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# Unraveling stakeholder roles in employees' outcomes: A meta-analysis of the crossover of happiness, health, and productivity

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ABSTRACT

Crossover refers to the process through which personal experiences transfer between individuals in close social relationships. Despite increasing scholarly interest, existing crossover research remains fragmented and limited in scope, which hinders effective knowledge dissemination and theoretical advancement. To address this gap, we draw on the sustainable career framework as a conceptual lens for organizing and interpreting empirical findings. Guided by this framework, we conducted a meta-analysis ($K = 183$ studies, 195 independent samples) examining the crossover of happiness (e.g., work engagement and career satisfaction), health (e.g., physical and mental health), and productivity (e.g., job performance and deviance). Our results supported the positive associations of happiness, health, and productivity between stakeholders and employees, after controlling for common stressors and resources. These relationships were mediated by empathy, social support, and social undermining. Furthermore, the strength of crossover correlations differed across stakeholders: spouses exhibited consistent associations with employees' happiness, health, and productivity, whereas supervisors showed the strongest associations with employees' health, and coworkers showed the strongest associations with employees' productivity. Our study offers a comprehensive understanding of happiness, health, and productivity crossover from various stakeholders to employees, yielding valuable insights for both research on crossover and sustainable careers.

Career researchers have consistently highlighted that individuals do not exist in isolation, but both influence and are influenced by the people around them (De Vos et al., 2020). The concept of crossover succinctly encapsulates this dynamic. Crossover is a phenomenon where the experiences of one person affect those of another person within the same social domain (Westman, 2001). Decades of studies on crossover have consistently demonstrated that supervisors, coworkers, and spouses, those who interact with the individuals on a daily basis and whom we refer to in this paper as stakeholders, tend to share a great part of their experiences together with employees. Crossover theory helps explain a variety of key collective experiences both in the work and home domain, including why job burnout tends to be shared among team members (Bakker et al., 2006), and therefore, has been shown to have great relevance for individual careers, such as career well-being (Steiner & Spurk, 2019). When effectively managed on a broader level, crossover acts

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as a powerful mechanism for organizations and society to create and sustain "…a more resilient family, more resilient organizations, and gradually a more resilient society" (Hobfoll et al., 2018, p. 112). As careers continue to unfold across increasingly blurred boundaries between work and home, understanding how social partners contribute to individual careers is both timely and essential.

Given the importance of crossover, it is surprising that this literature remains fragmented and lacks a systematic, theory-guided synthesis. Without such an integrative effort, insights from crossover research risk remaining siloed, limiting their applicability across disciplines and diminishing their potential to inform related fields of research, including careers. A comprehensive synthesis could address this gap by guiding future research, practice, and policy on key questions such as: (1) Which experiences can cross over from stakeholders to employees, and how strong are these transmissions? (2) why does crossover occur, that is, through which underlying mechanisms? and (3) among supervisors, coworkers, and spouses, which group is most strongly associated with employees' happiness, health, and productivity? Although a few systematic reviews on crossover effects exist, these efforts only partially address these questions. Specifically, they tend to focus narrowly on spousal dyads, thereby overlooking the potentially significant roles of supervisors and coworkers. Such studies have also used operationalizations that do not capture a broad range of employee outcomes (see, e.g., Li et al., 2021; Matei et al., 2021; Wang et al., 2023). Additionally, they have largely overlooked why and how crossover occurs, which is fundamental for organizations, HR staff, and career practitioners to develop interventions and policies aimed at facilitating positive contagion at work and home. Table 1 provides a detailed comparison outlining how our study differs from existing quantitative reviews.

To address these limitations, this study presents a systematic quantitative review of empirical research on crossover effects. We draw on sustainable career theory (De Vos et al., 2020) as an overarching framework to systematically organize and interpret various crossover relations. We find this conceptual model helpful for two primary reasons. First, the pursuit of sustainable careers, wherein individuals can develop and thrive over time rather than becoming exhausted, has become a salient concern for both employees and organizations (De Vos et al., 2020). Viewing crossover effects through this lens allows us to draw clear implications regarding how stakeholders can play a role in building careers that are fulfilling and enriching across the entire career span for employees. Second, this model views individual careers as evolving across multiple work and non-work contexts, thereby adopting a multiple-stakeholder perspective that highlights the role and interconnectedness of various actors, such as supervisors, coworkers, and spouses, in fostering one's career sustainability (De Vos et al., 2020; Van der Heijden et al., 2020). Moreover, sustainable careers theory conceptualizes career sustainability through three core indicators: happiness, health, and productivity. A key insight from this model is that understanding the role of stakeholders in career sustainability requires a focused examination of these indicators. Accordingly, we apply the sustainable careers framework to guide our meta-analysis of crossover effects, which enables us to generate insights that are both theoretically meaningful and more systematically organized for advancing research on crossover and sustainable careers.

Drawing on sustainable career theory, our study synthesizes crossover involving happiness (e.g., work engagement, thriving, career satisfaction), health (e.g., physical and mental health), and productivity (e.g., task performance, counterproductive work behavior). Specifically, we examine how the happiness, health, and productivity of employees and their key stakeholders (i.e., supervisors, coworkers, and spouses) are related. Consistent with crossover theory (Westman, 2001), we also examine empathy, social support, and social undermining as the underlying mechanisms of crossover. In doing so, our review builds upon and extends significantly beyond existing meta-analyses of crossover relations (see, e.g., Li et al., 2021; Matei et al., 2021; Wang et al., 2023).

This meta-analysis makes several contributions to crossover and sustainable careers literature. First, by drawing on sustainable careers theory to synthesize a fragmented body of crossover studies, we offer a much-needed systematic overview that centers on three core domains: happiness, health, and productivity. With a focus on multiple crossover outcomes, we provide a more comprehensive understanding of the types of outcomes that are susceptible to crossover and generate novel insights into how strong these crossover relationships can be. Second, crossover theory outlines some mechanisms through which crossover occurs. However, this theorizing

**Table 1**
Comparison between previous meta-analyses and the current meta-analysis.

| Previous meta-analyses | The current meta-analysis |
|---|---|
| Li et al. (2021): | |
| • Focused on work-family crossover (i.e., crossover between employees and their spouses) | • (1) We do not solely focus on work-family crossover; we take a broader scope, considering also crossover processes between employees and their supervisors or work colleagues. |
| • Job satisfaction, work engagement, organizational commitment, turnover intention, and work withdrawal were aggregated to reflect work attitudes | • We make clear distinctions between the variables examined in our study. We conceptualize job satisfaction, work engagement, and organizational commitment as indicators of happiness whereas work withdrawal and similar constructs are treated as indicators of productivity. |
| • (Poor) health was operationalized as psychological distress | • Health in the current study indicates both psychological and physical health. |
| Matei et al. (2021): | |
| • Focused on work-family crossover | • See point (1) above |
| • Variables such as general health and job satisfaction were treated indifferently and aggregated as one's overall well-being | • Our study does not view variables such as general health and job satisfaction as the composite of well-being; rather, we see them as distinct work experiences reflecting one's health and happiness, respectively. |
| • Did not include variables related to productivity | • We include variables related to productivity in this meta-analysis |
| Wang et al. (2023): | |
| • Focused on work-family crossover | • See point (1) above |
| • Investigated solely the crossover of distress - an indicator of poor mental health | • We quantitatively review the crossover of happiness, (mental and physical) health, and productivity |

has received limited empirical attention (Wang et al., 2023). By synthesizing evidence on these mechanisms, we advance the crossover literature by deepening the understanding of why crossover occurs. Third, by adopting a multi-stakeholder perspective grounded in sustainable careers theory (De Vos et al., 2020), we integrate the roles of supervisors, coworkers, and spouses within a single analytical framework. This enables a rare comparative view of how these stakeholders may be differentially related to employees' outcomes—a dimension largely neglected in prior research. Altogether, from a practical standpoint, such comparative insights are particularly valuable, as organizations operate within resource constraints and must strategically allocate support to maximize employees' work and career outcomes. Understanding the implications different stakeholders and their happiness, health, and productivity have for employees can help organizations prioritize interventions that yield the greatest impact. Our fourth contribution concerns sustainable career theory. While sustainable career theory emphasizes the importance of stakeholders (De Vos et al., 2020; Van der Heijden & De Vos, 2015), it has been less clear about *how* these actors actively shape career sustainability. Our study contributes to this ongoing conversation by highlighting crossover as a potential mechanism through which stakeholders are related to the career sustainability of employees. In other words, we suggest that crossover serves as a key pathway within this broader career system. In sum, our study offers a theoretically grounded synthesis that provides a roadmap for advancing both crossover and sustainable career research.

## 1. Theoretical background

### 1.1. Crossover theory

The roots of crossover can be traced back to a publication by Bolger et al. (1989), where crossover was initially conceptualized as a contagion of stress whereby stress experienced by a spouse in the workplace leads to stress being experienced by the other spouse in the home domain. However, it was Westman (2001) who formally introduced this phenomenon by describing a theoretical framework related to the crossover process and its mechanisms. Building on Bolger et al.'s (1989) work, Westman (2001) broadened the understanding of crossover by defining it as the inter-individual transmission of both stress and strain. From this perspective, an example of a crossover process is that when a spouse develops burnout, this personal strain gradually transfers to the other spouse, leading to shared distress and burnout.

Although crossover research traditionally focused on the work–family interface, Westman (2001) urged that "we … broaden the scope of research and investigate the crossover … in the work setting" (p. 739). Accordingly, individuals are embedded in multiple social systems, encompassing both family and work teams, and crossover processes observed in one domain are likely to operate in the other. Examining crossover at work is therefore timely, given the rise of team-based structures and increased interdependence among work members, which can foster a shared workplace climate. Early evidence by Westman and Etzion (1999) demonstrated crossover of work-related strain between school principals and teachers, highlighting the contagious nature of workplace experiences. Since then, although crossover has been predominantly studied in the work–family context, a growing body of research has documented its presence across workplace dyads, including supervisors and employees as well as among colleagues (see e.g., Bakker & Xanthopoulou, 2009; Peeters et al., 2016).

