

# INTERRELATIONSHIPS IN SAFETY, HEALTH AND WELL-BEING: CONCEPTS, MANAGEMENT AND PERCEPTIONS

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Health, safety, and well-being are concepts of significant interest to construction researchers and practitioners. Although the interconnected nature of the three is acknowledged, there is confusion over their definitions, management practices and perceptions. Based on a critical literature review, this paper attempts to clarify the constructs of health, well-being and safety in construction and highlight their interrelationships by analysing the different management approaches and perceptions. The review reveals that the management of safety hazards in construction often overshadows health and well-being issues, increasing the growing gap between management's focus on demonstrating safety measurements and employees' focus on staying safe on site. The implications of the findings emphasize the need for an integrated approach that considers the interplay between health, safety, and well-being, enhancing workplaces conditions by addressing work design. This review contributes to the ongoing discussion on the importance of health, safety, and well-being in the construction industry.

Keywords: health; safety; interrelationship; perception; well-being; concepts

## INTRODUCTION

'Health' and 'safety' are two distinct concepts with their respective literature, meanings, and practices. However, in the construction industry, the two have almost always been used together, with little critical thought given to how they relate to each other (Lingard 2019). In recent years, a third concept, 'well-being', has also been introduced in the belief that its promotion will positively impact health, safety, and workers' performance (Smyth *et al.*, 2019). Furthermore, it has gained more relevance since the global pandemic COVID-19, as it highlights the need to look after the workforce's safety, health and well-being (Pamidimukkala *et al.*, 2021). However, there is a lack of reflection on the distinctiveness of well-being and its relationship to health and safety concepts. Thus, although the construction industry's health, well-being, and safety (HWS) are assumed to be interrelated, there has been little reflection on this relationship. As a result, most of the extant literature either explicitly focuses

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on one of the concepts ignoring the effects of the other two or bundles the three concepts together with the analysis focusing on one with a similar lack of consideration of such interrelationships (Carmichael *et al.*, 2016). Much of the academic and practitioner literature around HWS has developed in silos, using some of the terminologies interchangeably (Danna and Griffin 1999), leading to confusion and a lack of effective integrated approaches to improving HWS in construction (Smyth *et al.*, 2019). To effectively address HWS in construction, there is a need to address them in complementary ways through a holistic approach. For this, there needs to be a better understanding of the distinctiveness, as well as the interrelationships, of the three concepts.

This paper will aim to address this research gap through an exploratory literature review of the meanings attached to HWS from three different perspectives. These three perspectives are i) definitions, ii) management approaches, and iii) employee's perceptions. The selection of these perspectives is driven by their relevance in understanding the comprehensive landscape of HWS. The first section on definitions introduces each concept's origins and historical evolution over time. It highlights the differences between the definitions of HWS, in simple terms, in the workplace and the construction industry, shedding light on their interpretation within the context. The following section on management approaches discusses organisations' and policymakers' strategies and procedures for governing and managing HWS in the workplace and construction. The subsequent section on perceptions reveals that the views of practising employees on HWS can be considerably different from those who see them from a managerial perspective. Joint consideration of the three perspectives reveals insights about the distinctiveness and interrelationships of HWS in construction, adding clarity to the three concepts, thus, laying a foundation towards a holistic approach to studying and managing HWS in construction.

### **Definitions of Health, Well-being, and Safety**

The concept of well-being can be traced back to ancient Greek and Oriental cultures. Aristotle introduced Eudaimonia, or happiness, as central to one's being, and Plato's holistic concept emphasised the health of the whole being, including body, mind, and soul (Kiefer, 2008). Well-being research has gained momentum, first in positive psychology (Diener 1984). Most authors relate the concept of well-being to life satisfaction and feeling good (Diener 1984) and suggest that it is an intangible concept that depends on individuals' perceptions of their conditions (Law *et al.* 1998; Kiefer 2008). In line with these connotations, the Oxford Dictionary defines well-being as "the state of being healthy, happy, or prosperous".

