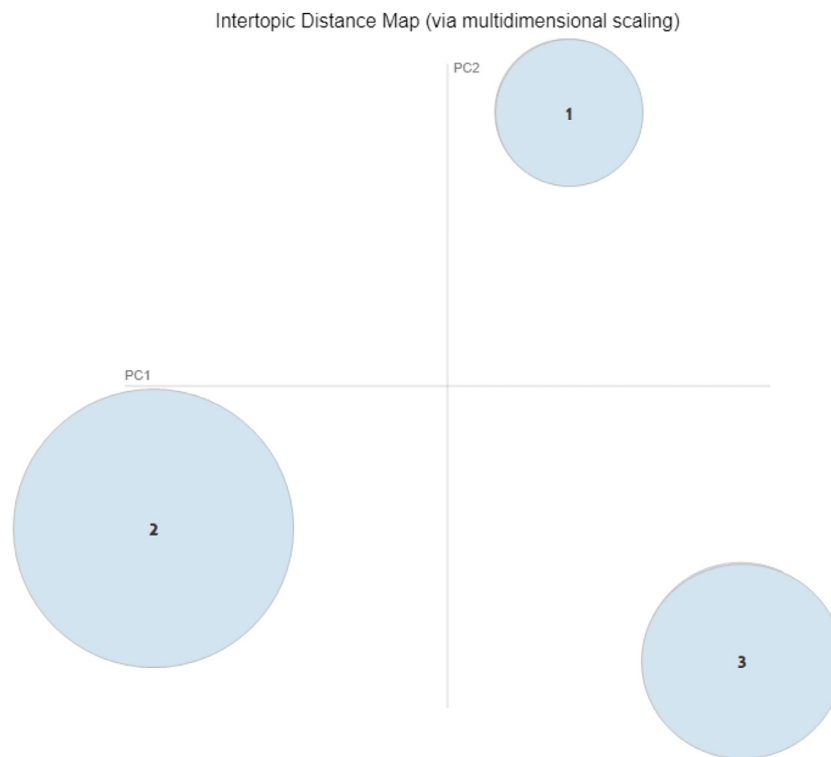


Fig. 2. The intertopic distance map with three topics.

Each topic identified through the LDA procedure is related to a different perspective. In Fig. 4, a set of 10 relevant keywords associated with each topic is presented.^c

This allowed us to name the three topics as follows:

- Topic 1: job satisfaction, wages and career development opportunities
- Topic 2: psychological well-being (mental health of individuals involved in innovative start-ups, including stress, anxiety, depression, and burnout)
- Topic 3: Work-life balance and gender-related issues

Results

Descriptive results

The examination of publication trends reveals a growing scientific interest in HR well-being within start-ups over recent years. Notably, active journals in this field include the *Journal of Business Venturing*, the *International Journal of Entrepreneurial Behaviour and Research*, the *Journal of Small Business Management*, and *Sustainability*. These journals collectively account for 26 % of the reviewed literature. Concerning the different methodologies adopted, three macro classes have been named that identify the types of studies: qualitative study, quantitative study and review. Notably, 74 % of the articles are based on quantitative type studies, which in turn are divided according to the methodology adopted; 48 % employ structural equation modelling; while 20 % are based on applications of regression models and

15 % on econometric modelling. Qualitative studies constitute 22 % of the sample and mainly consist of conceptual models and multiple case studies. Finally, literature reviews are only 2 % of the sample analyzed, suggesting the need to focus academic research on these issues to gain further understanding of HR well-being in new and young ventures.

Towards a definition of HR well-being in start-ups

To foster the consolidation of a unified body of literature, this article defines the concept of well-being in start-ups as a higher-order concept that helps explain the behaviours and expectations of HR involved in this type of firm. In particular, this section describes what precedes and influences the physical, psychological, and emotional health and wellness of HR within start-ups (namely antecedents) and the elements that characterize the HR well-being construct in terms of measures found in the literature (namely outcomes).