What sets crossover research apart from other interpersonal research fields is its unique theoretical framing of contagion, characterized by the sharing of experiences similar in type, or even in strength, between closely related individuals. This contagion phenomenon can occur relatively frequently and quickly (see Bakker & Xanthopoulou, 2009), providing a robust foundation for understanding various collective experiences in both the workplace and home. A key assumption in crossover theory is that individuals who are closely related, because they care for each other or share a great part of their lives together, are interdependent (Westman, 2001). Due to this connection and interaction, it is highly likely that closely related individuals will mirror each other's feelings and experiences, be it a facial expression, a posture, or a psychological state. While the initial conceptualization of crossover focused narrowly on stress and strain, research has since identified several resources (e.g., job-related self-efficacy, Neff et al., 2013), positive psychological states (e.g., work engagement, Tian et al., 2017), and behaviors (e.g., job crafting, Peeters et al., 2016) that are subject to crossover. As such, crossover is a widespread and relatively common phenomenon that spans both work and home domains, occurring between supervisors and subordinates, colleagues, and spouses.

### 1.2. Sustainable careers: a framework for organizing and examining crossover relations

A wide array of variables has been identified to cross over between stakeholders and employees. Therefore, to organize empirical studies in this field systematically, we rely on sustainable career theory (De Vos et al., 2020). Sustainable careers refer to protecting and fostering human and career development without depleting resources that are essential for career longevity (De Vos et al., 2020). At the heart of this theory is the idea that building sustainable careers requires shared responsibilities between employees and various stakeholders from the work and family domains (Van der Heijden et al., 2020). Stakeholders can provide or withhold resources that significantly shape employees' career trajectories and outcomes (De Vos et al., 2020; Van Der Heijden & De Vos, 2015). We argue that it is this emphasis on the central role of stakeholders that connects sustainable careers to crossover theory, with the latter also acknowledging the interconnectedness between stakeholders and employees.

Sustainable careers literature specifies three groups of variables that indicate career sustainability: happiness, health, and productivity (De Vos et al., 2020). *Happiness* refers to "the subjective elements of feeling successful or satisfied with one's career, yet seen from a broader life perspective" (De Vos et al., 2020, p. 4). Thus, happiness can be manifested as pleasant feelings about one's career and the feeling of being able to do what is meaningful to oneself (Fisher, 2010). This includes measures such as career satisfaction, affective organizational commitment, and work passion. *Health* "encompasses both physical and mental health, and refers to the

dynamic fit of the career with one's mental and physical capacities" (De Vos et al., 2020, p. 4). Health can be measured with overall health, (low) work fatigue, and (low) job burnout. *Productivity* "means strong performance in one's current job as well as high employability or career potential … in the future or in other jobs and hence refers to the dynamic fit of the career with organizational human capital needs" (De Vos et al., 2020, p. 5). Given this broad and also future-focused conceptualization, productivity from a sustainable career perspective includes not only in-role performance, but also extra-role performance, counterproductive work behavior, other performance such as proactive work behavior, and employability-related constructs, such as marketability or promotability (De Vos et al., 2020; Koopmans et al., 2011). Sustainable careers literature views happiness, health, and productivity as key indicators because they represent fundamental outcomes directly indicative of individual optimal functioning and flourishing throughout the working lifespan. In addition to this, happiness, health, and productivity also "form the main building blocks for the welfare of one's family and peers, the organization wherein one works, and society as a whole" (De Vos et al., 2020, p. 4).

Applying sustainable careers theory to this meta-analysis, we classify outcomes that are susceptible to cross over into three groups: happiness, health, and productivity. Moreover, we view these outcomes as work- or career-related, rather than context-free variables, to meaningfully reflect career sustainability (see Table 2 for more detail on how we conceptualize the main crossover variables). We thus focus on organizing and integrating findings related to the crossover of happiness, health, and productivity between stakeholders (supervisors, coworkers, and spouses) and employees to offer clear theoretical implications for research on crossover and sustainable careers.

## 2. Hypothesis development

### 2.1. The crossover of happiness, health, and productivity

In the field of happiness crossover, the earliest adoption of happiness contagion can arguably be traced back to the works of Bakker et al. (2005), Bakker and Xanthopoulou (2009), and Bakker and Demerouti (2009). These studies focused on work engagement, proposing that it could be transferred between individuals, either consciously or unconsciously. Empirical evidence generally supports this proposition. For instance, Bakker et al. (2005) found a significant crossover among couples, where wives' work engagement was positively related to their husbands' work engagement. To date, crossover findings have been established with various happiness measures, including job satisfaction (Liu & Cheung, 2015) and (low) job insecurity (Debus & Unger, 2017), and have focused mainly on spousal relationships, despite a growing interest in other work-linked dyads (see e.g., Bakker & Xanthopoulou, 2009; Ten Brummelhuis et al., 2014). As a result, it requires more evidence to discern whether happiness crosses over in supervisor–employee or coworker–employee dyads. Nevertheless, most findings in crossover research overall suggest that happiness can positively cross over.

Regarding health crossover, stress and strain have traditionally been the focus of crossover research. Scholarly interest has primarily focused on the crossover of mental, rather than physical, health, with a greater emphasis on negative health outcomes (e.g., burnout, depression, emotional exhaustion) than on positive ones. Findings across studies consistently support the crossover of (poor) mental health. Westman and Etzion (1995) conducted a seminal study exploring how spouses are vulnerable to each other's feelings. The authors demonstrated that burnout crosses over between husbands and wives, even after controlling for job stress and coping

**Table 2**
Descriptions of constructs and operationalizations.

| Construct | Description | Example of operationalization |
|---|---|---|
| Happiness | The extent to which employees experience subjective feelings of success and satisfaction in their work and career (De Vos et al., 2020), or the extent to which they are doing what is right, growing, pursuing meaningful goals, and developing their skills and talents (Fisher, 2010) | Job satisfaction<br>Career satisfaction<br>Meaningfulness |
| Health | The degree to which the employee's career aligns with their mental and physical capacities (De Vos et al., 2020). This includes variables measuring health as the result of the employee's work, rather than context-free health. | Job burnout[a]<br>Occupational injuries[a] |
| Productivity | The degree to which the employee's career fits with their organization's human capital demands (De Vos et al., 2020). This includes variables capturing the employee's current performance as well as career potential. | In-role performance<br>Helping<br>Promotability |
| Positive Experience | A shared experience experienced by both dyadic members that may simultaneously promote both partners' happiness, health, and productivity. | Organizational support<br>Family rewards |
| Negative Experience | A shared experience experienced by both dyadic members that may simultaneously undermine both partners' happiness, health, and productivity. | Family eldercare demands<br>Negative life experiences<br>Organizational time demands |
| Empathy | The degree to which the employee demonstrates understanding, compassion, and sensitivity toward their stakeholders' emotions and feelings (Ferguson et al., 2021). | Empathy<br>Perspective taking |
| Social support | The degree to which the stakeholder provides social support or the employee perceives receiving support from their partner. This variable was coded as employees' reports of social support and stakeholders' reports of social support. | Social support provided<br>Social support received |
| Social undermining | A conflictual or negative interaction style between partners (Wang et al., 2023). This variable was coded as employees' reports of social undermining and stakeholders' reports of social undermining. | Social undermining<br>Incivility |

*Note.*
[a] Reverse-coded constructs.

resources. Other mental health issues, such as emotional exhaustion and depression, were also found to cross over between multiple work and non-work dyads (Vande Griek, 2019). Watanabe et al. (2017) were among the few researchers who examined the crossover of physical health issues. The authors focused on work-related fatigue among dual-earner couples and found that husbands' fatigue negatively impacts their working wives' health, leading to wives' increased fatigue. Hence, the literature supports the idea that their stakeholders can cross over their own health to employees.

Behavioral crossover has received relatively little attention in research, likely due to the theoretical focus of crossover theory on stress, strain, and psychological states. To date, task performance has primarily been studied as a proximal outcome of crossover processes. For example, Bakker and Xanthopoulou (2009) examined the daily crossover of work engagement in coworker-employee dyads and found that when work engagement transfers to another individual, it also indirectly enhances that person's work performance. While studies like these do not explicitly focus on the crossover of task performance, they offer evidence of a positive correlation between an individual's task performance and that of their stakeholders (Bakker & Demerouti, 2009; Tian et al., 2017). Additionally, several studies have examined similar crossover processes without explicitly labelling them as crossover. For example, Halbesleben and Wheeler (2015), in a five-day study, found evidence of a positive crossover effect in organizational citizenship behavior. Their findings suggest that when a coworker goes out of their way to support an employee, the employee is likely to reciprocate by engaging in similar helping behaviors. Counterproductive work behavior has also been shown to exhibit crossover effects, particularly in the literature on withdrawal behavior. Research indicates that stakeholders can serve as a normative influence on employees' antisocial behaviors. In support of this, empirical evidence shows that when coworkers consistently arrive late, take excessive breaks, or are frequently absent, employees tend to gradually adopt these behaviors (Eder & Eisenberger, 2008).

Overall, our review highlights an initial consensus that stakeholders can influence employees' happiness, health, and productivity. However, crossover theory cautions that what appears to be crossover may, in fact, result from both individuals reacting similarly to shared environmental conditions, thereby producing similar outcomes. Such effects are referred to as spurious crossover (Westman, 2001), as they arise not from interpersonal transmission but from external factors that independently influence both partners. Insights from a few crossover studies suggest that these environmental factors are common stressors that can cause stress and strain in both dyadic members (Chen et al., 2022; Song et al., 2011). These shared stressors often manifest as negative life experiences such as family financial difficulties, illness, or problems with children (Westman & Vinokur, 1998). In workplace contexts, common stressors may include time pressure, organizational change, or interpersonal conflict.

In contrast to these negative experiences, positive experiences, conceptualized as shared resources or events within a social context, have been proposed to foster positive crossover (Westman, 2013). Some examples of such positive contextual resources in the workplace include organizational support, flexible work arrangements, and family-friendly practices. There is extensive evidence supporting the beneficial impact of these resources on employee happiness, health, and productivity (see e.g., Kurtessis et al., 2017), which leads us to expect that many crossover effects observed in the work and home spheres may, in fact, be spurious.

