Investigating the relationships between regulatory focus and needs satisfaction at work

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Abstract

Work is becoming more mobile, remote, and fragmented, which makes strategies to enhance employees’ motivation increasingly important in organizations. Research on work motivation has shown that people’s ability to adjust behavior (i.e., self-regulation) and the extent to which their choices and activities are self-determined are among the most relevant factors that shape motivation at work. In this respect, regulatory focus theory and theories of psychological needs have contributed much to the study of work motivation. However, little research has investigated potential connections between these two powerhouses of motivation. To address this issue, this thesis is the first to investigate in depth associations between regulatory focus and psychological needs satisfaction at work. Moreover, it investigates whether regulatory focus may operate in part through psychological needs satisfaction to influence work outcomes like job satisfaction, work engagement, burnout, and turnover intentions.

Based on dual literature reviews of the regulatory focus and needs satisfaction literatures, I propose a theoretical framework that links regulatory focus with satisfaction of needs that involve security and growth at work, and use this framework to assess the impact of these processes on work outcomes. Four empirical studies with data from more than 1,000 employees test this framework. Results suggest that work-specific promotion focus and prevention focus are associated with satisfaction of different work-related needs involving growth and security (Chapters 2 and 3). Further, the relationship between promotion focus and work growth needs is partly explained by job crafting to increase challenges, while the relationship between prevention focus and work security needs is partly explained by job crafting to decrease hindrances (Chapter 3). The thesis concludes with a discussion of how these findings can inform interventions to improve work motivation, and recommends future research to determine causality and test the framework using alternative methodologies.
Declaration

This is to certify that:

- the thesis comprises only my original work towards the degree of Doctor of Philosophy, except where indicated in the Preface;
- due acknowledgment has been made in the text to all other material used; and
- the thesis is fewer than 100,000 words, exclusive of tables, figures, footnotes, references, and appendices.

Statement of Ethical Conduct

The research undertaken as part of this thesis abides by the National Statement on Ethical Conduct in Human Research and the rulings of the Human Ethics Research Committee of the University of Melbourne.

Carolina de Oliveira e Silva Borges

June, 2019
Preface

All aspects of the studies within this thesis were conducted by the author. This includes study conception and design, participant recruitment, data collection, analysis and interpretation, and preparation of chapters and manuscripts. Two chapters have been submitted to scientific journals; details of chapters are provided below.

Chapter 1: General Introduction

This chapter was written by the author with editing assistance from her supervisors, Dr. Greenaway and Dr. Overbeck. The author’s contribution to this chapter was 90%.

Chapter 2: Regulatory Focus and Needs Satisfaction at Work


This article was written by the author with editing assistance from her supervisors Dr. Greenaway and Dr. Overbeck. Supervisor Dr. Boldero contributed to the design of the first study of Chapter 2 and interpretation of its results. The author’s contribution to this manuscript was 90%.

Chapter 3: Self-Regulation and Self-Determination at Work


This article was written by the author with editing assistance from her supervisors Dr. Greenaway and Dr. Overbeck. Supervisor Dr. Boldero contributed to the design of the first
study of Chapter 3 and interpretation of its results. The author’s contribution to this manuscript was 90%.

Chapter 4: General Discussion

This chapter was written by the author with editing assistance from her supervisors, Dr. Greenaway and Dr. Overbeck. The author’s contribution to this chapter was 90%.
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Katie had recently arrived from Queensland as the new talent in the department. She promptly agreed to be my supervisor and helped me persist and progress with empathy, intelligence and professionalism. I will be never able to thank Katie enough, and my co-supervisor, Dr. Jennifer Overbeck, who gave excellent contributions for this work and my motivation with her expertise and high spirits.

Shifting to my personal life, when I got married and moved to Australia after receiving a scholarship that made me feel like I had won the lottery, I could not imagine the challenges that would come in the following years. From struggling with the project, language, and social life, passing through giving birth to a child, up to losing three loved ones.
I start thanking my mother Maria de Lourdes, the tenderest and strongest woman I know, who flew to Australia multiple times to rescue me and help with my son, stopping me from dropping out. I also thank my father Almiro, who cried when he stepped into the beautiful University of Melbourne where his daughter was studying in Australia, given that he has not even finished secondary education. Then, I thank my husband Humberto, who among many joys and sorrows was always by my side offering his support; and I thank his parents, Antonia and Jeronimo, whose financial help for childcare was lifesaving. Unfortunately, my father-in-law Jeronimo passed away last year. He was admired by his elegance and oratory, from him I carry the name, and the lineage—my son Vincent.

Vincent's birth was the most wonderful and difficult event of my life. Even though he was a fabulous baby boy, breastfeeding and sleep deprivation compromised my time, my studies and my mental health. But my love for him kept me alive, because he is my greatest joy in this world. Lastly, I thank my grandfather João, to whom I could not say goodbye in time, and my grandmother Citara. They taught me to be good, righteous, and appreciate the simple things in life.

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Overview of Chapters

This thesis comprises four chapters, presented as follows:

Chapter 1 (General Introduction) is designed to give a thesis overview and introduce the main theoretical components of the thesis. To this end, the chapter describes regulatory focus theory in detail, highlighting the conceptualization of promotion and prevention focus as serving nurturance and security needs, and thus expanding the concept of needs satisfaction in this literature.

This chapter contextualizes regulatory focus within the broader field of motivation at work, and presents a brief literature review on relationships between promotion and prevention focus and work-related variables. Capitalizing on original theorizing about the role of needs in regulatory focus, the chapter then transitions into a literature review on different conceptualizations of needs satisfaction in the work domain, drawing from early work on Maslow’s taxonomy of needs and discussing more modern interpretations in the vein of quality of work life and self-determination perspectives. Needs as conceptualized by these perspectives are presented in detail, with an emphasis on how satisfaction of these needs can impact on attitudes and outcomes at work. This chapter also discusses the utility of needs theories in relation to predicting behavior.

The chapter concludes by proposing a conceptual framework that integrates regulatory focus theory with needs satisfaction at work, broadly construed. It develops a theoretical framework for likely relationships between promotion and prevention focus with those needs, and possible associations with work-related outcomes. This chapter also highlights research questions and presents all hypotheses that will be explored in the subsequent empirical chapters.

Chapter 2 (Regulatory focus and needs satisfaction at work) is the first empirical investigation of this thesis, and comprises a manuscript currently under review at *Motivation*
and Emotion. It presents the results of two correlational studies exploring the relationships between promotion and prevention focus at work and satisfaction of work-related needs that contribute to quality of work life (Studies 1 and 2). The studies further explore the relationships between promotion and prevention focus at work and work outcomes including engagement, job satisfaction, burnout, and turnover intentions. In the first test of the theoretical framework proposed in Chapter 1, Chapter 2 tests whether need satisfaction mediates the relationship between promotion and prevention focus at work and work outcomes (Study 2).

Chapter 3 (Self-regulation and self-determination at work) presents the second empirical investigation of the thesis, and comprises a manuscript currently under review at Journal of Business and Psychology. It presents the results of two correlational studies exploring the relationships between promotion and prevention focus at work and the basic psychological needs outlined in self-determination theory (Studies 3 and 4). These studies explore whether basic psychological needs satisfaction mediate the associations between regulatory focus and work-related outcomes (i.e., engagement, job satisfaction, burnout and turnover intentions; Studies 3 and 4). Finally, Chapter 3 investigates whether job crafting behavior is a process through which people with particular regulatory foci use to satisfy work-related needs and in turn impact on work outcomes (Study 4).

Chapter 4 (General Discussion) synthesizes the findings of the empirical chapters in light of the proposed theoretical framework. It concludes the thesis with an overview of findings, discussion of future directions, and discourse on the implications of this thesis for the field of work motivation.
Chapter 1

General Introduction

The nature of work is constantly changing: work is becoming more mobile, automated, fragmented, self-learned, and self-managed (Gee, 2018; Hagan, 2017), all of which require an ability to self-regulate and motivate (Gee, 2018). To meet these ongoing challenges, employees must adapt to changing contingencies and keep motivated to seize the new opportunities yet to come. But for this, we need a strong understanding of the factors that shape and direct motivation at work, wherever that work will be and whatever form it will take.

Although the nature of work changes rapidly, human nature does not change at quite the same pace. Regardless of context, people must meet basic needs to have optimal psychological functioning, well-being and a good quality of life; these include needs for security, autonomy, growth and social connection (Deci & Ryan, 2000; Sirgy, Efraty, Siegel, & Lee, 2001). Despite changes in work dynamics, common goals still involve financial freedom, professional success, happiness, good health and good relationships (Groysberg & Abrahams, 2014). To ensure that employee’s needs are satisfied and goals met, it is critical to understand how to develop the best strategies and interventions to support workers’ motivation and success. For this, I advocate for person-centered practices that aim to enhance motivation and quality of work life by considering the person in context, including personal characteristics, motives, needs and goals, and how these operate to shape people’s perceptions of and interactions with their work environment.

The Importance of a Good Work Life

A good quality of work life, which means being in a work situation that is gratifying and contributes to a good quality of life in general, satisfies people’s needs and makes them happier, healthier, and more productive (Alfonso, Zenasni, Hodzic, & Ripoll, 2016; Lau,
In turn, good quality of work life is associated with several benefits to the person and the organization, such as greater health, well-being, performance, and commitment (Danna & Griffin, 1999; Efraty & Sirgy, 1990; Havlovic, 1991; Lau, 2000). Further, companies with higher quality of life have employees that are more involved in their jobs, less absent, more engaged in organizational citizenship behavior, and less engaged in counterproductive work behavior. (Danna & Griffin, 1999; Efraty & Sirgy, 1990; Efraty, Sirgy, & Claiborne, 1991; Havlovic, 1991; Lau, 2000). Thus, investing in strategies to satisfy employees’ needs and increase their quality of work life will likely improve productivity alongside personal well-being.

Conversely, dissatisfaction with one’s job can lead to demotivation, ill health, and problematic behavior. Among the negative consequences are increased alcohol, cigarette and drugs consumption, headaches, stomach distress, cardiovascular diseases, depression, accident proneness, and sleep disturbances (Danna & Griffin, 1999; Lawler, 1982). Notably, the global workforce has over 3 billion employed people (International Labour Organization, 2018); thus, the costs of paid medical leave, low productivity, poor health, and high turnover, are examples of great burdens for businesses and society. Therefore, it is clear that satisfying employees’ needs and supporting a good quality of work life is of paramount importance. How to best support these motivating factors is an open question, however.

Individual and environmental factors affect motivation, and likely the most effective investigations and interventions will combine these two approaches in the best tradition of person-by-situation perspectives (Ross & Nisbett, 1991). When studying the effects of individual factors on motivation, researchers consider not only individual differences that affect motivation such that some people are more or less motivated than others, but especially those that explain differences in qualities of motivation according to people’s personalities and traits. In comparison, when studying the effects of environmental factors on motivation,
some environments and circumstances produce different qualities of motivation than others. However, it is important to understand how these factors function together; for example, the extent to which the environment influences individuals’ motivation, and the extent to which individuals’ motivation influences how the environment is experienced. The latter is what this thesis aims to do: bring together celebrated individual difference approaches of self-regulation with established situational perspectives of needs satisfaction to better understand work motivation. While recognizing the importance of environmental factors for meeting people’s needs, this research is focused on the role of individual difference factors in guiding how the environment is perceived, which does not replace the role of the environment itself in satisfying needs. Specifically, in this thesis, I explore whether employees’ individual regulatory focus is associated with the perceived satisfaction of particular work-related needs, despite differences in work context.

**Thesis Purpose**

Although several studies show that self-regulation and needs satisfaction are crucial to motivation, it is unclear how these factors operate together. On the one hand, people must self-regulate and be motivated to meet needs (Higgins, 1998a); on the other hand, people must have their needs satisfied through the environment for optimal motivation to be generated (Deci & Ryan, 1985). The purpose of the present thesis is to deepen the understanding of how regulatory focus and needs satisfaction work together to shape work motivation. Despite the fact that regulatory foci are theorized to serve distinct needs (Higgins, 1997, 1998b), empirical evidence for these associations is surprisingly sparse, and none exists in the work domain. This means that researchers do not yet know how regulatory focus may operate in concert with needs satisfaction to impact on desired work outcomes. To address these issues, a central aim of this thesis is to investigate whether regulatory focus is
associated with satisfaction of psychological needs proposed by alternative theories of motivation in the work domain.

In assessing relationships between regulatory focus and needs satisfaction, this thesis extends the concept of needs in regulatory focus theory by revealing associations between work regulatory focus and needs drawn from the quality of work life and self-determination literatures. Moreover, the thesis advances needs-based theories by showing that self-regulatory individual differences play a role in shaping work-related needs satisfaction. Further, this research reveals job crafting behavior as a key factor that links regulatory focus and psychological needs satisfaction, with implications for work outcomes.

On a practical note, findings of this research have the potential to inform practice to improve work motivation interventions. For example, the results indicate which outcomes are more likely to benefit from particular regulatory orientations at work, and therefore which orientations and needs should receive more attention and guidance in the context of motivational interventions. I discuss later what these employee-centered interventions might look like, and how organizations can enhance motivation in a targeted manner by taking into account people’s individual differences.

**Regulatory Focus Theory and Needs Satisfaction**

Certain needs must be met for survival; therefore, motivational orientations develop to guide behavior toward satisfaction of these needs. According to early attachment theory (Bowlby, 1969, 1982), people need to be secure and nurtured to survive, and thus develop behavioral systems that make them act in order to fulfill security needs (i.e., needs for being safe and free from harm and threats) and nurturance needs (i.e., needs for receiving attention, care, physical and psychological nourishments). Attachment theory has been extensively researched and supported in the last thirty years (Cassidy, Jones, & Shaver, 2013), establishing that security needs and nurturance needs are universal—meaning that all children
need to feel protected from danger, and nurtured, cared for, encouraged to grow and develop by their caregivers—and these needs must be met for children to grow up healthy and thrive (High and the Committee on Early Childhood, Adoption, and Dependent Care and Council on School Health, 2008; Shonkoff & Phillips, 2000).

Based on this notion, regulatory focus theory (Higgins, 1997, 1998b) expanded this knowledge by uncovering that people develop two motivational orientations to satisfy nurturance and security needs: promotion focus and prevention focus. In promotion focus, people approach the presence (and avoid the absence) of positive outcomes, are motivated by hopes and aspirations, and seek accomplishments and gains to advance, which is hypothesized to feed their nurturance needs (Higgins, 1998b). In contrast, in prevention focus, people avoid the presence (and approach the absence) of negative outcomes, are motivated by a fear of losses and making mistakes, and strive to fulfill duties and responsibilities to maintain the status quo, which is hypothesized to feed their security needs. Of importance, both regulatory foci can be effective for goal achievement; however, they operate in very distinct ways (Higgins, 1997, 1998b; Scholer & Higgins, 2010).

People high in promotion focus, for example, are usually eager for gains and tend to take risks, not thinking much about the problems ahead (Ouschan, Boldero, Kashima, Wakimoto, & Kashima, 2007). In addition, promotion-focused folks are generally optimistic and enthusiastic, and have cheerfulness-related positive emotions when goal pursuit is successful, such as joy and excitement, and dejection-related negative emotions when it is not, such as sadness and depression (Higgins, Shah, & Friedman, 1997). In contrast, people high in prevention focus are usually vigilant to avoid failure and tend to be conservative, thinking frequently about potential problems and what can go wrong (Ouschan et al., 2007). Prevention-focused people are at most times realistic and cautious, and have quiescence-related positive emotions when goal pursuit is successful, such as calmness and relaxation,
and agitation-related negative emotions when it is not, such as nervousness and anxiety (Higgins et al., 1997). Because promotion and prevention focus are thought to serve fundamentally distinct needs, they elicit different thoughts, feelings and behaviors.

It is important to highlight that promotion and prevention focus are not opposite ends of the same construct; they are independent motivational orientations, orthogonal, developed and available in all people (Higgins, 1998a; Lanaj, Chang, & Johnson, 2012). Thus, a person can be high (or low) in promotion focus and prevention focus simultaneously, or high in one while low in the other (Lanaj et al., 2012). This is consistent with the notion that nurturance and security are necessary for survival and not mutually exclusive. Of great importance for motivation at work, different levels of promotion and prevention focus can be chronically activated or situationally induced (Gorman et al., 2012; Higgins, 1998a; Lanaj et al., 2012).

Chronic regulatory focus is proposed to evolve from life experiences and functions as a trait variable (i.e., relatively stable over time; Higgins, 1998a). However, contextual cues and situations can prime a momentary regulatory focus, which functions more like a state variable (i.e., unlikely to last long and be consistent over time once the stimulus is withdrawn; Higgins, 1998a). That is, although some combinations of regulatory focus are more easily accessible according to individual differences, specific situations that are promotion- or prevention-focused induce their respective regulatory focus in people. For example, when people list duties and responsibilities, this induces a prevention focus in them, whereas when people list hopes and aspirations, this induces a promotion focus in them (Higgins, 2000a). Therefore, changes in work design and practices can influence the need for self-regulation.

Over time, people build a history of regulatory success in their life experiences, which then becomes what is called regulatory pride (Higgins et al., 2001). Regulatory pride means that successful experiences in promotion focus increase the chances of using promotion-
focused strategies in the future (promotion pride), and successful experiences in prevention focus increase the chances of using prevention-focused strategies in the future (prevention pride; Higgins et al., 2001). In addition, when there is a match between one’s regulatory focus and the strategy used in goal pursuit, such as promotion focus using eager strategies and prevention focus using vigilant strategies, the person experiences a regulatory fit—which increases engagement, value and interest in the activity undertaken (Higgins, 2000b, 2005; Higgins, Spiegel, Cesario, Hagiwara, & Pittman, 2010).

Critically, I argue that regulatory pride and successful experiences in promotion and prevention focus may involve not only goal achievement, but also needs satisfaction. In this case, because needs satisfaction feels good and enhances motivation, the benefits from ongoing needs satisfaction may be part of the reason that people continue to use promotion and prevention focus strategies in their lives. According to theory, promotion focus and growth needs satisfaction, and prevention focus and security needs satisfaction, could be examples of regulatory effectiveness and fit. Further, the promotion focus emphasis on nurturance/growth needs and the prevention focus emphasis on security needs may affect perceptions of these needs, such as importance and satisfaction. In line with this theorizing, I expect that work-specific (non-chronic) promotion and prevention focus help to satisfy growth- and security-related needs at work, which may have different consequences for employees’ work outcomes.

**Regulatory focus and work motivation.** Regulatory focus theory is a dominant perspective in the work motivation literature. People’s regulatory focus has a strong impact on motivation, along with other trait-based individual difference factors such as personality traits and goal orientations (Kanfer, Frese, & Johnson, 2017). Employees high in promotion focus are more likely to take risks at work, be creative, seek challenges, and promote organizational changes, whereas employees high in prevention focus are more likely to be
cautious and critical, comply with regulations, and adhere to safety rules (Lanaj et al., 2012; Spanjol & Tam, 2010; Wallace & Chen, 2006). In addition, people high in promotion focus value and are attracted to jobs that offer good opportunities for growth and career advancement, whereas people high in prevention focus value and are attracted to jobs that offer financial and job security (Sassenberg & Scholl, 2013; Steidle, Gockel, & Werth, 2013). These consequences of promotion and prevention focus for employees’ behavior and preferences speak to the significance of regulatory focus in the work domain. Therefore, it is valuable to have a deep understanding of what these consequences are, because promotion and prevention focus can be primed for enhancing work outcomes (Hamstra, Van Yperen, Wisse, & Sassenberg, 2011; Kark & Van Dijk, 2007; Van Dijk & Kluger, 2011).

Notably, promotion and prevention focus differ in their associations with work outcomes. For example, meta-analyses have revealed that employees high in prevention focus (and those low in promotion focus) generally report lower levels of job satisfaction than employees high in promotion focus (Gorman et al., 2012; Lanaj et al., 2012). In turn, job satisfaction is desirable because it is associated with better quality of life, well-being, performance, and organizational effectiveness, such as higher profitability, productivity and customer satisfaction (Judge, Weiss, Kammeyer-Mueller, & Hulin, 2017). Therefore, higher levels of prevention focus and lower levels of promotion focus may compromise organizational effectiveness by lowering job satisfaction, whereas higher levels of promotion focus may contribute to employees’ and organizations’ success by enhancing job satisfaction, or by counterbalancing any negative effect that prevention focus might have on job satisfaction.

Along the same lines, promotion focus is associated with work engagement (Lanaj et al., 2012), and predicts greater employability than prevention focus (Brenninkmeijer & Hekkert-Koning, 2015). In contrast, employees high in prevention focus are more committed
to stay in the organization to avoid losses associated with leaving (i.e., continuance commitment; Gorman et al., 2012; Lanaj et al., 2012), although employees high in promotion focus are more committed to stay in the organization because they like their jobs (affective commitment; Gorman et al., 2012). Further, promotion focus is associated with organizational citizenship behavior (e.g., proactively helping co-workers), and leader-member exchange (i.e., dyadic relationship between leader and follower that goes beyond professional obligations; Gorman et al., 2012; Lanaj et al., 2012), whereas prevention focus is associated with counterproductive work behavior (e.g., sabotage, withdrawal; Lanaj et al., 2012). Therefore, it is clear that promotion focus and prevention focus have substantially different consequences for work outcomes, both in terms of magnitude and in the outcomes they influence. This thesis investigates factors that underpin the relationships between work regulatory focus and work outcomes in the form of engagement, job satisfaction, burnout, and turnover intentions.

When looking for factors that explain why promotion and prevention focus have different associations with work outcomes, scholars usually cite differences in mood, affect, activation, and goal orientations (Lanaj et al., 2012). However, regulatory focus explains unique variance in work outcomes over and above these factors and other predictors such as optimism, neuroticism, positive/negative affect, motives, and goal orientations (Gorman et al., 2012; Lanaj et al., 2012). Therefore, this thesis aims to investigate further potential unexplored mechanisms or processes that link regulatory focus with work outcomes beyond those already identified in the literature. In this vein, because regulatory focus serves distinct needs, meaning that people attend to specific needs when in a particular regulatory mindset, I explore differences in which needs are more likely to be satisfied when employees are highly promotion-focused or highly prevention-focused at work. That is, I test the links between regulatory focus and needs satisfaction, and their joint impact on work outcomes.
Needs Satisfaction in the Work Domain

As in other areas of life, people seek to satisfy personal needs through their work (Loscocco & Roschelle, 1991). Needs-based theories of work motivation argue that motivation and work outcomes are optimal when employees’ needs are met (Deci, Olafsen, & Ryan, 2017; Gagne & Deci, 2005; Sirgy et al., 2001). However, there are different theoretical approaches to understanding the construct of needs satisfaction. For example, needs that are requirements for survival and normal health are common to all human beings, such as needs for nurturance and safety (Bowlby, 1982). In contrast, other types of needs are not essential for survival and good health, but are necessary for maintaining a certain quality of life and well-being, such as needs for recognition and knowledge (Sirgy et al., 2001). Further, recent theories of needs satisfaction have focused on basic psychological needs, such as needs for autonomy and good relationships, which are essential to all people for optimal psychological functioning (Deci & Ryan, 2000). Satisfaction of these psychological needs predict well-being, whereas frustration of the same needs invariably lead to negative consequences (Vander Elst, Van Den Broeck, De Witte, & De Cuyper, 2012).

Specific to the work domain, some theories describe relatively practical needs that contribute to a good quality of work life, such as needs for adequate work conditions, satisfactory remuneration, job security, and work safety (Sirgy et al., 2001; Walton, 1973). In contrast, some other theories emphasize satisfaction of psychological work-related needs (Alderfer, 1972), such as needs for autonomy, competence, and relatedness (Deci et al., 2001). Therefore, I explore relationships between regulatory focus and satisfaction of needs from both approaches: work-related needs from the literature on quality of work life, and basic psychological needs from the literature on self-determination theory. The criteria adopted for needs inclusion in the thesis’ studies were: (1) needs that have been shown to predict motivation, and (2) that could be theoretically related to security and growth.
concerns. This way I can investigate relationships between regulatory focus and needs that are work-specific (quality of work life needs) and that are basic, that is, fundamental for well-being and optimal motivation (self-determination needs). Addressing these relationships can deepen our understanding of work motivation by clarifying whether motivational orientations and needs satisfaction work together to influence employee outcomes and quality of work life.

Quality of work life. Quality of work life can be measured in a number of ways, including: organizational factors, such as adequate equipment, safe environment, and satisfactory remuneration; psychosocial factors, such as relationships, leadership, job satisfaction, and job stress; and well-being factors, such as physical and mental health, life satisfaction, and happiness. One way of assessing quality of work life is by measuring employees’ satisfaction with a set of common work-related needs, which are personal demands and conditions that people seek to satisfy through work (Sirgy et al., 2001).

According to Sirgy et al. (2001), satisfaction of seven major work-related needs determines the quality of one’s work life, as outlined in Table 1. These seven needs were developed by adapting Maslow’s (1943) taxonomy of needs\(^1\) to the work context. According to this perspective, quality of work life reflects the overall satisfaction with the seven major needs proposed by Sirgy et al. (2001). Based on a later validation of this taxonomy (Lee, Singhapakdi, & Sirgy, 2007) and this research purposes, I aggregate the seven needs into three main factors: security needs (formed by health and safety needs and economic and family needs), social needs (formed by social needs and esteem needs), and growth needs (formed by actualization needs, knowledge needs and creativity needs).

\(^1\) Maslow’s taxonomy of needs comprises five basic human needs: physiological needs, safety needs, belonginess and love needs, esteem needs, and self-actualization needs.
Table 1. Seven major needs of quality of work life

<table>
<thead>
<tr>
<th>Needs type</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health and safety needs</td>
<td>Protection from illnesses and injuries and support of good health at work.</td>
<td>Safety policies, health care, health insurance.</td>
</tr>
<tr>
<td>Economic and family needs</td>
<td>Remuneration, job security, and other family needs.</td>
<td>Salary, job stability, childcare assistance.</td>
</tr>
<tr>
<td>Social needs</td>
<td>Collegiality, close relationships and leisure time.</td>
<td>Good friends at work, enough time to socialize.</td>
</tr>
<tr>
<td>Esteem needs</td>
<td>Recognition and appreciation at work and in the field.</td>
<td>Awards, public recognition, citations.</td>
</tr>
<tr>
<td>Actualization needs</td>
<td>Professional realization and potential fulfillment.</td>
<td>Recognition as an expert in the field.</td>
</tr>
<tr>
<td>Knowledge needs</td>
<td>Continuous learning to improve job and professional skills.</td>
<td>Courses, training.</td>
</tr>
<tr>
<td>Creativity / aesthetics needs</td>
<td>Development and expression of creativity, art, and aesthetics.</td>
<td>Freedom do be creative and enjoyment of art.</td>
</tr>
</tbody>
</table>

Although satisfaction of these needs is mostly predicted by supportive organizational resources (Sirgy et al., 2001), I argue that because regulatory foci produce different qualities of motivation related to security and growth needs, they may influence people’s sense of needs satisfaction. Specifically, I expect that quality of work life in terms of employees’ needs satisfaction will be predicted by their regulatory focus, particularly because promotion focus and prevention focus involve self-regulation related to two distinct types of needs (i.e., growth and security).

Little research attention has been paid to whether regulatory focus affects needs satisfaction (Vaughn, 2017). In contrast, several other individual difference factors have been presented as antecedents of psychological needs satisfaction in the literature, such as personality traits, optimism, and causality orientation (Van den Broeck, Ferris, Chang, &
Rosen, 2016). I argue that, because employees are active agents in the needs-fulfillment process (Kanfer et al., 2017), self-regulation can influence how people go about satisfying their primary needs, and thus how satisfied they feel. For example, imagine two employees hired at the same time with the same job position, same salary, same work conditions, and similar personal expenses, who nevertheless differ in regulatory focus predominance: Sarah has high promotion focus and low prevention focus and George has low promotion focus and high prevention focus. Despite experiencing equal work conditions, promotion-focused Sarah feels stagnated because she thinks that, by now, she should be making more money. On the other hand, prevention-focused George feels satisfied because he can count on a good regular salary every month. In this case, economic needs satisfaction would be greater for George than for Sarah, even with identical work conditions and resources. Therefore, I argue that regulatory focus potentially influences perceived work-related needs satisfaction.

**Basic psychological needs satisfaction.** Whereas regulatory focus theory describes different individual qualities of motivation that shape people’s behavior and work outcomes, other theories emphasize that motivation is shaped by particular environments that are more or less supportive of the psychological factors that strengthen motivation and enhance work outcomes. This is the case for self-determination theory (Deci & Ryan, 1985; Deci & Ryan, 2000; Ryan & Deci, 2000). Self-determination theory argues that motivation is at its best when psychological needs are satisfied, and when people perceive their circumstances to be self-determined. Here, needs are defined as the conditions or nutriments that are fundamental to one’s survival, growth, and integrity (Deci & Ryan, 2000; Ryan, 1995; Ryan, Sheldon, Kasser, & Deci, 1996). According to this theory, optimal psychological functioning and motivation are achieved through satisfaction of three basic psychological needs: competence, relatedness and autonomy, described in Table 2 (Deci & Ryan, 2000; Ryan, 1995; Ryan & Deci, 2000). However, individual and situational approaches seem complementary: While a
supportive environment is crucial for needs satisfaction, regulatory focus guides behavior that makes use of these environmental resources to satisfy personal needs.

Table 2. *Basic psychological needs from self-determination theory*

<table>
<thead>
<tr>
<th>Needs type</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competence needs</td>
<td>Feeling competent and capable of achieving goals and completing tasks.</td>
<td>Mastery, expertise, job skills.</td>
</tr>
<tr>
<td>Relatedness needs</td>
<td>Having close and meaningful relationships at work.</td>
<td>Caring for colleagues and feeling cared for, trust.</td>
</tr>
<tr>
<td>Autonomy needs</td>
<td>Having freedom to work and make decisions according to own interests.</td>
<td>Authenticity, flexibility in job demands, power.</td>
</tr>
</tbody>
</table>

The self-determination perspective claims that people need to feel skilled at their jobs, have satisfactory relationships, and autonomy for enhancing motivation and thriving at work. Basic psychological needs satisfaction in turn is associated with greater employee well-being, engagement, commitment, job satisfaction, and performance (Van den Broeck et al., 2016). In contrast, frustration of the same needs has detrimental effects on employees’ well-being and engagement, and is associated with greater exhaustion, burnout, absenteeism, and turnover intentions (Deci et al., 2017; Olafsen, Niemiec, Halvari, Deci, & Williams, 2017). Therefore, strategies to meet employees’ basic psychological needs are important for companies and individuals.

Because of the effect that basic psychological needs satisfaction has on work motivation, research to date has focused on discussing the importance of supporting basic psychological needs satisfaction in the workplace, and the consequences of satisfaction and frustration of these needs for employees and organizations (Deci et al., 2017; Gagne & Deci, 2005; Van den Broeck, Vansteenkiste, De Witte, & Lens, 2008). However, in the investigations of which individual factors *precede* psychological needs satisfaction, regulatory focus is an underresearched area. I argue that individual differences in the form of
regulatory focus may play a role in satisfying basic psychological needs at work by influencing how people perceive the environment and use organizational resources to satisfy their primary needs, which in turn has consequences for work outcomes.