Antecedents of HR well-being in start-ups

The knowledge of antecedents is useful because it may suggest to new and young ventures which factors should foster HR well-being. Antecedents may be considered facilitators or drivers of HR well-being. The analysis of the papers included in the review highlighted several antecedents that impact HR well-being in start-ups in different ways. These antecedents can be classified into three main levels, which in turn can be further divided into specific conceptual categories: *individual-level*, *firm-level* and *environmental-level*. This classification is consistent with the results proposed by other authors. Indeed, the available literature on HR well-being in start-ups includes studies investigating the determinants of well-being while considering different factors at the individual, company, and sector levels.

At the *individual level*, antecedents refer to the inherent characteristics in terms of resources, skills, and expertise of the start-up's employees and/or start-up entrepreneurs. These antecedents are predominantly rooted in the inherent traits, resources, and expertise of the start-up's personnel. For instance, the skillsets and expertise that

^c The word cloud, displayed in Fig. 4, is another visual tool that highlights the most relevant keywords associated with each research topic identified in our analysis. In a word cloud, the size of each word reflects its frequency or significance within a particular topic. Larger words represent terms of higher importance or prevalence in the literature, while smaller words indicate less frequent terms. In this study, the word cloud serves to quickly communicate the main themes and focus areas in the research on HR well-being in start-ups.

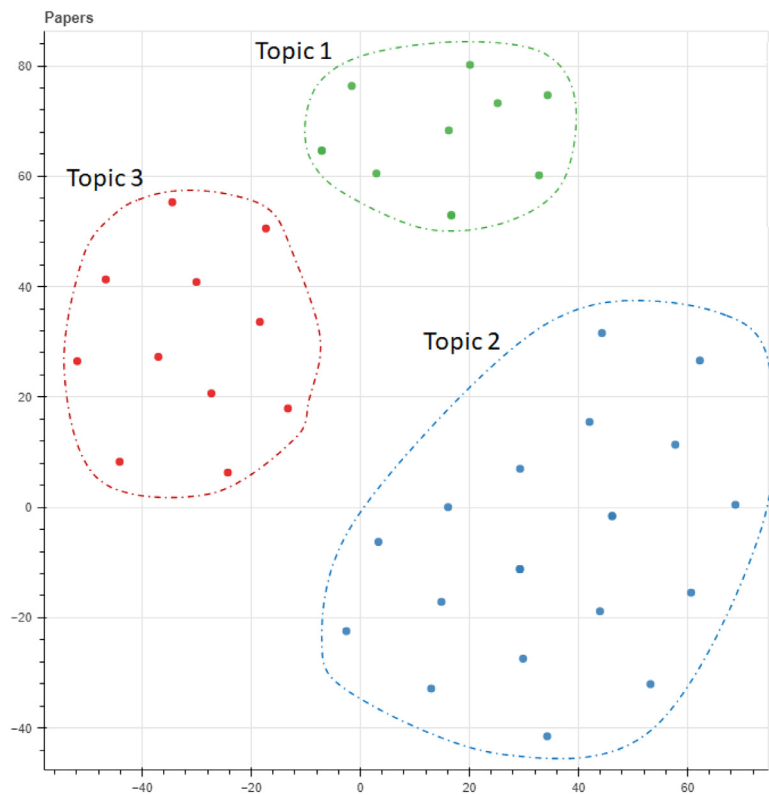


Fig. 3. The t-distributed stochastic neighbour embedding (t-SNE) map with three topics.



Fig. 4. Word cloud of relevant keywords for each topic..

individuals bring to the table can play a key role. Some authors identify an important determinant of well-being in the family context. Having the support of one's family members, especially for start-up entrepreneurs, represents an element of fundamental importance (Zhou et al., 2020; Aggrawal et al., 2022). In a start-up setting, where alertness, adaptability, and quick learning are vital, these personal competencies become significant antecedents to HR well-being (Wang et al., 2021). Furthermore, an individual's level of resilience and adaptability contributes to their ability to thrive in a high-risk, high-reward start-up environment (Williams & Shepherd, 2016; Baron et al., 2016). Emotional intelligence, the capacity to understand and manage personal emotions and those of others, also emerges as a crucial characteristic, given the collaborative and high-pressure nature of start-up cultures (Miao et al., 2018).