Spurious crossover has been largely neglected and remains underexplored in the crossover literature to date. Most studies examining crossover processes have excluded this pathway from consideration, meaning that the majority of reported crossover effects have not accounted for the influence of spurious crossover. Thus, to synthesize these crossover effects meaningfully, it is essential to ensure that the correlations observed in our meta-analysis genuinely capture crossover processes between stakeholders and employees rather than mere co-occurrences. Given the potential influence of both positive and negative external factors on employee and stakeholder outcomes, we will take into account the correlations of these shared experiences when testing the crossover of happiness, health, and productivity. Accordingly, we propose that:

**Hypothesis 1**. After controlling for common negative and positive experiences, stakeholders' happiness, health, and productivity will be positively related to employees' happiness, health, and productivity.

### *2.2. The underlying mechanisms of crossover*

Crossover theory posits that crossover occurs through two main mechanisms: empathy and social interaction (Westman, 2001). In this paper, we also explore these mechanisms to better understand the crossover effect stakeholders have on employees' happiness, health, and productivity. The first pathway is crossover via empathic reactions. The basis for this rests on the idea that closely related individuals tend to empathize, or "feel into", emotionally with each other, thereby coming to experience what the other is experiencing (Westman, 2001). This mechanism has been studied and supported in the crossover of health (Ten Brummelhuis et al., 2014). In the literature on happiness crossover, empathy has largely been conceptualized as a moderator (e.g., Bakker & Demerouti, 2009). However, consistent with crossover theory (Westman, 2001), which views the direct empathetic mechanism as a process whereby "… [experiences] in one partner produce an empathetic reaction in the other that increases his or her levels of [experiences]" (p. 730), we argue that empathy likewise serves as a mediator in the crossover of happiness. Crossover of productivity is also likely mediated by empathy. For example, observing a leader engaging in counterproductive work behavior may evoke perspective taking, a type of empathy (Bakker et al., 2011), that induces the employee to perceive such behavior as appropriate, leading the employee to emulate such behaviors (Zhang, He, & Sun, 2018; Zhang, Xu, et al., 2018). Altogether, we hypothesize that:

**Hypothesis 2**. Stakeholders' happiness, health, and productivity will be positively related to employees' happiness, health, and productivity via empathy.

In crossover theory, coping strategies, social support, social undermining, and communication characteristics are considered key social interaction mechanisms underlying the crossover process (Westman, 2001). However, two important points warrant further

discussion. First, although communication characteristics have been theoretically positioned as a potential mediator, crossover theory has not explicitly hypothesized them as a primary mechanism (see Westman, 2001), and the conceptual rationale for their mediating role remains unclear (Wang et al., 2023). Second, recent developments in crossover research increasingly conceptualize social support and social undermining as components of coping strategies rather than as distinct constructs (Westman, 2016). Building on these insights, the present study focuses on social support and social undermining as the central social interaction mechanisms of crossover, proposing that the crossover of happiness, health, and productivity can occur through these interpersonal pathways. Although empirical evidence for the mediating roles of social support and social undermining remains limited, some studies offer preliminary support. For instance, Ten Brummelhuis et al. (2014) found that leaders' burnout crossed over to subordinates via reduced social support toward them. Similarly, Wang et al. (2023), in a meta-analysis of workplace traumatic stress, found evidence for social undermining as a mediating mechanism in the crossover of health. Therefore, in line with crossover theory, we propose that:

**Hypothesis 3**. Stakeholder happiness, health, and productivity will be positively related to employee happiness, health, and productivity via social support.

**Hypothesis 4**. Stakeholder happiness, health, and productivity will be positively related to employee happiness, health, and productivity via social undermining.

### *2.3. Supervisors, coworkers, and spouses: who matters more?*

Thus far, we have not made any distinction regarding the potentially varying associations between different stakeholders' and employees' happiness, health, and productivity. However, it has been noted that employees form unique relationships with different stakeholders. To illustrate, employees are romantically connected with their spouses and receive distinct resources from these stakeholders (e.g., love, marital satisfaction). Similarly, employees also engage in social relationships with supervisors and coworkers at work in different ways (Chiaburu & Harrison, 2008). The differences in the nature and characteristics of the relationships may suggest that the extent to which stakeholders are linked to employees' sustainable career indicators may vary in strength. For example, although not addressing this transmission directly, insights from the paper by Chiaburu and Harrison (2008) suggest that when jointly predicting employee outcomes, coworkers' support not only remains significant but can sometimes have a more beneficial impact than that of supervisors. Nevertheless, the question of whether such variations exist and to what extent has not been addressed by empirical and meta-analytic studies. Therefore, we know little about whether supervisors, coworkers, or spouses play a stronger role in employees' sustainable careers.

The *matching domain hypothesis* offers a useful theoretical framework for understanding associations in this regard. This hypothesis proposes that conflict/enrichment in one domain should have primary effects on outcomes in the same domain (Amstad et al., 2011). Thus, according to this theoretical perspective, positive work, rather than home, experiences should be the main driver of employee work-related happiness, health, and productivity. A hypothesis supported by this theory is that supervisors and coworkers, being part of the work context, may play a more dominant role in employee happiness, health, and productivity than spouses. One rationale for this lies in attributional processes (Amstad et al., 2011), which likely occur during empathetic engagement. Employees may tend to engage in causal investigation of changes in stakeholder happiness, health, and productivity. Imagine a scenario where a stakeholder experiences increased happiness at work. When this stakeholder is either a supervisor or a coworker, employees tend to credit this positive change to favorable work-related conditions within their own organization (Bakker & Demerouti, 2009). This attribution leads employees to develop a more positive attitude toward their work environment, and consequently yields better work outcomes. However, if this stakeholder is a spouse, employees likely attribute their spouse's happiness to positive factors within the spouse's organization. This attribution might have a lesser impact on the employee's work outcomes since the spouse's organization has limited power and control over how the employee works. Similarly, we argue that supervisors and coworkers may relate to employees' health more strongly. A healthy supervisor can provide instrumental and emotional support that directly helps employees manage work-related demands and maintain well-being. Although spouses can also offer valuable health-related support, we argue that the assistance provided by supervisors and coworkers is often more contextually relevant for addressing work-specific factors that undermine health, such as job stress, workload, and recovery opportunities.

Several meta-analyses support the matching domain hypothesis (see e.g., Amstad et al., 2011; Zhang, He, & Sun, 2018; Zhang, Xu, et al., 2018). In line with prior meta-analytic evidence, we argue for the matching domain perspective on the role supervisors, coworkers, and spouses may play in employees' happiness, health, and productivity. Specifically, we propose that supervisors and coworkers show stronger correlations with employees' happiness, health, and productivity than spouses. With this, an important question remains: Between supervisors and coworkers, who shows a stronger correlation with employees' happiness, health, and productivity?

One implicit assumption in the crossover research is that for a crossover to occur, the employees must perceive and understand the emotions or behaviors that are going to be crossed over to them (Booth-LeDoux et al., 2020). This condition is most likely met when employees engage in frequent interactions with their stakeholders on a daily basis (Bakker & Xanthopoulou, 2009), a characteristic that is more pronounced in coworker-employee dyads than in leader-follower dyads (e.g., Chiaburu & Harrison, 2008). Additionally, employees and coworkers share similar power status, making it easier for employees to empathize with their coworkers' emotional and behavioral experiences. Thus, we argue that coworkers may be more relevant crossover partners than supervisors in the context of happiness, health, and productivity crossover. Our suggestion is supported by Bakker et al.'s (2007) empirical observation. In their crossover study involving soldiers, participants were randomly exposed to a video featuring a burned-out colleague discussing their work. Half of the participants watched a colleague of similar rank, while the other half watched a squadron leader who had a higher rank. The findings revealed that burnout crossover occurs only in dyads with equal power status. Altogether, we propose that:

**Hypothesis 5.** The crossover effect sizes of supervisors and coworkers will be larger than those of spouses. Among the work members, the crossover effect sizes of coworkers will be larger than those of supervisors.

## 3. Methods

### 3.1. Literature search

We used several strategies to perform a comprehensive literature search. First, we searched the abstracts and titles of articles for relevant published work and dissertations up to March 2026 in four electronic databases: PsycINFO, Scopus, Web of Science Core Collection, and ProQuest Dissertations & Theses. All search queries included the keywords (dyad* OR pair OR couple) AND (employee OR worker). With this query base, we further searched studies related to happiness, health, and productivity. To guide our keyword selection, we referred to key conceptual works by De Vos et al. (2020), Fisher (2010), Koopmans et al. (2011), and Ware et al. (1996). Collectively, these studies informed our categorization of indicators within each domain. Specifically, we included job satisfaction, work engagement, affective organizational commitment, and subjective career success as indicators of happiness; mental and physical health as indicators of health; and job performance, organizational citizenship behavior, counterproductive work behavior, proactive behavior, and employability as indicators of productivity. Based on this, for happiness studies, we used the keywords ("happiness" OR "job satisfaction" OR "work engagement" OR "organizational commitment" OR "career success"). For health-related studies, we used the terms ("mental health" OR "physical health" OR well-being) to identify studies on work-related health. For studies related to productivity, we used ("task performance" OR "job performance" OR "work performance" OR "in-role performance" OR citizenship OR "extra-role" OR helping OR counterproductive OR deviance OR incivility OR ostracism OR undermining OR withdrawal OR creativ* OR proactiv* OR employability). To include studies that examined the mechanisms of crossover, we used (empathy OR "perspective taking" OR contagion OR "social support" OR "social undermining"). As the scope of this meta-analysis was happiness, health, and productivity at work, the database searches were limited to the literature on psychology, health, business, and management, thereby excluding the domains of, for example, physics, biology, and psychiatry.

Second, we manually reviewed the reference list of existing crossover meta-analyses (i.e., Li et al., 2021; Matei et al., 2021; Wang et al., 2023), which led to an addition of 34 primary studies identified. Third, we sent email requests to 64 corresponding authors of all articles in our dataset to share their unpublished or in-press papers. Last, a similar request was also posted on the Academy of Management forum. In total, five authors responded to our requests.

We did not put any restrictions on article inclusion based on language, geography, demography, or publication time to yield a comprehensive article database for our meta-analysis. Our inclusion criteria are as follows. First, we included primary studies that empirically measured at least one work-specific variable indicating happiness, health, or productivity. This resulted in the exclusion of 505 studies with context-free variables (e.g., overall health). Second, we included studies that reported relevant correlation coefficients. When this information was not available, we contacted the authors for supplementary documentation.