**The present thesis: Focusing on satisfaction of work-related needs**

This thesis extends the concept of needs in regulatory focus theory beyond basic survival needs for nurturance and security by exploring relationships between regulatory focus and satisfaction of other types of needs proposed by alternative theories of motivation. Needs fulfillment is essential not only for survival, but also for better motivation, work outcomes, well-being, quality of work life, and life satisfaction (Baumeister & Leary, 1995; Danna & Griffin, 1999; Deci & Ryan, 2000; Sirgy et al., 2001). Therefore, it is important to look at other psychological needs as well as survival needs to extend regulatory focus theory in this direction. The intent of the thesis is not to introduce other needs to regulatory focus theory, but to understand the effects of promotion and prevention focus on security and growth needs satisfaction in the work domain. This can deepen our understanding of the role of promotion and prevention focus in needs satisfaction processes, broadly construed.

I argue that, because regulatory focus develops to guide behavior in order to satisfy human needs, and because promotion and prevention focus influence people’s perceptions, feelings, and behaviors, regulatory focus might affect levels of neediness and how satisfied people feel with particular needs. This research addresses the latter by looking for relationships between regulatory focus and satisfaction of several types of work-related needs. This thesis investigates associations between work-specific regulatory focus with: (1) satisfaction of work-related needs as outlined in quality of work life literature (Sirgy et al., 2001), and (2) satisfaction of three basic psychological needs as outlined in self-determination theory (Deci & Ryan, 1985; Deci & Ryan, 2000; Ryan, 1995; Ryan & Deci, 2000). This addresses the lack of empirical evidence regarding relationships between
regulatory focus and needs satisfaction in the work domain, which is an important piece of the puzzle to understand how self-regulation affect work outcomes.

**Theoretical framework linking regulatory focus and needs satisfaction**

As discussed, despite its being widely accepted that regulatory focus serves survival needs, gaps remain in researchers’ understanding of the relationships between regulatory focus and satisfaction of psychological needs. In this thesis, I argue that prevention and promotion focus at work contribute to satisfaction of certain psychological work-related needs that involve security and growth. This means that behavior guided by promotion and prevention focus influences subjective feelings of needs satisfaction, for example by increasing one’s sense of control, reducing self-discrepancies, and feeling good about the job.

Because promotion and prevention focus in their original theorizing are proposed to be responsive to nurturance needs (sometimes referred to as growth needs) and security needs respectively (Higgins, 1997, 1998a), regulatory focus is frequently described by scholars as motivational orientations that serve these two distinct needs (Brockner & Higgins, 2001; Grant & Higgins, 2003). This implies the following order: (1) People have nurturance and security needs; (2) they develop and use motivational orientations that guide behavior to satisfy these needs; and (3) their needs are satisfied—and the process restarts, because needs are a continuous and ongoing human process, never permanently satisfied (Alderfer, 1969). Consistent with this rationale, other individual difference factors that predict behavior are among the antecedents of needs satisfaction (Deci et al., 2017; Gagne & Deci, 2005; Van den Broeck et al., 2016), which could be also the case for regulatory focus. Thus, the theory-based approach I take in this thesis is that promotion and prevention focus predict satisfaction of the needs they serve; that is, regulatory focus acts as predictor and needs satisfaction as criterion, rather than the other way around.
Specific to work motivation, I propose that associations between work promotion focus and work outcomes are mediated by growth-related needs satisfaction at work, and that associations between work prevention focus and work outcomes are mediated by security-related needs satisfaction at work. That is, part of the relationships between regulatory focus and work outcomes will be explained by needs satisfaction variables, which differ in promotion and prevention focus. This is the theoretical framework that I test in two empirical investigations taking conceptualizations of needs satisfaction from the two prominent needs theories previously described.²

Figure 1. *Theoretical framework mapping associations between regulatory focus, needs satisfaction and work outcomes*

² The two needs-based literatures—quality of work life and self-determination—were not integrated together. Their needs were labelled as growth-, security-, or social-related needs in the thesis framework, but the integration between regulatory focus and each needs-based theory was conducted separately.
In the present thesis, relationships between regulatory focus and needs satisfaction in the work domain are examined in two ways. First, I investigate associations between work promotion and prevention focus and the satisfaction of work-related needs from quality of work life research (i.e., growth needs, social needs, and security needs). Second, I investigate associations between work promotion and prevention focus and three basic psychological needs from self-determination research (i.e., autonomy needs, relatedness needs, and competence needs). Further, a central aim of this research is to investigate whether needs satisfaction mediates associations between work regulatory focus and work outcomes, as outlined in Figure 1. In sum, the studies in this thesis answer three main research questions:

1. Is work-specific regulatory focus associated with work-related needs satisfaction?
2. Which work-related needs are served by promotion and prevention focus at work?
3. Is needs satisfaction a process through which regulatory focus influences work outcomes?

I investigated these research questions in two empirical chapters comprising two studies each. Because of their correlational nature, the studies cannot confirm causality, but do provide evidence for associations between work regulatory focus, needs satisfaction and work outcomes in employees from various work contexts. I acknowledge and consider this limitation both in the analysis of the data and in the interpretation of the results. In addition, it is possible that regulatory focus and needs satisfaction reinforce one another, meaning that regulatory focus might increase needs satisfaction, and needs satisfaction might increase levels of regulatory focus. However, when analyzing the reverse causal pathway (i.e., needs satisfaction→ regulatory focus→ work outcomes), regression coefficients and the variance of work outcomes explained were less robust than the reciprocal model proposed in this thesis, which may be a hint that regulatory focus predicts needs satisfaction more than the other way
around. This reinforcement cycle between regulatory focus and needs satisfaction awaits longitudinal testing in future research.

**Hypotheses**

Given the lack of empirical research on associations between regulatory focus and psychological needs satisfaction, I made a set of predictions about relationships based on the theories underlying these constructs. These predictions and hypotheses are unpacked in detail in Chapters 2 and 3, but comprise two high-level hypotheses: that work promotion focus is associated with growth-related needs satisfaction \((H1)\), and that work prevention focus is associated with security-related needs satisfaction \((H2)\).

**Hypothesis 1**: Promotion focus predicts satisfaction of growth-related needs at work.

**Hypothesis 2**: Prevention focus predicts satisfaction of security-related needs at work.

To test these hypotheses, I investigated psychological needs drawn from two distinct literatures that map onto growth and security related concerns—quality of work life and self-determination theory.

**Growth-related needs.** Some work-related needs have growth-oriented elements in their conceptualization and seem more likely to benefit from a promotion focus. I identify these as actualization, knowledge, and creativity needs from quality of work life, and autonomy needs from self-determination theory.

**Actualization needs satisfaction.** Actualization needs concern realizing one’s potential at work, which appears aligned with promotion focus motives such as hopes, ideals, aspirations, and positive outcomes. Although actualization could provide some sense of security (e.g., employability, expertise), I theorize that it is more closely related to growth concerns, and therefore it will be predicted by work promotion focus. I argue for the closer relationship with growth than security concerns because actualization needs satisfaction
emphasizes professional achievement and does not seem to be a determining factor for meeting security needs.

**Knowledge needs satisfaction.** To some extent, knowledge needs satisfaction could be at service of security and growth. For example, know-how (i.e., practical and technical knowledge) could increase one’s sense of security by reducing the chances of making errors and mistakes, which is a prevention-focus concern. However, needs for continuous learning seem to be more about growing and advancing than about security, because learning moves people from the current state to a better one, which is a promotion-focus concern. Consistent with this idea, promotion focus has been associated with learning goal orientation, which is a preference for professional development through learning (Gorman et al., 2012; Lanaj et al., 2012; VandeWalle, Cron, & Slocum, 2001). However, no research that I am aware of has directly measured relationships between regulatory focus and how knowledgeable people feel, or how much people value knowledge at work. Based primarily on the notion that learning moves people to a better state, I theorize that knowledge needs satisfaction is more likely to belong to growth-related needs and will be predicted by work promotion focus.³

**Creativity needs satisfaction.** Promotion focus has been extensively associated with creativity; that is, with being more insightful and creative and producing more novel ideas than prevention focus (Li, Li, & Lin, 2018; Neubert, Carlson, Kacmar, Chonko, & Roberts, 2008; Sacramento, Fay, & West, 2013; Van Dijk & Kluger, 2011). This replicates across several studies, except in specific circumstances of loss or absence of regulatory closure, under which conditions people in prevention focus can be as creative as people in promotion

³ It is worth noting that knowledge needs satisfaction differs from competence needs satisfaction in that the former assesses needs for constant learning and skills improvement, whereas the latter assesses needs for feeling confident and capable of doing one’s job well, completing tasks, and achieving goals.
focus (Baas, De Dreu, & Nijstad, 2011). However, in general, creativity has been found more closely related to promotion focus. I argue that this is because the concept of creativity itself has a growth component. In other words, the creativity definition involves developing new and novel ideas or solutions (Amabile, 1983), which implies growth and challenges the status quo. Further, creative expression involves taking risks (e.g., risks of idea rejection, low engagement of others, failure, waste of resources), which may not be a big issue for people high in promotion focus, who already tend to display risk-taking behavior. In contrast, the uncertainty inherent to the creative process seems less compatible with prevention focus, which fosters striving to maintain the status quo and avoid risks and losses; a preference for stability over change (Liberman, Idson, Camacho, & Higgins, 1999); and frequent thoughts about the possibility of failure (Ouschan et al., 2007). Therefore, I theorize that creativity needs satisfaction maps onto growth-related needs and will be predicted by work promotion focus.

**Autonomy needs satisfaction.** According to self-determination theory (Deci & Ryan, 1985; Deci & Ryan, 2000; Ryan & Deci, 2000), autonomy needs involve freedom to make decisions that reflect who the person is and what the person really wants (Deci et al., 2001). When developing self-determination theory, Deci and Ryan (1985) highlighted that for children to learn, grow, and develop, they must have opportunities to follow their own interests, which happens when teachers are trusting and autonomy supportive. Therefore, autonomy needs could be more salient in promotion focus, given that promotion focus is oriented towards growth, ideal self-guides, hopes, and aspirations. For example, a highly promotion-focused employee is likely to need autonomy for taking risks and pursuing new gain opportunities. In contrast, because prevention focus orients people towards ought self-guides, obligations, and following rules and guidelines, my reading is that autonomy may be
less salient in prevention focus. Thus, I expect that autonomy needs satisfaction promotes growth, and therefore will be predicted by work promotion focus.

**Security-related needs.** On the other hand, some other work-related needs appear to be more about security than growth, such as health and safety needs and economic and family needs from quality of work life, and competence needs from self-determination theory.

**Health and safety needs satisfaction.** Safety and security are fundamentally prevention-focused concerns. Indeed, in work motivation literature, prevention focus has been associated with safety performance and adherence to safety procedures, which reduces injuries and accidents in the workplace (Lanaj et al., 2012; Wallace & Chen, 2006). Although some aspects of health and safety needs could be framed as gains, such as health and family benefits, in Sirgy et al.’s (2001) framework health and safety needs concern feeling physically safe at work, staying healthy, and having health assistance, which seems more aligned with security than growth concerns. Therefore, I expect that health and safety needs satisfaction maps onto security-related needs, and their satisfaction will be predicted by work prevention focus.

**Economic and family needs satisfaction.** People high in prevention focus place more value on job security and remuneration, and are more attracted to jobs that offer more security than autonomy, relative to people low in prevention focus and high in promotion focus (Sassenberg & Scholl, 2013; Steidle et al., 2013). Although a good salary could be indicative of growth, economic and family needs in Sirgy et al.’s (2001) framework assess job security (i.e., job stability) and whether employees are satisfied with the salary and providing for their family. Framed this way, economy and family needs reflect more security than growth. Therefore, I expect that economic and family needs belong relatively more to security-related needs, and will be predicted by work prevention focus.
Competence needs satisfaction. Moving on to self-determination, having competence seems critical for people high in prevention focus to be able to successfully fulfill duties and avoid mistakes. Competence needs satisfaction involves feeling confident and capable of doing one’s job, completing tasks (even when they are difficult), and feeling competent to achieve one’s goals (Deci et al., 2001). Similar to other needs discussed previously, competence needs satisfaction could be a sign of growth in some circumstances; however, the way it is assessed in self-determination theory is more aligned with prevention-focus motivation to fulfill obligations and responsibilities, and to avoid losses and errors. In addition, considering that in self-determination theory needs are requirements for personal growth and integrity (Ryan, 1995; Ryan et al., 1996), autonomy seems more aligned with growth, whereas competence seems more aligned with maintaining integrity. In this case, competence needs satisfaction appears more primary for prevention focus, because being competent on the job seems a good strategy to ensure work completion and to avoid making errors and mistakes, which can increase employees’ sense of security. Therefore, I expect that competence needs satisfaction maps onto security-related needs, and will be predicted by work prevention focus.

Social needs. Social needs do not seem to clearly map onto growth or security concerns, because they are at the heart of motivation and needs satisfaction. Therefore, as I describe below, social needs and relatedness needs are not included in the theoretical framework (Figure 1), and I do not have concrete predictions for relationships between regulatory focus and these needs.

Social needs satisfaction. In quality of work life literature, social needs center on having good friends at work, collegiality, and enough time to socialize. Regulatory focus theory does not mention whether social needs are particularly served by promotion or prevention focus. Instead, it says that relationships (e.g., with one’s mother or other primary
caregiver) are fundamental for meeting children’s security and nurturance needs (Higgins, 1998b), and therefore they learn how to self-regulate and behave in ways that increase the chances of caretakers’ fulfilling their needs.

In addition, promotion and prevention focus have been positively associated with the importance of good relationships at work (Steidle et al., 2013), although there is little research on the matter. Therefore, I cannot confidently predict unique relationships between work promotion focus and work prevention focus with social needs satisfaction.

**Esteem needs satisfaction.** Although promotion focus has been associated with self-esteem and with having stronger self-esteem goals than prevention focus (Lanaj et al., 2012; Leonardelli, Lakin, & Arkin, 2007), esteem needs in quality of work life literature do not concern the self—they concern feeling appreciated and respected by others at work. What is measured is how the employee is treated and valued by coworkers, not oneself. In this case, esteem needs seem to be more closely related to social needs, and not specifically to security or growth (although social needs satisfaction may help to satisfy security and growth needs to some extent). Thus, I expect that esteem needs map onto social-related needs, and it is unclear how regulatory focus would influence their satisfaction. Therefore, I do not confidently predict whether esteem needs are more likely to be satisfied in promotion focus or prevention focus.

**Relatedness needs satisfaction.** Much like social needs from the quality of work life literature, relatedness needs in self-determination theory concern the need to feel close and connected with others at work (Deci et al., 2001). Similar to what is discussed above, relatedness needs satisfaction could help satisfy security and growth needs at work. For example, being fired or promoted generally depends on the relationships with other people and leaders in the organization. That is, when it comes to satisfying social-related needs, it is possible that both regulatory foci, one of the two, or neither uniquely predict social needs
satisfaction. Therefore, I do not formulate hypotheses for specific relationships between relatedness needs satisfaction and promotion or prevention focus at work.

Taking the two approaches together, based on needs drawn from quality of work life and self-determination literatures, I expect: (1) unique relationships between work promotion focus and satisfaction of growth-related needs, and (2) unique relationships between work prevention focus and satisfaction of security-related needs.

**Hypotheses for work outcomes.** Although identifying relationships between work regulatory focus and needs satisfaction is important for understanding motivation, it is also critical to identify the implications of these relationships for work outcomes. Given the parallel associations of regulatory focus and needs satisfaction with work outcomes, and my theorizing that regulatory focus and needs satisfaction should be related, I suspect that need satisfaction may act as a mediator of the relationships between regulatory focus and work outcomes. This is based on research showing that regulatory focus serves distinct needs, and that satisfaction of psychological needs is associated with beneficial work outcomes, including the outcomes assessed in this thesis: job satisfaction, engagement, burnout, and turnover intentions. As such, to the degree that work regulatory focus is associated with satisfaction of specific needs, this needs satisfaction should also improve work outcomes.

In this research, I investigated the implications of associations of regulatory focus and needs satisfaction for engagement, job satisfaction, burnout, and turnover intentions to test this potential mediation process. Extensive bodies of research show that regulatory focus predicts work outcomes and that needs satisfaction predicts work outcomes; however, very few of these studies have investigated motivation orientations and needs satisfaction variables together (Deci et al., 2017). Almost none have done so, in regulatory focus research.

Job satisfaction and engagement have been consistently associated with promotion focus (Gorman et al., 2012; Lanaj et al., 2012) and with basic psychological needs
satisfaction (Deci et al., 2017; Deci et al., 2001). Engagement is a positive and fulfilling mental state about work that involves vigor, dedication and absorption (Schaufeli, 2002), whereas job satisfaction concerns the extent to which a person likes and feels satisfied with his or her job (Judge, Locke, Durham, & Kluger, 1998; Locke, 1976; Weiss, 2002). In turn, job satisfaction and engagement are associated with performance, organizational profit, productivity, and customer satisfaction, and negatively associated with counterproductive work behavior (Judge et al., 2017). In this thesis, I expect that growth-related needs satisfaction will be associated with greater job satisfaction and engagement in promotion focus, and I expect that security-related needs satisfaction will be associated with greater job satisfaction and engagement in prevention focus.

On the other hand, burnout is the opposite experience of engagement, though these are distinct constructs negatively related to one another and not opposite ends of the same construct (Schaufeli, 2002). Burnout refers to emotional exhaustion, fatigue, cynicism, and impaired efficacy at work (Demerouti, Mostert, & Bakker, 2010). Burnout has been positively associated with prevention focus in some studies (Brenninkmeijer, Demerouti, le Blanc, & van Emmerik, 2010; Zivnuska, Kacmar, & Valle, 2017), negatively associated with promotion focus in others (Zivnuska et al., 2017), and also unrelated to regulatory focus in others (van den Tooren, & de Jonge, 2011). Thus, relationships between regulatory focus and burnout in the literature are inconsistent. However, not much research has investigated these relationships in the work domain. In comparison, psychological needs satisfaction is consistently negatively associated with burnout and ill-being (Gagne et al., 2015; Schultz, Ryan, Niemiec, Legate, & Williams, 2015; Van den Broeck et al., 2008) Therefore, I aim to contribute to filling this gap of burnout studies in regulatory focus research, specifically by investigating whether levels of needs satisfaction in promotion and prevention focus can protect against burnout.
In the case of turnover intentions, promotion focus is associated with greater intentions to leave the organization compared with prevention focus, particularly when job satisfaction is low (Andrews, Kacmar, & Kacmar, 2014). On the other hand, psychological needs satisfaction is negatively related to turnover intentions (Gagne & Deci, 2005; Schultz et al., 2015)—the more employees’ needs are satisfied, the less they think about leaving their jobs. Therefore, I intend to investigate whether growth-related needs satisfaction has the potential to reduce turnover intentions in promotion focus, and whether security-related needs satisfaction has any effect on turnover intentions in prevention focus.

Specifically, I expect that relationships between work-specific promotion focus and work outcomes will be mediated by growth-related needs satisfaction (H3), and that relationships between work-specific prevention focus and work outcomes will be mediated by security-related needs satisfaction (H4).

_Hypothesis 3:_ Relationships between promotion focus and work outcomes are mediated by satisfaction of growth-related needs at work.

_Hypothesis 4:_ Relationships between prevention focus and work outcomes are mediated by satisfaction of security-related needs at work.

By testing this set of hypotheses, this thesis investigates for the first time whether regulatory focus affects work outcomes via growth- and security-related needs satisfaction in the work domain.
Chapter Summary

In this chapter, I reviewed relevant literature on regulatory focus and needs satisfaction at work, discussing how the two approaches may function together to influence work motivation. I extend the notion that promotion and prevention focus satisfy survival-related nurturance and security needs by proposing that work-specific promotion and prevention focus also help to satisfy other work-related needs that are important for self-determination at work and for a good quality of work life. The chapter presented a theoretical framework that links regulatory focus, needs satisfaction and work outcomes, proposing that growth-related needs satisfaction mediates relationships between work promotion focus and work outcomes, and that security-related needs satisfaction mediates relationships between work prevention focus and work outcomes. This is tested in four empirical studies, two exploring associations between work regulatory focus and satisfaction of quality of work life needs (Chapter 2), and two exploring associations between work regulatory focus and satisfaction of self-determination needs (Chapter 3). Both chapters consider the implications of these associations for a variety of work outcomes.
References


Chapter 2

Regulatory Focus and Needs Satisfaction at Work

Overview

In Chapter 1, a framework linking work regulatory focus and work outcomes partially via satisfaction of work needs was proposed. This framework represents an integration of regulatory focus theory and needs-based theories to deepen understanding of the factors that scaffold work motivation. Specifically, Chapter 2 investigates associations between regulatory focus and satisfaction of certain needs proposed by the quality of work life literature. Chapter 2 therefore comprises the first empirical investigation of this thesis, with the purpose of identifying unique relationships between work-specific regulatory focus and satisfaction of work-based growth, security and social needs. Above and beyond needs satisfaction, Chapter 2 also investigates the role of needs importance to determine whether people with a particular regulatory focus are satisfied in certain needs because they value those needs to a greater degree. Finally, Chapter 2 tests needs satisfaction as a potential mediator linking regulatory focus with work outcomes including engagement, job satisfaction, burnout, and turnover intentions.

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Regulatory Focus and Needs Satisfaction at Work

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Abstract

Motivation is essential for pursuing goals and thriving at work. One popular approach to motivation holds that people act most effectively when their needs are satisfied, although the nature of these needs varies according to individual orientations. According to regulatory focus theory, promotion focus serves nurturance needs, whereas prevention focus serves security needs. However, the associations between regulatory focus and needs satisfaction—the specific needs that motivate action and that must be met for action to be effective—are under-researched. In two studies (total \( N = 456 \)), we explore relationships between promotion and prevention focus at work and the satisfaction of security, social and growth work-related needs drawn from the literature on quality of work life, and their consequences for work outcomes.

Keywords: regulatory focus, needs satisfaction, work motivation, quality of work life
Regulatory focus and needs satisfaction at work

Motivation is critical to successful organizational functioning. Not only are motivated employees more productive than unmotivated employees (Cerasoli, Nicklin, & Ford, 2014; Grant, 2008), they also have better health, greater well-being (Higgins, 2011; Kanfer, Frese, & Johnson, 2017) higher job satisfaction (Alfonso, Zenasni, Hodzic, & Ripoll, 2016; Ferris et al., 2013; Gagne & Deci, 2005), and are more committed to the organization for which they work (R.E. Johnson & Yang, 2010). In contrast, low motivation has negative consequences for employees and organizations (Danna & Griffin, 1999; Easton & Van Laar, 2012; Noblet & Lamontagne, 2006); for example, it can lead to emotional exhaustion and burnout (Demerouti, Bakker, Vardakou, & Kantas, 2003; Fernet, Austin, Trépanier, & Dussault, 2013) as well as absenteeism, turnover, and job stress, all of which place burdens on people and businesses (Danna & Griffin, 1999; Noblet & Lamontagne, 2006). These varied and significant costs of low motivation, along with the benefits of optimal motivation, make it critical to understand motivational processes at work, for the success of employees, organizations, and society as a whole.

From this perspective, enhancing motivation is one of the single best actions an organization can take to increase return on investment and meet their social responsibility at the same time. The first step toward doing this is understanding motivation—where it comes from and what form it takes. The present research contributes to the goal of better understanding work motivation using the celebrated motivational framework afforded by regulatory focus theory (Higgins, 1997, 1998b) and combining its insights with classic theorizing on needs satisfaction drawn from applied psychology. We examine motivational orientations in the form of promotion focus and prevention focus and seek to uncover the work-related needs served by these orientations, as well as their implications for work outcomes such as engagement and turnover intentions.
Regulatory Focus Theory and Work Motivation

Motivational processes in terms of regulatory focus have compelling potential for explaining work-related outcomes (Lanaj, Chang, & Johnson, 2012). Regulatory focus theory describes how individuals self-regulate in the pursuit of goals when taking two distinct motivational orientations: promotion focus and prevention focus (Higgins, 1997, 1998b). In a promotion-focused mindset, goals are formulated as the presence of positive outcomes, with people aiming to fulfill their ideal self-guides (i.e., who they or a significant other would like them to be) and move from the current state to a better one. Thus, people high in promotion focus are motivated by hopes and aspirations, seek to make accomplishments and gains, and use eager strategies to achieve goals (Brockner & Higgins, 2001; Higgins et al., 2001; Idson & Higgins, 2000). In contrast, in a prevention-focused mindset, goals are framed as the absence of negative outcomes, with people aiming to fulfill their ought self-guides (i.e., who they or significant others think they ought to be) and move from the current state to as far as possible away from a worse state. Thus, people high in prevention focus are motivated by a fear of losses or making mistakes, strive to fulfil their duties and responsibilities, and use vigilant strategies to reach goals (Brodscholl, Kober, & Higgins, 2007). Promotion and prevention focus are independent from one another, a person can be high in promotion focus and high in prevention focus at the same time, for example (Higgins, 1998a; Lanaj et al., 2012).

These two motivational orientations develop in response to basic survival needs for nurturance and security—promotion focus is hypothesized to serve nurturance needs and prevention focus is hypothesized to serve security needs (Higgins, 1998b). People’s promotion focus and prevention focus are built over time according to life experiences and successful self-regulation (Higgins, 1997), and because both are fundamental for survival, all people develop and have the two orientations available. However, people usually have a
predominant chronic regulatory focus such that different combinations of promotion and prevention focus are more easily activated, although which focus is to the fore can vary by context. For example, a person can be more promotion focused at work and in sports and more prevention focused when parenting. Thus, prevention and promotion focus can be chronically activated or situationally induced (Higgins, 1998b).

In chronic regulatory focus, promotion and prevention focus act like personality traits—consistent across situations and caused by the person (Chaplin, John, & Goldberg, 1988; Higgins, 1998a), and the predominant regulatory focus is proposed to be an outcome of early experiences with caregivers (Higgins, 1998a). However, although people tend to have a chronic regulatory focus, either mindset can be situationally induced. For instance, asking people to list duties and responsibilities induces a prevention focus, whereas asking people to list hopes and ideals induces a promotion focus (Freitas & Higgins, 2002; Higgins, 2000). In this case, regulatory focus acts as a psychological state—caused by the situation, and likely to cease sometime after the situation is over (Chaplin et al., 1988; Higgins, 1998a). In short, everyone holds some level of promotion and prevention focus at a given time, and these levels vary according to personal traits and situations. This characteristic of regulatory focus is interesting for businesses, because it allows using strategies to induce optimal levels of promotion and prevention focus according to organizational goals and priorities.

In this vein, research has demonstrated that work events, task types, and leadership interactions can induce promotion or prevention focus in employees (Koopmann, Lanaj, Bono, & Campana, 2016; Lanaj et al., 2012; Van Dijk & Kluger, 2011). For example, transformational leaders are inspirational, encourage challenges, and give employees freedom to engage in goals pursuit, which boosts followers’ promotion focus (Hamstra, Van Yperen, Wisse, & Sassenberg, 2011). In comparison, transactional leaders give more direct orders, reinforce rules and obligations, and demand the agreed levels of performance according to
employees’ job positions and responsibilities, which induce followers’ prevention focus (Hamstra et al., 2011; Kark & Van Dijk, 2007; Sassenberg & Hamstra, 2017). In another example, tasks such as sales usually imply gains and making advancements, which evoke a promotion focus. In contrast, tasks such as auditing require more discipline and vigilance, which evoke a prevention focus (Lanaj et al., 2012). Yet, between-person variation affects which regulatory foci are chronically operative and more easily activated by situational context (Higgins, 1996).

In the literature on work motivation, promotion and prevention focus are differentially associated with several work outcomes. Meta-analyses of the consequences of regulatory focus at work have found that promotion focus is positively associated with engagement, job satisfaction, commitment, organizational citizenship behavior, leader-member exchange and both task and innovative performance, and negatively associated with counterproductive work behavior (Gorman et al., 2012; Lanaj et al., 2012). In contrast, prevention focus is positively associated with safety performance, normative commitment (i.e., the degree to which an employee does not leave the job because feels ought to stay), continuance commitment (i.e., the degree to which an employee does not leave the job to avoid losses associated with leaving) and counterproductive work behavior, and negatively or sometimes insignificantly associated with job satisfaction and leader-member exchange (Gorman et al., 2012; Lanaj et al., 2012).

Of importance, these relationships occur over and above other significant individual predictors of work outcomes associated with each focus, such as personality factors, positive and negative affect and goal orientations (Gorman et al., 2012; Lanaj et al., 2012). In addition, Lanaj et al. (2012) revealed that the relationships tend to be more robust for work-specific regulatory focus (i.e., the extent to which a person is promotion and prevention focused on the job) than for chronic regulatory focus (i.e., the extent to which a person is...
promotion and prevention focused in general). Altogether, promotion focus—particularly work-specific promotion focus—is consistently associated with good work outcomes more so than prevention focus (Gorman et al., 2012; Koopmann et al., 2016; Lanaj et al., 2012).

However, this does not mean that promotion focus is inherently better than prevention focus. The world of work is complex; different jobs and practices may call for a different focus. In some cases, safety can be the highest priority and prudence more appropriate than risk taking. For example, we hope for an air traffic controller to be high in prevention focus regardless of promotion focus (P. D. Johnson, Smith, Wallace, Hill, & Baron, 2015). Moreover, promotion and prevention focus are associated with positive emotions when goal pursuit is successful—promotion focus with cheerfulness emotions such as joy and happiness, and prevention focus with quiescence emotions such as calmness and relaxation (Higgins, Shah, & Friedman, 1997), and both can exert motivation and effort to a similar degree when activated, although in different ways (Scholer & Higgins, 2010; Shah & Higgins, 1997). For example, to achieve the same goal (e.g., a pay raise), people in promotion focus tend use eager strategies such as developing new ideas and working extra hours, whereas people in prevention focus tend to use vigilant strategies such as taking responsibilities and making sure everything goes right. These individuals thus strive to achieve the same goal, and may dedicate similar amounts of time, energy and personal resources, although the manner in which they pursue the goal varies considerably. But on the whole, according to the literature to date, the overall message seems to be that employees and organizations benefit more from promotion focus to increase engagement, job satisfaction, well-being, and productivity, than from prevention focus, even though prevention focus is an important mindset to avoid costs from losses and errors.

The problem is that we do not yet know exactly why these differences in work outcomes occur, although some of the reasons have been put forward. In other words, why
does promotion focus elicit better results than prevention focus, given that both can help people meet their goals and feel good about it? In this vein, research revealed that promotion focus affects work outcomes and well-being through positive mood (Koopmann et al., 2016), and that approach motivation and sensitivity to positive stimuli evoke higher levels of satisfaction and good feelings than avoidance orientation and sensitivity to negative stimuli do (Ferris et al., 2013). In this sense, people high in promotion focus have a bias toward greater satisfaction in general and more positive outcomes because of their high positive affect and sensitivity to positive stimuli per se (Halvorson, 2013).