As for the *firm level*, antecedents referred to this level deal with the inherent characteristics of the company. Moving to this level, the intrinsic characteristics of the start-up organization itself become central to the HR well-being equation. The organizational culture, encompassing shared values, norms, and practices, is an important antecedent (Alkhodary, 2023). A culture that nurtures respect, collaboration, and creativity can be a significant factor in shaping HR well-being. The leadership style practiced within the start-up also plays a crucial role (Muttuqin et al., 2020). How leaders guide teams, make decisions, and communicate vision and strategies, fundamentally shape the work environment and, consequently, HR well-being. The design of jobs and the nature of the workload, too, are intrinsic company characteristics that play into HR well-being (Maaravi et al., 2021). Start-ups often demand innovation, problem-solving, and a degree of autonomy from their teams, making job design an influential antecedent (Baluku et al., 2018).

Finally, the *environmental level* includes all the business context-related factors enabling HR well-being. At this level, the broader business context within which the start-up operates serves as a backdrop influencing HR well-being. These factors include the overall economic conditions that can shape the stability and growth potential of the start-up, which are indirectly tied to HR well-being (Su et al., 2020). In addition, political climate, legislation and regulations create the framework within which start-ups operate, providing a set of rules and guidelines that may influence HR practices and, by extension, HR well-being (Amankwa et al., 2021). Another environmental antecedent comes from the characteristics of the industry in which the start-up operates. Industries marked by high levels of competition, rapid change, or high risk may contribute to a heightened sense of stress and consequently lower HR well-being. On the other hand, industries characterized by stability, growth, and opportunities for development can foster a positive environment for HR well-being (Basu et al., 2023).

Beyond the business sector, the national culture and societal norms play a vital role as environmental-level antecedents to HR well-being. National cultures that emphasize work-life balance, prioritize worker rights, and offer societal support for employee welfare can nurture a climate conducive to HR well-being (Teixeira & Vasque, 2020). However, cultures where overworking is normalized or employee welfare is disregarded may negatively impact HR well-being, leading to elevated stress levels and decreased job satisfaction.

Operationalization of the concept of HR well-being in start-ups

Human Resource (HR) well-being is a complex, high-order concept. It's a broad term that encompasses several factors, including their physical, mental, and emotional health, as well as their work satisfaction and engagement.

As a result of the LDA procedure, we identify three main dimensions of this concept.

Job satisfaction, wages and career development opportunities. Job satisfaction is a critical factor in the well-being of human resources in innovative start-ups.

Job satisfaction in start-ups is a multifaceted concept that involves various factors such as salary, opportunities for advancement, colleagues, management, and the nature of the work itself (Yang et al., 2019). While compensation, benefits, and job security are important factors that shape employee satisfaction, other factors such as opportunities for growth, progress, and career advancement also play a significant role (Jeong & Choi, 2017). Additionally, intrinsic rewards such as recognition, praise, and flexible working arrangements could contribute to job satisfaction (Georgellis & Yusuf, 2016). As a complex construct, job satisfaction is influenced by various factors, such as the work environment (Kanchana & Jayathilaka, 2023), job characteristics (Maaravi et al., 2021), and organizational culture (Muttuqin et al., 2020).

Start-ups that provide employees with autonomy, meaningful work, less routinized activities and opportunities for personal and professional growth are more likely to have satisfied employees (Maaravi et al., 2021). Also, start-up entrepreneurs tend to experience greater life satisfaction due to their ability to work independently, have greater flexibility, and utilize their skills more effectively (Naudé et al., 2014; Binder & Coad, 2013). This is based on the assumption that having greater autonomy in their work life leads to positive emotions and a sense of fulfilment from running their own business (Teixeira & Vasque, 2020).

Start-ups often face financial constraints, and offering competitive wages may be challenging. They often suffer from the inability to provide competitive salaries as per industry standards (Mukul & Saini, 2021). This can make it challenging for start-ups to attract and retain highly skilled individuals. Hence, start-ups search for new and creative ways to remain competitive, such as offering alternative compensation considerations and strategies, e.g. benefits, equity compensation, and stock options (Freeman & Angel, 2007). Chang et al. (2015) found a positive effect of non-executive employee stock options on their long-term commitment, preventing myopic behaviours, with a substantial impact on innovation output. Of course, start-ups that provide employees with fair and competitive wages are more likely to have satisfied and motivated workers (Sorenson et al., 2021). Start-ups offering competitive wages have been found to attract and retain high-quality employees (Kim, 2018).