Overall, we identified 12,105 articles. After removing duplicates and reviewing the titles and abstracts of these studies, 3948 studies remained for further full-text inspection. After excluding irrelevant articles, our final dataset had 167 peer-reviewed articles and 16 conference papers and doctoral dissertations ($k = 183$). In total, they comprised $k = 195$ independent samples from $N = 82{,}050$ individuals. Readers can refer to Appendix A for a PRISMA chart of our study identification and screening process.

### 3.2. Coding procedures

The authors met at the start of the coding process to discuss the procedure and relevant coding data. The first author then conducted an initial and independent review to code all papers in the final dataset. Each of the remaining authors was assigned to independently code a non-overlapping subset of 35 articles. Upon completion of coding, all authors compared the coding results. The interrater agreement rate was 93.80%. Finally, the authors came together to resolve disagreements and finalize the coding results.

The main crossover variables coded in our study are defined and described in Table 2. When we encountered studies that were conceptually relevant but did not directly align with our predefined keyword measures, we consulted the frameworks proposed by De Vos et al. (2020), Fisher (2010), Koopmans et al. (2011), and Ware et al. (1996) to determine their suitability. In addition, we coded study and sample characteristics, including design (1 = cross-sectional, 2 = longitudinal, 3 = time-lagged), sample size, country, proportion of female participants, proportion of participants with undergraduate education, mean age, occupational industry, effect sizes (i.e., Pearson product–moment correlation coefficients, r), reliability coefficients, time lag (in days, for lagged correlations), and timing of effect (i.e., cross-sectional, lagged - stakeholders measured at a later time point, or lagged - employees measured at a later time point). For longitudinal and time-lagged studies, we prioritized coding lagged correlations between the first two relevant waves (e.g., Time 1 and Time 2). To align with our aim of examining whether stakeholders contributed to employees' sustainable careers, we also prioritized coding stakeholder-to-employee crossover correlations where employees were measured at a later time point. Whenever possible, we also coded employee-to-stakeholder crossover correlations with stakeholders measured at a later time point.

If a study included multiple independent samples, each sample was coded separately. In most cases, we followed the conceptualizations used in primary studies to classify dyad members as either stakeholders or employees. For studies with indistinguishable dyads, we prioritized classifying the individual measured at the earlier time point as the stakeholder and the one measured at the later time point as the employee. In cases where the above approaches were not possible (e.g., studies reporting fully crossed and lagged correlations of both husbands and wives at both time points), we coded male respondents as employees and female respondents as stakeholders. This approach helped maintain consistency with most studies in our dataset, which typically treated men as employees

and women as their spouses or colleagues.

### 3.3. Meta-analysis of zero-order correlations

We followed the random-effects meta-analytic procedures outlined by Schmidt and Hunter (2015) to test our main hypotheses. This method allowed us to correct for measurement and sampling errors in the effect sizes by first using the reported reliability estimates and second aggregating the effect sizes across samples. If there were multiple correlations representing conceptually similar relationships from a single sample, we used Schmidt and Hunter's (2015) formulas to calculate composite correlations and reliability coefficients. If a composite score could not be computed due to the lack of data, we averaged the effect sizes to maintain the independence assumption.

To test hypotheses 1, 2, 3, and 4, we ran meta-analytic path analysis by creating a matrix of corrected correlations obtained from the random-effects meta-analytic procedures. The sample size for these analyses was set to the harmonic mean, which is calculated by dividing the number of studies by the sum of the reciprocals of their sample sizes. This approach is recommended in meta-analytic structural modeling because the harmonic mean provides a conservative estimate that appropriately accounts for unequal sample sizes across studies and prevents large studies from disproportionately influencing model estimation (Viswesvaran & Ones, 1995). To test Hypothesis 5, we ran a moderator analysis where we followed Schmidt and Hunter's (2015) suggestions to group studies into subgroups (i.e., 1 = supervisors, 2 = coworkers, and 3 = spouses) and used normal theory tests via z-scores suggested by Raju and Brand (2003) to evaluate whether differences across the subgroups are statistically significant. To address the risk of a Type I error associated with multiple subgroup testing (Borenstein et al., 2021), we applied a Bonferroni correction, in which we adjusted the significance level for each pairwise comparison by dividing the original alpha level (i.e., 0.05) by the number of subgroup comparisons (i.e., three), resulting in an adjusted alpha level of 0.0167. A difference in effect size between any two subgroups is considered statistically significant only if the absolute value of its z-score is greater than or equal to the critical z-value corresponding to a two-tailed $p$-value of 0.0167, which is approximately $|\text{z-score}| \geq 2.40$.

All analyses were performed using M*plus* version 8.8 (Muthén & Muthén, 2017), {psychmeta} (Dahlke & Wiernik, 2019), and {metafor} (Viechtbauer, 2010) packages in RStudio. For each meta-analytic analysis, we reported the sample size ($N$), the number of effect sizes ($k$), the observed (uncorrected) mean correlation ($r$), the corrected mean population correlation ($\rho$), the standard deviation of $r$ ($SD_r$), the standard deviation of $\rho$ ($SD_\rho$), 80% credibility interval (80% CR), and 95% confidence interval (95% CI).

### 3.4. Publication bias

Given that our dataset primarily consists of published articles, we conducted publication bias tests to examine whether the correlations obtained in this meta-analysis are affected by publication bias. We triangulated several sources of evidence regarding publication bias, including trim-and-fill analysis, cumulative meta-analysis, and selection models to evaluate whether publication bias was an issue. If so, we estimated the magnitude of publication bias that might have distorted our results. We performed these analyses only on effects based on at least ten independent samples to achieve adequate statistical power and meaningful results. We then calculated the average differences between the adjusted effect sizes of these three tests and the population-corrected effect sizes $\rho$ to better triangulate the magnitude of publication bias.

Results for publication bias tests are presented in Supplementary Material S1. The analyses suggested that the averaged adjustments for publication bias ranged from small to moderate ($0.01 \leq \Delta r \leq 0.15$) in absolute magnitude; hence, there was support for most of the effect sizes in our study being unaffected by selective reporting-related selection effects. Notably, the triangulation method revealed potential inflations of 0.15 and 0.13 in two crossover-related correlations. Importantly, when we reran the meta-analytic path analyses using the correlations adjusted for publication bias, our overall conclusions remained unchanged. Thus, we argue that publication bias does not pose a severe threat to this crossover relationship, although the true effects might be smaller or higher than the observed estimates.

### 3.5. Transparency and openness

All coding, syntax, and Supplemental Materials S1-S5 detailing cultural scores, results on all corrected crossover effect sizes, publication bias, the reliability estimates of crossover outcomes, and all studies included in this current meta-analysis are available on the Open Science Framework (https://osf.io/jcdxr/overview?view_only=2347de4ec9d64774861b064fed61f187).

## 4. Results

### 4.1. Study and sample characteristics

Our meta-analytic database represented a relatively balanced sample of work and nonwork stakeholders with comparable sample sizes ($n_{\text{supervisors, coworkers}} = 21{,}145$, $n_{\text{spouses}} = 20{,}281$). Data for the studies included in this meta-analysis were drawn from 27 countries, primarily in the United States (27%), followed by European countries (25%) and China (22%). Readers can refer to Supplementary Material S2 for full details on the countries and their culture scores. The average age of the dyads was 36.82. The spouses had lived together for an average of 13.47 years, whereas employees had worked with their coworkers and leaders for 4.36 years. Participants worked in various industries, including healthcare (12.42%), police/military (9.80%) and education (5.23%). In terms of

data design, 75% of studies adopted a cross-sectional design, and 27% were longitudinal and time-lagged studies.

### 4.2. Results for the crossover of happiness, health, and productivity

Meta-analytic path analysis results for happiness, health, and productivity crossover are presented in Table 3. Readers can also refer to Supplementary Material S3 for details on the corrected correlations used as input for our main path analyses. We tested the crossover of happiness between stakeholders and employees while statistically controlling for common negative and positive experiences. Results indicated that stakeholders' happiness was positively related to employees' happiness with moderate strength ($\beta = 0.21$ to $0.28$, $p < .001$ across both cross-sectional and lagged designs when controlling for negative experiences; $\beta = 0.04$ to $0.14$ when controlling for positive experiences, $p < .05$).

For health crossover, stakeholders' health was positively related to employees' health also in moderate magnitude ($\beta = 0.18$ to $0.24$, $p < .001$ across both cross-sectional and lagged design with employees measured at a later time point, when controlling for both negative and positive experiences). Notably, we found that the crossover of health with stakeholders measured at a later time point was insignificant, suggesting that employees' health may not meaningfully affect stakeholders' health.

The crossover of productivity was tested using positive experiences as control variables (due to insufficient data for models controlling negative experiences), revealing that stakeholders' productivity was positively related to employees' productivity with moderate magnitude ($\beta = 0.27$ to $0.40$, $p < .001$).

Overall, these findings largely support Hypothesis 1, demonstrating that stakeholders' happiness, health, and productivity are positively associated with employees' happiness, health, and productivity, after taking into account common negative and positive experiences. Additionally, our results do not reveal a consistent pattern in the relative magnitude of cross-sectional versus lagged crossover effects; in some relationships, lagged effects were stronger, while in others they were weaker than the cross-sectional effects.

### 4.3. Results for crossover mechanisms

We tested the underlying mechanisms: Empathy and social interaction (social support and social undermining) for happiness and health crossover. Productivity crossover mechanisms could not be examined due to insufficient studies. Meta-analytic path analysis results are presented in Table 4.