Further, gains can be considered to be more satisfying and to cause more positive feelings than non-losses (Idson, Liberman, & Higgins, 2000). Because promotion focus is about gains and ideals, it is likely to encourage setting more challenging (yet more rewarding and engaging) goals (Higgins, 1998b). On the other hand, prevention focus is about minimizing loss and upholding oughts, thus it is likely to encourage setting minimal (thus less rewarding and engaging) goals (Higgins, 1998b). However, when prevention focus is high and activated (e.g., being vigilant to avoid making a mistake in a medical surgery), the goal can be challenging and also likely to be rewarding and engaging. In addition, promotion focus is associated with personality traits that have a more positive view of the world, whereas prevention focus is associated with neuroticism (Lanaj et al., 2012).

Those are examples of reasons for promotion focus eliciting better work outcomes than prevention focus; however, these explanations do not seem to provide the whole story. Several studies of relationships between regulatory focus and work outcomes show that these relationships persist after controlling, for example, for positive and negative affect, goal orientation, and personality traits that also involve a more positive mindset (Gorman et al., 2012; Lanaj et al., 2012). Therefore, there must be additional variables accounting for
differences in work outcomes associated with promotion and prevention focus beyond wearing positive or negative lenses to view the world (Koopmann et al., 2016).

The underlying psychological mechanisms through which regulatory focus has incremental validity on work outcomes remain unclear, since we only have a few pieces of the puzzle. Attempts to identify these mechanisms might help to add more explanations for why a promotion focus (usually) yields more desirable work outcomes than a prevention focus, and contribute to a more comprehensive understanding of how regulatory focus impacts on work motivation. This could provide useful information to improve work outcomes for employees low in promotion focus, for example.

One fundamental distinction between prevention and promotion focus lies in the needs they serve. In Higgins (1997, 1998b) original theorizing, he argued that prevention focus is responsive to security needs, whereas promotion focus is responsive to nurturance needs. Thus, thoughts, feelings and behaviors associated with promotion and prevention focus may differ because they serve fundamentally distinct needs, although empirical evidence for this theorizing is still thin on the ground.

We hypothesize that one mechanism through which regulatory focus relates to work outcomes is helping employees to satisfy work-related needs that involve growth and security. That is, regulatory focus shapes how people interpret their environment, coming to see it as supporting or thwarting important needs. For example, these perceptions can include sensitivity to resources that relate to particular needs, and how people go about using the resources available in the environment to satisfy these needs. Consistent with the original theorizing, we expect that prevention focus serves work-related needs that involve safety and security, whereas promotion focus serves work-related needs that involve growth and psychological nourishment. In the organizational context, satisfaction of certain work-related needs has been associated with better work outcomes and higher quality of work life (Efraty
In this vein, we expect that if there are differences in needs satisfaction between promotion or prevention focus, this may impact on work outcomes. That is, it is possible that satisfaction of growth-related needs will relate to work outcomes more so than satisfaction of security-related needs, which would help us further understand why promotion focus is more consistently associated with beneficial work outcomes than prevention focus.

**Regulatory Focus and Needs Satisfaction**

Needs are biological or psychological requirements that must be fulfilled for survival, good health, and well-being (Bowlby, 1982; 1969). Consequently, behavioral systems that guide behavior—such as regulatory focus—develop from early life to serve a variety of needs, including protection, nourishment, affection and belonging (Baumeister & Leary, 1995; Bowlby, 1969, 1982). When basic needs are not met, negative consequences accrue to the person, such as emotional distress, anxiety, and depressive symptoms (Baumeister & Leary, 1995; Bowlby, 1982; Chen et al., 2015), which compromises the ability to cope with life and work demands. However, despite needs being universal motives—meaning that certain needs are present in all humans—these needs are subject to between-person variation in their fulfilment. That is, people can differ in which needs are primary and how well they are satisfied by a given context (Higgins, 1998b; Sirgy et al., 2001). According to regulatory focus theory, prevention and promotion focus are motivational orientations that guide this need-fulfilment process.

Despite knowing that promotion focus serves nurturance needs and prevention focus serves security needs, we do not yet know whether higher levels of promotion and prevention focus are associated with higher levels of satisfaction of these needs. In addition, we do not know whether regulatory focus helps to satisfy other types of needs proposed by other theories of motivation. To tackle this issue, we investigate relationships between work
regulatory focus and satisfaction of work-related needs proposed in work motivation literature.

Work-related needs are needs that people seek to satisfy through their jobs, such as financial security and professional recognition (Sirgy et al., 2001). Sirgy and colleagues advocate that a good quality of work life is achieved by fulfilling seven work-related needs, which were adapted from Maslow’s (1943, 1954) taxonomy of needs to the work domain: (1) health and safety needs, (2) economic and family needs, (3) social needs, (4) esteem needs, (5) actualization needs, (6) knowledge needs, and (7) creativity needs (Sirgy et al., 2001). We adopt this taxonomy in the present research.

Despite the centrality of needs in the original regulatory focus theorizing, the degree to which certain needs are valued and satisfied in light of one’s prevention or promotion focus has received comparatively less research attention than the consequences of holding one or the other of these motivational orientations. Moreover, no research that we know of has directly investigated links between regulatory focus and needs satisfaction in the work domain. This is important because recent studies show that satisfaction of particular needs consistently predict desirable work attitudes, outcomes, and well-being (Kanfer et al., 2017; Sirgy et al., 2001). If regulatory focus is associated with greater needs satisfaction, this could be one pathway by which regulatory focus influences work outcomes. A deeper understanding of how regulatory focus relates to needs satisfaction may contribute to the development of interventions that promote needs satisfaction both through supportive organizational resources (e.g., training, job stability, career opportunities) and through facilitating optimal levels of regulatory focus in the workplace (e.g., leadership directions, coaching, message framing). Further, the investigation of how regulatory focus relates to needs satisfaction can advance theory by clarifying whether these distinct factors operate in tandem to affect work motivation.
In summary, it remains unclear which specific work-related needs are served when people are prevention and promotion focused while on the job. Similarly, we do not know whether differences in needs satisfaction according to levels of prevention and promotion focus impact on employees work outcomes. This is the gap we seek to fill in the present research. Specifically, we first investigate which needs are valued and rated as being satisfied when people are high in promotion and/or in prevention focus at work. Next, we test whether satisfaction of particular needs mediates associations between work regulatory focus and work outcomes.

Needs Satisfaction and Work Motivation

To investigate relationships between work regulatory focus and needs satisfaction, we draw on literature that assesses quality of work life through satisfaction of the seven work-related needs mentioned above. Our greatest interest is in investigating whether satisfaction of work-related needs is associated with regulatory focus, and whether this is in turn leads to greater work outcomes such as job satisfaction and engagement, and protects against negative work outcomes such as burnout and turnover intentions.

Quality of work life involves work experiences and conditions that affect people’s satisfaction and well-being inside and outside the organization (Efraty & Sirgy, 1990; Lawler, 1982; Martel & Dupuis, 2006; Sirgy et al., 2001; Walton, 1973). Adults spend a great amount of their time and personal resources at work; thus, work experiences greatly influence (sometimes determine) living standards and important decisions, such as family planning, housing, relationships, education, time management and quality of life in general (Easton & Van Laar, 2012; Efraty, Sirgy, & Claiborne, 1991). Good quality of work life and well-being are associated with greater satisfaction (Sirgy et al., 2001), organizational citizenship behavior, commitment (Alfonso et al., 2016), performance (Easton & Van Laar, 2012; Efraty & Sirgy, 1990; Ramstad, 2009), happiness (Easton & Van Laar, 2012; Sirgy et al., 2001), and
with reduced injuries, absenteeism and turnover rates (Havlovic, 1991; Lau, 2000). Thus, enhancing quality of work life proves beneficial for employees and organizational success.

According to Sirgy et al. (2001), satisfaction of health and safety needs concern enhancement of good health and protection from illnesses and injuries, which can be satisfied, for example, through providing health insurance and a safe job environment. Economic and family needs concern financial satisfaction, job security, and benefits to the family such as child care assistance. Social needs involve having positive and meaningful relationships at work and enough time to socialize. Esteem needs concern recognition and appreciation from others due to one’s work, such as receiving rewards, praise and public recognition. Actualization needs involve realization of one’s potential within the organization and in the field, such as being evaluated for promotions and being able to use personal skills and talents on the job. Knowledge needs concern opportunities for continuous learning and improving of job and professional skills. Lastly, creativity needs concern having opportunities to be creative on the job, develop creativity and enjoy aesthetics (Sirgy et al., 2001).

These seven work-related needs were later grouped into two sets of lower-order needs and higher-order needs (Lee, Singhapakdi, & Sirgy, 2007). Lower-order needs comprise health and safety needs and economic and family needs, whereas higher-order needs comprise all the remaining social, esteem, actualization, knowledge and creativity needs. Lower-order needs are proposed to be the needs that people seek to meet before pursuing satisfaction of higher-order needs (Lee et al., 2007; Maslow, 1943). However, this approach of classifying needs as lower vs. higher is not ideal.

Classifying work-related needs into lower- or higher-order needs can be misleading, because there is inconsistent evidence for a hierarchy among needs (Goebel & Brown, 1981; Tang & West, 1997). In addition, social needs are considered primary by many researchers,
given that social isolation has serious detrimental consequences for survival and mental health (Baumeister & Leary, 1995; Bowlby, 1982; Ryan & Deci, 2000). According to several needs-based theories, relationships are fundamental in motivation and therefore social needs is a factor on its own, such as relatedness needs in self-determination theory (Ryan & Deci, 2000), attachment theory (Bowlby, 1969), and the needs for belong (Baumeister & Leary, 1995). Thus, in the present work, we classify the seven major needs proposed by Sirgy et al. (2001) into three factors: security needs (i.e., health and safety needs and economic and family needs combined), social needs (i.e., social and esteem needs combined), and growth needs (i.e., knowledge needs, actualization needs, and creativity needs combined).

Although there is evidence supporting the structure and cross-cultural validity of Maslow’s taxonomy of needs, classic needs-based theories of motivation were criticized specifically because they did not predict specific behavior (Campbell & Pritchard, 1976, as cited in Kanfer et al., 2017). We suspect that regulatory focus and needs satisfaction operate together in predicting work behavior. Needs per se do not cause behavior, they are requirements for survival and well-being that rely on behavioral systems to be fulfilled (Bowlby, 1982). In turn, behavioral systems and motivational orientations, such as regulatory focus, that do predict behavior are a means for needs fulfilment. Therefore, classic needs-based approaches to motivation might have failed to predict specific behavior because they neglected the behavioral systems that are responsible for taking action. For that reason, we chose to revisit work-related needs that emerged from Maslow’s taxonomy of needs, here adapted to the work context, to test the predictive validity of needs satisfaction on work outcomes when analyzed together with regulatory focus. Combination of these theoretical approaches has the potential to contribute to understanding in each domain, as well as combining to better predict work outcomes than in past investigations.
Given that promotion and prevention focus develop to satisfy nurturance and security needs, and that greater needs satisfaction is associated with better outcomes and quality of work life, we expect that regulatory focus works together with needs satisfaction when predicting work outcomes. However, we do not yet know whether promotion and prevention focus help to satisfy work-related needs, and if it does, which needs they satisfy. Further, we do not know whether different levels of needs satisfaction according to one’s promotion and prevention focus influence work outcomes. Therefore, we investigate associations between satisfaction of specific work-related needs and regulatory focus at work, and in turn whether needs satisfaction acts as a mediator in relationships between promotion and prevention focus and work outcomes.

To our knowledge, relationships between regulatory focus and needs satisfaction have never been empirically tested in the work domain. Filling this gap is a goal of the present research. In addition to assessing needs satisfaction, we consider needs importance—whether certain needs are valued more than others in promotion and prevention focus. Sirgy et al. (2001) recognized that variations likely occur in needs satisfaction and in how primary a need is between individuals. That is, people can vary in how much they value certain needs and in how much they feel that need satisfied in a given context. Sirgy and colleagues suggested future research to investigate which individual difference factors account for these variations. This is done in the present work, in which we expect that needs importance and needs satisfaction will vary according to people’s regulatory focus.

**Needs Importance**

Whether the degree of importance one places on particular needs influences the degree to which those needs tend to be satisfied has not been well explored in the literature. This research therefore aims to control for needs importance when assessing relationships between regulatory focus and needs satisfaction to ensure that, if there are associations, they
are not due to differences in needs value. Our main interest is in understanding whether behavior guided by promotion and prevention focus helps to satisfy specific security and growth work-related needs. Therefore, we want to rule out the possibility that people rate needs that are important to them as being more satisfied, for example, to feel better about themselves and their jobs, or to reduce discrepancies between actual and ideal or ought selves.

The influence of regulatory focus on needs importance and needs satisfaction may play out in a number of ways. First, both kinds of regulatory focus may predict needs satisfaction and needs importance equally and in the same direction. For example, because prevention focus is security-related self-regulation, people high in this focus may value safety at work and seek greater security needs satisfaction than people low in prevention focus. Further, if prevention focus values security needs satisfaction more, satisfaction of security needs may enhance motivation and positive emotions in employees high in prevention focus.

However, simply because a need is considered important does not ensure it will be more likely to be satisfied. A second possibility is therefore that regulatory focus may be associated with needs importance but not with needs satisfaction (particularly after accounting for shared variance between needs satisfaction and importance). It is also possible, for example, that when a need is very important to the person, greater attention and resources are devoted to that need, which requires a higher threshold and raises standards for seeing that need satisfied. Thus, we may see differences in the degree to which regulatory focus predicts needs importance compared with needs satisfaction.

Nevertheless, we believe it more likely that needs satisfaction follows needs importance because promotion and prevention focus develop in response to survival needs, with the purpose of guiding behavior to satisfy those needs. Thus, we believe the following order is implied: need importance→ behavior→ need satisfaction. This process is cyclical,
because needs are continuous and their satisfaction not permanent (Kanfer et al., 2017). In addition, people engage in self-regulation aiming to meet these needs; therefore, needs satisfaction should be the outcome of effective self-regulation. We believe that the more a particular need is valued, the more it will be reported as satisfied because people will put effort in satisfying that need. To clarify this issue, we explored needs importance and needs satisfaction to assess their relationships with one another and with work regulatory focus.

**The Present Research**

In the present research, we investigated relationships among work regulatory focus, needs importance, and needs satisfaction, as well as associations with work outcomes. With the purpose of examining whether prevention focus and promotion focus would be significantly associated with greater security needs satisfaction and greater growth needs satisfaction at work, we analyzed relationships between work promotion focus and work prevention focus and satisfaction of the three sets of work-related needs: security needs, social needs, and growth needs, drawn from literature on quality of work life.

In particular, we expected that because promotion focus is theorized to serve nurturance needs, this orientation would be associated with growth needs that emphasize gains and advancements at work (i.e., knowledge, actualization, and creativity). For example, knowledge needs refer to continuous learning and sharpening professional skills, which presumes a focus on growth. Indeed, promotion focus has been related to learning goal orientations in prior literature (Lanaj et al., 2012). In the same vein, actualization needs concerns realizing one’s potential at work, which resembles promotion focus’ concerns with ideal self-guides, hopes and aspirations. In addition, we believe that creativity needs inherently contain a growth component, for they involve developing something new and useful in order to advance and improve the current scenario. Consistently, promotion focus has been associated with creativity and innovative performance in work motivation literature.
(Lam & Chiu, 2002; Lanaj et al., 2012; Sacramento, Fay, & West, 2013; Yen, Chao, & Lin, 2011). Therefore, because knowledge, actualization and creativity needs appear to be more aligned with promotion focus concerns, we expected that work promotion focus would be associated with greater growth needs importance (Hypothesis 1a) and satisfaction (Hypothesis 1b) at work.

Further, because prevention focus is originally theorized to serve security needs, we expected this orientation to map onto security needs (i.e., health and safety and economic and family needs). Because security needs concerns job security, work safety, health insurance and care, financial security and family assistance, we thought that satisfaction of security needs might be attractive to people high in prevention focus. Therefore, we hypothesized that work prevention focus would be associated with greater security needs importance (Hypothesis 2a) and satisfaction (Hypothesis 2b) at work.

We did not predict a clear relationship between regulatory focus and social needs importance and satisfaction. Social and esteem needs in the work domain concern having friends and feeling appreciated by others at work, which does not clearly resemble promotion and prevention focus concerns, especially since human connection is fundamental for the fulfillment of both security and growth needs for survival (Bowlby, 1982). Because social needs satisfaction can be instrumental for promotion and prevention focus, we did not have expectations about which form of regulatory focus might be specifically associated with social needs satisfaction. Thus, we did not confidently predict what the relationships between work promotion and prevention focus with social needs would be.

To test our hypotheses, we conducted two studies that together surveyed more than four hundred employees from various locations, jobs, and industries. Study 1 explored unique relationships between work regulatory focus and satisfaction of security, social, and growth work-related needs, and the importance given for satisfaction these needs in the work
domain. Unique relationships mean relationships that remain significant after accounting for a general tendency to see all needs as important and all needs as satisfied (i.e., accounting for shared variance among needs importance scales, and for shared variance among needs satisfaction scales), and for the effect of the alternative regulatory focus on each variable (since promotion focus and prevention focus are not opposite ends of the same construct and thus a person can be high in both). In Study 2 we aimed to replicate the unique relationships found in Study 1 between work regulatory focus and specific needs satisfaction, and extend the findings by investigating implications of these associations for a few work outcomes.

Beyond hypothesizing that work promotion and work prevention focus are related to satisfaction of distinct work-related needs, it is important to test whether this impacts on work outcomes. We believe this may occur because needs satisfaction has been associated with better work outcomes (Sirgy et al., 2001). To test these effects, in Study 2 we investigated security, social and growth needs satisfaction as potential mediators between work regulatory focus and some work outcomes that concern how the person feels about her work experiences—engagement, job satisfaction, burnout and turnover intentions.

These work outcomes were chosen because they are frequently associated with regulatory focus and needs satisfaction in parallel literature. In addition, we thought that affective outcomes may be more strongly affected by feelings of needs satisfaction than other types of work-related variables, such as performance and absenteeism, and indeed affective work outcomes are predictors of such variables (Judge et al., 2017). Further, engagement and job satisfaction are positively framed outcomes, and burnout and turnover intentions are negatively framed outcomes, which can be useful when testing relationships with self-regulation that focus positive vs. negative outcomes, which is the case of regulatory focus.
Study 1

The aim of this study was to investigate associations between regulatory focus at work and the importance and satisfaction of security, social, and growth work-related needs.

Method

Participants and Procedure

We collected data from 155 full-time and part-time employees in the United States, with at least two years of work experience, recruited through Qualtrics panel data. Qualtrics compensates participants using bonuses and gift cards, and guarantees quality data, quality participants, and compliance with the eligibility criteria defined by us (i.e., being 18 years old or more, formally employed, working for at least two years, located in the U.S.). Participants completed an online survey that measured the extent to which they were promotion- and prevention-focused at work, along with their level of satisfaction with the seven work-related needs, how important satisfaction of each need is to them, and demographic information. There was no missing data; data and syntax files are available at:

https://osf.io/n4asu/?view_only=fabed6ee33e14fc2934994befe9240b79.

Several extra steps were taken to ensure the quality of the data, including attention and consistency checks, automatic exclusion of responses with duration lower than a minimum completion time required for validation, restriction for multiple responding, and integrity constrains such as forced response to not allow missing data (Barateiro & Galhardas, 2005). Manual screening was conducted after data collection to identify straight liners or answers that follow a pattern (e.g., 2, 4, 6, 2, 4, 6, 2, 4, 6...), as suggested by Qualtrics, who replaces any eventual bad quality data.

Of the employees surveyed, 81% worked full-time, 60% were female, 54% completed higher education, and 56% were married or in a de-facto relationship. They ranged in age from 18-34 years (32%) to 35-54 years (43%) and 55 and older (25%); and ranged in yearly
income from $0-$49,999 (47%) to $50,000-$99,999 (34%), to $100,000 and more (16%; 3% chose not to report their income). Participants were drawn from a variety of industries, occupations, and job positions. Most frequently, they worked in health care and social assistance (19%), retail trade (15%), and manufacturing (12%). Regarding job position, 26% worked at the entry level, 27% were analysts/associates, and 16% were managers.

Measures

To ensure construct validity, we used instruments that have been well validated in the literature.

Work regulatory focus. Promotion and prevention focus at work were assessed using the Work Regulatory Focus Scale (Neubert, Carlson, Kacmar, Chonko, & Roberts, 2008). This scale comprises 18 items covering achievement, ideals, and gains for work promotion focus (e.g., “I take chances at work to maximize my goals for advancement”, α = .82); and security, oughts, and losses for work prevention focus (e.g., “I concentrate on completing my work tasks correctly to increase my job security”, α = .86). Participants rated the extent to which each statement described them on a scale ranging from 1, strongly disagree, to 7, strongly agree.

The Work Regulatory Focus Scale captures the extent to which people are promotion and prevention focused at work, since distinct regulatory focus combinations can apply in other areas of life. Two scales are commonly used in the literature to measure work-specific regulatory focus: the Work Regulatory Focus Scale (Neubert et al., 2008) and the Regulatory Focus at Work Scale (Wallace & Chen, 2006). We opted for Neubert et al.’s (2008) scale not only because Cronbach alphas for promotion and prevention focus scales were superior than those of Wallace and Chen’s (2006), but also because the Work Regulatory Focus items cover features that are not included in Wallace et al.’s (2006) scale, such as professional hopes and aspirations for promotion focus and job security for prevention focus. Therefore, we used the
Work Regulatory Focus scale for assessing work-specific regulatory focus in the present studies.

**Needs satisfaction.** We used the QWL Needs Satisfaction scale from the Quality of Working Life Measure (Sirgy et al., 2001) to assess employees’ satisfaction with security, social, and growth work-related needs. This scale comprises 16 items covering satisfaction of health and safety needs (e.g., “I feel physically safe at work”), economic and family needs (e.g., “I am satisfied with what I’m getting paid for my work”), social needs (e.g., “I have good friends at work”), esteem needs (e.g., “I feel appreciated at work at the organization”), actualization needs (e.g., “I feel that my job allows me to realize my full potential”), knowledge needs (e.g., “I feel that I’m always learning new things that help do my job better”), and creativity needs (e.g., “There is a lot of creativity involved in my job”) in the workplace. Participants indicated how accurately the items described their work experiences on 7-point scales, ranging from 1, *very untrue*, to 7, *very true*.

In this research, the security needs satisfaction factor comprised health and safety and economic and family needs satisfaction subscales; the social needs satisfaction factor comprised social and esteem needs satisfaction subscales; and the growth needs satisfaction factor comprised actualization, knowledge and creativity needs satisfaction subscales.

**Needs importance.** We used the seven needs dimensions (Sirgy et al., 2001) to assess the importance given to satisfaction of each of the seven work-related needs. This scale comprised 16 items assessing needs importance (e.g., “To me, protection from ill health and injury at work is…” for health and safety needs importance; “To me, job security is…” for economic and family needs importance; and “To me, creativity at work is…” for creativity needs importance). Participants indicated how important satisfaction of these needs were to them on 7-point scales ranging from 1, *not at all important*, to 7, *extremely important*. 
The security needs importance factor comprised health and safety and economic and family needs importance subscales; the social needs importance factor comprised social and esteem needs importance subscales; and the growth needs importance factor comprised actualization, knowledge and creativity needs importance subscales.

Results

Model Fitting

The means, standard deviations, bivariate correlations, and scale reliabilities are displayed in Table 3. After data collection, we conducted confirmatory factor analyses (CFAs) to ensure that work regulatory focus scales and needs satisfaction scales were independent. We estimated a five-factor solution using standardized data from both studies (N = 456) and specified the model using Amos (Version 24). Of the five factors, two factors comprised the Work Regulatory Focus scales (i.e., work promotion focus and work prevention focus), and the other three factors comprised the QWL Needs Satisfaction scales (i.e., security needs satisfaction, social needs satisfaction, and growth needs satisfaction). According to commonly used criteria for evaluating fit indices (Hu & Bentler, 1999; McDonald & Ho, 2002; Spector, 2001), the five-factor model had suboptimal however acceptable fit: $\chi^2 (482) = 1520.567$; CFI = .90; TLI = .90; RMSEA = .07; and SRMR = .07. In addition, we compared this model with an alternative model that combined promotion and prevention focus into one factor given their moderate correlation (around $r = .45$ across studies); this four-factor model had a poorer fit $\chi^2 (487) = 2081.23$; CFI = .85; TLI = .84; RMSEA = .09; and SRMR = .09. Thus, our specified five-factor solution seems the most adequate for interpreting the analyses’ results.

In these confirmatory analyses, needs importance scales were not included in the measurement model because, although we planned to explore relationships between needs importance and needs satisfaction, we did not make any predictions regarding the
independence between these factors. In addition, needs importance was only measured in Study 1, the reasons for this will be discussed later.

Table 3. Descriptive Statistics and Correlations Among the Variables in Study 1

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Work prevention focus</td>
<td>5.98</td>
<td>0.73</td>
<td>(.86)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Work promotion focus</td>
<td>4.76</td>
<td>1.04</td>
<td>.47***</td>
<td>(.82)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Security needs satisfaction</td>
<td>4.98</td>
<td>1.05</td>
<td>.39***</td>
<td>.49***</td>
<td>(.71)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Social needs satisfaction</td>
<td>5.00</td>
<td>1.27</td>
<td>.31***</td>
<td>.50***</td>
<td>.72***</td>
<td>(.77)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Growth needs satisfaction</td>
<td>4.47</td>
<td>1.45</td>
<td>.38***</td>
<td>.65***</td>
<td>.67***</td>
<td>.75***</td>
<td>(.90)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Security needs importance</td>
<td>5.97</td>
<td>0.86</td>
<td>.49***</td>
<td>.31***</td>
<td>.27**</td>
<td>.21**</td>
<td>.15</td>
<td>(.78)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Social needs importance</td>
<td>5.20</td>
<td>1.03</td>
<td>.32***</td>
<td>.50***</td>
<td>.38***</td>
<td>.38***</td>
<td>.36***</td>
<td>.48***</td>
<td>(.73)</td>
<td></td>
</tr>
<tr>
<td>8. Growth needs importance</td>
<td>5.23</td>
<td>0.99</td>
<td>.54***</td>
<td>.68***</td>
<td>.45***</td>
<td>.45***</td>
<td>.53***</td>
<td>.49***</td>
<td>.70***</td>
<td>(.85)</td>
</tr>
</tbody>
</table>

Note. N = 155; scale reliabilities (αs) are reported in parentheses along the diagonal. *p < .05, **p < .01, ***p < .001.

Needs Importance

We conducted a series of hierarchical multiple regressions on the needs importance variables. Hierarchical regressions allowed us first to observe relationships between work regulatory focus and each needs importance variable, and then to observe how these relationships changed after accounting for shared variance between the needs scales (which are all positively correlated, see Table 3). In these analyses, work promotion focus and work prevention focus were entered at Step 1. The alternative needs importance scales were entered at Step 2 (e.g., when predicting security needs importance, we entered social needs importance and growth needs importance as predictors). Finally, the needs satisfaction scales were entered at Step 3. The results of these analyses are outlined in Table 4 and provided in more detail in appendices, Table A1.
Table 4. Hierarchical multiple regressions of work regulatory focus on needs importance in Study 1

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Security</th>
<th>Social</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²=.25***</td>
<td>R²=.26***</td>
<td>R²=.52***</td>
<td></td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>.11</td>
<td>.45***</td>
<td>.55***</td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>.44***</td>
<td>.11</td>
<td>.25***</td>
</tr>
<tr>
<td><strong>Step 2 (controlling for other needs importance)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R₂₅=.12***</td>
<td>R₂₅=.27***</td>
<td>R₂₅=.16***</td>
<td></td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>-.12</td>
<td>.09</td>
<td>.35***</td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>.37***</td>
<td>-.17*</td>
<td>.20**</td>
</tr>
<tr>
<td><strong>Step 3 (controlling for all needs satisfaction)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R₂₅=.03</td>
<td>R₂₅=.01</td>
<td>R₂₅=.01</td>
<td></td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>-.02</td>
<td>.09</td>
<td>.28***</td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>.36***</td>
<td>-.17*</td>
<td>.19**</td>
</tr>
</tbody>
</table>

Note. Step 1 entered work regulatory focus; Step 2 entered the alternative needs importance scales; Step 3 entered all the needs satisfaction scales—detailed results of Steps 2 and 3 are featured in appendices Table A1. *p < .05, **p < .01, ***p < .001.

Of greater interest to us was how these relationships changed after accounting for the alternative needs importance scales in Step 2. These analyses assess the unique relationships between work regulatory focus and importance of specific needs after accounting for a general tendency to perceive all needs as important. Controlling for needs importance in Step 2 revealed that work promotion focus significantly and positively predicted growth needs importance, which provides support for H1a. In comparison, work prevention focus predicted greater security needs importance, which provides support for H2a. Unexpectedly, work prevention focus also predicted growth needs importance. Further, work prevention focus negatively predicted social needs importance.

In Step 3, we controlled for the needs satisfaction scales, to assess whether the degree of importance placed on particular needs might be a function of the degree to which one perceives those needs as having been satisfied. This revealed relatively little change from Step 2. That is, including needs satisfaction variables did not substantively alter the results on needs importance.
Needs Satisfaction

We then conducted a series of hierarchical multiple regressions on each of the needs satisfaction variables. In these analyses, work promotion focus and work prevention focus were entered at Step 1. The alternative needs satisfaction subscales were entered at Step 2 (e.g., when predicting security needs satisfaction, we entered social needs satisfaction and growth needs satisfaction as predictors). Finally, the needs importance scales were entered at Step 3. The results of these analyses are outlined in Table 5 and provided in more detail in appendices, Table A2.

Our first intention with these analyses was to observe the relationships between work regulatory focus and the needs satisfaction scales (Step 1). Consistent with the bivariate correlations, this revealed that work promotion focus was significantly and positively associated with satisfaction of all three needs. In contrast, work prevention focus was only associated with satisfaction of security needs ($\beta = .20, p = .011$). The strongest relationship for work promotion focus was with growth needs satisfaction ($\beta = .60, p < .001$).