Career development opportunities are also essential for employee well-being. Several studies have shown that employees who perceive that they have opportunities for career development are more satisfied with their jobs and more committed to their organizations (Fackler et al., 2019). Start-ups that provide employees with opportunities for career growth and development are more likely to have satisfied employees (Jia-Jun & Hua-Ming, 2022). Therefore, innovative start-ups should provide employees with opportunities for career growth and development to foster employee well-being.

Psychological well-being

Innovative start-ups are known for their fast-paced, high-pressure work environments, which can make it difficult for employees and founders to manage their professional and personal lives. This can have a significant impact on their well-being, both in the short and long term (Rashmi and Kataria, 2021).

Thilagavathy and Geetha (2023) identified three levels of factors impacting work-life balance, namely, individual, organizational, and societal factors. Innovative start-ups have the opportunity to create a culture that values psychological well-being and supports employees in achieving it. This can include offering flexible work arrangements, providing resources for mental and physical health, and promoting a culture of work-life balance (Thilagavathy & Geetha, 2023).

While working for a start-up can be exciting and offer growth opportunities, it can also be stressful. The psychological well-being of individuals involved in innovative start-ups has received increasing attention, as the high-pressure environment can result in stress, anxiety, depression, and burnout (Katrodia, 2020). Research indicates that start-up founders experience higher levels of stress as compared to

employees in traditional organizations (Nambisan & Baron, 2021). This is attributed to factors such as the need to raise capital, deal with uncertainties, and manage a rapidly growing team (Wincent & Örtqvist, 2009).

High levels of stress, in turn, have been found to have a wide range of negative effects on employees and start-up entrepreneurs, including their ability to make judicious decisions and actions and, more broadly, on their performance on a wide range of tasks (Rangrez et al., 2022). Entrepreneurs' passion for their start-up can lead to chronic stress, which can have negative effects on their physical and mental health. It is crucial to educate entrepreneurs to work through the stresses of entrepreneurship more effectively, leveraging self-awareness and resilience in managing stress (Cotter & Stetson, 2020).

Employees in innovative start-ups are also at risk of experiencing burnout due to long working hours, high job demands, and the pressure to meet performance targets (Wiklund et al., 2019). This is particularly evident in necessity-based start-ups (Kautonen & Palmkroos, 2010). Nikolova (2019) provided causal evidence of the consequences of switching to self-employment from unemployment (necessity-based) and to self-employment from regular employment (opportunity-based). Specifically, the author found that necessity entrepreneurs do not experience substantial improvements in opportunity entrepreneurs experience benefits in mental health. Kollmann et al. (2019) examined how daily stressors affect entrepreneurs' insomnia and their ability to detach from work during non-work hours, with a significant impact on their well-being and performance.

Some start-up entrepreneurs are involved in *hybrid entrepreneurship activities*, i.e., they are simultaneously working in wage employment settings while also attempting to launch their new ventures (Folta et al., 2010). Hybrid entrepreneurs face significant time constraints, requiring availability for extended work overtime (Kim et al., 2022). This condition of dual work-venture role engagement often leads to negative psychological pressures and increasing dissatisfaction (Carr et al., 2023).

The workplace must be a source of happiness for employees. Unhappy employees in a workplace tend to increase employee turnover, absenteeism, low productivity, and time wasted deadlines (Kanchana & Jayathilaka, 2023).

Work-life balance and gender-related issues

The challenges and opportunities associated with employee well-being in innovative start-ups are closely tied to issues of gender, career aspirations, emotional well-being, work-life balance, and motivation. Women may face unique challenges in balancing work and family responsibilities, which can impact their career aspirations and motivation (Aggrawal et al., 2022).

Issues Gender and equity-related issues in innovative start-ups are an important aspect to consider, as research indicates a significant gender gap in the start-up ecosystem (Berger & Kuckertz, 2016). Female founders and employees often face unique challenges, such as gender discrimination and bias, which can impact their well-being and career development. Gender discrimination in access to funding is a significant issue for women entrepreneurs in start-ups.