For happiness crossover, we examined two mechanisms: empathy and social support. Stakeholders' happiness was positively related to employees' empathy across all timing designs ($\beta = 0.15, p < .001$), which in turn predicted employees' happiness ($\beta = 0.25$ to $0.26$, $p < .001$), yielding a significant indirect effect of 0.04 ($p < .001$). Additionally, stakeholders' happiness predicted employees' social support perceptions across all timing designs ($\beta = 0.33, p < .001$), which then predicted employees' happiness ($\beta = 0.53$ to $0.56$, $p < .001$), with a significant indirect effect of 0.17 to 0.18 ($p < .001$). Hence, together, these findings indicate that empathy and social

**Table 3**
Meta-analytic path analysis results for overall direct crossover with control variables.

| Relationship | Timing of effect | n | Direct effect | Control variable → Employee outcome | Control variable → Stakeholder outcome |
|---|---|---|---|---|---|
| Negative experiences as control variables | | | | | |
| Crossover of happiness | Cross-sectional | 1836 | 0.25*** | −0.06*** | −0.14*** |
| Crossover of happiness | Lagged (ST1 and ET2) | 1503 | 0.21*** | −0.07*** | −0.14*** |
| Crossover of happiness | Lagged (ET1 and ST2) | 1382 | 0.28*** | −0.06*** | −0.14*** |
| Crossover of health | Cross-sectional | 3844 | 0.18*** | −0.07*** | −0.29*** |
| Crossover of health | Lagged (ST1 and ET2) | 1901 | 0.24*** | −0.05*** | −0.29*** |
| Crossover of health | Lagged (ET1 and ST2) | 1063 | −0.02*** | −0.13*** | −0.29*** |
| Crossover of productivity | – | – | – | – | – |
| Positive experiences as control variables | | | | | |
| Crossover of happiness | Cross-sectional | 4746 | 0.10*** | 0.32*** | 0.50*** |
| Crossover of happiness | Lagged (ST1 and ET2) | 3019 | 0.04*** | 0.35*** | 0.50*** |
| Crossover of happiness | Lagged (ET1 and ST2) | 2565 | 0.14*** | 0.30*** | 0.50*** |
| Crossover of health | Cross-sectional | 3043 | 0.18*** | 0.09*** | 0.20*** |
| Crossover of health | Lagged (ST1 and ET2) | 1682 | 0.24*** | 0.08*** | 0.20*** |
| Crossover of health | Lagged (ET1 and ST2) | 991 | −0.01*** | 0.13*** | 0.20*** |
| Crossover of productivity | Cross-sectional | 2767 | 0.27*** | 0.26*** | 0.13*** |
| Crossover of productivity | Lagged (ST1 and ET2) | 985 | 0.40*** | 0.24*** | 0.13*** |

*Note.* The effects are standardized estimates. ST1 and ST2 = stakeholders measured at Time 1 and Time 2, respectively; ET1 and ET2 = employees measured at Time 1 and Time 2, respectively.
*$p < .05$.
**$p < .01$.
*** $p < .001$.

**Table 4**
Meta-analytic path analysis results for crossover mechanisms.

| Mediator | n | Direct effect | Stakeholder outcome → Mediator | Mediator → Employee outcome | Indirect effect | Total |
|---|---|---|---|---|---|---|
| Crossover of happiness (cross-sectional) | | | | | | |
| Employee empathy | 1230 | 0.22*** | 0.15*** | 0.25*** | 0.04*** | 0.25*** |
| Employee perceptions of social support | 3451 | 0.08*** | 0.33*** | 0.55*** | 0.18*** | 0.25*** |
| Crossover of Happiness (lagged ST1 and ET2) | | | | | | |
| Employee empathy | 1077 | 0.18*** | 0.15*** | 0.26*** | 0.04*** | 0.22*** |
| Employee perceptions of social support | 2469 | 0.03*** | 0.33*** | 0.56*** | 0.18*** | 0.22*** |
| Crossover of Happiness (lagged ET1 and ST2) | | | | | | |
| Employee empathy | 1013 | 0.25*** | 0.15*** | 0.25*** | 0.04*** | 0.29*** |
| Employee perceptions of social support | 2156 | 0.12*** | 0.33*** | 0.53*** | 0.17*** | 0.29*** |
| Crossover of Health (cross-sectional) | | | | | | |
| Employee perceptions of social support | 3083 | 0.16*** | 0.17*** | 0.27*** | 0.05*** | 0.20*** |
| Stakeholder perceptions of social support | 1684 | 0.19*** | 0.24*** | 0.07* | 0.02** | 0.20*** |
| Employee perceptions of social undermining | 1207 | 0.15*** | −0.22*** | −0.27*** | 0.06*** | 0.20*** |
| Stakeholder perceptions of social undermining | 1559 | 0.18*** | −0.28*** | −0.07** | 0.02** | 0.20*** |
| Crossover of Health (lagged ST1 and ET2) | | | | | | |
| Employee perceptions of social support | 1683 | 0.21*** | 0.17*** | 0.26*** | 0.04*** | 0.25*** |
| Stakeholder perceptions of social support | 1158 | 0.24*** | 0.24*** | 0.06 | 0.01 | 0.25*** |
| Employee perceptions of social undermining | 910 | 0.20*** | −0.22*** | −0.26*** | 0.06*** | 0.25*** |
| Stakeholder perceptions of social undermining | 1097 | 0.24*** | −0.28*** | −0.06 | 0.02 | 0.25*** |
| Crossover of Health (lagged ET1 and ST2) | | | | | | |
| Employee perceptions of social support | 991 | −0.03*** | 0.17*** | 0.30*** | 0.05*** | 0.02*** |
| Stakeholder perceptions of social support | 782 | −0.01*** | 0.24*** | 0.12** | 0.03** | 0.02*** |
| Employee perceptions of social undermining | 671 | −0.05*** | −0.22*** | −0.31*** | −0.31*** | −0.05*** |
| Stakeholder perceptions of social undermining | 754 | −0.02*** | −0.28*** | −0.13** | 0.04** | 0.02*** |

*Note.* The effects are standardized estimates. ST1 and ST2 = stakeholders measured at Time 1 and Time 2, respectively; ET1 and ET2 = employees measured at Time 1 and Time 2, respectively.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

support are key mediators of happiness crossover, supporting Hypothesis 2.

For health crossover, we examined social support and social undermining as mediating mechanisms. Stakeholders' health was positively associated with both employee-perceived support ($\beta = 0.17$, $p < .001$) and stakeholder-perceived support ($\beta = 0.24$, $p < .001$) across all timing designs. Employee-perceived support then positively predicted employee health ($\beta = 0.26$ to $0.30$, $p < .001$). Stakeholder-perceived support was also positively related to employee health ($\beta = 0.07$ to $0.12$, $p < .05$) but only in cross-sectional and lagged designs where stakeholders were measured at a later time point. As a result, our findings suggest a small yet significant mediating effect of social support with magnitude ranging from 0.02 to 0.05.

Additionally, stakeholders' health was negatively associated with social undermining reported by both employees ($\beta = -0.22$, $p < .001$) and stakeholders ($\beta = -0.28$, $p < .001$). Social undermining perceptions of both dyadic members then were negatively related to employee health ($\beta = -0.06$ to $-0.31$, $p < .01$) across all timing designs, except for the lagged designs where employees were measured at a later time point. This suggests a small yet significant mediating effect of social undermining, ranging from 0.04 to 0.07 in strength. Collectively, these findings support Hypothesis 3, suggesting that social support and social undermining operate as meaningful mediators of health crossover.

### 4.4. Results for comparing the crossover of multiple stakeholders

Subgroup analyses were conducted based on crossover relations that were cross-sectional or lagged with employees measured at a later time point (this aligns with our objective to examine how stakeholders influence employees' sustainable careers). Results for subgroup comparisons regarding the crossover effect size of supervisors, coworkers, and spouses are presented in Table 5. For the crossover of happiness, we found that spouses exhibited the strongest correlation ($\rho = 0.29$, CI = [0.23, 0.35]), which was statistically and significantly stronger than that of supervisors ($\rho = 0.20$, CI = [0.09, 0.32]) and coworkers ($\rho = 0.19$, CI = [0.09, 0.29]). Our results also indicated that the crossover correlations involving supervisors and coworkers were similar in magnitude as we found no statistically significant difference ($z$-score = 0.53).

A different pattern emerged for health crossover, where both supervisors ($\rho = 0.26$, CI = [0.14, 0.39]) and spouses ($\rho = 0.23$, CI = [0.16, 0.31]) demonstrated the largest effect sizes, with no significant difference between them ($\Delta\rho = 0.03$, $z$-score = −1.09). In contrast, the coworker crossover effect size was the smallest and not statistically significant ($\rho = 0.05$, CI = [−0.12, 0.22]).

For productivity crossover, our subgroup analyses revealed that coworkers ($\rho = 0.37$, CI = [0.21, 0.53]) and spouses ($\rho = 0.36$, CI = [0.11, 0.62]) productivity was similarly related to employees' productivity ($z$-score = 0.14). Interestingly, we found the crossover of productivity between supervisors and employees was the smallest in magnitude ($\rho = 0.22$, CI = [0.06, 0.39]). In sum, these findings contradicted our expectation that coworkers would be most strongly related to employee outcomes, whereas spouses would play the least significant role. Thus, Hypothesis 5 was not supported.

### 4.5. Supplementary analysis: methodological moderators

Our corrected crossover correlations mostly had 80% credibility intervals wider than 0.11 (Geyskens et al., 2009) and/or included zero. These estimates indicate heterogeneity among primary studies and suggest potential moderators. Therefore, we conducted supplementary analyses to explore potential factors that might account for the variability observed among the crossover correlations identified in our meta-analysis. Specifically, following the reviewers' suggestions, we examined several potential moderators, including time lag (in days, for time-lagged studies), proportion of women in the dyad, occupational industry, and the rating source of productivity measures. Full details of these analyses are reported in Tables B1 and B2 in Appendix B.