Of greater interest to us was how these relationships changed after accounting for the alternative needs satisfaction scales in Step 2. These analyses assess the unique relationships between work regulatory focus and satisfaction of specific needs after accounting for a general tendency to perceive all needs as being satisfied. Controlling for needs satisfaction in Step 2 revealed the work promotion focus only significantly predicted greater growth needs satisfaction, while work prevention focus remained only significantly predicting security needs satisfaction. These results provide support for H1b and for H2b.
Table 5. Hierarchical multiple regressions of work regulatory focus on needs satisfaction in Study 1

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Needs satisfaction</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Security</td>
<td>Social</td>
<td>Growth</td>
<td></td>
</tr>
<tr>
<td>Step 1</td>
<td>$R^2 = .27^{***}$</td>
<td>$R^2 = .26^{***}$</td>
<td>$R^2 = .42^{***}$</td>
<td></td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>.39^{***}</td>
<td>.45^{***}</td>
<td>.60^{***}</td>
<td></td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>.20*</td>
<td>.10</td>
<td>.10</td>
<td></td>
</tr>
<tr>
<td>Step 2 (controlling for other needs satisfaction)</td>
<td>$R^2_{Δ} = .30^{***}$</td>
<td>$R^2_{Δ} = .39^{***}$</td>
<td>$R^2_{Δ} = .25^{***}$</td>
<td></td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>.03</td>
<td>&lt;.01</td>
<td>.33^{***}</td>
<td></td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>.13*</td>
<td>-.03</td>
<td>.01</td>
<td></td>
</tr>
<tr>
<td>Step 3 (controlling for all needs importance)</td>
<td>$R^2_{Δ} = .01$</td>
<td>$R^2_{Δ} = .01$</td>
<td>$R^2_{Δ} = .02^{*}$</td>
<td></td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>.01</td>
<td>-.03</td>
<td>.30^{***}</td>
<td></td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>.11</td>
<td>-.05</td>
<td>.05</td>
<td></td>
</tr>
</tbody>
</table>

Note. Step 1 entered work regulatory focus; Step 2 entered the alternative needs satisfaction scales; Step 3 entered all the needs importance scales—detailed results of Steps 2 and 3 are featured in appendices Table A2. *p < .05, **p < .01, ***p < .001.

In Step 3 we controlled for the needs importance scales, to assess whether the degree to which people perceived their needs as being satisfied was a function of the degree to which they perceive those needs as being important. This revealed relatively little change from Step 2; with one exception. When needs importance was accounted for, the relationship between work prevention focus and security needs satisfaction became non-significant, which suggest that when people high in prevention focus do not value security needs satisfaction, they are not more likely to see their security needs satisfied.

Discussion

This study provided initial evidence for differences in associations between work regulatory focus and work-related needs importance and satisfaction. Our results suggest that employees who are high in prevention focus at work place greater value on security needs than on other needs, which means that satisfaction of security needs is particularly important for employees with high prevention focus. This finding provides empirical evidence for the
theorized relationship between prevention focus and security needs. On the other hand, individuals who are high in promotion focus at work place greater value on growth needs than on other needs, which suggests that satisfaction of growth needs is particularly important for employees with high promotion focus. This finding provides empirical evidence for the theorized relationship between promotion focus and growth needs. Unexpectedly, growth needs were considered important for those high in prevention focus, although were not more likely to be perceived as satisfied.

Regarding needs satisfaction, after controlling for needs importance and for the general tendency one has to perceive needs as satisfied, work promotion focus uniquely and positively predicted growth needs satisfaction, whereas work prevention uniquely and positively predicted security needs satisfaction. Notably, the relationship between promotion focus and growth needs satisfaction was more robust than the relationship between prevention focus and security needs satisfaction. Critically, the relatively lower levels of needs satisfaction and some discrepancy between needs that are valued and needs that are perceived as satisfied may compromise motivation in prevention focus. Regarding clarification of the relationships between needs importance and needs satisfaction, our results suggest that the variables are positively related.

Because this study provided the first evidence of differences in work-related needs satisfaction associated with promotion and prevention focus, in the next study we assess whether the relationships between work regulatory focus and work outcomes are in part explained by different levels of needs satisfaction. In other words, we explored in our second study whether needs satisfaction mediates the relationships between work regulatory focus and work outcomes.
Study 2

Our aim for Study 2 was to assess the relationships between work regulatory focus, needs satisfaction, and work outcomes (i.e., engagement, job satisfaction, burnout, and turnover intentions). This allowed us to assess whether regulatory focus is associated with work outcomes in part via satisfaction of particular needs.

It is possible that perceptions of how one’s needs are being met at work has consequences for work outcomes, and may help to further explain the associations between work promotion and prevention focus with these outcomes. We therefore expected to find indirect effects of work promotion focus on work outcomes via greater growth needs satisfaction (Hypothesis 3) and indirect effects of work prevention focus on work outcomes via greater security needs satisfaction (Hypothesis 4).

Method

Participants and Procedure

We collected data from 301 full-time and part-time employees in the United States, with at least two years of work experience, recruited through Qualtrics panel data as in Study 1. Participants completed an online survey which assessed work regulatory focus and needs satisfaction as in Study 1, plus the following work-related outcomes: engagement, job satisfaction, burnout, and turnover intentions. We did not include needs importance scales in Study 2 because needs importance was not significant for predicting needs satisfaction in Study 1, and because we aimed to keep the survey within a length that do not compromise data quality (e.g., due to tiredness or boredom). The same steps to ensure good quality data taken in Study 1 were also taken in Study 2. There was no missing data; data and syntax files are available at: https://osf.io/n4asu/?view_only=fabed6ee33e14fc2934994befd240b79.

Of the participants surveyed, 81% worked full-time, 69% were female, 51% completed higher education, 52% were married or in a de-facto relationship. They ranged in
age from 18-34 years (42%) to 35-54 years (37%) to 55 and older (21%). Participants also reported a range in yearly income from $0-$49,999 (42%) to $50,000-$99,999 (45%) to $100,000 and more (11%; 2% did not report their income). Participants were from a wide range of industries, occupations and job positions. Most worked in education and training (15%), health care and social assistance (14%), retail trade (11%), and manufacturing (7%). Regarding job positions, participants were most often analysts/associates (28%), at the entry level (17%), or managers (17%).

Measures

**Work regulatory focus and needs satisfaction.** These variables were assessed using the same measures used in Study 1. However, because most of the work outcomes measures added in Study 2 were rated in 5-point scales in their original versions (see below the Utrecht Work Engagement Scale, the Brief Job Satisfaction Measure II, the Oldenburg Burnout Inventory, and turnover intentions items), we also used 5-point scales for regulatory focus at work and needs satisfaction in this study. This was done to maintain consistency and to make the online survey more user friendly, as all questions were randomized\(^5\).

To ensure construct validity, we also used instruments that have been well validated in the literature to assess the following work outcomes.

**Engagement.** We measured engagement using the Utrecht Work Engagement Scale (Schaufeli, 2002), which has been validated in more than 9 countries (Schaufeli & Bakker, 2003). The scale has satisfactory psychometric properties; the three factors subscales structure is invariant across samples from different countries, internally consistent, and stable across time. In addition, this scale was the most used to assess work engagement in the work

\(^5\) Standardized values were used in the CFA that combined data of both studies to assess measurement model fit.
motivation literature (Christian, Garza, & Slaughter, 2011). Therefore, because we are interested in investigating whether needs satisfaction plays a role in the known associations between regulatory focus and engagement, we opted to use the Utrecht Work Engagement Scale (UWES) in this study.

The UWES scale has 17 items that assess three underlying dimensions of engagement: vigor (e.g., “When I get up in the morning, I feel like going to work”), dedication (e.g., “I find the work that I do full of meaning and purpose”), and absorption (e.g., “I am immersed in my work”). Participants indicated how often the statements described how they feel at work on scales ranging from 1, never, to 5, very often.

**Job satisfaction.** To assess employees’ job satisfaction, we used the Brief Job Satisfaction Measure II (Judge, Locke, Durham, & Kluger, 1998), which is a reliable 5-item measure extracted from the 18-item index of job satisfaction of (Brayfield & Rothe, 1951). Participants indicated the extent to which they disagreed or agreed with the items on scales ranging from 1, strongly disagree, to 5, strongly agree (e.g., “I feel fairly well satisfied with my present job”; “Each day of work seems like it will never end,” reverse-coded).

**Burnout.** We used the Oldenburg Burnout Inventory (Demerouti, Mostert, & Bakker, 2010) to measure employees’ burnout. The inventory comprises 16 items covering exhaustion (e.g., “After my work, I usually feel worn out and weary”; “Usually, I can manage the amount of my work well,” reverse-coded), and disengagement (e.g., “It happens more and more often that I talk about my work in a negative way”; “I always find new and interesting aspects in my work,” reverse-coded), with both subscales including four positively worded items and four negatively worded items. Participants indicated how often the statements described how they feel at work on scales ranging from 1, strongly disagree to 5, strongly agree.
Turnover intentions. We measured turnover intentions using four items proposed by Kelloway, Gottlieb, & Barham (1999) that measure how much the person considers leaving the organization (e.g., “I am thinking about leaving the organization,” and “I am planning to look for a new job”). Participants indicated the extent to which they disagreed or agreed with these items on scales ranging from 1, strongly disagree, to 5, strongly agree.

Results

Needs Satisfaction

The means, standard deviations, bivariate correlations, and scales reliabilities for all variables are displayed in Table 6. We conducted a series of hierarchical multiple regressions on each of the needs satisfaction outcome variables. In these analyses, work promotion focus and work prevention focus were entered at Step 1. The alternative needs satisfaction scales were entered at Step 2 (e.g., when predicting security needs satisfaction we entered social needs satisfaction and growth needs satisfaction as predictors). The results of these analyses are outlined in Table 7.

Our intention with these analyses was to first observe the relationships between work regulatory focus and the needs satisfaction scales (Step 1). Consistent with the bivariate correlations, this revealed that work promotion focus and work prevention focus were significantly positively associated with satisfaction of all three needs. Once again, the overall relationships between work promotion focus and needs satisfaction were stronger than those of work prevention focus, which reflect the promotion focus positive bias.

As in Study 1, the strongest relationship for work promotion focus was with growth needs satisfaction ($\beta = .55, p < .001$) and the strongest relationship for work prevention focus was with security needs satisfaction ($\beta = .24, p < .001$).

Of greater interest to us was how these relationships changed after accounting for the alternative needs satisfaction scales in Step 2. These analyses assess the unique relationships
between work regulatory focus and satisfaction of specific needs after accounting for a
general tendency to perceive one’s needs as being satisfied.

Table 6. Descriptive Statistics and Correlations Among the Variables in Study 2

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Work prevention focus</td>
<td>4.21</td>
<td>0.56</td>
<td>(.85)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Work promotion focus</td>
<td>3.51</td>
<td>0.72</td>
<td>.45***</td>
<td>(.84)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Security needs satisfaction</td>
<td>3.77</td>
<td>0.79</td>
<td>.40***</td>
<td>.47***</td>
<td>(.73)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>4. Social needs satisfaction</td>
<td>3.94</td>
<td>0.84</td>
<td>.38***</td>
<td>.45***</td>
<td>.70***</td>
<td>(.72)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Growth needs satisfaction</td>
<td>3.51</td>
<td>1.06</td>
<td>.35***</td>
<td>.60***</td>
<td>.70***</td>
<td>.72***</td>
<td>(.90)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Engagement</td>
<td>3.46</td>
<td>0.70</td>
<td>.41***</td>
<td>.57***</td>
<td>.64***</td>
<td>.60***</td>
<td>.75***</td>
<td>(.92)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Job satisfaction</td>
<td>3.51</td>
<td>0.92</td>
<td>.33***</td>
<td>.32***</td>
<td>.58***</td>
<td>.65***</td>
<td>.64***</td>
<td>.72***</td>
<td>(.86)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Burnout</td>
<td>2.72</td>
<td>0.68</td>
<td>-.28***</td>
<td>-.37***</td>
<td>-.55***</td>
<td>-.63***</td>
<td>-.60***</td>
<td>-.64***</td>
<td>-.80***</td>
<td>(.89)</td>
<td></td>
</tr>
<tr>
<td>9. Turnover intentions</td>
<td>2.64</td>
<td>1.22</td>
<td>-.25***</td>
<td>-.06***</td>
<td>-.45***</td>
<td>-.48***</td>
<td>-.42***</td>
<td>-.46***</td>
<td>-.74***</td>
<td>-.62***</td>
<td>(.93)</td>
</tr>
</tbody>
</table>

Note. N = 301; scale reliabilities (αs) are reported in parentheses along the diagonal.
*p < .05, **p < .01, ***p < .001.

After controlling for shared variance in needs satisfaction, growth needs satisfaction
was significantly and positively predicted by work promotion focus (β = .31, p < .001), which
provides additional support for H1b. Similarly, after controlling for shared variance in needs
satisfaction scales, work prevention focus significantly and positively predicted security
needs satisfaction (β =.12, p = .008), which provides additional support for H2b. In this study,
work prevention focus also significantly and positively predicted social needs satisfaction
(β = .10, p = .230), which did not occur in Study 1.

**Work outcomes.** Next, we conducted a series of hierarchical multiple regressions on
each of the work outcome variables in turn. In these analyses, work promotion focus and
work prevention focus were entered at Step 1. The needs satisfaction scales were entered at
Step 2 to determine whether these variables meet the criteria to act as potential mediators
(e.g., accounting for unique variance in the outcome variables). The results of these analyses
are outlined in Table 8.
Table 7. Hierarchical multiple regressions of work regulatory focus on needs satisfaction in Study 2

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Needs satisfaction</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Security</td>
<td>Social</td>
<td>Growth</td>
<td></td>
</tr>
<tr>
<td>Step 1</td>
<td>$R^2$=.27***</td>
<td>$R^2$=.24***</td>
<td>$R^2$=.37***</td>
<td></td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>.36***</td>
<td>.34***</td>
<td>.55***</td>
<td></td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>.24***</td>
<td>.23***</td>
<td>.10*</td>
<td></td>
</tr>
<tr>
<td>Step 2 (controlling for other needs satisfaction)</td>
<td>$R^2_\Delta$=.31***</td>
<td>$R^2_\Delta$=.36***</td>
<td>$R^2_\Delta$=.29***</td>
<td></td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>.03</td>
<td>-.04</td>
<td>.31***</td>
<td></td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>.12**</td>
<td>.10*</td>
<td>-.06</td>
<td></td>
</tr>
<tr>
<td>Security needs satisfaction</td>
<td>-</td>
<td>.40***</td>
<td>.19**</td>
<td></td>
</tr>
<tr>
<td>Social needs satisfaction</td>
<td>.48***</td>
<td>-</td>
<td>.45***</td>
<td></td>
</tr>
<tr>
<td>Growth needs satisfaction</td>
<td>.25**</td>
<td>.49***</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Note. Step 1 entered work regulatory focus; Step 2 entered the alternative needs satisfaction scales. *p < .05, **p < .01, ***p < .001.

Engagement. Together, the variables accounted for a significant amount of variance at Step 1, $R^2 = .35$, $F(2, 298) = 80.73, p < .001$. Inspection of the individual predictors revealed that work promotion focus ($\beta = .48, p < .001$), and work prevention focus ($\beta = .19, p < .001$), were significant positive predictors of engagement.

Entering the needs satisfaction variables accounted for additional variance at Step 2, $R^2_\Delta = .26$, $F(3, 295) = 64.92, p < .001$. Of the needs satisfaction variables, security needs ($\beta = .18, p = .002$) and growth needs ($\beta = .49, p < .001$) satisfaction were significant predictors of engagement.
We next tested for indirect effects of work promotion focus and work prevention focus on engagement via each of the needs satisfaction scales. The results of these analyses are displayed in Table 9, control for each of the alternative needs satisfaction scales (e.g., controlling for security needs satisfaction and social needs satisfaction when assessing growth needs satisfaction as the mediator), and control for the alternative regulatory focus (e.g., controlling for work prevention focus when assessing work promotion focus as the predictor). We observed a significant positive indirect effect (IE) of work promotion on engagement via greater growth needs satisfaction, $IE = 0.17$, $SE = 0.03$, 95% $CI [0.113, 0.242]$, suggesting that greater work promotion focus is associated with greater satisfaction of growth needs, which in turn promotes engagement—which supports H3.

We also observed a small but significant positive indirect effect of work prevention on engagement via security needs satisfaction, $IE = 0.03$, $SE = 0.01$, 95% $CI [0.008, 0.060]$, suggesting that work prevention is associated with greater satisfaction of security needs, which in turn promotes engagement—which supports H4.
**Job satisfaction.** Together, the variables accounted for a significant amount of variance at Step 1, $R^2 = .15, F(2, 298) = 25.40, p < .001$. Inspection of the individual predictors revealed that work promotion focus ($\beta = .22, p < .001$) and work prevention focus ($\beta = .23, p < .001$) were significant positive predictors of job satisfaction.

Entering the needs satisfaction variables accounted for additional variance at Step 2, $R^2_{\Delta} = .36, F(3, 295) = 72.91, p < .001$. All the three needs satisfaction variables—security ($\beta = .13, p = .044$), social ($\beta = .32, p < .001$) and growth ($\beta = .39, p < .001$)—needs satisfaction were significant predictors of job satisfaction.

We next tested for indirect effects of work promotion focus and work prevention focus on job satisfaction via each of the needs satisfaction scales. The results of these analyses are displayed in Table 9 and control for each of the alternative needs satisfaction scales and alternative regulatory focus. We observed a significant positive indirect effect of work promotion on job satisfaction via greater growth needs satisfaction, $IE = 0.13, SE = 0.03, 95\% CI [0.077, 0.209]$, suggesting that greater work promotion focus is associated with greater satisfaction of growth needs, which in turn promotes job satisfaction—which supports H3.

We also observed a small but significant positive indirect effect of work prevention on job satisfaction via security needs satisfaction, $IE = 0.02, SE = 0.01, 95\% CI [0.002, 0.045]$, suggesting that greater work prevention focus is associated with greater satisfaction of security needs, which in turn promotes job satisfaction—which supports H4.

Although unexpected, we observed a significant positive indirect effect of work prevention on job satisfaction via social needs satisfaction, $IE = 0.04, SE = 0.02, 95\% CI [0.011, 0.070]$, suggesting that work prevention can be associated with greater social needs satisfaction, which in turn promotes job satisfaction.
Table 9. *Indirect effects of work regulatory focus on work outcomes via needs satisfaction in Study 2*

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Mediator</th>
<th>Engagement</th>
<th>Job satisfaction</th>
<th>Burnout</th>
<th>Turnover intentions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>IE</td>
<td>SE</td>
<td>95% CI</td>
<td>IE</td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>Security needs satisfaction</td>
<td>0.01</td>
<td>.01</td>
<td>-0.013, 0.033</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Social needs satisfaction</td>
<td>-0.00</td>
<td>.00</td>
<td>-0.017, 0.003</td>
<td>-0.01</td>
</tr>
<tr>
<td></td>
<td>Growth needs satisfaction</td>
<td><strong>0.17</strong></td>
<td><strong>.03</strong></td>
<td><strong>0.113, 0.242</strong></td>
<td><strong>0.13</strong></td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>Security needs satisfaction</td>
<td>0.03</td>
<td><strong>.01</strong></td>
<td><strong>0.008, 0.060</strong></td>
<td><strong>0.02</strong></td>
</tr>
<tr>
<td></td>
<td>Social needs satisfaction</td>
<td>0.00</td>
<td>.01</td>
<td>-0.011, 0.023</td>
<td><strong>0.04</strong></td>
</tr>
<tr>
<td></td>
<td>Growth needs satisfaction</td>
<td>-0.04</td>
<td>.03</td>
<td>-0.085, 0.012</td>
<td>-0.03</td>
</tr>
</tbody>
</table>

*Note.* Significant effects are in bold. *IE* = completely standardized indirect effect, *SE* = standard error, *CI* = confidence intervals. Alternate work regulatory focus (e.g., work prevention focus for work promotion focus analyses) and alternate needs satisfaction (e.g., social and growth needs satisfaction for security needs satisfaction analyses) were included as control variables (covariates).
**Burnout.** Together, the variables accounted for a significant amount of variance at Step 1, $R^2 = .15$, $F(2, 298) = 26.82, p < .001$. Inspection of the individual predictors revealed that work promotion focus ($ß = -.30, p < .001$) and work prevention focus ($ß = -.15, p = .016$) were significant negative predictors of burnout.

Entering the needs satisfaction variables accounted for additional variance at Step 2, $R^2_{∆} = .30$, $F(3, 295) = 52.82, p < .001$. Of the needs satisfaction variables, social needs ($ß = -.38, p < .001$) and growth needs ($ß = -.25, p = .001$) satisfaction were significant negative predictors of burnout. Security needs satisfaction did not significantly predict burnout ($ß = -.11, p = .103$).

We next tested for indirect effects of work promotion and prevention focus on burnout via each of the needs satisfaction scales. The results of these analyses are displayed in Table 9 and control for each of the alternative needs satisfaction scales and alternative regulatory focus. We observed a significant negative indirect effect of work promotion on burnout via greater growth needs satisfaction, $IE = -0.08, SE = 0.03, 95\% CI [-0.151, -0.032]$, suggesting that greater work promotion focus is associated with greater satisfaction of growth needs, which in turn reduces burnout—which supports H3.

We did not observe any significant indirect effect of work prevention focus on burnout via security needs satisfaction, which fails to support H4. However, we additionally observed a small but significant negative indirect effect of work prevention on burnout via greater social needs satisfaction, $IE = -0.04, SE = 0.02, 95\% CI [-0.077, -0.012]$, suggesting that greater work prevention focus can be associated with greater satisfaction of social needs, which in turn reduces burnout.

**Turnover intentions.** Together, the variables accounted for a small but significant amount of variance at Step 1, $R^2 = .06$, $F(2, 298) = 10.05, p < .001$. Inspection of the individual predictors revealed that only work prevention focus was a significant negative
predictor of turnover intentions ($\beta = -.27, p < .001$). Work promotion focus did not significantly predict turnover intentions ($\beta = .06, p = .332$).

Entering the needs satisfaction variables accounted for additional variance at Step 2, $R^2_{\Delta} = .28, F(3, 295) = 41.60, p < .001$. The three needs satisfaction variables—security ($\beta = -.21, p = .005$), social ($\beta = -.26, p = .001$), and growth ($\beta = -.27, p = .001$)—were significant negative predictors of turnover intentions.

We next tested for indirect effects of work promotion and prevention focus on turnover intentions via each of the needs satisfaction scales. The results of these analyses are displayed in Table 9 and control for each of the alternative needs satisfaction scales and alternative regulatory focus. We observed a significant negative indirect effect of work promotion on turnover intentions via greater growth needs satisfaction, $IE = -0.14, SE = 0.05, 95\% CI [-0.242, -0.054]$, suggesting that greater work promotion focus is associated with greater satisfaction of growth needs, which in turn reduces turnover intentions—which supports H3.

We also observed a small but significant negative indirect effect of work prevention on turnover intentions via greater security needs satisfaction, $IE = -0.03, SE = 0.01, 95\% CI [-0.058, -0.006]$, suggesting that greater work prevention focus is associated with greater satisfaction of security needs, which in turn reduces turnover intentions—which supports H4.

We additionally observed a significant negative indirect effect of work prevention on turnover intentions via social needs satisfaction, $IE = -0.03, SE = 0.01, 95\% CI [-0.055, -0.007]$, suggesting that work prevention is associated with greater social needs satisfaction, which in turn reduces turnover intentions.6

6 We additionally tested whether needs satisfaction moderated relationships between regulatory focus and work outcomes. Results revealed that the effects of the interactions between regulatory focus and needs satisfaction on work outcomes were not significant.
Discussion

This study replicated and extended the findings of Study 1. Again, growth needs satisfaction was uniquely predicted by work promotion focus and security needs satisfaction was uniquely predicted by work prevention focus. However, in this study, work prevention focus also predicted social needs satisfaction, which inconsistent with the findings of Study 1. Regarding implications for work outcomes, the extent to which needs satisfaction scales predicted work outcomes varied.

Growth needs satisfaction was the strongest predictor of engagement, job satisfaction and turnover intentions among the three needs satisfaction assessed. Following these associations, the results of indirect effect analyses revealed that work promotion focus was associated with greater growth needs satisfaction, which in turn increased engagement and job satisfaction and reduced burnout and turnover intentions. In contrast, work prevention focus was associated with greater security needs satisfaction, which in turn increased engagement and job satisfaction and reduced turnover intentions. Further, work prevention focus was associated with greater social needs satisfaction, which in turn increased job satisfaction and reduced burnout and turnover intentions. Notably, in comparison, the indirect effects of work promotion focus on work outcomes via needs satisfaction were more robust than the indirect effects of work prevention focus on work outcomes via needs satisfaction.

This suggests that employees high in work prevention focus can benefit work outcomes through feeling greater security and social needs satisfaction. In comparison, employees high in work promotion focus can benefit work outcomes through feeling greater growth needs satisfaction. However, not all of the associations we observed between regulatory focus and needs satisfaction were replicated across the studies (i.e., social needs). Hence, we conducted a mini meta-analysis to better determine which of these associations were robust.
Meta-Analysis

One avenue of inquiry opened by these studies concerns their ability to clarify the needs that are satisfied (vs. not) among people who have certain regulatory foci at work. Accordingly, with a view to clarifying the implications of our studies for the literature, we conducted a mini meta-analysis of the results across Studies 1 and 2 to determine which needs were consistently associated with greater work promotion focus and work prevention focus, and to clarify the size of these relationships.

We conducted this mini meta-analysis using the R metafor package (Viechtbauer, 2010) with a random effects model, transforming the standardized coefficients in each study using the Fischer’s r-to-z transformation. Results of the mini meta-analysis are presented in Table 10. We see that promotion focus is consistently associated with greater growth needs satisfaction at a moderate level, whereas prevention focus is consistently associated with greater security needs satisfaction (small effect). Neither promotion focus nor prevention focus was robustly associated with social needs.

Table 10. Mini meta-analysis of the relationship between work regulatory focus and needs satisfaction in Studies 1 and 2

<table>
<thead>
<tr>
<th>Needs satisfaction</th>
<th>Work promotion focus</th>
<th></th>
<th>Work prevention focus</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$r_z$</td>
<td>SE</td>
<td>z</td>
</tr>
<tr>
<td>Growth</td>
<td><strong>0.31</strong></td>
<td><strong>0.05</strong></td>
<td><strong>6.72</strong></td>
</tr>
<tr>
<td>Social</td>
<td>-0.04</td>
<td>0.05</td>
<td>-0.77</td>
</tr>
<tr>
<td>Security</td>
<td>0.02</td>
<td>0.05</td>
<td>0.49</td>
</tr>
</tbody>
</table>

Note. $r_z$ = average effect size. SE = standard error. 95% CI = 95% confidence intervals. Significant effects in bold.
General Discussion

In this research we investigated relationships between regulatory focus at work and work-related needs importance and satisfaction, as well as implications of these relationships for the work outcomes of engagement, job satisfaction, burnout, and turnover intentions. In Study 1, employees who were high in promotion focus at work valued growth needs to a greater degree than employees who were low in promotion focus, while employees who were high in prevention focus at work valued security needs to a greater degree than employees who were low in prevention focus. However, the importance given to a particular need did not naturally go hand in hand with satisfaction of that need.

In Study 2, we aimed to replicate these relationships and investigate whether they impact on work outcomes. We again found that work promotion focus was associated with greater growth needs satisfaction and that work prevention focus was associated with greater security needs satisfaction. These associations were also confirmed in a mini meta-analysis that summarized results across the studies ($N = 456$). Our findings indicate that work promotion focus is associated with greater growth needs satisfaction, which in turn promotes better work outcomes (i.e., greater engagement and job satisfaction, and lower burnout and turnover intentions).

These findings are consistent with the literature, which has related promotion focus to greater engagement and job satisfaction (Higgins, 2011; Lanaj et al., 2012; Neubert et al., 2008). However, to our knowledge, this is the first research to combine promotion focus with literature on needs satisfaction to probe this as a process through which promotion focus is associated with beneficial work-related outcomes. Our findings also suggest that work prevention focus may be associated with beneficial work outcomes via security needs satisfaction, which was associated with greater engagement and job satisfaction and reduced turnover intentions. Therefore, as predicted, we found that growth needs satisfaction partially
mediates relationships between work promotion focus and work outcomes, whereas security needs satisfaction partially mediates relationships between work prevention focus and work outcomes. Further, because growth needs satisfaction is a stronger predictor of work outcomes than security needs satisfaction, this helps to explain differences in the degree to which promotion focus predicts work outcomes compared to prevention focus—this is partially due to differences in which needs are more likely to be satisfied according to each focus.

In addition to contribute to the understanding of why promotion focus is associated with more beneficial work-related outcomes, this research helps to clarify why prevention focus is less strongly related to the same work outcomes. For example, prevention focus has been less related to engagement than promotion focus, and even negatively related to job satisfaction when controlling for affect and other individual difference variables (Lanaj et al., 2012). In this research, we found evidence that prevention focus is associated with a tendency to perceive that one’s security needs are satisfied at work, but this does not predict work outcomes as much as satisfaction of growth needs (which was associated with promotion focus). Further, we observed in Study 1 that this is not because employees with high prevention focus do not value satisfaction of growth needs. Rather, work prevention focus predicted growth needs importance but not its satisfaction. Perhaps this discrepancy between needs valued vs. needs satisfied in prevention focus harms work outcomes in a way that does

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Although moderation was not considered a priori, we tested whether regulatory focus moderated relations between needs satisfaction and work outcomes, and whether needs satisfaction moderated relations between regulatory focus and work outcomes—No evidence of moderation was found.
not happen with promotion focus, which has greater congruence between needs valued and needs satisfied.

Nevertheless, we did observe beneficial indirect effects of work prevention focus on engagement, job satisfaction and turnover intentions via security needs satisfaction. These suggest that greater security needs satisfaction for employees high in prevention focus can increase engagement and job satisfaction and reduce burnout. In addition, work prevention focus was associated with greater social needs satisfaction in Study 2, which in turn increased job satisfaction and reduced burnout and turnover intentions. It could be the case that employees high in prevention focus may under some conditions be likely to see their social needs as being satisfied at work, which benefits work outcomes. However, because the mini meta-analyses did not confirm the relationship between prevention focus and social needs satisfaction, this relationship should be further investigated and replicated. Overall, these distinct indirect effects help to explain why promotion focus appears consistently associated with beneficial work outcomes, whereas prevention focus shows patchy associations with the same outcomes—because the degree to which prevention focus is associated with work outcomes at work likely suffers from lower growth needs satisfaction.

This opens another discussion about which regulatory focus is being privileged in modern work. Prevention focus and promotion focus bring different needs to the fore, but which orientation is more likely to be appreciated and have more organizational support for satisfaction of its needs? From our results, it seems that at work promotion focus is more likely to meet the needs it serves than prevention focus (noting that we statistically controlled for a general tendency to see needs as satisfied, to account for any positive or negative bias). In addition, promotion focus was associated with satisfaction of the needs that were most robustly associated with positive work outcomes, which could be a consequence of what outcomes are being valued by employers and how they are being measured.
Positive outcomes such as engagement and job satisfaction often comprise promotion-worded items, such as “I feel enthusiastic about my job,” which match promotion focus preferences for eager strategies to meet goals. In this case, it seems logical that growth-related needs satisfaction and promotion focus will be more strongly associated with outcomes such as engagement as it is measured, because the outcomes could be themselves promotion focus biased. In this vein, we suggest that new measures developed to assess work outcomes such as engagement and job satisfaction use balanced promotion and prevention focus worded items, or neutral items. For example, in the UWES scale (Schaufeli, 2002), the item “When I get up in the morning, I feel like going to work” for the engagement scale is an example of a neutral item. In contrast, the item “My job inspires me” may be promotion biased, whereas the item “At work I always persevere, even when things do not go well” may be more prevention biased. Notably, when analyzing work outcomes scales at the item level in light of regulatory focus, considerably more items resemble promotion-focus attitudes and features.