Research on gender and equity in innovative start-ups has mainly focused on the underrepresentation of women in the sector (Brush et al., 2019). Studies show that women-led start-ups receive a disproportionately low amount of venture capital funding, with only 2.3 % of VC funding going to women-led start-ups (Bittner & Lau, 2021). Similar results are provided by Demartini (2018). Her study highlights that female businesses raise, on average, a lower amount of financial resources in comparison to men. This underrepresentation can be attributed to factors such as gender stereotypes, a lack of access to resources and networks, and unconscious bias among investors (Ewens & Townsend, 2020). Moreover, the underrepresentation of women in innovative start-ups is because technological-

related activities have traditionally been a "male domain" (Demartini, 2018).

In terms of well-being, studies have shown that female start-up founders experience higher levels of stress compared to their male counterparts (Chadwick & Raver, 2019).

Work-family conflict is a relevant issue in gender studies on start-ups' well-being. Time management played a crucial role in the lives of each of the women as they coordinated various roles: business owner, wife, mother, and carer. A key motivation for engaging in venturing is the desire to balance familial responsibilities with running their own business, thus, fulfilling an ambition to be their boss. Women in start-up companies experience what Kamberidou calls *multitasking whirlpool*, i.e. the "experience of being pulled in all directions: juggling professional, social, family, and domestic obligations while pursuing individual or creative goals and needs" (Kamberidou, 2020, p.4). Increased flexibility was expected to help them to realize that ambition. Entrepreneurship offers a partial answer to both a desire for greater flexibility and control over personal time as well as the need to take control over personal and professional ambitions (McGowan et al., 2012).

Innovative start-ups can promote gender and equity by providing a supportive work environment that encourages diversity and inclusion. Additionally, providing individuals with opportunities for personal and professional development can help to build resilience and coping skills, which can improve gender and equity-related issues (Yang et al., 2020).

The overall framework

Fig. 5 summarizes the results of the analysis carried out. In particular, the left side of the figure represents the antecedents, i.e. those factors that impact HR well-being in start-ups. The right side, on the other hand, represents the outcomes, i.e., how HR well-being in start-ups has been operationalized in literature.

The analysis of the literature made it possible to highlight some causal relationships that the authors consider relevant. Below are some of the most significant examples.

Starting with individual-level antecedents, employees' inherent traits, resources, and expertise contribute to all three identified dimensions of well-being. Their resilience and adaptability, for instance, allow them to handle the fast-paced, high-stress start-up environment, influencing work-life balance and psychological well-being (Rashmi and Kataria, 2021; Cotter & Stetson, 2020). Emotional intelligence and unique skill sets enhance job satisfaction by fostering better work relationships, thereby making the workplace a source of happiness (Yang et al., 2019; Kanchana & Jayathilaka, 2023). At the firm level, the organizational culture, leadership style, and job design play a critical role. An organizational culture that values respect, collaboration, and creativity can significantly contribute to job satisfaction (Muttuqin et al., 2020). Effective leadership, clear communication, and creative job design foster an environment that facilitates career growth and development, influencing employees' perception of career advancement opportunities and overall job satisfaction (Jia-Jun & Hua-Ming, 2022; Maaravi et al., 2021). In addition, start-ups that promote a culture of work-life balance positively affect employees' ability to manage their professional and personal lives (Thilagavathy & Geetha, 2023). The firm-level antecedents are also critical for gender and equity issues, where supportive work environments and diversity and inclusion practices can mitigate the gender gap (Yang et al., 2020).

Environmental-level antecedents, such as industry characteristics, national culture, and societal norms, affect the wider business context in which the start-up operates. Industries marked by high levels of competition, rapid change, or high risk can contribute to stress, influencing work-life balance and psychological well-being (Wincent & Örtqvist, 2009; Katrodia, 2020). Positive societal norms that value