The present meta-analysis found that the length of the time interval between measurement waves did not significantly moderate the strength of happiness crossover (95% CI = [−0.00, 0.00]; see Table B1). This may suggest that happiness crossover effects remain relatively stable and may not be "diluted" over time. As the time lags of the analyzed studies were relatively short (e.g., mostly below 60 days), future research should explore whether stronger effects emerge for longer time lags (e.g., over a year). We must note, however, that this finding was based on only $k = 10$ primary studies, which substantially limits the statistical power to detect a true moderating effect if one exists in meta-regression (Higgins & Thompson, 2004). Therefore, while one could conclude that the non-significant finding is evidence that crossover of happiness is temporally stable across measurement intervals, we cautiously suggest that the current evidence base is insufficient to draw firm conclusions about the role of time lag in crossover research. This limitation echoes Ford et al. (2014), who noted that detecting lagged effects becomes particularly difficult when the number of contributing studies is small. Furthermore, we found that proportion of women in the dyad exerted negligible moderating effects on the examined

**Table 5**
Meta-analytic results of crossover by relationship.

| | Relationship | k | N | $\bar{r}$ | $SD_r$ | $\bar{\rho}$ | $SD_\rho$ | 95% CI | 80% CR | $Z$-score Significantly different? |
|---|---|---|---|---|---|---|---|---|---|---|
| Crossover of happiness | | | | | | | | | | |
| 1 | Supervisor | 8 | 4825 | 0.18 | 0.12 | 0.20 | 0.13 | [0.09, 0.32] | [0.02, 0.39] | No: 1 vs. 2 = 0.53 |
| 2 | Coworker | 9 | 3236 | 0.17 | 0.11 | 0.19 | 0.12 | [0.09, 0.29] | [0.03, 0.35] | Yes: 1 vs. 3 = −4.45 |
| 3 | Spouse | 40 | 11,518 | 0.25 | 0.16 | 0.29 | 0.17 | [0.23, 0.35] | [0.06, 0.51] | Yes: 2 vs. 3 = −4.66 |
| Crossover of health | | | | | | | | | | |
| 4 | Supervisor | 11 | 2470 | 0.23 | 0.16 | 0.26 | 0.17 | [0.14, 0.39] | [0.02, 0.50] | No: 4 vs. 6 = 1.09 |
| 5 | Coworker | 4 | 2066 | 0.04 | 0.09 | 0.05 | 0.09 | [−0.12, 0.22] | [−0.10, 0.20] | |
| 6 | Spouse | 27 | 5672 | 0.20 | 0.16 | 0.23 | 0.17 | [0.16, 0.31] | [0.01, 0.46] | |
| Crossover of productivity | | | | | | | | | | |
| 7 | Supervisor | 7 | 1427 | 0.19 | 0.15 | 0.22 | 0.16 | [0.06, 0.39] | [−0.01, 0.46] | Yes: 7 vs. 8 = −3.54 |
| 8 | Coworker | 7 | 1638 | 0.31 | 0.14 | 0.37 | 0.16 | [0.21, 0.53] | [0.14, 0.59] | Yes: 7 vs. 9 = −3.11 |
| 9 | Spouse | 8 | 1315 | 0.30 | 0.25 | 0.36 | 0.29 | [0.11, 0.62] | [−0.05, 0.77] | No: 8 vs. 9 = 0.14 |

*Note.* $k$ = number of studies contributing to meta-analysis; $N$ = total sample size; $\bar{r}$ = mean observed correlation; $SD_r$ = observed standard deviation of $r$; $\bar{\rho}$ = mean true-score correlation; $SD_\rho$ = residual standard deviation of $\rho$; CI = confidence interval around $\bar{\rho}$; CR = credibility interval around $\bar{\rho}$. Correlations corrected using artifact distributions. Correlations were cross-sectional or lagged (employees measured at a later time point). |z-scores| ≥ 2.40 indicate the statistical significance of the difference between two mean true-score correlations. We did not calculate z-score when one of the crossover relationships being compared was not significant.

crossover relationships. In contrast, occupational industry and the rating source of productivity measures demonstrated a significant moderating effect on productivity crossover correlations, with stronger crossover observed in educational settings and when productivity was assessed by others rather than by the focal individual.

## 5. Discussion

In today's evolving work landscape, employees are increasingly expected to extend their working hours and career spans, often while managing complex family responsibilities exacerbated by blurred work-family boundaries. These dynamics create fertile ground for crossover—the process through which personal experiences are transmitted between employees and significant stakeholders in their lives. Guided by the sustainable career framework (De Vos et al., 2020), our meta-analytic review synthesized the empirical evidence on crossover relations between employees and various stakeholders. Overall, we found that stakeholders' happiness, health, and productivity were positively related to employees' happiness, health, and productivity, respectively, when common negative and positive experiences were controlled. Our findings showed support for the mediating role of empathy as well as social support and social undermining (social interaction) in happiness and health crossover. Furthermore, we found that supervisors, coworkers, and spouses were not uniformly associated with employees' outcomes: while spouses showed consistent relevance across happiness, health, and productivity crossover, supervisors displayed the strongest association with health crossover and coworkers showed the strongest association with productivity crossover.

### *5.1. Summary of findings and theoretical contributions*

#### *5.1.1. Crossover of happiness, health, and productivity*

Our first contribution is a comprehensive quantitative review that integrates previously fragmented crossover findings. To date, research has predominantly emphasized the transmission of happiness and health, particularly within spousal relationships (Li et al., 2021; Matei et al., 2021; Wang et al., 2023), while giving limited attention to other stakeholder groups. Drawing on sustainable careers theory (De Vos et al., 2020), we broaden the scope of crossover research by incorporating multiple types of stakeholders and work- and career-relevant outcomes. Based on a relatively balanced sample of work and nonwork stakeholders, our synthesis provides empirical support for the crossover of happiness and health between various stakeholders and employees. More importantly, our supplementary analyses reveal that crossover relationships may hold across different types of dyads, regardless of gender composition. Furthermore, the magnitude of the crossover effect sizes observed in this study is comparable to those reported in prior meta-analyses linking personal attributes (e.g., personality, human capital) and organizational resources (e.g., sponsorship) with happiness (Ng et al., 2005) and health (Alarcon et al., 2009). Although more research is needed, we would expect that employees' outcomes might be just as sensitive to stakeholders' experiences as they are to individual or organizational factors. Thus, with these findings, we stress the theoretical and practical value of crossover theory for understanding the well-being of employees.

Drawing on sustainable career theory, we conceptualize productivity as a key outcome that is subject to crossover, thereby integrating productivity into our conceptual model. This offers a novel contribution to the literature, as prior crossover research has largely overlooked the potential transferability of productivity between individuals. Although our sample size is small, the results indicate that it is likely that stakeholders' productivity is positively associated with employees' productivity. We, thus, provide preliminary evidence of behavioral contagion to the crossover literature. Although this finding may seem surprising, as behaviors tend to appear challenging to spread because they require a specific agent to initiate, our finding aligns closely with research demonstrating that work-related behaviors can be transmitted relatively easily, even after one exposure (Foulk et al., 2016). More future research is needed to further investigate the transferability of productivity. Taken together, our findings highlight the important role of stakeholders and their experiences in shaping the well-being and work functioning of employees, and ultimately, their sustainable careers.

Another major contribution of this study lies in its examination of the mechanisms underlying the crossover process, an area that has received relatively limited empirical attention. We found evidence that empathy serves as a significant mechanism explaining the positive happiness relations between stakeholders and employees. Although our data do not cover all forms of crossover, this result reinforces the findings of Wang et al. (2023), who also identified empathy as a key mediator. Our findings, however, extend this evidence by demonstrating that empathy operates in the expected positive direction, suggesting that individuals who perceive stakeholders' happiness may internalize and mirror those positive internal states. This questions the predominant theoretical perspective in crossover research, which has often conceptualized empathy primarily as a moderator amplifying crossover effects (Bakker et al., 2009). An important theoretical question, therefore, concerns whether empathy is better understood as a mediator that transmits affect between individuals, a moderator that conditions the strength of such transmission, or potentially both. Future research should employ research designs capable of disentangling these dual roles to offer a more comprehensive understanding of how empathy functions within the crossover process.

Regarding the social interaction mechanism, we found evidence that social support and social undermining partially mediate the positive crossover of happiness and health. This provides an updated perspective on these mechanisms, an area where prior research has yielded mixed evidence (e.g., Ten Brummelhuis et al., 2014). Our results suggest that stakeholders who experience greater happiness and health are more likely to provide emotional and instrumental support to employees, thereby supplying them with psychological and social resources that enhance their own happiness and health at work. Likewise, when stakeholders are happy and healthy, they are less inclined to engage in socially undermining behaviors that typically serve as coping mechanisms in response to stress, thereby fostering a psychologically safe and resource-enriching environment in which employees can thrive in terms of happiness and health. Taken together, these findings align closely with crossover theory's propositions regarding social support and

social undermining as key crossover mechanisms (Westman, 2001), and extend them by demonstrating their relevance in explaining positive crossover processes.

#### 5.1.2. Supervisors, coworkers, and spouses: who matters more?

The literature on crossover has considered a variety of stakeholders relevant for interpersonal transmission, including supervisors, coworkers, and spouses. However, a problem is that it has predominantly treated these stakeholders as an undifferentiated source of influence while in fact, these stakeholders have different relationships with employees, they may interact with employees differently and hold different relational meaning for employees both in their work and private life, and thus, their roles as crossover partners may be distinct. This meta-analysis directly addresses this gap and advances crossover research by providing systematically synthesized insights into the nuanced role different stakeholders play in crossover processes.

Specifically, for happiness crossover, spouses exhibited a significantly stronger crossover correlation than supervisors and coworkers, which contradicts the matching-domain hypothesis (Amstad et al., 2011). Instead, our findings support the cross-domain perspective, which posits that conflict (or enrichment in the context of this study) in one domain can have a stronger impact on outcomes in another domain than those within the same domain (Frone et al., 1992). This suggests that employees' happiness is closely tied and very responsive to their spouses' perceptions of happiness. Interestingly, for health and productivity crossover, both theoretical perspectives appear to hold merit, as we found that spouses and work members have comparable crossover correlations with employees' health and productivity. Although spouses and supervisors have long been recognized in the literature for their influence on employee outcomes, it is noteworthy that coworkers demonstrated an equally strong effect size (specifically, in productivity crossover). This finding highlights the pivotal yet often underestimated role of coworkers in organizational behavior and occupational health psychology research. It also supports Chiaburu and Harrison's (2008) assertion that coworkers can exert influence above and beyond that of other stakeholders, including supervisors. Despite these promising insights, it is important to note that the crossover effect sizes related to productivity were based on a relatively small number of primary studies. Therefore, we encourage future research to further examine the role of coworkers in crossover processes, particularly in productivity crossover, to draw firmer conclusions.

Taken together, our results reveal a nuanced yet meaningful distinctiveness among stakeholders in crossover processes. The question of "who matters more" in crossover appears to depend on the specific outcome domain of interest. Overall, supervisors, coworkers, and spouses each play meaningful roles in shaping employees' happiness, health, and productivity. These findings offer conceptual clarity and novel insights into the nuanced nature of stakeholder influence in crossover processes. We argue that treating stakeholders as a homogeneous group in crossover research may oversimplify reality and advocate for a more dynamic, differentiated approach that recognizes the unique contributions of distinct stakeholder groups.