In summary, there are differences in which needs people are more likely to see satisfied in promotion and prevention focus, and this can partially explain why they display different associations with work outcomes. Specifically, our results consistently showed that employees high in promotion focus enjoyed greater growth needs satisfaction, which in turn was associated with greater engagement, job satisfaction, and lower burnout and turnover intentions, whereas employees high in prevention focus experienced greater security needs satisfaction, which in turn was associated with greater job satisfaction and lower burnout and turnover intentions. This first empirical evidence of relationships between regulatory focus and work needs satisfaction opens the door for a better understanding of how self-regulation helps to satisfy specific needs, and how this might affect work motivation and outcomes.
Theoretical and Practical Implications

Organizational research investigating regulatory focus at work has tended to concentrate on identifying the consequences of promotion and prevention focus for work outcomes, and the antecedents associated with adopting one or the other regulatory focus while on the job. The present research suggests that the relatively neglected question of why promotion focus is associated with more positive work outcomes than prevention focus can help provide clarity on the former research questions. Integrating regulatory focus and needs satisfaction theories, we hypothesized and found that work regulatory focus influences work outcomes partially through the satisfaction of distinct work-related needs.

On a theoretical note, the current work serves to clarify how regulatory focus and needs satisfaction can function together in predicting work motivation outcomes. First, it shows that work promotion and prevention focus differ in their association with satisfaction of discrete needs. Second, it shows that needs satisfaction can be a pathway through which motivational orientations influence work outcomes. Returning to the origins of regulatory focus theory, this suggests that exploring the role of needs satisfaction in promotion and prevention focus is a valuable area of future inquiry. In addition, because the Needs Importance scale used in this research had not been previously validated, and the sample size of Study 1 was too small to verify discriminant validity, we call for future research to distinguish needs importance and needs satisfaction via CFA with appropriate sample sizes.

On a practical note, our findings suggest that unmet growth needs could have a negative impact on certain types of people. For example, those low in promotion focus and high in prevention focus, who may not perceive themselves as growing as much as they think they should be, could be particularly likely to suffer the consequences of lower needs satisfaction. More specifically still, our findings suggest that the lack of growth needs satisfaction at work may bring disadvantages for employees low in promotion focus, for
example, by lowering engagement and job satisfaction and increasing burnout and turnover intention. Therefore, strategies to help employees low in promotion focus meet their growth-related needs may have the potential to improve their work outcomes. The suggestion of how to tailor these interventions where they are needed most—that is, as a function of particular regulatory foci—is a useful implication of the current research.

One example of intervention that could improve growth needs satisfaction for employees low in promotion focus would be mapping what their growth expectations are, and providing targeted resources to support satisfaction. Another example is developing parameters and signs of progress to make employees’ professional growth more perceptible, without relying only self-judgment, promotions, or spaced one-on-one feedback meetings, for example. Further, higher levels of promotion focus can be induced to improve growth needs satisfaction and work outcomes at the same time, for example through transformational leadership and task framing. Thus, an intervention with potential to increase subjective satisfaction of growth needs would be using strategies to increase promotion focus in employees with low promotion focus. Another could involve publicly recognizing employees’ progress more often, or emphasize professional growth and expertise obtained through training and work experiences. These types of intervention could increase growth needs satisfaction and promotion focus at the same time. In short, companies could implement systematic ways of considering regulatory focus along with organizational resources to enhance needs satisfaction and thus work outcomes for all types of employees.

**Limitations and Caveats**

As with all research, the current studies had a number of limitations. Most notably, the designs relied on correlational data, which preclude causal inference. Our interpretations of the findings are based on theoretical assumptions regarding regulatory focus preceding needs satisfaction, but causal confirmation awaits experimental or longitudinal testing.
Another limitation is that the use of self-report measures can elicit socially-desirable responding—reporting desirable behaviors instead of actual behaviors (Donaldson & Grant-Vallone, 2002). In this research, we attempted to reduce self-report bias by assuring participants of the anonymity of their responses and emphasizing the importance of collecting the most accurate measures of their work experiences for contributing to advancements in organizational research. However, this does not prevent unconscious bias that participants may have to reduce self-discrepancies between their actual self and ideal or ought selves. More objective behavioral indicators of work-related outcomes, such as absenteeism or productivity, would be ideal companion indicators to the self-report variables captured here.

Another limitation is the potential problem of common-method bias, which can inflate correlational relationships. However, recruiting participants through online platforms creates a diverse sample, which helps to reduce bias from single sources. In addition, we used the correlation matrix procedure (Bagozzi, Li, & Phillips, 1991; Tehseen, Ramayah, & Sajilan, 2017) for assessing the impact of common-method bias in the constructs, which showed that the correlations among the latent variables were less than 0.9, thus not a big common-method bias concern (Bagozzi et al., 1991). Finally, lengthy online surveys may compromise accuracy due to fatigue and boredom; to minimize this issue, shorter instruments with acceptable psychometric properties were chosen to measure the intended variables where possible.
Conclusion

The present research investigated whether work regulatory focus was associated with work outcomes through a process of satisfying work-related needs. What we take away from our findings is that work promotion focus is associated with greater growth needs satisfaction at work, which in turn helps to explain the associations between promotion focus with engagement, job satisfaction, burnout, and turnover intentions. In contrast, work prevention focus is associated with greater security needs satisfaction at work, which in turn helps to explain the associations between prevention focus and engagement, job satisfaction and turnover intentions. Of importance, growth needs satisfaction predicts work outcomes more strongly than security needs satisfaction, which helps further understanding why promotion focus is a stronger predictor of these work outcomes than prevention focus. This research begins to clarify which specific needs are served by promotion and prevention focus at work, and used this information to move towards explaining work motivation. When considering the thorny problem of how to motivate employees at work, organizations might consider investing time and energy to ensure that growth needs are satisfied for all employees. Critically, these efforts can be tailored to people who are already likely to be suffering from low needs satisfaction to give the greatest bang for the buck.
References


Chapter 3

Self-Regulation and Self-Determination at Work

Overview

Chapter 2 revealed associations between work promotion focus and satisfaction of growth-related needs and associations between work prevention focus and satisfaction of security-related needs in the work domain. Further, it showed that each regulatory focus is associated with work outcomes via satisfaction of distinct needs. Thus, I found initial evidence that regulatory focus at work can affect which needs employees are more likely to be perceived as satisfied on the job. Continuing to test the framework proposed in Chapter 1, the present chapter explores relationships between work regulatory focus and satisfaction of needs drawn from self-determination theory.

Chapter 3 comprises the second empirical investigation of this thesis, with the purpose of identifying unique relationships between work-specific regulatory focus and satisfaction of autonomy, competence and relatedness needs from self-determination theory, and implications for work outcomes including engagement, job satisfaction, burnout, and turnover intentions. In addition, Chapter 3 investigates the question of why promotion and prevention focus are associated with satisfaction of particular needs. Specifically, Chapter 3 tests job crafting behavior as a potential mechanism by which employees satisfy their primary needs.

The following Chapter reflects a manuscript currently under review at Journal of Business and Psychology:

Self-Regulation and Self-Determination at Work

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Abstract

Motivation and self-regulation are powerful personal resources to achieve goals and succeed at work. Several theories exist to explain motivation, including trait-based accounts such as regulatory focus theory and normative accounts such as self-determination theory. Although these dominant literatures independently yield insight into work motivation—how it is structured and how it can be enhanced—they have developed on parallel tracks, such that little research has leveraged their combined knowledge. In two studies ($N = 679$), we explore relationships between promotion and prevention focus at work and the satisfaction of autonomy, competence and relatedness needs. Our results suggest that promotion focus helps to satisfy autonomy needs, whereas prevention focus helps to satisfy competence needs. Further, these relationships appear to be related to different forms of job crafting that focus on increasing job challenges in the case of promotion focus and autonomy needs or on decreasing job hindrances in the case of prevention focus and competence needs. Our findings provide some of the first empirical evidence of the utility of combining established theories of motivation for predicting work outcomes.

*Keywords:* work motivation, self-determination, regulatory focus, job crafting, basic psychological needs satisfaction
Self-Regulation and Self-Determination at Work

Motivation at work has been a focus of organizational research for decades, and for good reason: As the backbone of effective goal pursuit, having motivated employees is crucial for company productivity (Deci, Olafsen, & Ryan, 2017; Kanfer, Frese, & Johnson, 2017; Lau, 2000; Loscocco & Roschelle, 1991). Not only is work motivation tightly tied to organizational success; it is also associated with employee well-being and general health (Kanfer et al., 2017). In contrast, low motivation at work is related to several negative consequences such as absenteeism and low productivity (Chen et al., 2015). In short, for companies to survive and employees to thrive, motivation must be supported and enhanced.

Although the amount of organizational research on motivation to date has been vast, most literatures that have been generated are relatively siloed into separate theoretical camps. This state of affairs is the impetus for recent calls to begin integrating insights from existing theories to better understand how they fit and function together (Boyle, O’Gorman, & Fogarty, 2016). Recently, the Journal of Applied Psychology published a meta-framework that reviewed and organized a century’s worth of literature on work motivation, providing a useful resource for theory integration (Kanfer et al., 2017). In this meta-framework, regulatory focus theory—a trait-based account outlining different qualities of motivation—and self-determination theory—outlining the needs that must be met to facilitate motivation—were listed as dominant perspectives. Both theories are among the most well-researched in psychology in general and in organizational research specifically.

Critically, however, although some scholars have theorized about how these literatures might relate to one another, little empirical research has put this theorizing to the test (Hui, Molden, & Finkel, 2013; Vaughn, 2017; Wallace, Butts, Johnson, Stevens, & Smith, 2016). Bridging these highly influential theories and applying their combined insights to understand beneficial work outcomes is the goal of the present research.
Regulatory Focus Theory

One of the most influential self-regulatory processes that impacts on work outcomes is called regulatory focus. Regulatory focus theory (Higgins, 1997, 1998b) distinguishes two motivational orientations that guide goal pursuit. *Promotion focus* involves seeking positive outcomes such as achievements and gains and is motivated by hopes and aspirations to satisfy nurturance needs. In contrast, *prevention focus* involves avoidance of negative outcomes such as losses and mistakes and is motivated by a fear of failure, thus prompting striving to fulfill duties and obligations to satisfy security needs (Liberman, Idson, Camacho, & Higgins, 1999; Shah & Higgins, 1997). Note that, contrary to the common misperception that promotion focus is associated with goal approach whereas prevention focus is associated with avoidance, both reflect striving to achieve goals—just in different ways and with different aims (Higgins, 1997; Scholer & Higgins, 2010). Promotion focus approaches the presence and avoids the absence of positive outcomes, whereas prevention focus approaches the absence and avoids the presence of a negative outcome (Higgins, 1998b).

A large body of research demonstrates that the extent to which people are promotion- and prevention-focused while on the job affects work outcomes in varied ways. For example, meta-analyses of regulatory focus in organizational contexts have concluded that promotion focus is associated with greater job satisfaction, engagement, and task performance, whereas prevention focus is associated with greater safety performance and counterproductive behavior (Allen & John, 1990; Gorman et al., 2012; Lanaj, Chang, & Johnson, 2012). These relationships occur above and beyond other significant predictors, such as positive and negative affect, goal orientations, and personality traits. Although some other possibilities such as differences in activation and emotions have been discussed (Lanaj et al., 2012), there are still gaps in unpacking why promotion and prevention focus are differentially associated with work outcomes. Therefore, an investigation of which basic psychological processes
underpin the relationship between regulatory focus and work outcomes can yield insights with the potential to shape organizational theory and practice.

**Psychological Needs Satisfaction**

Regulatory focus literature takes the perspective that different people have different qualities of motivation that shape work outcomes (Gorman et al., 2012; Lanaj et al., 2012). Some other theories emphasize that particular environments are more or less supportive of psychological factors that strengthen motivation (Gagne & Deci, 2005; Ryan & Deci, 2000; Vaughn, 2017). Self-determination theory offers one such perspective, proposing that motivation is strongest and work outcomes at their best when three basic psychological needs are satisfied: competence, relatedness and autonomy needs (Deci & Ryan, 1985; Deci & Ryan, 2000; Ryan, 1995; Ryan & Deci, 2000). Needs are defined in self-determination theory as “innate psychological nutriments that are essential for ongoing psychological growth, integrity, and well-being” (Deci & Ryan, 2000, p. 3). In other words, all individuals need to feel skilled, have good relationships, and feel free to act according to their own interests in order to thrive at work. Specific to the organizational context, the extent to which workers’ basic psychological needs are satisfied or frustrated at work affects their work outcomes.

Recent reviews of self-determination at work have concluded that the satisfaction of competence, relatedness and autonomy needs is associated with greater employee well-being, engagement, commitment, job satisfaction, and performance (Van den Broeck, Ferris, Chang, & Rosen, 2016). On the flip side, frustration of the same needs is related to lower employee well-being and work engagement, and greater exhaustion, burnout, absenteeism, and turnover intentions (Deci et al., 2017; Olafsen, Niemiec, Halvari, Deci, & Williams, 2017). Therefore, strategies to meet employees’ basic psychological needs prove beneficial for companies and individuals.
Because self-determination theory emphasizes the role of context in supporting or thwarting basic needs, comparatively less research has focused on uncovering individual differences that may account for variations in the degree of needs satisfaction that people experience (Van den Broeck et al., 2016). This is understandable, because individual differences alone seems unlikely to ensure needs satisfaction. Nevertheless, individual differences influence people’s behavior, and may also guide how they perceive and use organizational resources to better satisfy their psychological needs, which may impact levels of needs satisfaction and in turn work outcomes. For example, in self-determination literature, some personality traits and causality orientations are antecedents of basic psychological needs satisfaction (Van den Broeck et al., 2016).

A New Focus on Needs

In the present research, we propose that regulatory focus may be associated with basic psychological needs satisfaction as outlined in self-determination theory. The concept of needs was foundational to the elaboration of regulatory focus, which is proposed to develop from birth to serve two basic survival needs: security and nurturance (Higgins, 1998a). That is, prevention focus is described as being responsive to security needs, and promotion focus is described as being responsive to nurturance needs (Higgins, 1998a). Despite this theorizing, curiously little empirical research has directly tested the role of needs satisfaction in regulatory focus theory. Moreover, the emphasis on survival needs in the original theory disregards other forms of needs that are fundamental to psychological thriving. In this, self-determination theory offers a comprehensive articulation of psychological needs that may prove useful to further developing the concept of needs satisfaction within regulatory focus theory.

Self-determination theory, too, can be extended through integration with regulatory focus theory. Self-determination theorizing suggests that goals and motives are related to
basic needs, and this is why goals and motives impact on growth and well-being (Deci & Ryan, 2000). However, in terms of regulatory focus, scholars lack insight into the specific motivational orientations likely to shape perceptions of satisfaction of particular needs. Integrating these theories therefore has the potential to deepen researchers’ knowledge about the interface between self-regulation and motivation. Exploring these relationships is additionally important for developing effective interventions to support and enhance work motivation.

In the only integration of regulatory focus theory and self-determination theory we have seen in the psychological literature to date, recalled promotion-focused experiences were rated as supporting autonomy, competence and relatedness needs more than recalled prevention-focused experiences (Vaughn, 2017). Similarly, participants in promotion-focused conditions displayed need-support inflation, whereas participants in prevention-focused conditions displayed need-support deflation (Vaughn, 2017). In another study, Vaughn found that recalling an instance of low need support resulted in a relatively more prevention-focused (vs. promotion-focused) mindset, whereas recalling an instance of high need support resulted in a relatively more promotion-focused (vs. prevention-focused) mindset. This suggests that prevention-security could be a motive that comes to the fore when psychological needs are unfulfilled, whereas promotion-growth could be a motive that is inspired when autonomy, competence, and relatedness needs are met.

This research took an important step forward in the motivational literature by revealing relationships between regulatory focus and perceived needs support; however, theory suggests that this mapping of promotion focus to need support (and associated motivation) and prevention focus to lack of need support (and associated demotivation) does not represent the full story. Most notably, it is inconsistent with the regulatory focus observations that promotion and prevention focus serve distinct needs, and that prevention focus is a motivational state—and one that, when activated, can promote effort and action to a
similar degree as promotion focus (Halvorson, 2013; Scholer & Higgins, 2010). Furthermore, it treats promotion and prevention focus as two ends of a unidimensional spectrum, rather than two separate motivational states along which people can vary. Critically, Vaughn’s (2017) analyses did not control for shared variance among the needs (which would account for the promotion focus’ positive bias), nor the effect of the alternative regulatory focus on perceived needs support in all studies, which is important to identify which needs are uniquely associated with each focus. Notably, in the cases where alternative needs were controlled for, autonomy and competence support were associated with labelling experiences as promotion focused, but competence support was also associated with labelling experiences as prevention focused—which speaks to the notion that promotion and prevention focus serve distinct needs, not that promotion is related to needs satisfaction and prevention focus unrelated or negatively related to needs satisfaction. We therefore adopt another methodological approach to investigate specific associations between regulatory focus at work and psychological needs satisfaction.

In the present research, we take a more fine-grained look at the relationship between regulatory focus and the basic psychological needs described in self-determination theory in the organizational context. In particular, we assess promotion and prevention focus at work and isolate their unique relationships with autonomy, competence, and relatedness needs satisfaction. Given that promotion focus and prevention focus represent qualitatively different forms of motivation, we think it likely that these foci will be associated with satisfaction of different psychological needs.

Specific to the organizational context, we theorize that competence needs satisfaction maps relatively more onto security-related needs than onto growth-related needs. Although being competent could be associated with growth in some circumstances, competence seems critical to fulfilling duties and avoiding errors and mistakes, particularly because when people are feeling ineffective, they can devote more energy to acquiring competence in order to
avoid failure (Deci & Ryan, 2000). That is, feeling competent on the job (i.e., high competence needs satisfaction) could provide a greater sense of security by reducing the likelihood of making errors and by increasing confidence in the ability to complete tasks and obligations and maintain the status quo—concerns considered central to prevention focus. In comparison, we theorize that autonomy needs satisfaction should be relatively more at the service of growth-related needs than of security-related needs. That is, although autonomy could provide security in some circumstances, having autonomy and freedom on the job (i.e., high autonomy needs satisfaction) seems more critical for pursuing personal hopes and aspirations and making advancements—orientations considered central to promotion focus. Further, in self-determination theory’s original theorizing, autonomy is crucial for exploring the environment and making discoveries, which fosters growth and development (Deci & Ryan, 1985). In comparison, relatedness needs satisfaction could be at service of security and growth needs to a similar degree, as human connection has the primary function of providing security and nurturance (Bowlby, 1982; Higgins, 1998a). Thus, we expected promotion focus to be associated particularly with satisfaction of autonomy needs and prevention focus to be associated particularly with satisfaction of competence needs, but had no specific expectations about associations between regulatory focus and relatedness needs.

Given that regulatory focus and psychological needs satisfaction have both been shown to predict work outcomes, we thought it possible that they may operate in tandem to accomplish this task. That is, if certain needs are relatively more satisfied as a function of a regulatory focus, then psychological needs satisfaction may be a process through which the relationship between regulatory focus and work outcomes occurs. The relationships between regulatory focus and positive work outcomes such as engagement and job satisfaction are well known; however, the role of psychological needs satisfaction in helping to explain these relationships has not been investigated. In comparison, the relationships between regulatory focus and negative work outcomes such as burnout and turnover intentions are less
established in the literature, although some evidence suggests that people high in prevention focus experience more burnout than people low in prevention focus (Brenninkmeijer, Demerouti, le Blanc, & van Emmerik, 2010; Ozturk, Karagonlar, & Emirza, 2017; Zivnuska, Kacmar, & Valle, 2017). Regarding turnover intentions, prevention focus is associated with continuance commitment, which can reduce the likelihood of turnover intentions (Gorman et al., 2012; Lanaj et al., 2012; Markovits, Ullrich, van Dick, & Davis, 2008). Thus, to help clarify these associations, we test the relationships between regulatory focus and burnout and turnover intentions directly, and further test whether psychological needs satisfaction helps to explain these relationships.

Although we hypothesize that specific regulatory focus will be associated with satisfaction of specific needs, it is important to articulate the processes through which a motivational orientation might lead a person to perceive a need as being satisfied. We believe this may occur because people search for resources and modify their environments to suit their regulatory focus and meet the associated needs. To this end, we investigated job crafting as a potential mechanism of action linking regulatory focus and needs satisfaction.

Job crafting is proactive behavior involving self-initiated changes in job characteristics according to individual preferences and goals (Bakker, Tims, & Derks, 2012). A recent meta-analysis concluded that job crafting is positively associated with engagement, job satisfaction, and performance (self-rated and other-rated), and negatively associated with job strain (Rudolph, Katz, Lavigne, & Zacher, 2017). Although job crafting behaviors can be assessed in a number of ways, a popular approach is to measure four dimensions: (1) increasing structural job resources; (2) decreasing social job demands; (3) increasing challenging job demands; and (4) decreasing hindering job demands (Rudolph et al., 2017; Tims, Bakker, & Derks, 2012).

In general, promotion focus is associated with job crafting more robustly than is prevention focus (Rudolph et al., 2017). However, promotion focus is particularly associated
with increasing challenging job demands, whereas prevention focus is particularly associated with decreasing hindering job demands—which have different consequences for work outcomes (Brenninkmeijer & Hekkert-Koning, 2015; Rudolph et al., 2017). Of importance for this research, job crafting has also been associated with psychological needs satisfaction such that greater psychological needs satisfaction is associated with a greater tendency to job craft in beneficial ways (Slеп & Vella-Brodrick, 2014). Therefore, we suspect that different forms of job crafting inspired by prevention and promotion focus may affect psychological needs satisfaction, which in turn has implications for work outcomes.

The Present Research

The workplace is arguably an ideal “laboratory” in which to investigate these associations. Work offers personal and organizational goals to be achieved, job responsibilities to fulfill, tasks to perform, results to deliver, guidelines to follow, and different people to deal with, all of which require ongoing motivation and self-regulation. Accordingly, regulatory focus and self-determination theories have been extensively studied in the organizational setting, given their influence on people’s motivational states and work outcomes. The work domain therefore represents an informative context in which to investigate organizational outcomes that may be affected by regulatory focus and psychological needs satisfaction independently and in combination.

In the present research, we investigated relationships between work regulatory focus and basic psychological needs satisfaction, as well as their implications for work outcomes including job satisfaction, engagement, burnout, and turnover intentions. Although this work was mostly exploratory, we made several predictions based on theory. First, because we theorize that autonomy needs satisfaction gives the best conditions to pursue one’s ideal self-guides and satisfy growth-related needs, we expected that promotion focus would be most strongly associated with autonomy needs satisfaction (Hypothesis 1). Second, because we
theorize that competence needs satisfaction is instrumental for fulfilling ought self-guides and for completing tasks without making mistakes, and thus may help to meet security-related needs at work, we expected that prevention focus would be most strongly associated with competence needs satisfaction (Hypothesis 2). We made no concrete predictions about whether promotion or prevention focus would be uniquely associated with relatedness needs satisfaction, given that social needs is not particularly associated with one or another regulatory focus in the literature. Further, we expected to find indirect effects of work promotion focus on work outcomes via greater autonomy needs satisfaction (Hypothesis 3), and indirect effects of work prevention focus on work outcomes via greater competence needs satisfaction (Hypothesis 4).

To assess work outcomes, we measured engagement, job satisfaction, burnout, and turnover intentions. We chose two positively-framed and two negatively-framed work outcomes that emphasize how employees feel at work. These variables are not only predictors of performance (Bakker, Demerouti, & Sanz-Vergel, 2014; Christian, Garza, & Slaughter, 2011; Judge, Weiss, Kammeyer-Mueller, & Hulin, 2017), but also consistent predictors of well-being (Bailey, Madden, Alfes, & Fletcher, 2017; Bowling, Eschleman, & Wang, 2010; Schaufeli, Taris, & Van Rhenen, 2008). In addition, because these work outcomes have been associated with regulatory focus and with basic psychological needs satisfaction in parallel research, we thought it possible that they may work in tandem on work motivation.

To test our hypotheses, we conducted two studies that together surveyed more than six hundred employees from distinct job types and industries. Study 3 explored unique relationships among work regulatory focus, psychological needs satisfaction, and work outcomes. Next, Study 4 aimed to replicate the findings of Study 3 and extend them by testing whether job crafting is a mechanism that links regulatory focus and satisfaction of self-determination needs. Therefore, in Study 4, we explore whether differences in job
crafting behavior mediate associations between promotion and prevention focus and psychological needs satisfaction, with downstream implications for work outcomes.

**Study 3**

The aim of Study 3 was to investigate relationships between promotion and prevention focus at work and satisfaction of basic psychological needs, and the implications of these associations for the work-related outcome variables of engagement, job satisfaction, burnout, and turnover intentions. This allowed us to assess whether regulatory focus is associated with these work outcomes via satisfaction of specific psychological needs.

**Method**

**Participants and Procedure**

We collected data from 379 full-time and part-time employees in the United States ($n = 230$) and in Brazil ($n = 149$), with at least two years of work experience, recruited through a Qualtrics panel. Qualtrics compensates participants for their time with bonuses and gift cards. In addition, Qualtrics ensures good quality data and sample according to our eligibility criteria, which are being 18 years old or more, formally employed, and working for at least two years. Although Qualtrics ensures participants and data quality, we have included attention checks, consistency checks, and systematic integrity constrains to collect the most accurate and clean data possible. For example, by not allowing missing data, setting a minimum completion time for response validation, defining geographical criteria and impeding multiple responding (Barateiro & Galhardas, 2005). There was no missing data; data and syntax files are available at: https://osf.io/mj56y/?view_only=af39c6d74e1a4448a721ce0549b70476. We originally anticipated making cross-cultural comparisons between these samples, but given that our results were substantively identical across both countries, we combined them into one dataset.

Participants completed an online survey which assessed promotion and prevention focus at
work, basic psychological needs satisfaction, and work-related outcomes, including engagement, job satisfaction, burnout, and turnover intentions. All measures for the Brazilian sample were back-translated into English (Brislin, 1970). That is, the first author (who is a native Portuguese speaker) translated the original English version of the survey into Portuguese and then sent the Portuguese version only to an experienced bilingual translator, who blindly back-translated into English. Next, the two translators compared and discussed both English versions (original and back-translated) to guarantee that all questions were equivalent in meaning and nuance. The similarity of results between U.S. and Brazilian samples reinforce the quality of the back-translation process in this research.

Of the employees surveyed, 81% worked full-time, 62% were female, 64% completed higher education, and 53% were married or in a de-facto relationship. Participants ranged in age from 18-34 years (52%) to 35-54 years (37%) to 55 and older (11%); and ranged in yearly income from $0-$49,999 (53%) to $50,000-$99,999 (31%), to $100,000 and more (14%; 3% chose not to report their income). Participants were drawn from a variety of industries, occupations and job positions. Most frequently, they worked in retail trade (13%), education and training (13%), or health care and social assistance (11%). Regarding job position, 19% worked at the entry level, 24% were analysts/associates, 22% were managers, and 9% were directors.

Measures

To ensure construct validity, we used instruments that have been well validated in the literature.

**Work regulatory focus.** Promotion and prevention focus at work were assessed using the Work Regulatory Focus scale (Neubert, Carlson, Kacmar, Chonko, & Roberts, 2008). This scale comprises 18 items covering achievement, ideals, and gains for promotion focus at work (e.g., “I take chances at work to maximize my goals for advancement”; α=.91); and
security, oughts, and losses for prevention focus at work (e.g., “I concentrate on completing my work tasks correctly to increase my job security”; α= .93). Participants rated the extent to which each statement described them on a scale ranging from 1, *strongly disagree*, to 7, *strongly agree*.

The Work Regulatory Focus scale (WRF) differs from the commonly-used Regulatory Focus Questionnaire (RFQ; Higgins et al., 2001) that assesses individuals’ subjective histories of success and failure with promotion- and prevention-focused self-regulation in life. The WRF scale assesses the extent to which individuals are currently promotion and prevention focused at work, and shows incremental validity over measures of general regulatory focus for predicting work outcomes.

**Basic psychological needs satisfaction.** We used the satisfaction items from the Basic Psychological Needs Satisfaction and Frustration Scale–Work Domain version (Chen et al., 2015; Schultz, Ryan, Niemiec, Legate, & Williams, 2015) to assess satisfaction of three basic psychological needs that employees may have at work. This scale comprises 24 items covering satisfaction and frustration of autonomy needs (e.g., “At work, I feel a sense of choice and freedom in the things I undertake”; α= .69), relatedness needs (e.g., “I feel that the people I care about at work also care about me”; α= .77), and competence needs (e.g., “At work, I feel capable at what I do”; α= .81). Participants indicated the extent to which they disagreed or agreed with the items according to how they felt about their jobs in the past four weeks on scales ranging from 1, *strongly disagree*, to 5, *strongly agree*. The work domain version was adapted by (Schultz et al., 2015) from the well-validated original scale that assesses basic psychological needs satisfaction and frustration in general (Chen et al., 2015).

**Engagement.** We measured engagement using the employee short version of the 17-item engagement scale of (Schaufeli, 2002). This scale has 9 items and assesses three underlying dimensions of engagement: vigor (e.g., “When I get up in the morning, I feel like going to work”; α= .72), dedication (e.g., “I am proud of the work that I do”; α= .84), and
absorption (e.g., “I feel happy when I am working intensely”; $\alpha = .77$). Participants indicated how often the statements described how they feel at work on scales ranging from 1, *never*, to 5, *very often*. This scale was validated across multiple samples and countries, showing good internal consistency and test-retest reliability for the short version as well as for the long version (Schaufeli, 2002).

**Job satisfaction.** To assess employees’ job satisfaction, we used the Brief Job Satisfaction Measure II (Judge, Locke, Durham, & Kluger, 1998), which is a reliable 5-item measure extracted from the 18-item index of job satisfaction of (Brayfield & Rothe, 1951). Participants indicated the extent to which they disagreed or agreed with the items on scales ranging from 1, *strongly disagree*, to 5, *strongly agree* (e.g., “I feel fairly well satisfied with my present job”; “Each day of work seems like it will never end,” reverse-coded; $\alpha = .88$).

**Burnout.** We used the Oldenburg Burnout Inventory (Demerouti, Mostert, & Bakker, 2010) to measure employees’ burnout. The inventory comprises 16 items covering exhaustion (e.g., “After my work, I usually feel worn out and weary”; “Usually, I can manage the amount of my work well”, reverse-coded; $\alpha = .74$) and disengagement (e.g., “It happens more and more often that I talk about my work in a negative way”; “I always find new and interesting aspects in my work”, reverse-coded; $\alpha = .79$), with both subscales including four positively worded items and four negatively worded items. Participants indicated how often the statements described how they feel at work on scales ranging from 1, *strongly disagree* to 5, *strongly agree*. The Oldenburg Burnout Inventory is superior to other measures of burnout because it works for several job types and has its psychometric properties well validated.

**Turnover intentions.** We measured turnover intentions using a 4-item measure developed by Kelloway, Gottlieb, & Barham (1999). Participants indicated the extent to which they disagreed or agreed with four items on scales ranging from 1, *strongly disagree*, to 5, *strongly agree*. The items were: “I am thinking about leaving the organization,” “I am
planning to look for a new job”, “I intend to ask people about new job opportunities”, and “I don’t plan to be in the organization much longer”; α = .93.