On the other hand, since 1946, the World Health Organization (WHO) has described health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (World Health Organization n.d.). This concept was established post-WWII and expanded the concept of health beyond the body's concerns to include the mind and the social experience as essential for personal fulfilment (Law *et al.*, 1998). However, there have been disagreements about this view of health, which includes the idea of well-being and quality of life (Badash *et al.*, 2017), based on the argument that this definition is closer to happiness than health and is less achievable and measurable.

In a similar vein, safety is defined by the Oxford Dictionary as "the state of being safe and protected from danger or harm". Safety is a multifaceted concept applied to many areas, such as personal, transportation, environmental, and occupational safety. It is

closely related to health and well-being, allowing individuals to live fulfilling lives in their community (INSPQ n.d.). It is evident from these everyday definitions of health, well-being, and safety that they are closely interrelated, as they commonly refer to each other for definition or contextualisation. However, this is confusing for research and practical management, and greater conceptual clarity is needed. In pursuing the distinctiveness and interrelationships of the three concepts, the following section will focus on the definitions of health, well-being safety at work, including in construction.

#### *Health and Well-Being At Work*

The concern for the health and well-being of workers has been gathering more awareness as it is widely accepted that a strong relationship exists between people's working lives and their health and well-being (Danna and Griffin 1999). The concept of well-being in the workplace is associated with the quality of working life, considering the psychological, physical, and social dimensions (Warr 1987). Defining well-being in terms of its benefits to employers is common in the literature on well-being at work. For example, Lambert *et al.* (2000) recap a long list of benefits of improving well-being, highlighting increased productivity, improved engagement, and reduced sick time and absenteeism in the workplace context. In addition, all workers have lives outside of work, so it is vital to acknowledge the overlap between non-work and work factors in workers' well-being (Danna and Griffin 1999; Peckham *et al.*, 2017).

On the other hand, the World Health Organisation defines occupational health (i.e., health at work) as the "area of work in public health to promote and maintain the highest degree of physical, mental and social well-being of workers in all occupations" (World Health Organisation, n.d.). Besides the explicit reference to well-being, this definition also shows that the three dimensions, physical, mental, and social, are part of both health and well-being. Workplace health encompasses occupational health and health promotion (Hanna and Markham 2019), with the former focusing on managing work-related health risks, while the latter addresses various issues like stress management, diet, exercise, and smoking (Pritchard and McCarthy 2002). Health promotion is also closely linked to wellness initiatives (Conrad 1987) and is often confused with well-being initiatives, contributing to the misinterpretation of the concept in many.

To disentangle health and well-being concepts, Danna and Griffin (1999) analysed different conceptualisations of workplace health and well-being in research and found that some propose their own operational concepts, while others try to name specifically if they address either the physical or mental dimension. The inconsistent use of the exact words that allow for multiple interpretations and meanings has also been emphasised by Fleuret and Atkinson (2007) as a source of confusion. Inconsistencies in defining 'well-being' are prevalent in the construction industry. While some studies recognise it as a multifaceted concept (Carmichael *et al.*, 2016), including the impact of work on health and quality of life, consistent with previously analysed definitions of well-being, others consider it a work in progress, often mistaken for welfare (Smyth *et al.*, 2019). The confusion is understandable as the Health and Safety Executive defines welfare facilities as "necessary for the well-being of your employees" (Health and Safety Executive, n.d.), but this only refers to the material and physical conditions of the workplace.

Despite the differences in definitions, many authors agree that better measurement tools are needed to improve the conceptualisation of well-being in the construction

industry (Carmichael *et al.*, 2016; Smith 2019). There is little interest in developing strategic initiatives to improve well-being whose impact will only be seen in the distant future (Smyth *et al.*, 2019) and have no short-term financial returns (Carmichael *et al.*, 2016; Hanna and Markham 2019; Smith 2019). On the other hand, the global COVID-19 pandemic has shown the world the importance and need to care for the workforce's physical and mental health and well-being (Pamidimukkala *et al.*, 2021). While some authors consider the pandemic as an opportunity to make fundamental changes in the construction industry and improve overall HWS (Sherratt and Dainty 2022), others highlight the negative impact it had on general workers' well-being (Stiles *et al.*, 2021)