#### 5.1.3. Sustainable careers theory as an overarching framework for crossover findings

Our findings also contribute meaningfully to the literature on sustainable careers. While prior research has emphasized the significance of stakeholders in shaping sustainable career trajectories, the question of *how* they exert this influence has remained largely unexplored (e.g.,De Vos et al., 2020; Van der Heijden et al., 2020). Our study clarifies this theorizing by demonstrating that crossover, and its underlying mechanisms namely empathy, social support, and social undermining, serves as a key pathway through which stakeholders can contribute to employees' career sustainability. Being surrounded by happy, healthy, and productive stakeholders creates an environment conducive to positive crossover, thereby supporting employees in cultivating similarly positive outcomes. In this way, we suggest that career sustainability may be viewed as a contagious phenomenon. By showing that sustainable career indicators (i.e., happiness, health, and productivity) can spread in various dyads, our research suggests that a large population of employees could be subject to career sustainability contagion. Notably, the contagion of career sustainability does not require active participation from stakeholders. As suggested by crossover theory (Westman, 2001), such transmission can occur unconsciously, for instance, via empathy.

We advance the sustainable career literature by exploring happiness, health, and productivity from a multi-stakeholder perspective (De Vos et al., 2020; Van der Heijden et al., 2020), including supervisors, coworkers, and spouses in our examination. This allows us to extend the ongoing discourse around career sustainability as a "shared responsibility between employers and employees" (Van der Heijden et al., 2020, p. 1). By comparing the crossover roles of various stakeholders, we suggest that coworkers and spouses not only have a stake in shaping the career sustainability of employees but also exert an influence comparable to, or even stronger than that of supervisors (as in the case of coworkers and their productivity crossover). In sum, we provide empirical evidence expanding research on sustainable careers by stressing that successful sustainable career management is not solely a management-driven responsibility but rather a shared process among supervisors, coworkers, spouses, and employees.

### 5.2. Practical contributions

The results of this meta-analysis have several practical implications. Given our findings on the significant crossover correlations between multiple stakeholders and employees' happiness, health, and productivity, it is important for organizations to consider these employee outcomes as being defined by interactions with their supervisors, coworkers, and spouses. Organizations, therefore, should view employees as inherently embedded in multiple social contexts, not as in isolation. This requires organizations to understand the dyadic dynamics between employees and multiple stakeholders, including the understanding of how employees interact with their stakeholders and exchange resources (Chen & Ellis, 2021).

Organizations can benefit from our study by helping their employees build a more happy, healthy, and productive career through emotional and behavioral crossover processes. Given that empathy and social support are key mechanisms of crossover (Westman,

2001), organizations should cultivate a culture where such behaviors are expected and reinforced. For example, organizations should encourage stakeholders to exhibit supportive behavior. They can set a culture where providing support to one another is expected and becomes the norm. They can also reward stakeholders (e.g., supervisors and coworkers) for their helping behaviors either intrinsically via recognition or extrinsically via incentives. Moreover, understanding the dynamics of crossover may also allow organizations to promptly intervene when their employees are struggling to experience happiness, health, and productivity. For example, in such cases, organizations could consider matching employees with happy, healthy, and productive stakeholders, creating opportunities for employees to observe and empathize with their stakeholders and thereby, potentially improving employees' happiness, health, and productivity.

Our study may also benefit employees directly. By understanding the crossover effects highlighted in our findings, employees can recognize that they can enhance their happiness, health, and productivity by observing and learning from their supervisors, coworkers, and spouses. This awareness empowers them to improve their work and careers by paying close attention to the emotions and behaviors present in their work environment. For example, when encountering a stakeholder exhibiting negative emotions, employees can leverage our research to be aware that emotional crossover is likely to happen. Accordingly, they can employ some emotional regulation strategies to prevent the crossover of negative emotions.

### *5.3. Limitations and future research directions*

Our study is not without limitations. First, although we use several strategies to identify as many studies as possible, the small number of primary studies per relationship may make second-order sampling error a problem in our study (Schmidt & Hunter, 2015). Second, despite our attempts to run meta-analytic path analyses, causal conclusions in this study should be drawn with caution because we meta-analyzed zero-order correlations and 75% of the studies in our dataset were cross-sectional. Third, although we conducted comprehensive searches across four major business databases, it is possible that relevant studies indexed elsewhere, such as Google Scholar as suggested by an anonymous reviewer, were not captured. This may have resulted in the omission of some eligible articles. Nevertheless, we believe that our final dataset of 183 studies provides a sufficiently robust evidence base to generate meaningful and reliable results. Fourth, the studies included in this meta-analysis were predominantly conducted in the United States, China, and various European countries. As a result, our findings may not be generalizable to other cultural contexts, particularly those from underrepresented regions such as Africa, South Asia, Latin America, and the Middle East, may not be adequately captured (see Supplementary Material S2).

Future research on crossover should adopt an expanded scope by considering other stakeholders such as parents, children, friends, and customers due to their potential influences on the sustainability of employees' careers. For example, eldercare demands might have a negative crossover consequence for employees' productivity as they impose stress and strain, forcing employees to use work time ineffectively. Similarly, customers might function as a source of emotional exhaustion and workplace unhappiness by displaying their problematic attitudes and behaviors toward employees. Furthermore, we also see great value in expanding this research topic to consider higher levels of analysis, that is, to include group-level stakeholders as a potential source of the crossover process, such as one's family as a whole or work teams. Research has shown that negative experiences within teams can crossover to the individual level and negatively affect employees' health and happiness at work (Bakker et al., 2006). Taken together, it is important for future research to adopt an expanded conceptual scope to study the negative and positive crossover of various stakeholders and use a multilevel framework to understand and theorize the role different stakeholders might play in the development of happiness, health, and productivity.

Only 19 out of 195 crossover samples specifically examined or had correlations related to the crossover of productivity in our dataset. Given the importance of productivity to employees and organizations and its central role in sustainable careers, we call for more crossover research on this topic to gain insight into the crossover effects of stakeholders' productivity on employees' outcomes. Ideally, such studies would also include the indicators of happiness and health. Furthermore, we call for research on spousal crossover effects that are relevant to the model of sustainable careers. Our findings demonstrate that the study of spouses, an area that has been understudied in sustainable careers research, can significantly contribute to our understanding of how spouses can help develop better career sustainability. Additionally, we call for more empirical research to yield firmer conclusions about the importance of coworkers in promoting sustainable careers from the crossover perspective. Ideally, the field of sustainable careers could benefit from studies that simultaneously examine the roles of supervisors, coworkers, and spouses to better identify the unique crossover effects of coworkers on sustainable career outcomes while accounting for the influence of other sources.

Additionally, we encourage scholars to further investigate the multiple mechanisms underlying crossover and to compare their relative “transferability.” Although our meta-analysis provided support for empathy, social support, and social undermining as key mediators, Ten Brummelhuis et al. (2014) suggested that these mechanisms may vary in their effectiveness. Ten Brummelhuis et al. (2014) noted that the transfer of work engagement from leaders to followers is easier via emotional contagion than social support. This is because the affective mechanism only requires followers to perceive the underlying emotions to “catch” the positive state of their engaged leaders, whereas the behavioral mechanism of providing social support is more demanding as it requires leaders to go the extra mile for their employees. Comparing the relative strength of these mechanisms would yield meaningful insights, particularly for productivity crossover, a domain in which we could not examine mediating processes. Understanding whether productivity transfers more strongly via empathy or through behavioral mechanisms such as social support or social learning would offer valuable implications for organizations and HR practitioners seeking to foster productivity within teams.

Researchers interested in teasing out the crossover effects to gain a better understanding of stakeholder-to-employee and employee-to-stakeholder transmission can adopt continuous time meta-analysis (CoTiMA; see Wiese et al., 2025). This approach is useful because

it helps model effects in continuous time, allowing for insights into the temporal ordering and causal sequencing. Building on this, future research should employ longitudinal designs with multiple waves and (potentially longer) time lags to more accurately capture how crossover unfolds over time. Such work can clarify not only whether crossover occurs, but also when, how, and for whom these effects emerge.

## 6. Conclusion

This meta-analysis advances our understanding of how stakeholders in different social domains are related to employees' happiness, health, and productivity as sustainable career indicators. We shed light on the strength and valence of these crossover processes, and the relative importance of different stakeholders. We hope this work inspires future studies to see sustainable career theory as a fitting lens to analyze happiness, health, and productivity in turbulent times and generate meaningful insights to enrich crossover research.

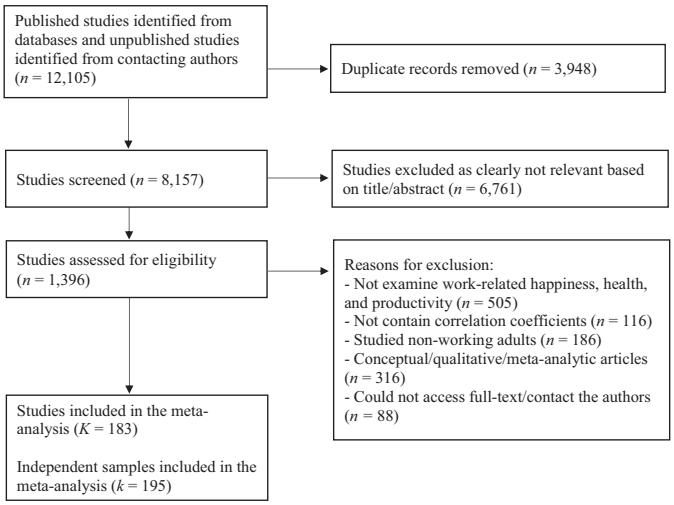
## CRediT authorship contribution statement

**Y Ngoc Nhu Nguyen:** Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Jos Akkermans:** Writing – review & editing, Supervision, Conceptualization. **Svetlana N. Khapova:** Writing – review & editing, Supervision, Conceptualization. **Cort W. Rudolph:** Writing – review & editing, Conceptualization.

## Declaration of competing interest

I have nothing to declare.