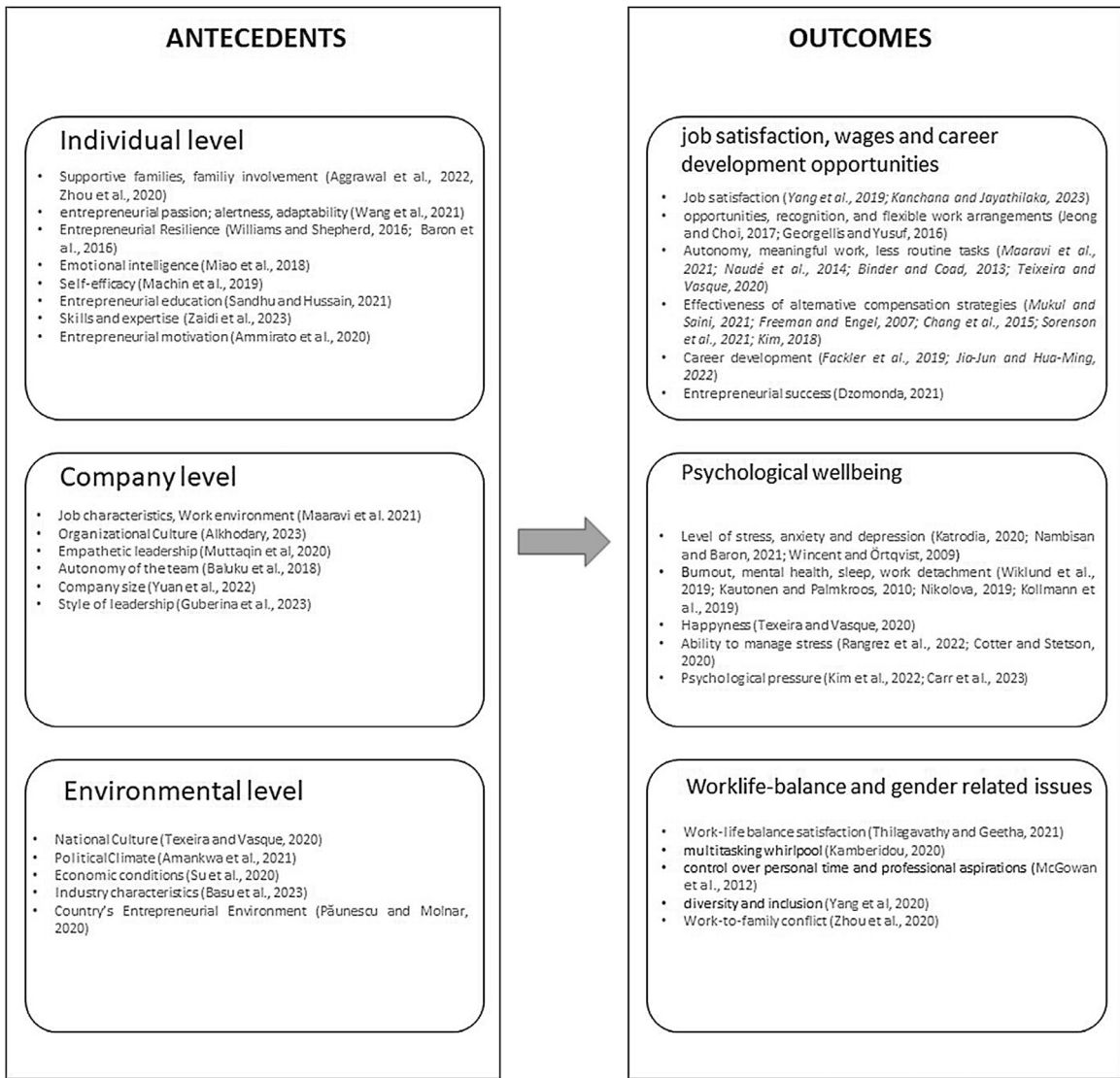


Fig. 5. The overall framework.

work-life balance, employee rights, and welfare can enhance HR well-being in various dimensions, including psychological well-being and gender and equity issues (Thilagavathy & Geetha, 2023; Aggrawal et al., 2022).