**Results**

**Model Fitting**

The means, standard deviations, bivariate correlations, and scale reliabilities are displayed in Table 1. After data collection for both studies were complete, we conducted confirmatory factor analyses (CFAs) on our measurement model to confirm that work regulatory focus subscales and psychological needs subscales were independent. We performed the CFAs using Amos (Version 24) and standardized data from both studies (N = 679), estimating a five-factor solution with two factors for the work regulatory focus scales (i.e., work promotion focus and work prevention focus), and three factors for the basic psychological needs subscales (i.e., autonomy needs satisfaction, relatedness needs satisfaction, and competence needs satisfaction).

According to commonly used criteria for evaluating fit indices (Hoyle, 1995; Hu & Bentler, 1999), this five-factor model had suboptimal however acceptable fit: $\chi^2(391) = 1201.95$; CFI = .90; TLI = .89; RMSEA = .06; and SRMR = .06. In addition, because work promotion and prevention focus were moderately correlated, we estimated a four-factor model with a single factor for work regulatory focus. The fit statistics for this four-factor model were poorer: $\chi^2(395) = 1648.813$; CFI = .84; TLI = .82; RMSEA = .07; and SRMR = .07. Therefore, the five-factor model is the best approach for this research purposes.
Table 11. *Descriptive Statistics and Correlations Among the Variables in Study 3*

| Variables                                | M   | SD  | 1  | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     |
|-------------------------------------------|-----|-----|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1. Work prevention focus                  | 4.22| 0.50|    | .47***|       |       |       |       |       |       |       | (.83) |
| 2. Work promotion focus                   | 3.74| 0.63| .47***| (.81) |       |       |       |       |       |       |       |       |
| 3. Autonomy needs satisfaction            | 3.74| 0.76| .37***| .56***| (.79) |       |       |       |       |       |       |       |
| 4. Relatedness needs satisfaction         | 3.90| 0.77| .31***| .36***| .59***| (.88) |       |       |       |       |       |       |
| 5. Competence needs satisfaction          | 4.35| 0.54| .48***| .38***| .51***| .41***| (.79) |       |       |       |       |       |
| 6. Engagement                             | 3.61| 0.75| .38***| .53***| .69***| .60***| .51***| (.91) |       |       |       |       |
| 7. Job satisfaction                       | 3.64| 0.94| .27***| .35***| .64***| .60***| .42***| .78***| (.90) |       |       |       |
| 8. Burnout                                | 2.69| 0.74| -.27***| -.39***| -.66***| -.60***| -.50***| -.79***| -.86***| (.92) |       |       |
| 9. Turnover intentions                    | 2.55| 1.21| -.24***| -.21***| -.42***| -.41***| -.32***| -.56***| -.74***| .67***| (.94) |       |

*Note. N = 379; scale reliabilities (αs) are reported in parentheses along the diagonal. *p < .05, **p < .01, ***p < .001.*
Basic Psychological Needs Satisfaction

Using data from Study 3, we conducted hierarchical multiple regressions on each of the psychological needs satisfaction outcome variables. Hierarchical regressions allowed us first to observe relationships between work regulatory focus and each needs satisfaction variable, and then to observe how these relationships changed after accounting for shared variance among the needs satisfaction scales (which are all positively correlated with one another, see Table 11). In these analyses, work promotion focus and work prevention focus were entered at Step 1 to isolate their unique (from each other) associations with the needs satisfaction scales. The alternative basic psychological needs satisfaction subscales were entered at Step 2 (e.g., when predicting autonomy needs we entered relatedness needs and competence needs as predictors). The results of these analyses are outlined in Table 12.

Our intention with these analyses was to first observe the relationships between work regulatory focus and basic psychological needs satisfaction (Step 1). Consistent with the bivariate correlations, this revealed that work promotion and prevention focus were significantly positively associated with all basic psychological needs at work. The strongest relationship for work promotion focus was with autonomy needs satisfaction ($\beta = .50, p < .001$) and the strongest relationship for work prevention focus was with competence needs satisfaction ($\beta = .39, p < .001$).

Of greater interest to us was how these relationships changed after accounting for the alternative needs satisfaction in Step 2. These analyses assess the unique relationships between regulatory focus and satisfaction of specific needs after accounting for the general tendency to perceive one’s needs as being satisfied (which also accounts for any positive or negative bias).
Table 12. Hierarchical multiple regression of work regulatory focus on psychological needs satisfaction in Study 3

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Autonomy</th>
<th>Relatedness</th>
<th>Competence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>R²=.33***</td>
<td>R²=.16***</td>
<td>R²=.26***</td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>.50***</td>
<td>.28***</td>
<td>.19***</td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>.14**</td>
<td>.18**</td>
<td>.39***</td>
</tr>
<tr>
<td>Step 2</td>
<td>R²∆=.19***</td>
<td>R²∆=.21***</td>
<td>R²∆=.11***</td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>.35***</td>
<td>.01</td>
<td>.01</td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>-.02</td>
<td>.06</td>
<td>.32***</td>
</tr>
<tr>
<td>Autonomy needs satisfaction</td>
<td>-</td>
<td>.50***</td>
<td>.31***</td>
</tr>
<tr>
<td>Relatedness needs satisfaction</td>
<td>.37***</td>
<td>-</td>
<td>.12*</td>
</tr>
<tr>
<td>Competence needs satisfaction</td>
<td>.24***</td>
<td>.12*</td>
<td>-</td>
</tr>
</tbody>
</table>

Note. Step 1 entered work regulatory focus; Step 2 entered the basic psychological needs satisfaction subscales (i.e., controlling for alternative needs when assessing autonomy needs satisfaction as the outcome variable). Standardized coefficients depicted. *p < .05, **p < .01, ***p < .001.

Work Outcomes

Next, we conducted hierarchical multiple regressions on each of the work outcome variables in turn. In these analyses, work promotion focus and work prevention focus were entered at Step 1. The needs satisfaction subscales were entered at Step 2 to determine whether these variables meet the criteria to act as potential mediators (i.e., predicting unique variance in the outcome variables and altering the magnitude of previous relationships). The results of these analyses are outlined in Table 13.

Engagement. Together, the work regulatory focus variables predicted a significant amount of variance at Step 1, R² = .30, F(2, 376) = 81.97, p < .001; work promotion focus (β = .45, p < .001) and work prevention focus (β = .17, p = .001) were significant positive predictors of engagement.
Table 13. Hierarchical multiple regression of work regulatory focus and psychological needs satisfaction on work outcomes in Study 3

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Engagement (R^2=.30^{***})</th>
<th>Job satisfaction (R^2=.14^{***})</th>
<th>Burnout (R^2=.16^{***})</th>
<th>Turnover intentions (R^2=.07^{***})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work promotion focus</td>
<td>.45^{***}</td>
<td>.29^{***}</td>
<td>-.34^{***}</td>
<td>-.13*</td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>.17^{**}</td>
<td>.13*</td>
<td>-.12*</td>
<td>-.18^{**}</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>.17^{***}</td>
<td>-.02</td>
<td>-.02</td>
<td>.07</td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>.02</td>
<td>-.02</td>
<td>.08</td>
<td>-.06</td>
</tr>
<tr>
<td>Autonomy needs satisfaction</td>
<td>.36^{***}</td>
<td>.41^{***}</td>
<td>-.39^{***}</td>
<td>-.25^{***}</td>
</tr>
<tr>
<td>Relatedness needs satisfaction</td>
<td>.27^{***}</td>
<td>.33^{***}</td>
<td>-.31^{***}</td>
<td>-.24^{***}</td>
</tr>
<tr>
<td>Competence needs satisfaction</td>
<td>.14^{**}</td>
<td>.09</td>
<td>-.21^{***}</td>
<td>-.09</td>
</tr>
</tbody>
</table>

*Note. Step 1 entered work regulatory focus; Step 2 entered the psychological needs satisfaction subscales. Standardized coefficients depicted. *p < .05, **p < .01, ***p < .001.

The needs satisfaction variables predicted additional variance of engagement at Step 2, R^2_{Δ}=.28, F(3, 373) = 82.55, p < .001. These analyses showed that autonomy needs satisfaction (β = .36, p < .001), relatedness needs satisfaction (β = .27, p < .001), and competence needs satisfaction (β = .14, p = .001) all predicted greater engagement.

We next tested for indirect effects (IE) of work promotion and prevention focus on engagement via each of the needs satisfaction subscales. The results of these analyses are displayed in Table 14 and control for the alternative needs satisfaction subscales (e.g., controlling for relatedness needs and competence needs when assessing autonomy needs as a mediator). Consistent with H3, we observed a significant positive indirect effect of work promotion on engagement via greater autonomy needs satisfaction, suggesting that greater work promotion focus is associated with greater satisfaction of autonomy needs, which is associated with greater engagement. In addition, consistent with H4, we observed a significant positive indirect effect of work prevention on engagement via greater competence
needs satisfaction, suggesting that work prevention is associated with greater competence needs satisfaction, which is associated with greater engagement.

In summary, autonomy needs satisfaction mediated the relationship between work promotion focus and engagement, whereas competence needs satisfaction mediated the relationship between work prevention focus and engagement.

**Job satisfaction.** Together, the work regulatory focus variables predicted a significant amount of variance at Step 1, $R^2 = .14, F(2, 376) = 30.46, p < .001$; work promotion focus ($\beta = .29, p < .001$) and work prevention focus ($\beta = .13, p = .014$) were significant positive predictors of job satisfaction.

Entering the needs satisfaction variables predicted additional variance at Step 2, $R^2_{\Delta} = .35, F(3, 373) = 84.10, p < .001$. These analyses showed that autonomy needs satisfaction ($\beta = .41, p < .001$), and relatedness needs satisfaction ($\beta = .33, p < .001$) predict job satisfaction. Job satisfaction was not significantly related to competence needs satisfaction.

We next tested for indirect effects of work promotion and prevention focus on job satisfaction via each of the needs satisfaction subscales. The results of these analyses are displayed in Table 14 and control for the alternative needs satisfaction subscales. Consistent with H3, we observed a significant, positive indirect effect of work promotion on job satisfaction via greater autonomy needs satisfaction, suggesting that greater work promotion focus is associated with greater satisfaction of autonomy needs, which is associated with greater job satisfaction. We did not observe any significant indirect effect of work prevention focus on job satisfaction via psychological needs satisfaction, which fails to provide support for H4.

In summary, autonomy needs satisfaction mediated the relationship between work promotion focus and job satisfaction. In comparison, the relationship between work
prevention focus and job satisfaction was not mediated by relatedness nor competence needs satisfaction.

**Burnout.** Together, the work regulatory focus variables predicted a significant amount of variance at Step 1, $R^2 = .16$, $F(2, 376) = 36.65, p < .001$; work promotion focus ($\beta = -.34, p < .001$) and work prevention focus ($\beta = -.12, p = .032$) were significant negative predictors of burnout.

Entering the needs satisfaction variables predicted additional variance at Step 2, \(R^2_{\Delta} = .37, F(3, 373) = 98.35, p < .001\). These analyses revealed that autonomy needs satisfaction ($\beta = -.39, p < .001$), relatedness needs satisfaction ($\beta = -.31, p < .001$), and competence needs satisfaction ($\beta = -.21, p < .001$) all negatively predicted burnout.

We next tested for indirect effects of work promotion and prevention focus on burnout via each of the needs satisfaction subscales. The results of these analyses are displayed in Table 14 and control for the alternative needs satisfaction subscales.

Consistent with H3, we observed a significant negative indirect effect of work promotion on burnout via greater autonomy needs satisfaction, suggesting that greater work promotion focus is associated with greater satisfaction of autonomy needs, which is associated with reduced burnout. In addition, consistent with H4, we observed a significant negative indirect effect of work prevention on burnout via greater competence needs satisfaction, suggesting that work prevention is associated with greater competence needs satisfaction, which is associated with reduced burnout.

In summary, autonomy needs satisfaction mediated the negative relationship between work promotion focus and burnout, whereas competence needs satisfaction mediated the negative relationship between work prevention focus and burnout.
Table 14. *Indirect effects of work regulatory focus on work outcomes via psychological needs satisfaction in Study 3*

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Mediator</th>
<th>Engagement</th>
<th>Job satisfaction</th>
<th>Burnout</th>
<th>Turnover intentions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><em>IE</em></td>
<td><em>SE</em></td>
<td><em>95% CI</em></td>
<td><em>IE</em></td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>Autonomy needs satisfaction</td>
<td>0.15</td>
<td>.03</td>
<td>0.096, 0.206</td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td>Relatedness needs satisfaction</td>
<td>0.00</td>
<td>.02</td>
<td>-0.031, 0.043</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Competence needs satisfaction</td>
<td>0.00</td>
<td>.01</td>
<td>-0.021, 0.025</td>
<td>0.00</td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>Autonomy needs satisfaction</td>
<td>-0.01</td>
<td>.02</td>
<td>-0.046, 0.036</td>
<td>-0.01</td>
</tr>
<tr>
<td></td>
<td>Relatedness needs satisfaction</td>
<td>0.02</td>
<td>.02</td>
<td>-0.020, 0.061</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td>Competence needs satisfaction</td>
<td><strong>0.06</strong></td>
<td>.03</td>
<td><strong>0.018, 0.115</strong></td>
<td>0.04</td>
</tr>
</tbody>
</table>

*Note.* Significant effects are in bold. *IE*=completely standardized indirect effect, *SE*=standard error, *CI*=confidence intervals. Alternate work regulatory focus (e.g., prevention focus for promotion focus analyses) and alternate needs satisfaction (e.g., relatedness needs and competence needs for autonomy needs analyses) were included as control variables (covariates).
**Turnover intentions.** Together, the work regulatory focus variables predicted a small but significant amount of variance at Step 1, $R^2 = .07$, $F(2, 376) = 14.17$, $p < .001$; work promotion focus ($\beta = -.13$, $p = .019$) and work prevention focus ($\beta = -.18$, $p = .002$) were significant negative predictors of turnover intentions.

Entering the needs satisfaction variables predicted additional variance at Step 2, $R^2_{\Delta} = .16$, $F(3, 373) = 25.64$, $p < .001$. These analyses showed that autonomy needs satisfaction ($\beta = -.25$, $p < .001$), and relatedness needs satisfaction ($\beta = -.24$, $p < .001$) negatively predicted turnover intentions. Turnover intentions was not significantly related to competence needs satisfaction.

We next tested for indirect effects of work promotion and prevention focus on turnover intentions via each of the needs satisfaction subscales. The results of these analyses are displayed in Table 14 and control for the alternative needs satisfaction. Consistent with H3, we observed a significant negative indirect effect of work promotion on turnover intentions via greater autonomy needs satisfaction. We did not observe any significant indirect effect of work prevention on turnover intentions via psychological needs satisfaction, thus not supporting H4.

In summary, autonomy needs satisfaction mediated the negative relationship between work promotion focus and turnover intentions. In contrast, the negative relationship between work prevention focus and turnover intentions was not mediated by relatedness or competence needs satisfaction.

**Discussion**

Study 3 revealed differences in associations between work promotion and work prevention focus and satisfaction of specific basic psychological needs at work. Our results show that, after controlling for a general tendency to perceive psychological needs as being satisfied, work promotion focus uniquely and positively predicted autonomy needs.
satisfaction. That is, employees high in promotion focus were more inclined to report experiencing a sense of choice and freedom at work and congruence between their jobs, identities and interests. In contrast, work prevention focus uniquely and positively predicted competence needs satisfaction. That is, employees high in prevention focus were more inclined to report feeling competent to complete difficult tasks, and capable of doing their job properly and achieving their goals. Neither work promotion nor prevention focus uniquely predicted relatedness needs satisfaction.

The extent to which psychological needs satisfaction predicted work outcomes varied. Analyses revealed that autonomy needs satisfaction was the most consistent predictor of engagement, job satisfaction, burnout, and turnover intentions. In contrast, competence needs satisfaction only predicted engagement and burnout. Following these associations, we tested whether psychological needs satisfaction mediated relationships between work regulatory focus and work outcomes.

Indirect effect analyses showed that work promotion focus was associated with greater autonomy needs satisfaction, which in turn was associated with greater engagement and job satisfaction and reduced burnout and turnover intentions. In comparison, work prevention focus was associated with greater competence needs satisfaction, which in turn was associated with greater engagement and reduced burnout, but was not associated with job satisfaction or turnover intentions. This suggests that differences in relationships between regulatory focus and work outcomes can be partially explained through differences in the degree to which psychological needs are satisfied when adopting a promotion or prevention focus at work. We then aimed to replicate and extend these findings in a second study.

**Study 4**

In Study 4, we aimed to replicate the findings and explore mechanisms underpinning the relationships between work regulatory focus and psychological needs satisfaction. After
analyzing the results from the previous study, we questioned ourselves about what could be the specific actions associated with promotion and prevention focus that result into greater satisfaction of certain needs. In this vein, we reasoned that people with different regulatory foci may adapt their work environments in ways to support the different needs that are primary to them, thus increasing the chances of seeing those needs satisfied. As such, we assessed job crafting behaviors in the form of increasing challenging job demands and decreasing hindering job demands—job crafting variables that have been associated with promotion focus and prevention focus, respectively (Lichtenthaler & Fischbach, 2016; Rudolph et al., 2017). This allowed us to assess whether work regulatory focus is associated with psychological needs satisfaction in part via job crafting behavior, and the implications of these associations for work-related outcomes.

We therefore investigated whether regulatory focus at work is associated with work outcomes through serial processes of (a) specific job crafting behavior and (b) psychological needs satisfaction (i.e., serial mediation). We pre-registered the study and our hypothesis that the associations between promotion focus and work-related outcomes would be mediated by job crafting behavior and autonomy needs satisfaction at aspredicted.org (available at http://aspredicted.org/blind.php?x=cv9tf5). In other words, we hypothesized that individuals who are high in promotion focus at work tend to report better work outcomes because they job craft to increase challenges at work and feel greater satisfaction of autonomy needs. We also thought it possible that employees who are high in prevention focus at work would report better work outcomes because they job craft to decrease hindrances at work and feel greater satisfaction of competence needs.
Method

Participants and Procedure

We collected data from 300 full-time and part-time employees in the United States, with at least two years of work experience, recruited as part of a Qualtrics panel. Data quality was ensured through the same methods as in Study 3. Participants completed an online survey that assessed the extent to which they were promotion- and prevention-focused at work, basic psychological needs satisfaction, work-related outcomes (including engagement, job satisfaction, burnout, and turnover intentions) and job crafting behavior. There was no missing data; data and syntax files are available at:

https://osf.io/mj56y/?view_only=af39c6d74e1a4448a721ce0549b70476.

Of the employees surveyed, 84% worked full-time, 70% were female, 64% completed some form of higher education, and 49% were married or in a de-facto relationship. Participants ranged in age from 18-34 years (33%) to 35-54 years (43%), and 55 and older (24%); and ranged in yearly income from $0-$49,999 (45%) to $50,000-$99,999 (39%), to $100,000 and more (14%; 2% chose not to report their income). Participants were from a variety of industries, occupations and job positions. Most frequently, they worked on health care and social assistance (14%), education and training (14%), and professional, scientific and technical services (10%). Regarding job position, 15% worked at the entry level, 27% were analysts/associates, and 25% were managers.

Measures

Work regulatory focus, basic psychological needs satisfaction, engagement, job satisfaction, burnout, and turnover intentions were assessed using the same measures used in Study 3. As with previous measures, we used an established instrument for measuring job crafting to have good construct validity.
**Job crafting.** We used the Job Crafting Scale (Tims et al., 2012) to assess job crafting behavior. This scale comprises 21 items and covers four dimensions of job crafting: increasing challenging job demands (e.g., “When there is not much to do at work, I see it as a chance to start new projects”; α=.82), decreasing hindering job demands (e.g., “I try to ensure that I do not have to make many difficult decisions at work.”; α=.79), increasing structural job resources (e.g., “I try to develop myself professionally”; α=.75), and increasing social job resources (e.g., “I ask others for feedback on my job performance”; α=.77). Employees indicated how often they act according to the items on scales ranging from 1, *never or rarely*, to 5, *very often*. Tims et al.’s (2012) scale is the most commonly used instrument to measure job crafting behavior. Hence, a great body of research has explored relationships among job crafting, individual differences, and work outcomes using this scale (Rudolph et al., 2017). In addition, (Lichtenthaler & Fischbach, 2016) argued that increasing challenging job demands is an inherently promotion-focused form of job-crafting behavior, whereas decreasing hindering job demands is an inherently prevention-focused form of job-crafting behavior. Therefore, this scale is a useful resource to investigate whether job crafting is a process that promotion- and prevention-focused people use to best satisfy psychological needs at work, and in turn improve work outcomes.

**Results**

**Job Crafting**

We performed hierarchical multiple regressions on each of the job crafting outcome variables. Hierarchical regressions allowed us first to observe relationships between work regulatory focus and each job crafting variable, and then to observe how these relationships changed after accounting for shared variance between the job crafting subscales (which are all positively related to one another; see Table 15).
In these analyses, work promotion focus and work prevention focus were entered at Step 1 to isolate their unique (from one another) associations with job crafting scales. The alternative job crafting subscales were entered at Step 2 (e.g., when predicting increasing challenging job demands we entered decreasing hindering job demands, increasing structural job resources, and increasing social job resources as predictors). These analyses assess the unique relationships between each work regulatory focus and job crafting variable after accounting for a general tendency one has to job crafting. The full results of these analyses are presented in Table 16.

**Increasing challenging job demands.** Together, work regulatory focus variables predicted a significant amount of variance at Step 1, $R^2 = .37$, $F(2, 297) = 88.15$, $p < .001$. However, job crafting to increase challenging job demands was only predicted by work promotion focus ($\beta = .57$, $p < .001$). Entering the alternative job crafting variables predicted additional variance at Step 2, $R^2_{\Delta} = .18$, $F(3, 294) = 38.44$, $p < .001$, although work promotion focus ($\beta = .26$, $p < .001$) remained a significant predictor and work prevention focus ($\beta = -.01$, $p = .838$) remained a non-significant predictor.

**Decreasing hindering job demands.** Together, the work regulatory focus variables predicted a significant amount of variance at Step 1, $R^2 = .05$, $F(2, 297) = 7.12$, $p = .001$. However, job crafting to decrease hindering job demands was only predicted by work prevention focus ($\beta = .15$, $p = .015$). Entering the alternative job crafting variables predicted additional variance at Step 2, $R^2_{\Delta} = .07$, $F(3, 294) = 7.21$, $p < .001$, although work prevention focus ($\beta = .18$, $p = .003$) remained a significant predictor and work promotion focus ($\beta = .10$, $p = .192$) remained a non-significant predictor.
Table 15. Descriptive Statistics and Correlations Among the Variables in Study 4

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Work prevention focus</td>
<td>4.13</td>
<td>0.49</td>
<td></td>
<td>.36**</td>
<td>.65**</td>
<td>.43**</td>
<td>.46**</td>
<td>.50**</td>
<td>.65**</td>
<td>.36**</td>
<td>.29**</td>
<td>.60**</td>
<td>.31**</td>
<td>.35**</td>
<td>.08</td>
</tr>
<tr>
<td>2. Work promotion focus</td>
<td>3.61</td>
<td>0.68</td>
<td>.68</td>
<td>.36***</td>
<td>.43***</td>
<td>.85***</td>
<td>(.68)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Autonomy needs satisfaction</td>
<td>3.59</td>
<td>0.80</td>
<td></td>
<td>.23**</td>
<td>.43***</td>
<td>(.75)</td>
<td></td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>4. Relatedness needs satisfaction</td>
<td>3.83</td>
<td>0.80</td>
<td>.36</td>
<td>.29***</td>
<td>.30***</td>
<td>.63***</td>
<td>(.87)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Competence needs satisfaction</td>
<td>4.33</td>
<td>0.62</td>
<td></td>
<td>.33***</td>
<td>.32***</td>
<td>.54***</td>
<td>.53***</td>
<td>(.81)</td>
<td></td>
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<td>6. Engagement</td>
<td>3.54</td>
<td>0.66</td>
<td>.34</td>
<td>.49***</td>
<td>.66***</td>
<td>.51***</td>
<td>.48***</td>
<td>(.91)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>7. Job satisfaction</td>
<td>3.69</td>
<td>0.88</td>
<td>.17</td>
<td>.19**</td>
<td>.65**</td>
<td>.57**</td>
<td>.45***</td>
<td>.73***</td>
<td>(.87)</td>
<td></td>
<td></td>
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<tr>
<td>8. Burnout</td>
<td>2.69</td>
<td>0.70</td>
<td>-.12</td>
<td>-.27***</td>
<td>-.61***</td>
<td>-.53***</td>
<td>-.48***</td>
<td>-.68**</td>
<td>-.84**</td>
<td>(.90)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Turnover intentions</td>
<td>2.46</td>
<td>1.26</td>
<td>-.03</td>
<td>.12**</td>
<td>-.33***</td>
<td>-.39***</td>
<td>-.31***</td>
<td>-.40**</td>
<td>-.67**</td>
<td>.59***</td>
<td>(.93)</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>10. Increasing challenging job demands</td>
<td>3.15</td>
<td>0.89</td>
<td>.30</td>
<td>-.60***</td>
<td>.43***</td>
<td>.35***</td>
<td>.29**</td>
<td>.60**</td>
<td>.31**</td>
<td>-.35**</td>
<td>-.08</td>
<td>(.80)</td>
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<td>11. Decreasing hindering job demands</td>
<td>2.71</td>
<td>0.91</td>
<td>.19</td>
<td>.16**</td>
<td>.02</td>
<td>-.08</td>
<td>-.13</td>
<td>.01</td>
<td>-.20**</td>
<td>.19**</td>
<td>.27***</td>
<td>.16**</td>
<td>(.82)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Increasing structural job resources</td>
<td>3.91</td>
<td>0.72</td>
<td>.41</td>
<td>.59***</td>
<td>.46***</td>
<td>.36***</td>
<td>.50**</td>
<td>.65**</td>
<td>.36**</td>
<td>-.39**</td>
<td>-.10</td>
<td>.63***</td>
<td>.03</td>
<td>(.79)</td>
<td></td>
</tr>
<tr>
<td>13. Increasing social job resources</td>
<td>2.68</td>
<td>0.95</td>
<td>.17</td>
<td>.40**</td>
<td>.36***</td>
<td>.37***</td>
<td>.11</td>
<td>.39**</td>
<td>.24**</td>
<td>-.23**</td>
<td>-.06</td>
<td>.51**</td>
<td>.26**</td>
<td>.31**</td>
<td>(.83)</td>
</tr>
</tbody>
</table>

Note. N = 300; scale reliabilities (αs) are reported in parentheses along the diagonal. *p < .05, **p < .01, ***p < .001.
Basic Psychological Needs Satisfaction

Next, we conducted hierarchical multiple regressions on each of the psychological needs satisfaction outcome variables. In these analyses, work promotion focus and work prevention focus were entered at Step 1. The alternative basic psychological needs satisfaction subscales were entered at Step 2 (e.g., when predicting autonomy needs we entered relatedness needs and competence needs as predictors). This replicated the analyses from Study 3. Then, the focal job crafting dimensions of increasing challenging job demands and decreasing hindering job demands were entered at Step 3 to determine whether these variables predicted psychological needs and thus met the criteria to act as potential mediators. The results of these analyses are outlined in Table 17.

Autonomy needs satisfaction. Together, the work regulatory focus variables predicted a significant amount of variance at Step 1, $R^2 = .19$, $F(2, 297) = 35.02$, $p < .001$. Supporting H1, only work promotion focus ($\beta = .40$, $p < .001$) predicted satisfaction of autonomy needs. Entering the alternative needs subscales predicted additional variance at Step 2, $R^2_\Delta = .31$, $F(2, 295) = 90.74$, $p < .001$, although work promotion focus ($\beta = .24$, $p < .001$) remained a significant predictor and work prevention focus ($\beta = -.06$, $p = .168$) remained a non-significant predictor.

Entering the focal job crafting variables predicted additional variance at Step 3, $R^2_\Delta = .01$, $F(2, 293) = 4.22$, $p = .016$. These analyses showed that, of the job crafting variables, increasing challenging job demands ($\beta = .13$, $p = .015$) predicted satisfaction of autonomy needs. Autonomy needs satisfaction was not affected by decreasing hindering job demand.
Table 16. Hierarchical multiple regression of work regulatory focus on job crafting dimensions in Study 4

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Increasing challenging job demands</th>
<th>Decreasing hindering job demands</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R^2=.37^{***}$</td>
<td>$R^2=.05^{**}$</td>
</tr>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>.57^{***}</td>
<td>.11</td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>.09</td>
<td>.15*</td>
</tr>
<tr>
<td>Step 2</td>
<td>$R^2_{\Delta}=.18^{***}$</td>
<td>$R^2_{\Delta}=.07^{***}$</td>
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<tr>
<td>Work promotion focus</td>
<td>.26^{***}</td>
<td>.10</td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>-.01</td>
<td>.18**</td>
</tr>
<tr>
<td>Increasing challenging job demands</td>
<td>-</td>
<td>.06</td>
</tr>
<tr>
<td>Decreasing hindering job demands</td>
<td>.03</td>
<td>-</td>
</tr>
<tr>
<td>Increasing structural job resources</td>
<td>.39^{***}</td>
<td>-.22^{**}</td>
</tr>
<tr>
<td>Increasing social job resources</td>
<td>.28^{***}</td>
<td>.22^{**}</td>
</tr>
</tbody>
</table>

Note. Step 1 entered work regulatory focus; Step 2 entered the alternate job crafting dimensions (i.e., controlling for decreasing hindering job demands, increasing structural job resources, and increasing structural job demands when assessing increasing challenging job demands as the outcome variable—the full results are featured in Appendix Table A3). Standardized coefficients depicted. *$p < .05$, **$p < .01$, ***$p < .001$.

Relatedness needs satisfaction. Together, the work regulatory focus variables predicted a significant amount of variance at Step 1, $R^2 = .13, F(2, 297) = 21.94, p < .001$: work promotion focus ($\beta = .23, p < .001$) and work prevention focus ($\beta = .21, p < .001$) predicted satisfaction of relatedness needs. Entering the alternative needs subscales predicted additional variance at Step 2, $R^2_{\Delta} = .32, F(2, 295) = 86.76, p < .001$. Only work prevention focus ($\beta = .10, p = .031$) remained a significant predictor of relatedness needs satisfaction, while work promotion focus became non-significant. Relatedness needs satisfaction was not associated with the focal job crafting variables at Step 3.

Competence needs satisfaction. Together, the work regulatory focus variables predicted a significant amount of variance at Step 1, $R^2 = .16, F(2, 297) = 27.41, p < .001$: work promotion focus ($\beta = .23, p < .001$) and work prevention focus ($\beta = .25, p < .001$).
predicted satisfaction of competence needs. Entering the alternative needs subscales predicted additional variance at Step 2, $R^2_{\Delta} = .23$, $F(2, 295) = 54.94, p < .001$. Supporting H2, only work prevention focus ($\beta = .16, p = .001$) remained a significant predictor, while work promotion focus became non-significant.