## Appendix A. Prisma flow chart




## Appendix B. Moderation

We used weighted least squares mixed-effects meta-regressions to test the moderating effect of (1) time lag (in days) and the proportion of women in the dyad. Effect sizes were weighted by sample size. One limitation of using meta-regressions is a problem with low statistical power to detect low to medium effect sizes when the number of moderators in regression is too high and when there are not enough primary studies to examine all moderators simultaneously (Tanner-Smith & Grant, 2018). This issue leads us to perform bivariate regression for the moderators separately. Our analyses were conducted for the overall crossover relations across all stakeholder groups, as data were limited at each stakeholder level. To ensure robustness, we reported meta-regression results only for crossover relationships observed in at least 10 independent samples. Meta-regression results for the moderating effects are presented in Table B1.

For time lag, we were able to test its moderating role in the crossover of happiness. The number of studies available to test the moderating role of time lag in the crossover of health and productivity was fewer than 10. Therefore, we did not report these meta-regression estimates. We found no moderation of time lag as the results suggest that the moderating effect of time lag on the magnitude of crossover effect was insignificant (95% *CI* = [−0.00, 0.00]). For the proportion of women, the findings showed no moderating effect

in both crossover of happiness and health [i.e., 95% CI contained zero]. This finding implies that crossover is not confined to any gender, underscoring that both men and women may be equally capable of influencing and being influenced by others' experiences.

**Table B1**
Meta-regression results.

| | k | Estimate | SE | 95% CI |
|---|---|---|---|---|
| Crossover of happiness | | | | |
| Proportion of women | 39 | 0.12 | 0.27 | [−0.09, 0.43] |
| Time lag | 10 | −0.00 | 0.00 | [−0.00, 0.00] |
| Crossover of health | | | | |
| Proportion of women | 28 | 0.47 | 0.35 | [−0.22, 1.16] |
| Time lag | – | – | – | – |
| Crossover of productivity | | | | |
| Proportion of women | – | – | – | – |
| Time lag | – | – | – | – |

*Note.* $k$ = number of studies contributing to meta-analysis; estimate = meta-regression beta coefficient; 95% CI = confidence interval.

In addition to the proportion of women, we also examined occupational industry and rating source of productivity as three potential moderators. Results for subgroup comparisons regarding the crossover effect sizes by occupational industry and rating source are presented in Table B2. For happiness and health crossover, we found that stakeholders' health was not positively related to employees' health in both education ($\rho = 0.21$, CI = [−0.04, 0.45]) and healthcare ($\rho = 0.09$, CI contained zero) sectors. For productivity crossover, the correlation was significantly stronger in the education industry ($\rho = 0.50$, CI = [0.15, 0.84]; $z = 7.05$). This was not unexpected as in educational settings, there was strong emphasis on productivity as publication output. The "publish or perish" environment may create increased pressure for research collaboration between colleagues, potentially amplifying behavioral contagion. Moreover, we found a significant difference between self-rated and other-rated productivity crossover ($z = -5.68$). The crossover of productivity was larger when productivity was rated by others ($\rho = 0.46$, CI = [0.34, 0.59]) than when based on self-ratings ($\rho = 0.27$, CI = [0.13, 0.42]). This can be due to (1) the close relationship between stakeholders and employees, or (2) stakeholders' concern about potential adverse outcomes for employees if evaluated unfavorably, which leads to increased leniency in ratings (Cheng et al., 2017).

**Table B2**
Meta-analytic results of crossover by study design, crossover direction, occupational industry, and source of rating.

| | Industry | k | N | $\bar{r}$ | $SD_r$ | $\bar{\rho}$ | $SD_\rho$ | 95% CI | 80% CR | $Z$-score Significantly different? |
|---|---|---|---|---|---|---|---|---|---|---|
| Crossover of happiness | | | | | | | | | | |
| 1 | Overall | 36 | 9612 | 0.23 | 0.12 | 0.26 | 0.12 | [0.21, 0.30] | [0.11, 0.41] | |
| 2 | Healthcare | 3 | 1780 | 0.08 | 0.05 | 0.09 | 0.03 | [−0.06, 0.23] | [0.02, 0.15] | |
| Crossover of health | | | | | | | | | | |
| 3 | Overall | 26 | 5771 | 0.24 | 0.17 | 0.27 | 0.18 | [0.20, 0.35] | [0.04, 0.51] | |
| 4 | Healthcare | 4 | 1074 | 0.08 | 0.18 | 0.09 | 0.20 | [−0.25, 0.43] | [−0.24, 0.42] | |
| 5 | Education | 3 | 494 | 0.18 | 0.08 | 0.21 | 0.04 | [−0.04, 0.45] | [0.13, 0.29] | |
| Crossover of productivity | | | | | | | | | | |
| 6 | Overall | 14 | 2103 | 0.28 | 0.19 | 0.33 | 0.20 | [0.20, 0.46] | [0.06, 0.60] | Yes: 6 vs. 7 = 7.05 |
| 7 | Education | 3 | 544 | 0.42 | 0.12 | 0.50 | 0.11 | [0.15, 0.84] | [0.28, 0.71] | |
| 8 | Self-rating | 12 | 2509 | 0.23 | 0.19 | 0.27 | 0.21 | [0.13, 0.42] | [−0.02, 0.56] | Yes: 8 vs. 9 = −5.68 |
| 9 | Other-rating | 7 | 1354 | 0.39 | 0.11 | 0.46 | 0.11 | [0.34, 59] | [0.31, 0.62] | |

*Note.* $k$ = number of studies contributing to meta-analysis; $N$ = total sample size; $\bar{r}$ = mean observed correlation; $SD_r$ = observed standard deviation of $r$; $\bar{\rho}$ = mean true-score correlation; $SD_\rho$ = residual standard deviation of $\bar{\rho}$; CI = confidence interval around $\bar{\rho}$; CR = credibility interval around $\bar{\rho}$. Correlations were corrected using artifact distributions. Correlations were cross-sectional or lagged (employees measured at a later time point). |z-scores| ≥ 2.40 indicate the statistical significance of the difference between two mean true-score correlations. We did not calculate z-score when one of the crossover relationships being compared was not significant.

## Appendix C. Crossover by dimensions

In the main analyses, we examined the overall correlations of happiness, health, and productivity between employees and their key stakeholders. Following the anonymous reviewers' recommendations, this appendix further investigates these correlations at the dimension level to assess whether specific facets of employee well-being show different crossover patterns across stakeholders. Although our goal was to examine all dimensions included in the primary analyses, available data only allowed us to explore work engagement (as a dimension of happiness) and mental health (as a dimension of health).

Table C1 presents the results for work engagement. In contrast to the main findings where spouses exhibited the strongest crossover correlation, the dimension-level analysis revealed no significant differences among supervisors, coworkers, and spouses (z-scores $\leq$2.40). This suggests that although spouses remain key contributors to employees' overall happiness (which encompasses not only work-related experiences but also subjective career success), workplace stakeholders become equally relevant when focusing specifically on work engagement. One explanation for this discrepancy is that overall happiness incorporates broader career evaluations such as work meaningfulness, career satisfaction, and subjective career success. Because these broader judgments are shaped across both work and nonwork domains, their associations may tend to align more strongly with individuals who play central roles in multiple life spheres, particularly spouses. In contrast, work engagement is more narrowly embedded in employees' day-to-day work role, making its associations also significantly linked to workplace stakeholders such as supervisors and coworkers. Taken together, these observations may suggest that the relative strength of crossover associations depends not only on the relationship source but also on the breadth of the happiness construct being examined. As a result, studies may reach different conclusions about stakeholder influence based solely on whether happiness is operationalized broadly or narrowly. Thus, construct selection is therefore essential for interpreting and comparing crossover findings across studies.

For health, the patterns were consistent across the main and supplementary analyses. As shown in Table C1, coworkers showed no meaningful association with employees' mental health, whereas both supervisors and spouses demonstrated comparable levels of mental health crossover. These findings suggest that mental health may be more closely aligned with stakeholders who either hold positions of authority (such as supervisors) or share close emotional proximity with employees (such as spouses), but less so with coworkers.

**Table C1**
Meta-analytic results by happiness and health dimensions.

| | Relationship | k | N | $\bar{r}$ | $SD_r$ | $\bar{\rho}$ | $SD_\rho$ | 95% CI | 80% CR | *Z*-score Significantly different? |
|---|---|---|---|---|---|---|---|---|---|---|
| Crossover of work engagement | | | | | | | | | | |
| 1 | Supervisor | 5 | 2746 | 0.20 | 0.07 | 0.22 | 0.07 | [0.12, 0.32] | [0.12, 0.32] | No: 1 vs. 2 = 1.75 |
| 2 | Coworker | 8 | 3073 | 0.16 | 0.14 | 0.17 | 0.14 | [0.05, 0.30] | [−0.02, 0.37] | No: 1 vs. 3 = 0.84 |
| 3 | Spouse | 13 | 3010 | 0.18 | 0.10 | 0.20 | 0.08 | [0.13, 0.26] | [0.08, 0.31] | No: 2 vs. 3 = −0.95 |
| Crossover of mental health | | | | | | | | | | |
| 4 | Supervisor | 10 | 2193 | 0.25 | 0.16 | 0.29 | 0.17 | [0.16, 0.42] | [0.06, 0.53] | No: 4 vs. 6 = 0.82 |
| 5 | Coworker | 4 | 2066 | 0.04 | 0.09 | 0.05 | 0.09 | [−0.12, 0.22] | [−0.11, 0.20] | |
| 6 | Spouse | 23 | 3881 | 0.23 | 0.18 | 0.27 | 0.19 | [0.18, 0.36] | [0.01, 0.53] | |

*Note.* $k$ = number of studies contributing to meta-analysis; $N$ = total sample size; $\bar{r}$ = mean observed correlation; $SD_r$ = observed standard deviation of $r$; $\bar{\rho}$ = mean true-score correlation; $SD_\rho$ = residual standard deviation of $\bar{\rho}$; CI = confidence interval around $\bar{\rho}$; CR = credibility interval around $\bar{\rho}$. Correlations corrected using artifact distributions. Correlations were cross-sectional or lagged (employees measured at a later time point). |z-scores| $\geq$ 2.40 indicate the statistical significance of the difference between two mean true-score correlations. We did not calculate z-score when one of the crossover relationships being compared was not significant.

## Appendix D. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jvb.2026.104248.

## Data availability

I have shared the link to my data in the manuscript

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