Discussion

The insights from this systematic literature review shed light on the well-being of human resources in innovative start-ups, an area that is crucial yet underexplored. Recent HR management research has increasingly acknowledged the distinct challenges and dynamics of start-up environments (Corvello et al., 2023; Wiklund et al., 2019). This study complements the existing literature by pointing out the fragmented nature of current knowledge and the necessity for a unified framework. For example, while prior research has explored different aspects of job satisfaction, psychological well-being, and work-life balance (Harlin & Berglund, 2021; Mukul & Saini, 2021), this review integrates these elements into a comprehensive model tailored to start-ups. By synthesizing findings from various studies, this paper addresses identified gaps in the literature. For instance, the significance of emotional intelligence and resilience in employee well-being, highlighted by Wang et al. (2021) and Miao et al. (2018), is

further examined in the start-up context. Similarly, our findings on the importance of organizational culture and leadership styles align with and expand upon the work of Alkhodary (2023) and Muttakin et al. (2020), offering a more detailed understanding of these factors in start-up settings.

Theoretical implications

This study theoretically advances HR management frameworks by introducing a model specifically focused on employee well-being in innovative start-ups. Traditional HR theories typically emphasize stable organizational environments, which starkly contrast with the unpredictable, high-pressure nature of start-ups. Our framework suggests that HR well-being in start-ups is a complex construct involving job satisfaction, psychological well-being, and work-life balance, influenced by individual, firm-level, and environmental factors. Our model has several implications for existing theories. Firstly, it supports the notion that job satisfaction in start-ups is multifaceted, influenced by both intrinsic and extrinsic factors (Yang et al., 2019; Jeong & Choi, 2017). Secondly, it underscores the critical role of psychological well-being, a dimension often overlooked in traditional HR models but essential in high-stress environments like start-ups

(Rashmi & Kataria, 2022). Lastly, it highlights the importance of work-life balance and gender-related issues, which are becoming increasingly relevant in modern organizational studies (Aggrawal et al., 2022; Brush et al., 2019).

Practical implications

For practitioners, this study provides actionable insights to enhance employee well-being in start-ups. Start-up founders and managers can benefit from recognizing the importance of fostering a supportive organizational culture, offering career development opportunities, and promoting work-life balance. Implementing flexible work arrangements, mental health support programs, and inclusive policies can help mitigate the negative effects of the high-pressure start-up environment. Additionally, addressing gender-related challenges by promoting diversity and inclusion should help to close the gap identified in the literature (Berger & Kuckertz, 2016; Bittner & Lau, 2021). Start-ups that actively work towards creating a fair and supportive environment for all employees are likely to see higher levels of satisfaction, commitment, and overall well-being, which can drive innovation and growth.

Conclusions

By examining a broad selection of 42 papers, we have identified the main dimensions, antecedents, and outcomes of HR well-being in the start-up environment. Furthermore, by integrating a variety of studies, this paper addressed existing gaps in the literature, providing a deeper understanding of HR well-being in start-ups.

Overall, this article aims to lay the foundations for the extension of organizational theories on employee well-being to the case of start-ups. The study allowed us to identify multiple dimensions of well-being in the context of innovative start-ups. By identifying three distinct but interrelated topics, it highlights the complexity of human resources well-being in this context and the need for a multifaceted approach to addressing it.

This research adds to the existing body of knowledge by offering a detailed framework for understanding HR well-being in innovative start-ups. By tackling the fragmented nature of current studies and presenting a model that incorporates various aspects of well-being, this paper sets the stage for future research in this field. The results highlight the necessity of a comprehensive approach to HR management in start-ups, emphasizing job satisfaction, psychological well-being, and work-life balance. These insights are valuable not only for academic researchers but also for practitioners and policymakers who aim to foster the sustainable development of start-ups and enhance employee well-being.

Limitations of the study

While this study makes significant contributions to understanding HR well-being in innovative start-ups, it is important to acknowledge its limitations to provide a balanced perspective.

First, the scope of the systematic literature review is constrained by the selection of articles published between 2000 and 2023. This temporal limitation may exclude earlier studies that could offer foundational insights or alternative perspectives on HR well-being in start-ups. Additionally, the exclusive use of databases such as Google Scholar, Scopus, and Web of Science means that some relevant studies, particularly those published in less mainstream or regional journals, may not have been captured. This limitation could introduce a potential bias towards research from well-established academic communities, possibly overlooking findings from less-represented regions or fields.