While the construction industry has widely adopted the general definitions of occupational health by the WHO, the concept of health in construction is shaped by many structural issues that are inherent to the industry, such as the different roles, transient workforce, and size of organisations (Hanna and Markham 2019). Moreover, it is crucial to consider the time dimension, as the long-term health effects of occupational hazards are more challenging to demonstrate (Pritchard and McCarthy 2002). Sherratt (2018) further explores this issue and finds that the construction industry's view of health is more focused on achieving fitness to work rather than ensuring a healthy worker. This perspective promotes a short-term approach to health that prioritises addressing immediate hazards over issues that may have long-term consequences and are not immediately apparent. The implications of this approach will be further analysed in the management section.

### *Safety At Work*

There is no single definition of safety at work. However, most literature agrees that it is related to 'the control of hazards' (Ball and Frerk 2015), 'avoiding harming people, environment or investment' (Rasmussen 1997), and the state where 'as little as possible goes wrong' (Hollnagel 2019). There is no recipe for safety nor a single way to study and manage safety at work, as it is impossible to cover all variables in any situation. Hence, in the following part, the origins and evolution of the concept of occupational safety will be examined to reveal how the definition of safety at work has changed over time. The initial conceptualisations of safety, referred to as Safety I, focus on studying human error (Reason 1997) and control of work processes (Rasmussen 1997). They advocate for the standardisation of procedures to be able to predict all the variables that could go wrong. For example, Reason pointed out, "safety is defined and measured more by its absence than by its presence" (as cited in Coze 2019, p. 265), showing the importance given to mistakes and fatal errors over good practices, which set the ground for the next age in safety science. In response, Hollnagel and Woods, in 1983, opened the debate about 'human error' by questioning whether individuals were the only ones at fault in an accident. They propose to focus on the functional coupling of the human and the machine (Le Coze 2022). This line of thought is called Safety II, and building from this approach, Dekker (2002) explored human error. He considered it a 'symptom of trouble deeper inside the system' and proposed that 'safety is not inherent' in practices. From this new view, the concept of safety should not only be based on the study of failures and accidents but also on those who excel. Recent literature on safety argues that these two approaches should not be considered contradictory but complementary in understanding safety practices (Ball and Frerk 2015). Meanwhile, the lack of empirical research supporting the success of the 'New View' of safety has been the source of much criticism (Cooper 2022; Le Coze 2019).

Safety in the construction industry is often defined by negative statistics that show the ratio of accidents and fatalities compared to other industries (Sherratt 2016). This view of safety considers accidents as an inevitable part of construction practices, and it defines safety by its absence, in line with Safety I approach (Hollnagel 2014; Sherratt 2016). However, a recent publication by Sherratt and Raiden (2023) proposes evidence in practice that the construction industry is now starting to adopt the 'new view' of safety (i.e., Safety II), moving away from a blame culture and human errors towards a more integrated approach considering adaptability and resilience. Overall, looking at the attempts to define HWS at work, it becomes clear that safety and health have been studied for longer than well-being. Both occupational health and safety have evolved independently over time, initially focusing on being 'the absence of something' - i.e., absence of accidents and illness. However, both areas now aim to recognise and replicate good practices, shifting the focus from the negative to the positive. While the definition of well-being is still a work in progress, it acknowledges the importance of caring not only about the body and the mind but also about the social experience inside and outside the work site. Thus, it is critical to adopt an integrated approach (Carmichael *et al.*, 2016; Lingard 2019; Smyth *et al.*, 2019) that links well-being to the definitions of health and safety, given the interrelatedness of these three concepts. Workers' lives outside work affect their health and well-being, as the boundaries between work and non-work issues are artificial constructs that cannot be separated in the real world. Without clear definitions, the use of HWS concepts together can lead to conceptual overlaps and confusion.