Entering the focal job crafting variables predicted additional variance at Step 3, $R^2_{\Delta} = .03$, $F(2, 293) = 6.51, p = .002$. Of the focal job crafting variables, decreasing hindering job demands ($\beta = -.17, p < .001$) negatively predicted satisfaction of competence needs. Competence needs satisfaction was not associated with increasing challenging job demands.

In summary, these analyses suggest that having high promotion focus at work and job crafting to increase challenging job demands predict greater satisfaction of autonomy needs. They additionally show that whereas having a prevention focus at work predicts satisfaction of relatedness needs and competence needs, job crafting to decrease hindering job demands associated with prevention focus harms competence needs satisfaction. We consider this further in the Discussion section.

Work Outcomes

We conducted hierarchical multiple regressions on each of the work outcome variables in turn. In these analyses, work promotion focus and work prevention focus were entered at Step 1. The focal job crafting subscales were entered at Step 2, and the psychological needs satisfaction subscales were entered at Step 3. The results of these analyses are outlined in Table 18.
Table 17. Hierarchical multiple regression of work regulatory focus and job crafting dimensions on psychological needs satisfaction in Study 4

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Needs satisfaction</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Autonomy</td>
<td>Relatedness</td>
<td>Competence</td>
<td></td>
</tr>
<tr>
<td>Step 1</td>
<td>( R^2 = .19^{***} )</td>
<td>( R^2 = .13^{***} )</td>
<td>( R^2 = .16^{***} )</td>
<td></td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>.40^{***}</td>
<td>.23^{***}</td>
<td>.23^{***}</td>
<td></td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>.09</td>
<td>.21^{***}</td>
<td>.25^{***}</td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>( R^2 = .31^{***} )</td>
<td>( R^2 = .32^{***} )</td>
<td>( R^2 = .25^{***} )</td>
<td></td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>.24^{***}</td>
<td>-.02</td>
<td>.04</td>
<td></td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>-.06</td>
<td>.10(^*)</td>
<td>.16(^{**})</td>
<td></td>
</tr>
<tr>
<td>Autonomy needs satisfaction</td>
<td>-</td>
<td>.48^{***}</td>
<td>.32^{***}</td>
<td></td>
</tr>
<tr>
<td>Relatedness needs satisfaction</td>
<td>.43^{***}</td>
<td>-</td>
<td>.27^{***}</td>
<td></td>
</tr>
<tr>
<td>Competence needs satisfaction</td>
<td>.26^{***}</td>
<td>.24^{***}</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td>( R^2 = .01^{*})</td>
<td>( R^2 = .01)</td>
<td>( R^2 = .03^{**})</td>
<td></td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>.16(^{**})</td>
<td>-.05</td>
<td>.07</td>
<td></td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>-.08</td>
<td>.12(^*)</td>
<td>.20(^{**})</td>
<td></td>
</tr>
<tr>
<td>Autonomy needs satisfaction</td>
<td>-</td>
<td>.46^{***}</td>
<td>.33^{***}</td>
<td></td>
</tr>
<tr>
<td>Relatedness needs satisfaction</td>
<td>.42^{***}</td>
<td>-</td>
<td>.24^{***}</td>
<td></td>
</tr>
<tr>
<td>Competence needs satisfaction</td>
<td>.27^{***}</td>
<td>.22^{***}</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Increasing challenging job demands</td>
<td>.13(^*)</td>
<td>.09</td>
<td>-.01</td>
<td></td>
</tr>
<tr>
<td>Decreasing hindering job demands</td>
<td>.06</td>
<td>-.09</td>
<td>-.17^{***}</td>
<td></td>
</tr>
</tbody>
</table>

Note. Step 1 entered work regulatory focus; Step 2 entered the basic psychological needs satisfaction subscales (i.e., controlling for alternative needs when assessing autonomy needs satisfaction as the outcome variable); Step 3 entered focal job crafting dimensions. Standardized coefficients depicted. \(^*\) \( p < .05\), \(^{**}\) \( p < .01\), \(^{***}\) \( p < .001\).

**Engagement.** Together, the work regulatory focus variables predicted a significant amount of variance at Step 1, \( R^2 = .27\), \( F(2, 297) = 54.39\), \( p < .001\): work promotion focus (\( \beta = .42\), \( p < .001\)) and work prevention focus (\( \beta = .19\), \( p = .001\)) predicted engagement.

Entering the focal job crafting variables predicted additional variance at Step 2, \( R^2 = .15\), \( F(2, 295) = 38.09\), \( p < .001\): increasing challenging job demands (\( \beta = .47\), \( p < .001\)) positively predicted engagement, while decreasing hindering job demands (\( \beta = -.13\), \( p = .006\)) negatively predicted engagement.

Entering the needs satisfaction variables predicted additional variance at Step 3, \( R^2 = .17\), \( F(3, 292) = 40.72\), \( p < .001\). Of the needs satisfaction variables, only autonomy
needs satisfaction ($\beta = .40, p < .001$) predicted engagement. Engagement was not associated with relatedness or competence needs satisfaction.

**Engagement indirect effects.** We then tested for serial indirect effects of work regulatory focus on engagement via the focal job crafting variables and psychological needs satisfaction. These analyses control for: (a) alternative work regulatory focus (e.g., when entering work promotion focus as predictor we entered work prevention focus as covariate); and (b) each of the alternative needs satisfaction subscales (i.e., when entering autonomy needs as a mediator we entered relatedness needs and competence needs as covariates).

Results of indirect effects analyses of work promotion focus on engagement via increasing challenging job demands and autonomy needs satisfaction are displayed in Table 19. Results of indirect effect analyses of work prevention focus on engagement via decreasing hindering job demands and competence needs satisfaction are displayed in Table 20.

**Job satisfaction.** Together, the work regulatory focus variables predicted a small but significant amount of variance at Step 1, $R^2 = .05$, $F(2, 297) = 7.52, p = .001$. However, only work promotion focus ($\beta = .16, p = .011$) predicted job satisfaction. Entering the job crafting variables predicted additional variance at Step 2, $R^2_\Delta = .13$, $F(2, 295) = 22.71, p < .001$: increasing challenging job demands ($\beta = .31, p < .001$) positively predicted job satisfaction, whereas decreasing hindering job demands ($\beta = -.28, p < .001$) negatively predicted job satisfaction.

Entering the needs satisfaction variables predicted additional variance at Step 3, $R^2_\Delta = .34$, $F(2, 292) = 67.87, p < .001$. Of the needs satisfaction variables, autonomy ($\beta = .50, p < .001$) and relatedness ($\beta = .21, p < .001$) needs satisfaction predicted job satisfaction. Job satisfaction was not associated with competence needs satisfaction.
Table 18. Hierarchical multiple regression of work regulatory focus, job crafting, and psychological needs satisfaction on work outcomes in Study 4

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Engagement</th>
<th>Job satisfaction</th>
<th>Burnout</th>
<th>Turnover intentions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>R²=.27***</td>
<td>R²=.05**</td>
<td>R²=.07***</td>
<td>R²=.02</td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>.42***</td>
<td>.16*</td>
<td>-.26***</td>
<td>.15*</td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>.19**</td>
<td>.11</td>
<td>-.02</td>
<td>-.08</td>
</tr>
<tr>
<td>Step 2</td>
<td>R²Δ=.15***</td>
<td>R²Δ=.13***</td>
<td>R²Δ=.12***</td>
<td>R²Δ=.11***</td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>.16**</td>
<td>.01</td>
<td>-.11</td>
<td>.26***</td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>.16**</td>
<td>.12*</td>
<td>-.03</td>
<td>-.10</td>
</tr>
<tr>
<td>Increasing challenging job demands</td>
<td>.47***</td>
<td>.31***</td>
<td>-.31***</td>
<td>-.25***</td>
</tr>
<tr>
<td>Decreasing hindering job demands</td>
<td>-.13**</td>
<td>-.28***</td>
<td>.26***</td>
<td>.29***</td>
</tr>
<tr>
<td>Step 3</td>
<td>R²Δ=.17***</td>
<td>R²Δ=.34***</td>
<td>R²Δ=.28***</td>
<td>R²Δ=.18***</td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>.05</td>
<td>-.15**</td>
<td>.04</td>
<td>.36***</td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>.10*</td>
<td>.03</td>
<td>.07</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Increasing challenging job demands</td>
<td>.34**</td>
<td>.12*</td>
<td>-.14*</td>
<td>-.11</td>
</tr>
<tr>
<td>Decreasing hindering job demands</td>
<td>-.07</td>
<td>-.19***</td>
<td>.17***</td>
<td>.20***</td>
</tr>
<tr>
<td>Autonomy needs satisfaction</td>
<td>.40***</td>
<td>.50***</td>
<td>-.40***</td>
<td>-.23**</td>
</tr>
<tr>
<td>Relatedness needs satisfaction</td>
<td>.06</td>
<td>.21***</td>
<td>-.17**</td>
<td>-.24***</td>
</tr>
<tr>
<td>Competence needs satisfaction</td>
<td>.08</td>
<td>.04</td>
<td>-.15**</td>
<td>-.12</td>
</tr>
</tbody>
</table>

*Note.* Step 1 entered work regulatory focus; Step 2 entered focal job crafting dimensions; Step 3 entered the psychological needs satisfaction subscales. Standardized coefficients depicted. *p < .05, **p < .01, ***p < .001.

**Job satisfaction indirect effects.** We then tested for indirect effects of work regulatory focus on job satisfaction via the focal job crafting variables and psychological needs satisfaction (see Tables 19 and 20).
Table 19. *Indirect effects of work promotion focus on work outcomes via increasing challenging job demands and via autonomy needs satisfaction in Study 4*

<table>
<thead>
<tr>
<th>Effect</th>
<th>Independent variable</th>
<th>Mediator 1</th>
<th>Mediator 2</th>
<th>Dependent variable</th>
<th>IE</th>
<th>SE</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total effect</td>
<td>Work promotion focus</td>
<td>-</td>
<td>-</td>
<td>Engagement</td>
<td>0.30</td>
<td>0.07</td>
<td>0.192, 0.493</td>
</tr>
<tr>
<td>Direct effect</td>
<td>Work promotion focus</td>
<td>-</td>
<td>-</td>
<td>Engagement</td>
<td>0.04</td>
<td>0.05</td>
<td>-0.063, 0.151</td>
</tr>
<tr>
<td>Indirect effect</td>
<td>Work promotion focus</td>
<td>Increasing job demands</td>
<td>-</td>
<td>Engagement</td>
<td>0.19</td>
<td>0.04</td>
<td>0.131, 0.268</td>
</tr>
<tr>
<td>Indirect effect</td>
<td>Work promotion focus</td>
<td>Autonomy needs satisfaction</td>
<td>-</td>
<td>Engagement</td>
<td>0.07</td>
<td>0.03</td>
<td>0.023, 0.128</td>
</tr>
<tr>
<td>Serial indirect effect</td>
<td>Work promotion focus</td>
<td>Increasing job demands</td>
<td>Autonomy needs satisfaction</td>
<td>Engagement</td>
<td>0.03</td>
<td>0.01</td>
<td>0.008, 0.057</td>
</tr>
<tr>
<td>Total effect</td>
<td>Work promotion focus</td>
<td>-</td>
<td>-</td>
<td>Job satisfaction</td>
<td>0.03</td>
<td>0.08</td>
<td>-0.117, 0.185</td>
</tr>
<tr>
<td>Direct effect</td>
<td>Work promotion focus</td>
<td>-</td>
<td>-</td>
<td>Job satisfaction</td>
<td>-0.19</td>
<td>0.08</td>
<td>-0.341, -0.045</td>
</tr>
<tr>
<td>Indirect effect</td>
<td>Work promotion focus</td>
<td>Increasing job demands</td>
<td>-</td>
<td>Job satisfaction</td>
<td>0.07</td>
<td>0.03</td>
<td>0.015, 0.133</td>
</tr>
<tr>
<td>Indirect effect</td>
<td>Work promotion focus</td>
<td>Autonomy needs satisfaction</td>
<td>-</td>
<td>Job satisfaction</td>
<td>0.09</td>
<td>0.03</td>
<td>0.028, 0.160</td>
</tr>
<tr>
<td>Serial indirect effect</td>
<td>Work promotion focus</td>
<td>Increasing job demands</td>
<td>Autonomy needs satisfaction</td>
<td>Job satisfaction</td>
<td>0.04</td>
<td>0.02</td>
<td>0.010, 0.072</td>
</tr>
<tr>
<td>Total effect</td>
<td>Work promotion focus</td>
<td>-</td>
<td>-</td>
<td>Burnout</td>
<td>-0.13</td>
<td>0.06</td>
<td>-0.251, -0.010</td>
</tr>
<tr>
<td>Direct effect</td>
<td>Work promotion focus</td>
<td>-</td>
<td>-</td>
<td>Burnout</td>
<td>0.04</td>
<td>0.06</td>
<td>-0.087, 0.159</td>
</tr>
<tr>
<td>Indirect effect</td>
<td>Work promotion focus</td>
<td>Increasing job demands</td>
<td>-</td>
<td>Burnout</td>
<td>-0.08</td>
<td>0.04</td>
<td>-0.157, -0.016</td>
</tr>
<tr>
<td>Indirect effect</td>
<td>Work promotion focus</td>
<td>Autonomy needs satisfaction</td>
<td>-</td>
<td>Burnout</td>
<td>-0.07</td>
<td>0.03</td>
<td>-0.128, -0.024</td>
</tr>
<tr>
<td>Serial indirect effect</td>
<td>Work promotion focus</td>
<td>Increasing job demands</td>
<td>Autonomy needs satisfaction</td>
<td>Burnout</td>
<td>-0.03</td>
<td>0.01</td>
<td>-0.060, -0.008</td>
</tr>
<tr>
<td>Total effect</td>
<td>Work promotion focus</td>
<td>-</td>
<td>-</td>
<td>Turnover intentions</td>
<td>0.46</td>
<td>0.11</td>
<td>0.251, 0.670</td>
</tr>
<tr>
<td>Direct effect</td>
<td>Work promotion focus</td>
<td>-</td>
<td>-</td>
<td>Turnover intentions</td>
<td>0.66</td>
<td>0.12</td>
<td>0.424, 0.905</td>
</tr>
<tr>
<td>Indirect effect</td>
<td>Work promotion focus</td>
<td>Increasing job demands</td>
<td>-</td>
<td>Turnover intentions</td>
<td>-0.06</td>
<td>0.03</td>
<td>-0.130, 0.003</td>
</tr>
<tr>
<td>Indirect effect</td>
<td>Work promotion focus</td>
<td>Autonomy needs satisfaction</td>
<td>-</td>
<td>Turnover intentions</td>
<td>-0.04</td>
<td>0.02</td>
<td>-0.079, -0.011</td>
</tr>
<tr>
<td>Serial indirect effect</td>
<td>Work promotion focus</td>
<td>Increasing job demands</td>
<td>Autonomy needs satisfaction</td>
<td>Turnover intentions</td>
<td>-0.02</td>
<td>0.01</td>
<td>-0.036, -0.004</td>
</tr>
</tbody>
</table>

*Note. IE=completely standardized indirect effect, SE=standard error, CI=confidence intervals. Work prevention focus and alternate needs satisfaction (i.e., relatedness needs and competence needs) were included as control variables.*
Table 20. *Indirect effects of work prevention focus on work outcomes via decreasing hindering job demands and via competence needs satisfaction in Study 4*

<table>
<thead>
<tr>
<th>Effect</th>
<th>Independent variable</th>
<th>Mediator 1</th>
<th>Mediator 2</th>
<th>Dependent variable</th>
<th>IE</th>
<th>SE</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total effect</td>
<td>Work prevention focus</td>
<td>-</td>
<td>-</td>
<td>Engagement</td>
<td>0.16</td>
<td>.07</td>
<td>0.023, 0.298</td>
</tr>
<tr>
<td>Direct effect</td>
<td>Work prevention focus</td>
<td>-</td>
<td>-</td>
<td>Engagement</td>
<td>0.16</td>
<td>.07</td>
<td>0.017, 0.292</td>
</tr>
<tr>
<td>Indirect effect</td>
<td>Work prevention focus</td>
<td>Decreasing hindering job demands</td>
<td>-</td>
<td>Engagement</td>
<td>-0.01</td>
<td>.01</td>
<td>-0.040, 0.009</td>
</tr>
<tr>
<td>Indirect effect</td>
<td>Work prevention focus</td>
<td>Competence needs satisfaction</td>
<td>-</td>
<td>Engagement</td>
<td>0.02</td>
<td>.02</td>
<td>-0.011, 0.056</td>
</tr>
<tr>
<td>Serial indirect effect</td>
<td>Work prevention focus</td>
<td>Decreasing hindering job demands</td>
<td>Competence needs satisfaction</td>
<td>Engagement</td>
<td>-0.00</td>
<td>.00</td>
<td>-0.012, 0.001</td>
</tr>
<tr>
<td>Total effect</td>
<td>Work prevention focus</td>
<td>-</td>
<td>-</td>
<td>Job satisfaction</td>
<td>0.01</td>
<td>.09</td>
<td>-0.163, 0.184</td>
</tr>
<tr>
<td>Direct effect</td>
<td>Work prevention focus</td>
<td>-</td>
<td>-</td>
<td>Job satisfaction</td>
<td>0.06</td>
<td>.09</td>
<td>-0.119, 0.239</td>
</tr>
<tr>
<td>Indirect effect</td>
<td>Work prevention focus</td>
<td>Decreasing hindering job demands</td>
<td>-</td>
<td>Job satisfaction</td>
<td>-0.04</td>
<td>.02</td>
<td>-0.087, -0.014</td>
</tr>
<tr>
<td>Indirect effect</td>
<td>Work prevention focus</td>
<td>Competence needs satisfaction</td>
<td>-</td>
<td>Job satisfaction</td>
<td>0.01</td>
<td>.02</td>
<td>-0.021, 0.045</td>
</tr>
<tr>
<td>Serial indirect effect</td>
<td>Work prevention focus</td>
<td>Decreasing hindering job demands</td>
<td>Competence needs satisfaction</td>
<td>Job satisfaction</td>
<td>-0.00</td>
<td>.00</td>
<td>-0.009, 0.003</td>
</tr>
<tr>
<td>Total effect</td>
<td>Work prevention focus</td>
<td>Decreasing hindering job demands</td>
<td>Competence needs satisfaction</td>
<td>Burnout</td>
<td>0.10</td>
<td>.07</td>
<td>-0.040, 0.244</td>
</tr>
<tr>
<td>Direct effect</td>
<td>Work prevention focus</td>
<td>-</td>
<td>-</td>
<td>Burnout</td>
<td>0.09</td>
<td>.07</td>
<td>-0.048, 0.237</td>
</tr>
<tr>
<td>Indirect effect</td>
<td>Work prevention focus</td>
<td>Decreasing hindering job demands</td>
<td>-</td>
<td>Burnout</td>
<td>0.04</td>
<td>.02</td>
<td>0.011, 0.074</td>
</tr>
<tr>
<td>Indirect effect</td>
<td>Work prevention focus</td>
<td>Competence needs satisfaction</td>
<td>-</td>
<td>Burnout</td>
<td>-0.03</td>
<td>.02</td>
<td>-0.079, 0.000</td>
</tr>
<tr>
<td>Serial indirect effect</td>
<td>Work prevention focus</td>
<td>Decreasing hindering job demands</td>
<td>Competence needs satisfaction</td>
<td>Burnout</td>
<td>0.01</td>
<td>.01</td>
<td>0.001, 0.037</td>
</tr>
<tr>
<td>Total effect</td>
<td>Work prevention focus</td>
<td>-</td>
<td>-</td>
<td>Turnover intentions</td>
<td>0.03</td>
<td>.14</td>
<td>-0.241, 0.301</td>
</tr>
<tr>
<td>Direct effect</td>
<td>Work prevention focus</td>
<td>-</td>
<td>-</td>
<td>Turnover intentions</td>
<td>-0.02</td>
<td>.14</td>
<td>-0.296, 0.266</td>
</tr>
<tr>
<td>Indirect effect</td>
<td>Work prevention focus</td>
<td>Decreasing hindering job demands</td>
<td>-</td>
<td>Turnover intentions</td>
<td>0.04</td>
<td>.02</td>
<td>0.011, 0.083</td>
</tr>
<tr>
<td>Indirect effect</td>
<td>Work prevention focus</td>
<td>Competence needs satisfaction</td>
<td>-</td>
<td>Turnover intentions</td>
<td>-0.04</td>
<td>.02</td>
<td>-0.079, -0.011</td>
</tr>
<tr>
<td>Serial indirect effect</td>
<td>Work prevention focus</td>
<td>Decreasing hindering job demands</td>
<td>Competence needs satisfaction</td>
<td>Turnover intentions</td>
<td>0.00</td>
<td>.00</td>
<td>-0.062, 0.006</td>
</tr>
</tbody>
</table>

*Note. IE=completely standardized indirect effect, SE=standard error, CI=confidence intervals. Work promotion focus and alternate needs satisfaction (i.e., relatedness needs and autonomy needs) were included as control variables.*
In the work promotion focus analyses, we observed a significant positive indirect effect of work promotion on job satisfaction via increasing challenging job demands and via greater autonomy needs satisfaction. Thus, job crafting and autonomy needs satisfaction represented independent mediators of the relationship between work promotion focus and job satisfaction, which provides support for H3. In addition, we observed a small but significant positive serial indirect effect of work promotion focus on job satisfaction via increasing challenging job demands and greater autonomy needs satisfaction. This suggests that work promotion operates through increasing challenging job demands and greater autonomy needs satisfaction in its association with greater job satisfaction.

In the work prevention focus analyses, we only found a significant negative indirect effect of work prevention focus on job satisfaction via decreasing hindering job demands, which suggests that work prevention focus is associated with decreasing hindering job demands, which is associated with lower job satisfaction, which fails to support H4.

**Burnout.** Together, the work regulatory focus variables predicted a small but significant amount of variance at Step 1, $R^2 = .07, F(2, 297) = 11.37, p < .001$. However, only work promotion focus ($\beta = -.26, p < .001$) negatively predicted burnout. Entering the job crafting variables predicted additional variance at Step 2, $R^2_{\Delta} = .12, F(2, 295) = 21.69, p < .001$: increasing challenging job demands ($\beta = -.31, p < .001$) negatively predicted burnout, whereas decreasing hindering job demands ($\beta = .26, p < .001$) positively predicted burnout.

Entering the needs satisfaction variables predicted additional variance at Step 3, $R^2_{\Delta} = .28, F(3, 292) = 50.64, p < .001$: autonomy ($\beta = -.40, p < .001$), relatedness ($\beta = -.17, p = .003$), and competence ($\beta = -.15, p = .009$) needs satisfaction each negatively predicted burnout.
**Burnout indirect effects.** We then tested for indirect effects of work regulatory focus on burnout via job crafting variables and via psychological needs satisfaction (see Tables 19 and 20).

In the work promotion focus analyses, we observed a significant negative indirect effect of work promotion on burnout via increasing challenging job demands and via satisfaction of autonomy needs. Thus, job crafting and autonomy needs satisfaction represented independent mediators of the relationship between work promotion focus and burnout, which provides support for H3. In addition, we observed a significant negative serial indirect effect of work promotion focus on burnout via increasing challenging job demands and greater autonomy needs satisfaction. This suggests that work promotion operates through increasing challenging job demands and greater autonomy needs satisfaction in its association with reduced burnout.

In the work prevention focus analyses, we observed a significant positive indirect effect of work prevention on burnout via decreasing hindering job demands, suggesting that greater work prevention focus is associated with decreasing hindering job demands, which is associated with increased burnout. In addition, we observed a small but significant positive serial indirect effect of work prevention focus on burnout via decreasing hindering job demands and competence needs satisfaction. This suggests that work prevention operates through decreasing hindering job demands and competence needs satisfaction in its association with burnout, which provides support for H4.

**Turnover intentions.** Together, the work regulatory focus variables did not predict a significant amount of variance at Step 1, $R^2 = .02, F(2, 297) = 2.87, p = .058$. However, work promotion focus ($\beta = .15, p = .019$) positively predicted turnover intentions. Entering the job crafting variables predicted additional variance at Step 2, $R^2_\Delta = .11, F(2, 295) = 19.11, p < .001$: increasing challenging job demands ($\beta = -.25, p < .001$) negatively predicted turnover
intentions, whereas decreasing hindering job demands ($\beta = .29$, $p < .001$) positively predicted turnover intentions.

Entering the needs satisfaction variables predicted additional variance at Step 3, $R^2_{\Delta} = .18$, $F(3, 292) = 25.53$, $p < .001$. These analyses showed that autonomy needs satisfaction ($\beta = -.23$, $p = .001$), and relatedness needs satisfaction ($\beta = -.24$, $p < .001$) were significant negative predictors of turnover intentions. Turnover intentions were not associated with competence needs satisfaction.

**Turnover intentions indirect effects.** We then tested for indirect effects of work regulatory focus on turnover intentions via job crafting variables and psychological needs satisfaction (see Tables 19 and 20).

In the work promotion focus analyses, we did not observe significant indirect effect of work promotion on turnover intentions via increasing challenging job demands. We did observe a significant negative indirect effect of work promotion on turnover intentions via greater autonomy needs satisfaction, which provides support for H3. In addition, we observed a significant negative serial indirect effect of work promotion focus on turnover intentions via increasing challenging job demands and greater autonomy needs satisfaction. This suggests that work promotion operates through increasing challenging job demands and greater autonomy needs satisfaction in its association with reduced turnover intentions. That is, to the extent that seeking challenge Improves highly promotion-focused workers’ sense of autonomy, they are less likely to want to leave their jobs.

In the work prevention focus analyses, we observed a significant positive indirect effect of work prevention on turnover intentions via decreasing hindering job demands. However, we also observed a significant negative indirect effect of work prevention on turnover intentions via greater competence needs satisfaction, which provides support for H4. We did not observe significant serial indirect effect of work prevention focus on turnover
intentions via decreasing hindering job demands and competence needs satisfaction. Thus, critically, although work prevention focus was not directly associated with turnover intentions, we observed two countervailing indirect effects: Work prevention indirectly increased turnover intentions via decreasing hindering job demands and indirectly decreased turnover intentions via greater competence needs satisfaction. In other words, highly prevention-focused employees were more likely to report a desire to stay in their jobs when their sense of competence was satisfied; but at the same time, if they engaged in efforts to make their jobs less demanding, they were more likely to want to leave the job. As we discuss further below, this suggests that efforts to make a job less demanding may not truly be—though they may appear to be—a means to increase one’s sense of competence.

**Discussion**

Study 4 revealed differences in associations between work promotion and prevention focus, job crafting behavior, and satisfaction of specific basic psychological needs at work. Concerning the psychological needs satisfaction variables, our results replicate those of Study 3, showing that work promotion focus uniquely and positively predicted autonomy needs satisfaction (H1), whereas work prevention focus uniquely and positively predicted competence needs satisfaction (H2). In Study 4, work prevention focus also uniquely and positively predicted relatedness needs satisfaction, although the effect size was small. That is, employees high in prevention focus were more inclined to report feeling close and connected with their workmates (this relationship was not significant in Study 3).

Study 4 also revealed differences in associations between work promotion and prevention focus and job crafting behavior. Work promotion focus was uniquely associated with increasing challenging job demands, meaning that employees high in promotion focus were more likely to get involved in new projects and extra tasks at work. In contrast, work prevention focus was uniquely associated with decreasing hindering job demands, meaning
that employees high in prevention focus were more likely to job craft to make work mentally and emotionally less intense.

Of importance, these discrete forms of job crafting had opposite effects on psychological needs satisfaction and on work outcomes. Specifically, increasing challenging job demands was associated with greater autonomy needs satisfaction. Because work promotion focus is associated with increasing challenging job demands, this result suggests that job crafting to increase challenging job demands may be a process through which employees high in promotion focus satisfy their autonomy needs, which in turn benefits work outcomes.

In contrast, decreasing hindering job demands negatively predicted competence needs satisfaction. Although work prevention focus was directly associated with greater competence needs satisfaction, it was also associated with decreasing hindering job demands, which indirectly harms competence needs satisfaction. This tendency to job craft in ways that can harm psychological needs satisfaction in some cases was associated with detrimental work outcomes. This may help to explain why prevention focus is less consistently associated with beneficial work outcomes than promotion focus (Gorman et al., 2012; Lanaj et al., 2012). That is, employees high in prevention focus value, and act to increase, competence at work, but also show a tendency to job craft in ways that minimize hindrances and through this decrease competence needs satisfaction. In a catch-22, these independent effects sometimes have opposing effects on work outcomes such as turnover intentions.

Meta-Analysis

One avenue of inquiry opened by these studies concerns their ability to clarify which needs are satisfied (vs. not) among people who have a certain regulatory focus at work. Accordingly, with a view to crystalizing the implications of our studies for the literature, we conducted a mini meta-analysis of the results across Studies 3 and 4 to determine which
needs were consistently associated with greater work promotion and prevention focus, and to determine the effect size of these relationships.

We conducted this mini meta-analysis using the R *metafor* package (Viechtbauer, 2010) with a random effects model, transforming the standardized coefficients in each study using Fisher’s $r$-to-$z$ transformation. Results of this mini meta-analysis are presented in Table 21. We see that promotion focus is consistently associated with greater autonomy needs satisfaction at a moderate level, whereas prevention focus is consistently associated with greater competence needs satisfaction (moderate effect) and greater relatedness needs satisfaction (small effect).

Table 21. *Mini meta-analysis of the relationship between work regulatory focus and psychological needs satisfaction in Studies 3 and 4*

<table>
<thead>
<tr>
<th>Needs satisfaction</th>
<th>Work promotion focus</th>
<th>Work prevention focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>r_z</td>
<td>SE</td>
<td>z</td>
</tr>
<tr>
<td>Autonomy</td>
<td>0.31</td>
<td>0.06</td>
</tr>
<tr>
<td>Relatedness</td>
<td>&lt;0.01</td>
<td>0.04</td>
</tr>
<tr>
<td>Competence</td>
<td>0.02</td>
<td>0.04</td>
</tr>
</tbody>
</table>

*Note. r_z = average effect size. SE = standard error. 95% CI = 95% confidence intervals. Significant effects in bold.*

**General Discussion**

Presenting one of the first empirical fusions of regulatory focus and self-determination theories, we investigated relationships among regulatory focus at work, job crafting, and basic psychological needs satisfaction, as well as implications of these relationships for engagement, job satisfaction, burnout, and turnover intentions. Considering the studies together, the results suggest that individuals who are high in promotion focus at work report greater autonomy needs satisfaction, whereas individuals who are high in prevention focus report greater competence needs satisfaction. These associations, in addition
to being replicated across two studies, were shown to be moderately sized when assessed in a mini meta-analysis.

These findings indicate that promotion focus helps to satisfy autonomy needs; we argue that this serves the broader goal of satisfying nurturance or growth-related needs. Our theoretical assumption is that having freedom and autonomy is essential to prompt one to seek accomplishments and gains and to proactively move from the current state to a better one. In comparison, prevention focus helps to satisfy competence needs, which serves the broader goal of satisfying security needs. In this case, our theoretical assumption is that competence helps to assure that the person has the needed capacity to fulfill obligations and responsibilities, avoid errors and mistakes, and maintain the status quo.