Another limitation stems from the methodological approach. The reliance on specific keywords to filter relevant studies may have led to the exclusion of research that examines HR well-being in start-ups

using different terminologies or focusing on adjacent concepts. Although this approach is systematic, it risks missing nuanced or innovative studies that could have enriched the review. Furthermore, the use of text-mining and Latent Dirichlet Allocation (LDA) methods, while effective for identifying broad themes, might have oversimplified complex relationships and omitted qualitative insights that could provide a deeper understanding of the contextual factors influencing HR well-being.

The study's conceptual framework, although comprehensive, may not fully account for all the variables that impact HR well-being in start-ups. For instance, factors such as organizational maturity, leadership styles specific to certain industries, or the influence of external stakeholders like investors and clients were not deeply explored. Additionally, the cross-sectional nature of the review does not allow for an examination of how HR well-being dynamics evolve as start-ups grow and mature. This limitation is particularly relevant given that start-ups often undergo rapid changes that could significantly alter their HR environment.

Future research directions

Building on these limitations, several areas for future research are proposed to deepen the understanding of HR well-being in start-ups and extend the findings of this study. First, one of the most pressing needs is for longitudinal studies that track HR well-being over time within start-ups. Such studies could provide insights into how employee well-being evolves as start-ups progress through different stages of growth, from inception to scaling and potentially to exit or failure. Understanding these dynamics could help identify critical intervention points, where HR practices can be adjusted to better support employee well-being.

Second, future research should explore the applicability of the proposed framework across different cultural and industrial contexts. Start-ups in various regions operate under different cultural norms and economic conditions, which can significantly impact HR practices and employee well-being. Comparative studies across different countries or regions, particularly those in emerging markets, could reveal how cultural factors influence HR well-being and whether the identified dimensions—job satisfaction, psychological well-being, and work-life balance—remain consistent across diverse settings. Similarly, examining start-ups across various industries, such as technology, healthcare, and creative sectors, could uncover industry-specific challenges and best practices.

Third, the increasing digitization of work presents a significant area for future exploration. Future research could investigate how emerging technologies, such as artificial intelligence (AI), machine learning, and remote collaboration tools, impact HR well-being in start-ups. For instance, studies could examine how AI-driven HR practices influence employee perceptions of fairness, job satisfaction, and career development. Additionally, the rise of remote work, accelerated by the COVID-19 pandemic, necessitates a deeper understanding of its long-term effects on psychological well-being and work-life balance in start-up environments.

Fourth, another promising avenue for future research is the investigation of leadership styles and organizational culture in shaping HR well-being. Start-up environments often require a unique blend of leadership qualities—such as agility, innovation, and resilience—that differ from those needed in more established organizations. Studies could explore how different leadership approaches within start-ups influence employee motivation, stress levels, and overall well-being. Additionally, understanding how start-up cultures evolve and the role that founders play in setting cultural norms that affect HR well-being could provide valuable insights for both academic researchers and practitioners.

Fifth, there is a need to explore the relationship between HR well-being and innovation within start-ups. Given that innovation is a

core driver of start-up success, understanding how well-being initiatives influence creative processes and innovation outcomes could offer critical insights. Research could investigate whether higher levels of HR well-being correlate with increased creativity, better problem-solving capabilities, and greater overall innovation within start-ups. This line of inquiry could extend to exploring how start-ups can balance the demands of innovation with the need to maintain a healthy work environment.

Finally, future research should also consider under-researched populations within the start-up ecosystem, such as non-founding employees, minority groups, and freelancers who often contribute to start-up projects. These groups may experience HR well-being differently due to varying levels of job security, inclusion, and support. Understanding their experiences can provide a more holistic view of HR well-being in start-ups.

In summary, while this study has laid the groundwork for understanding HR well-being in innovative start-ups, addressing future research directions is crucial for refining and expanding the current knowledge base. Such efforts will not only enrich academic discourse but also provide actionable insights for start-up founders, HR practitioners, and policymakers aiming to foster healthier, more productive work environments in these high-pressure settings.

CRediT authorship contribution statement

Salvatore Ammirato: Writing – original draft, Supervision, Methodology, Funding acquisition, Conceptualization. **Alberto Michele Felicetti:** Writing – original draft, Validation, Formal analysis, Data curation, Conceptualization. **Ciro Troise:** Conceptualization. **Gabriele Santoro:** Investigation. **Zoltan Rozsa:** Conceptualization.

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