#### *Management Approaches for HWS in Workplace*

Various factors, including legislative context, organisational structure, and industry characteristics, influence the management of HWS in the workplace. (Hanna and Markham 2019). While health and well-being initiatives often rely on self-perception measurement (Law *et al.* 1998), safety is typically regulated and standardised (Le Coze 2019). However, as Gherardi and Nicolini (2000) propose, safety can also be subjective and open to interpretation, and different actors may have varying perceptions of what constitutes safety. That said, Lingard (2019) highlights the semantic problem with using the acronym 'H&S' (Health and Safety) as a singular unit that may give the impression that managing health and safety hazards can be done with the same process. Several authors have pointed out that research under the H&S name is skewed, primarily focusing on managing safety while neglecting health (Cooper and Phillips 2004; Sherratt 2018; Jones *et al.*, 2019).

On the other hand, there have been attempts to develop a more comprehensive approach to managing HWS in the workplace, such as the US government's Total Worker Health® (TWH) program. TWH prioritises protection from hazards and then promotes the prevention of illness and injury. It also addresses the relationship between work and non-work conditions (CDC Foundation n.d.). However, Lax (2016) has criticised TWH for focusing too much on reducing healthcare costs and not enough on improving working conditions. Although TWH has received little research attention in non-US contexts, studies in the construction industry have shown positive impacts at the individual level, highlighting the need for managerial involvement to improve work design and manage trade-offs (Lax 2016; Borys 2009; Grant *et al.*, 2007).

Shifting our focus to the construction industry, it is important to note that legislation in the UK has historically prioritised safety over worker health and well-being, using a

prescriptive model with a Safety I (see previous section) approach that many have criticised as complex and bureaucratic (Lingard 2013). Although improvements in physical safety have led to a significant reduction in fatalities over the past 50 years, the industry still struggles with high rates of suicide among workers in the UK and globally, highlighting the need for increased attention to worker health and well-being (Xu and Wu, 2023). Unfortunately, the industry tends to view health as secondary to safety and well-being as conditional on health (Carmichael *et al.*, 2016; Jones *et al.*, 2019; Xu and Wu, 2023), although more deaths in the UK construction industry are caused by health issues than accidents (Jones *et al.*, 2019). Lingard (2019) notes that the time lag between exposure and illness in the construction industry contributes to the perceived importance of safety over health and underscores the need for a more comprehensive approach to managing worker well-being in the industry.

Perhaps this is not surprising considering Grant *et al.*'s (2007) argument that the management of workplace HWS often contemplate trade-offs between the three dimensions (body, mind, social) by enhancing one aspect when the other need to be curtailed (Grant *et al.*, 2007). It aligns with the general perception of the construction industry that it is inherently dangerous, where worker health has been commodified and exploited within the system (Sherratt and Sherratt 2017). According to Lingard (2019), the construction industry's approach to well-being is more about urging workers to alter their habits than modifying the inherent systemic hazards. Although health promotion initiatives have the potential to improve health in the construction industry (Hanna and Markham 2019), these events should not be limited to wellness initiatives but should address the industry's structural risks inherent to construction work activities (Lingard 2013; Jones *et al.*, 2019). Overall, while most publications about managing HWS in the workplace focus on individual dimensions of physical, mental, and social hazards, they express interest in a holistic approach like TWH. Within the construction industry, it is crucial to give equal emphasis to all dimensions of worker HWS and address the root causes of problems to achieve meaningful improvements.

#### *Employee Perceptions of HWS At Work*

Employee perceptions of HWS are different from how HWS are seen from a managerial perspective, which further adds to the lack of conceptual clarity of health, well-being, and safety. For example, employees' perception of safety has many layers, and it can be linked to different factors such as the risk acceptance by workers (Jones *et al.*, 2019), safety climate (Cooper 2000), artefacts and power (Hutchinson *et al.*, 2022), and organisational culture (Neal *et al.*, 2000; Cooper and Phillips 2004). Under this complex set of arrangements, 'feeling safe' and 'being safe' can mean two different things, with the former relating to employees' individual perceptions and the latter relating to improving the safety of operations (Rae and Alexander 2017).

Smyth *et al.* (2019) observe that HWS initiatives in the UK are primarily driven by legislation and regulations rather than clients or providers, resulting in misalignment. Rae and Provan (2019) distinguished between 'safety work' and 'safety of work', highlighting the difference between managing safety from a corporate perspective and experiencing it as an employee. While 'safety work' focuses on performance indicators, risk assessments, and KPIs to satisfy managerial functions of safety, 'safety of work' emphasises employees' perspectives to prevent harm during operations. More importantly, Rae and Provan (2019) state that different actors' varying perceptions of the two concepts often generate confusion regarding the safety they are addressing.

Complementing the previous contrast, Borys *et al.* (2009) explored the perception of safety in 'work as done' by employees versus 'work as imagined' by top management. Safety that stays on paper is insufficient and needs to be translated into operations. Borys (2009) identifies common sense as a critical element in workers' risk awareness, but managers often reject it, while workers reject risk awareness paperwork crucial for managers. This approach aligns with the literature on organisational culture and safety culture (Cooper 2000; Borys 2009), emphasising the importance of considering the organisational culture beyond safety reports for management. In the construction industry, health and safety initiatives are commonly viewed as relevant to construction sites, while well-being initiatives are typically associated with office work (Smyth *et al.*, 2019). Even though employers may organise well-being initiatives, they are usually for healthy habits or smoking cessation, and workers may feel that these efforts are intrusive (Smyth *et al.*, 2019). While such actions are important for improving quality of life, they represent only a partial view of workplace well-being and do not provide a holistic approach to managing and enhancing it (Lax 2016). Sherratt and Sherratt (2017) connect this narrow perception of well-being with Corporate Social Responsibility (CSR) programs in construction, which may offer only superficial activities to improve workers' well-being without addressing the hazardous working conditions that exist in the industry.

## **DISCUSSION**

The concepts of HWS are closely intertwined and often used in conjunction with one another for contextualisation. However, it is essential to note that they are not interchangeable words but complementary concepts with distinct characteristics that should not be overlooked. The lack of clear definitions for HWS has created a problem managing these crucial aspects in various industries. In the construction industry, the everyday use of the acronym H&S has given the impression that it takes care of health and safety as a single unit. However, safety tends to be the primary focus, often at the expense of addressing health concerns. Unfortunately, health issues are not given the same level of attention as immediate physical hazards. Furthermore, when it comes to addressing wellbeing, there is a tendency to rely on wellness activities that address superficial symptoms rather than the underlying causes.

Different industries have different approaches to management practices in health, safety and well-being, which are influenced by the legislation and structure of the organisation. The TWH program can serve as a starting point to improve these approaches by providing a holistic framework to manage HWS. However, it is essential to remember that while managers may invest in developing initiatives, the workers are who need to follow through with the procedures. A significant challenge in the HWS management of construction, is the trade-offs that have historically taken place favouring addressing safety over health and well-being, and commodifying workers health within the industry.

The different perceptions of well-being can be particularly confusing, as it is difficult for employees to distinguish between the factors that affect their well-being at work and outside of work. From a management perspective, measuring the effectiveness of well-being initiatives is also challenging, therefore more difficult to implement them. Superficial practices may have a placebo effect, making managers believe that they are improving the overall well-being of workers. However, workers often view such practices as intrusive and adding nothing to the inherent risks of their trade. In the context of the construction industry, although 'safety of work' (i.e., carrying out a job

without accidents) is the main objective of occupational safety, the focus often shifts to 'safety work'. The management group prioritizes adherence to standards with their primary focus is on measuring and providing evidence of safety practices. On the other hand, employees are primarily concerned with their personal safety while working on-site. Therefore, addressing work design as the origin of safety risks and health hazards that affect the well-being of the construction workforce is crucial to achieving a holistic view of HWS. It must be part of the organisational culture and integrated into daily practices.

## CONCLUSIONS

A more precise definition of health, well-being, and safety, along with a holistic approach to management practices and an understanding of the perspectives of both management and workers, are crucial for improving workplace HWS. By refining the definition of health, well-being, and safety and embracing a holistic management approach, we can make significant strides in enhancing workplace HWS. This inclusive approach, recognizing the relationship between employers and employees, guides the identification of appropriate management approaches. It guarantees that all stakeholders' health, well-being, and safety are considered. Through the implementation of integrated strategies and the consideration of work design, the construction industry can create a safer and healthier working environment for all individuals involved, paving the way for a better future in the industry.

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