When analyzing the relationship between psychological needs satisfaction and work outcomes, we found that autonomy needs satisfaction significantly predicted beneficial work outcomes (including greater engagement and job satisfaction, and lower burnout and turnover intentions), whereas competence needs satisfaction only consistently predicted lower burnout. Our indirect effect analyses further suggest that work promotion focus operates in part via greater autonomy needs satisfaction to promote beneficial work outcomes across the board. In comparison, work prevention focus is associated with greater competence needs satisfaction, which in turn is associated with greater engagement and reduced burnout. This suggests that differences in relationships between work promotion and prevention focus and work outcomes may arise partly from differences in which psychological needs are more likely to be satisfied when in a promotion or prevention focus mindset at work.

In a second study, we aimed to investigate whether job crafting might be a process through which regulatory focus acts to satisfy psychological needs at work. The results of the regression analyses were consistent with this interpretation, albeit in different directions. That is, promotion focus was associated with job crafting to increase challenges, which was
associated with greater autonomy needs satisfaction. We additionally found evidence of a serial indirect effect: Promotion focus operated through job crafting and autonomy needs to show associations with all work outcomes in a beneficial direction.

On the other hand, prevention focus was associated with job crafting to decrease hindrances, but this was associated with lower competence needs satisfaction. Thus, even though prevention focus predicted greater competence needs satisfaction directly, it indirectly undermined competence via harmful job crafting behavior. This could mean that employees high in prevention focus emphasize competence to elevate their sense of security; however, paradoxically, they may also concentrate on less-demanding job tasks to ensure mastery and thus continued competence and security—putting in check how competent they are capable of feeling in the long run. In other words, the pursuit of unchallenging activities may be designed to increase competence needs satisfaction in the moment, but may leave people uncertain that they possess the higher-level competence they desire. Therefore, it is possible that the relationship between prevention focus and competence needs satisfaction would be greater if employees high in prevention focus refrained from job crafting to decrease hindrances. We found little evidence of a serial indirect effect for prevention focus with one notable exception in the form of turnover intentions: people high in prevention focus were more likely to report intending to leave their organization in part because they worked to decrease hindrances, which had a negative impact on competence needs satisfaction.

**Theoretical and Practical Implications**

Human needs underlie motivation. The present research combines two motivational theories that have human needs as central elements—regulatory focus theory and self-determination theory—providing insights as to how they interrelate to shape motivation and its outcomes. By combining these theories, our research meets recent calls for integration of well-established theories in organizational psychology, particularly self-theories (Boyle et al.,
To acquire an integrated view of how motivation works, it is important to understand how key processes in these theories function together and complement each other (Kanfer et al., 2017). In this vein, our results suggest that promotion and prevention focus are associated with satisfaction of distinct psychological needs as identified by self-determination theory, which in turn has implications for work outcomes.

Recent work from Vaughn (2017) found associations between autonomy, competence, and relatedness needs support and promotion focus, and associations between lack of support of the same needs and prevention focus. However, most of Vaughn’s studies did not take into account the fact that promotion and prevention focus are two separate motivational orientations. Given that promotion and prevention focus are orthogonal, and people can be high in both at the same time, it is critical to account for shared variance between the two foci when predicting variables. Our research differs from Vaughn’s (2017) by adopting a statistical approach more aligned with the original theory. We assessed unique relationships between work promotion/work prevention focus and autonomy, relatedness, and competence needs satisfaction, controlling for the alternative focus and alternative needs. This had the effect of controlling for a general tendency to perceive high (or low) need satisfaction in order to identify unique relationships between work promotion and prevention focus with the satisfaction of each psychological need alone.

By integrating these theories, the present studies yield insights into which psychological needs are supported by promotion and prevention focus at work. The results were theoretically consistent, showing that promotion and prevention focus serve distinct needs beyond basic survival needs, but also in terms of basic psychological needs. Specifically, this research extends regulatory focus theory by revealing that work promotion focus is associated with greater satisfaction of autonomy needs and that work prevention focus is associated with greater satisfaction of competence needs. It also extends self-
determination theory, showing that satisfaction of basic psychological needs can be fed by distinct self-regulatory orientations.

This research also sheds light onto why prevention focus is less consistently associated with beneficial work outcomes than promotion focus. Work prevention focus is associated with competence needs satisfaction, which is a weaker predictor of work outcomes compared with autonomy needs satisfaction. In addition, employees high in prevention focus job craft to decrease hindering job demands, which has detrimental effects on competence needs satisfaction and on work outcomes. In comparison, work promotion focus is associated with autonomy needs satisfaction and job crafting to increase challenging job demands, with both processes having beneficial effects on work outcomes. Therefore, promotion focus has synergic effects that enhance work outcomes. This work contributes to the field by showing that differences in work outcomes of promotion and prevention focus can be partially explained by differences in job crafting behavior and psychological needs satisfaction, thus providing greater insight into the processes underlying established regulatory focus orientations.

Regarding the work outcomes measured, for the first time to our knowledge promotion focus appeared negatively associated with job satisfaction; in this case, after accounting for psychological needs satisfaction. The well-known association between promotion focus and engagement also dropped considerably in size when accounting for psychological needs satisfaction. Given the vast amount of literature showing positive associations between promotion focus, engagement and job satisfaction, we believe that we found good evidence that psychological needs satisfaction can act as a mediational pathway linking regulatory focus to work outcomes. In addition, we provided more direct evidence for associations between regulatory focus and burnout than has been available in the literature. Our results showed that promotion focus was associated with lower burnout, and this
association was fully mediated by psychological needs satisfaction. On the other hand, prevention focus did not consistently predict burnout, especially when accounting for psychological needs satisfaction. As for turnover intentions, employees high in promotion focus reported greater intentions to leave an organization than employees high in prevention focus. This adds to a literature investigates relationships between regulatory focus and turnover intentions.

In practice, this knowledge can be used to tailor person-centered interventions to best support psychological needs satisfaction and work outcomes. For example, managers can suggest employees to avoid job crafting to decrease hindering job demands and show the negative consequences of this form of job crafting, or encourage to escalate job crafting to increase challenges, which will likely improve their psychological needs satisfaction and work outcomes. Similarly, an individualized approach to enhance employee motivation can be adopted. For example, knowing that employees high in promotion focus are already more likely to see their autonomy needs satisfied, managers can concentrate on strategies to increase their competence needs satisfaction if they are low in prevention focus, as well as providing an environment that supports autonomy. In comparison, knowing that employees high in prevention focus are more likely to have competence needs satisfied—but are also more likely to job craft to decrease hindering job demands—managers can concentrate on reducing harmful job crafting behavior and providing an environment that supports competence, as well as developing strategies to increase autonomy needs satisfaction for employees high in prevention focus but low in promotion focus. Such interventions have the potential to optimize psychological needs satisfaction, work outcomes and well-being in the most effective way for all people according to individual regulatory focus.
Limitations and Caveats

As with all research, the present studies had some limitations. First, results from correlational studies can only suggest relationships between variables and cannot provide information regarding causality. Our hypothesized causal chain was drawn from theory, in that prevention and promotion focus are proposed to develop from birth to satisfy security and nurturance needs (Higgins, 1997, 1998a) and thus would be expected to precede more situationally dependent psychological needs satisfaction. However, causal confirmation requires further testing via experimental or longitudinal designs. In a similar vein, we made a reasoned assumption that competence needs reflect more security needs, whereas autonomy needs reflect more growth needs. Although our results are broadly consistent with this rationale, future research would do well to experimentally confirm these mappings.

Of course, self-report data hold the danger of measurement bias, such as socially-desirable responding (i.e., reporting having professionally desirable behavior instead of actual behavior), or other shared biases that can inflate correlations. To minimize this issue, we recruited a diverse sample of employees from several locations and industries, which helps to reduce bias from single sources. In addition, we emphasized the anonymity of participants and the importance of measuring their work experiences and opinions accurately for quality scientific research, and we used measures that have been validated to assess the intended constructs. In addition, because we controlled for shared variance between needs satisfaction scales and between regulatory focus scales in all analyses, common-method variance is less likely to have significantly impacted the final results.
Conclusion

The present research investigated whether work regulatory focus is associated with beneficial work outcomes through satisfying specific psychological needs. We found evidence for these hypothesized processes: Work promotion focus is associated with greater autonomy needs satisfaction and through this beneficial work outcomes, and work prevention focus is associated with greater competence needs satisfaction and through this lower burnout. We provided further evidence for why these relationships exist, at least in the case of work promotion focus—because individuals work to craft their job and work environment in ways that support the needs they value.

This research begins to clarify which specific psychological needs are served by promotion and prevention focus at work, and moves toward a better understanding of how self-regulation and self-determination function together to influence work motivation. Companies might consider the effects of regulatory focus and job crafting behavior on psychological needs satisfaction when developing person-centered strategies to best support employees’ motivation, well-being, and work success.
References


Chapter 4

Thesis General Discussion

Issues of motivation are at the heart of the effective functioning of any organization. With constant changes in the nature of work and in people’s work lives, we need a strong understanding of individual motivational factors and how they can be managed to optimize motivation and well-being, and thus get the best from employees at work. Psychology has at its disposal several theories that can explain motivation and how to harness its productivity potential. This thesis aimed to bring together two powerhouse areas of research on motivation—regulatory focus and psychological needs—to contribute to further understanding of how to motivate employees from an individual perspective.

Regulatory focus research theorizes that needs underpin promotion and prevention focus. According to this perspective, promotion and prevention focus are motivational orientations developed in response to nurturance and security needs. Thus, it is logical to expect that regulatory focus may be associated with psychological needs satisfaction. However, some needs-based theories of motivation have paid less attention to the role of individual differences in needs satisfaction in comparison to the role of the environment. Recent calls have been made to integrate existing theories of work motivation, aiming to understand how these factors function together (Kanfer et al., 2017; Kozlowski, 2012; Salas, Kozlowski, & Chen, 2017). A holistic perspective requires knowing how these factors work together to shape one's motivation.

Although regulatory focus is conceptualized as serving nurturance and security needs (Higgins, 1997), I found very little empirical research on links between regulatory focus and needs in the literature. That is, we do not yet know whether people high in promotion focus feel greater growth-related needs satisfaction (or have more growth needs) and whether people high in prevention focus feel greater security-related needs satisfaction (or have more security needs). Nor have other types of needs, such as social or relational needs, been
investigated systematically in the regulatory focus literature. To tackle this issue, this thesis investigated associations between work regulatory focus and satisfaction of work-related needs as proposed by two theories of work motivation—quality of work life (Lee et al., 2007; Sirgy et al., 2001) and self-determination theory (Deci & Ryan, 1985; Deci & Ryan, 2000)—as well as implications of these associations for work outcomes.

Because limited research has investigated the relationship between regulatory focus and needs, particularly in organizational settings, results from this thesis provide some of the first empirical evidence for associations between employees’ regulatory focus and perceived needs satisfaction in the work domain. The current findings suggest that people with promotion and prevention focus seek to satisfy different needs, which has implications for their work-related outcomes. Considered at a broad level my findings suggest that, aligning with theory, promotion focus is associated with greater satisfaction of needs that involve growth at work, whereas prevention focus is associated with greater satisfaction of needs that involve security at work.

Summary of Findings

Quality of work life needs. Chapter 2 investigated associations between regulatory focus and needs from the quality of work life literature. These needs were chosen based on classic needs-based theories of motivation that were later adapted to the work domain by Sirgy et al. (2001). Sirgy and colleagues determined people’s quality of work life by assessing satisfaction with seven major needs that employees have at work, including health and safety needs, economic and family needs, social needs, esteem needs, actualization needs, knowledge needs, and creativity needs. Based on a later validation of this taxonomy (Lee et al., 2007), I specified three broader sets of needs to study in relation to work regulatory focus: security needs (comprising health and safety needs and economic and family needs), social needs (comprising social needs and esteem needs), and growth needs
(comprising actualization needs, knowledge needs, and creativity needs). These broad classes of needs are reminiscent of the high-level autonomy, relatedness, and competence needs distinction found in work on self-determination theory and explored in Chapter 3 of this thesis. Findings of Chapter 2 revealed that work promotion focus was positively associated with growth needs, whereas work prevention focus was positively associated with security needs. Although the correlational design precludes causal inference, the theoretical conceptualization that regulatory focus satisfies nurturance and security needs (Shah & Higgins, 1997) led me to hypothesize that the association may follow the direction of regulatory focus preceding needs satisfaction. This would suggest that people high in promotion focus at work are more likely to see one’s growth needs satisfied, whereas people high in prevention focus at work would be more likely to see one’s security needs satisfied. Of course, the reverse causality is entirely plausible: People whose growth needs are satisfied at work may be more likely to experience a promotion mindset, whereas people whose security needs are satisfied at work may be more likely to experience a prevention focus mindset.  

Results were inconsistent for social needs. Despite that work promotion focus appeared to be associated with social needs satisfaction in Study 1 (Chapter 2), when controlling for the general tendency to see all needs as satisfied, the relationship between work promotion focus and social needs satisfaction became nonsignificant. In Study 2 (Chapter 2), both regulatory foci appeared to be associated with social needs satisfaction, but after controlling for the general tendency to see all needs as satisfied, only the relationship between work prevention focus and social needs satisfaction remained significant. However,

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9 The reversed model was tested and showed smaller effects than the proposed model in which regulatory focus predicts needs satisfaction.
the mini meta-analysis that combined results from the two studies did not reveal consistent results between work regulatory focus and social needs satisfaction.

Regarding individual differences in how primary certain needs are, Study 1 in Chapter 2 revealed that the results on needs satisfaction were independent from those on needs importance. That is, the observed relationships between regulatory focus and needs satisfaction were not due to the fact that different people valued these needs to a different degree. I made this distinction to test whether the emphasis a person places on a need influences how satisfied he or she feels, and to observe whether regulatory focus is associated with the importance of needs—meaning how primary these work-related needs are for people who are promotion and prevention focused at work. The findings suggest that the results on need satisfaction were not driven by needs importance.

In turn, greater growth needs satisfaction was associated with greater engagement and job satisfaction and reduced burnout and turnover intentions. Indeed, it was partially through greater growth needs satisfaction that work promotion focus was associated with beneficial work outcomes. That is, people high in promotion focus at work have the advantage of experiencing more engagement and job satisfaction and less burnout and turnover intentions via having their growth needs satisfied. In comparison, greater security needs satisfaction was associated with greater engagement and job satisfaction and reduced turnover intentions. That is, people high in prevention focus at work experience more engagement and job satisfaction and less turnover intention via having their security needs satisfied. However, in comparison, security needs satisfaction predicts work outcomes less strongly than growth needs satisfaction does.

**Self-determination needs.** Chapter 3 investigated associations between regulatory focus and needs drawn from the self-determination literature. Unlike needs from the quality of work life literature, self-determination needs have the advantage of an extensive literature demonstrating their foundational role in human motivation. Many tests of self-determination
theory have shown that satisfaction of autonomy, relatedness, and competence needs predicts more beneficial well-being and work outcomes. Chapter 3 revealed two consistent relationships: between work promotion focus and autonomy needs satisfaction, and between work prevention focus and competence needs satisfaction. This suggests that people high in promotion focus are more likely to work in a way designed to support autonomy and personal freedom, whereas people high in prevention focus are more likely to work in a way designed to make them feel capable of performing their jobs. These findings were observed consistently in two studies and in a meta-analysis, showing moderate effect sizes.

Autonomy needs satisfaction was beneficial for all work outcomes measured, predicting greater engagement and job satisfaction and lower burnout and turnover intentions. Tests of mediation showed that it was partially through greater autonomy needs satisfaction that work promotion focus was associated with these work outcomes. On the other hand, competence needs satisfaction was beneficial for engagement and burnout, but did not predict job satisfaction and turnover intention. Consistently, it was partially through competence needs satisfaction that work prevention focus was associated with engagement and (less) burnout. Thus, people high in promotion focus at work have the advantage of experiencing engagement, job satisfaction, and less burnout and turnover intentions via autonomy needs satisfaction, and people high in prevention focus at work have the advantage of experiencing engagement and less burnout via competence needs satisfaction.

Chapter 3 also provided insight into why regulatory focus is associated with needs satisfaction. Distinct forms of job crafting associated with promotion and prevention focus had implications for psychological needs satisfaction: The promotion-focused tendency for increasing challenging job demands was positively associated with autonomy needs satisfaction, whereas the prevention-focused tendency for decreasing hindering job demands was negatively associated with competence needs satisfaction. As such, different forms of job
crafting can help explaining differences in needs satisfaction experienced by those who hold a promotion or prevention focus.

The only research I have found in the literature that experimentally investigates associations between regulatory focus and basic psychological needs was the work of Vaughn (2017). In one study, she manipulated regulatory focus and found that participants in the promotion-focus condition recalled greater support for autonomy and competence needs than participants in the control condition, whereas participants in the prevention-focus condition recalled greater competence needs satisfaction than participants in the control condition. However, Vaughn’s study differs from my work in not controlling for alternative regulatory focus and alternative needs. Because promotion and prevention focus are orthogonal, a person can have high promotion and prevention focus at the same time; therefore, the unique effects of each regulatory focus on perceived needs support was unknown. In addition, when testing differences between regulatory focus and control conditions on autonomy, competence, and relatedness needs, Vaughn did not control for alternative needs support. Thus, the shared variance between autonomy, competence, and relatedness needs was not accounted for. This is important because in another study, Vaughn found that participants engaged in needs-support inflation in a promotion-focused task, and in needs-support deflation in a prevention-focused task. When I control for the alternative needs, I account for any general tendency that the participant has to perceive all needs as supported (or unsupported). This isolates their unique (from one another) relationships with the regulatory focus. Using this methodological approach, I find unique relationships between promotion focus and autonomy needs satisfaction and between prevention focus and competence needs satisfaction in the work domain.
Promotion Focus and Growth-Related Needs

My first high-level hypothesis in this thesis was that work promotion focus is associated with growth-related needs satisfaction (Hypothesis 1). I found strong evidence for this hypothesis in both empirical chapters. As per the proposed framework outlined in Chapter 1, regulatory focus was indeed associated with satisfaction of two growth-related needs: autonomy (Chapter 3) and a constellation of needs representing growth (Chapter 2). It seems that, as an outgrowth of the process of satisfying nurturance survival needs, promotion focus makes people feel satisfied in—or indeed seek out opportunities to satisfy—their autonomy and growth needs at work.

The strongest and most consistent relationships were between work promotion focus and autonomy needs satisfaction. An explanation for this might be that when adopting promotion focus, people strive for developmental growth, tend to take risks, pursue hopes and aspirations and voluntarily get involved in new projects, all of which require some autonomy. For example, to follow one’s own dreams and ideal self-guides in promotion focus, people have to make decisions that reflect what they really want, which is a criterion to assess autonomy needs satisfaction. Further, people in promotion focus need some freedom to be able to follow their personal advancement goals, and having a sense of choice and freedom in the activities undertaken also reflects autonomy needs satisfaction. Therefore, one of the greatest advantages of having high promotion focus may be the impetus to seek out opportunities for satisfying autonomy needs, which was the greatest predictor of beneficial work outcomes among the needs satisfaction variables.

This may be because people are agents in their environment and make changes according to personal preferences and abilities. In the case of regulatory focus, promotion and prevention focus are related with distinct forms of job crafting behavior, which involves proactively customizing job resources and demands to match their orientations, personal needs, and skills (Tims, Bakker, & Derks, 2012). Job crafting is associated with enhanced
motivation, engagement, and well-being (Tims, Bakker, & Derks, 2013; van Wingerden, Bakker, & Derks, 2017). However, no study to my knowledge has tested job crafting as a potential bridge between promotion and prevention focus and needs satisfaction. This adds to the literature by clarifying how these theories are associated to one another, which helps to put together some pieces on the puzzle of work motivation. In this vein, results from Chapter 3 suggest that employees high in promotion focus had greater autonomy needs satisfaction partly via job crafting to increase challenging job demands. This suggests that people high in promotion focus are likely to feel high autonomy needs satisfaction partially because they job craft in ways that increase autonomy needs satisfaction.

**Prevention Focus and Security-Related Needs**

My second high-level hypothesis was that work-prevention focus is associated with security-related needs satisfaction (*Hypothesis 2*). I found support for this hypothesis in both empirical chapters. Consistent with the framework set out in Chapter 1, regulatory focus was indeed associated with satisfaction of two security-related needs: competence (Chapter 3) and a constellation of needs representing security (Chapter 2). Likewise, it seems that, as an outgrowth of the process of satisfying security survival needs, prevention focus makes people feel satisfied in—or indeed seek out opportunities to satisfy—competence and security needs at work.

To the extent that competence can be conceptualized as a security-related need, Chapter 3 provided some evidence for Hypothesis 2 such that prevention focus was consistently associated with greater competence needs satisfaction. Being competent at one’s job may act as an insurance policy against errors and mistakes, which can increase the sense of integrity and security, and successful fulfilment of duties and responsibilities.

However, unlike work promotion focus, work prevention focus was not consistently related to needs satisfaction in beneficial directions. Work prevention focus was associated
with job crafting to decrease hindering job demands—which in turn is negatively associated with competence needs satisfaction. Thus, although greater prevention focus predicted greater competence needs satisfaction directly, it also predicted job crafting in ways that harm competence needs satisfaction. That is, people high in prevention focus appear to feel more competent at their jobs; however, they also tend to job craft to decrease hindrances at work, which—in a catch-22—makes them feel less competent than they would generally like to be.

**Consequences for Work Outcomes**

Besides the hypotheses regarding associations between regulatory focus and needs satisfaction, I also hypothesized about possible implications for work outcomes. Specifically, I hypothesized that growth-related needs satisfaction would mediate associations between work promotion focus and work outcomes (Hypothesis 3), and that security-related needs satisfaction would mediate associations between work prevention focus and work outcomes (Hypothesis 4). Overall, my findings provide broad evidence supporting these hypothesized relationships, more robustly and consistently for Hypothesis 3 than for Hypothesis 4.

Notably, relationships between work promotion focus and all work outcome variables were partially mediated by growth-related needs satisfaction—growth needs satisfaction in Chapter 2 and autonomy needs satisfaction in Chapter 3. That is, greater growth-related needs satisfaction in promotion focus benefited engagement and job satisfaction, and protected against burnout and turnover intentions. In comparison, some of the relationships between work prevention focus and work outcome variables were mediated by security-related needs satisfaction. Specifically, in Chapter 2 greater satisfaction of security needs in work prevention focus benefited engagement and job satisfaction, but had no influence on burnout and turnover intentions. In comparison, on Chapter 3, greater satisfaction of competence needs in work prevention focus benefited engagement and protected against burnout, but had no influence on job satisfaction and turnover intentions.
Overall, my results show that relationships between prevention focus and work outcomes were mixed, which is consistent with previous findings that prevention focus is less consistently associated with several work outcomes than promotion focus. One reason for this can be that job crafting to decrease hindering job demands, which is more likely to occur when prevention focus is high, is counterproductive for competence needs satisfaction and work outcomes (in this thesis, engagement, job satisfaction, burnout, and turnover intentions). Thus, competence needs satisfaction could be higher for those high in prevention focus if they refrained from job crafting to decrease hindrances; which would likely improve their work outcomes. For example, despite prevention focus being associated with competence needs satisfaction, indirect effects of work prevention focus on work outcomes via competence needs satisfaction were not significant. Perhaps if competence needs satisfaction were higher, beneficial indirect effects would become apparent. On the other hand, indirect effects of work prevention focus on work outcomes via decreasing hindering job demands show that this form of job crafting behavior compromises job satisfaction, burnout and turnover intentions. Overall, competence needs satisfaction had beneficial direct effects on work outcomes; however, job crafting to decrease hindering job demands had effects in opposing directions, harming work outcomes. Thus, prevention focus’ relationships with work outcomes are inconsistent.

To summarize, Table 22 shows which hypotheses laid out in Chapter 1 were supported by the empirical chapter results. Considered on the whole, my thesis demonstrates that differences in the work outcomes associated with promotion and prevention focus can be partially explained by differences in which needs are more likely to be satisfied in each focus.
Table 22. *Hypotheses revision and status*

<table>
<thead>
<tr>
<th>Label</th>
<th>Hypothesis</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hypothesis 1</strong></td>
<td>Promotion focus predicts satisfaction of growth-related needs at work.</td>
<td>Supported</td>
</tr>
<tr>
<td><strong>Hypothesis 2</strong></td>
<td>Prevention focus predicts satisfaction of security-related needs at work.</td>
<td>Supported</td>
</tr>
<tr>
<td><strong>Hypothesis 3</strong></td>
<td>Relationships between promotion focus and work outcomes are mediated by satisfaction of growth needs at work.</td>
<td>Supported</td>
</tr>
<tr>
<td><strong>Hypothesis 4</strong></td>
<td>Relationships between prevention focus and work outcomes are mediated by satisfaction of security needs at work.</td>
<td>Partially supported</td>
</tr>
</tbody>
</table>

**Implications for Regulatory Focus Research**

This research is one of the first investigations of the associations between regulatory focus and psychological needs. Although addressed through theory, these relationships have not received much empirical attention. This thesis found broad evidence of theorized mappings in regulatory focus theory that promotion and prevention focus serve distinct needs. Although the findings were clearer for promotion than prevention focus, this thesis represents a launching off point for future research to further probe these relationships and uncover their joint implications for motivation.

The thesis expanded the conceptualization of needs in regulatory focus theory beyond survival to psychological well-being. That is, promotion and prevention focus not only satisfy basic survival needs for nurturance and security, but also basic psychological needs for autonomy and competence and work-related needs involving growth and security. This is important because people’s needs and motives go far beyond survival and biological needs (Higgins, 2011). Considering psychological needs, for example, people have needs for power, achievement, affiliation (McClelland, 1988), as well as competence, autonomy, and relatedness (Deci & Ryan, 1985)—all of which affect motivation, life and work experiences, and well-being. In this thesis, I looked into self-determination needs and found associations between work promotion focus and autonomy needs satisfaction and between work
prevention focus and competence needs satisfaction, and I looked into quality of work life needs and found associations between work promotion focus and growth needs satisfaction and between work prevention focus and security needs satisfaction. It seems that motivational orientations may have developed to satisfy basic survival needs for nurturance and security but came to be associated with the satisfaction of other types of needs (e.g., autonomy, growth, competence and security) relevant to modern life.

This adds to our understanding of why there are differences in the work outcomes associated with promotion and prevention focus. It is already known that promotion and preventions focus produce distinct qualities of motivations, involving different emotions and behaviors (Higgins, 1998b), which can explain why promotion and prevention focus differ in work outcomes. However, differences in which needs are more likely to be satisfied in each focus are also part of the story linking regulatory focus with work outcomes, but to date have been underexplored in the literature.

Results from this thesis suggest that autonomy needs satisfaction is the most consistent predictor of better work outcomes among the three self-determination needs—and is associated with work promotion focus, not with work prevention focus. This means that work promotion focus enhances work outcomes via greater autonomy needs satisfaction in a way that prevention focus usually does not. In a similar vein, regarding needs from quality of work life literature, satisfaction of growth-related needs predicts work outcomes more consistently than satisfaction of other needs. Of importance for explaining differences in the work outcomes associated with each regulatory focus, promotion focus is associated with greater satisfaction of growth needs, whereas prevention focus is not. This means that, in the work domain, promotion focus enhances work outcomes via greater autonomy and growth-related needs satisfaction, which contributes for better work outcomes.

On the other hand, work prevention focus is associated with greater competence needs satisfaction and security needs satisfaction, which appears to have beneficial effects for work
outcomes. Thus, in terms of needs satisfaction, this suggests that prevention focus may be good for work outcomes because it increases competence and security, and promotion focus because it increases autonomy and growth; however, autonomy and growth needs satisfaction are likely to yield more engagement and job satisfaction and less burnout and turnover intentions than competence and security needs satisfaction. This adds another reason for differences in promotion and prevention work outcomes—differences in which needs are more likely to be satisfied by each focus. Presumably, it could be advantageous to have both high promotion focus, and thus autonomy and growth needs satisfaction, and high prevention focus and thus competence and security needs satisfaction, for better work outcomes.

Regulatory focus literature does not consider social needs part of the conceptualization of promotion and prevention focus as it does with nurturance and security needs. However, the theory explains that children rely on relationships to satisfy their needs and the interactions between children and caregivers are the basis for learning self-regulation and developing promotion and prevention focus (Higgins, 1998b). The absence of more substantial discussion regarding relatedness needs is understandable, because regulatory focus theory is based on growth and security needs and does not extend to the question of the need for relationships, only the effects of relationships on people’s regulatory focus (Higgins, 2011). Relatedness needs in regulatory focus seem to reflect a means for seeking satisfaction of security and nurturance needs through the help of other people. This has been an undertheorized idea in regulatory focus theory; however, my studies suggest that prevention focus may be related to relatedness needs satisfaction. This means that employees high in prevention focus may under some circumstances be more likely to seek closeness and connection with others at work. I suspect that this reflects the prevention-focused characteristic of striving to fulfill duties and responsibilities, which are likely determined by others in the organization. In this case, people adopting a prevention focus would devote more attention in fulfilling other’s expectations and therefore feel close to them, especially
when compared with people high in promotion focus who are likely to be more autonomous and devote more attention to fulfilling their own aspirations.

In summary, the theoretical contribution of this thesis for regulatory focus literature is that promotion and prevention focus are associated with satisfaction of certain needs beyond survival. Needs have only been implicated in theory before, thus this is one of the first empirical investigations of needs in the regulatory focus literature, and the first in the organizational space. Based on this thesis, we can say that work-specific promotion and prevention focus are related to satisfaction of distinct psychological needs at work, and that future research might seek to investigate the role of relatedness needs in regulatory focus.

**Implications for Needs Satisfaction Research**

The thesis advanced self-determination theory by showing that self-regulation can play a role in basic psychological needs satisfaction at work. That is, individual differences in self-regulation—promotion focus and prevention focus—support satisfaction of certain needs that people have at work, both in terms of needs that are inherent to the work domain (Sirgy et al., 2001) and in those that are basic psychological needs (Deci & Ryan, 2000). Further, another important contribution of this thesis for the needs-based literature in general is that my results suggest that needs satisfaction operates independently from needs importance (and vice versa). That is, valuing a particular need does not necessarily guarantee its satisfaction.

Considering the findings from this thesis, I propose that promotion and prevention focus are associated with greater needs satisfaction in the work domain. Regardless of the environment, it is ultimately up to the person how much time and effort will be devoted to become competent, or to make decisions according to one’s own interests to exercise autonomy, which of course will be actualized through a supportive environment. This means that the best interventions to optimize work motivation should consider organizational support and people’s motivational orientations in the form of regulatory focus. This thesis
answers recent calls for integration of self-theories on work motivation, given that motivation is dynamic and people are active agents in their motivational processes (Kanfer et al., 2017), and takes one step further towards a better understanding of work motivation.

Yet, taking the two approaches together, there are similarities and differences in the needs proposed by each literature. A general difference concerns primacy: Self-determination theory proposes only basic needs, whereas quality of work life literature proposes a range of work-related needs that are not necessarily basic. However, some needs in the two theories share similarities, which is the case of relatedness needs (as in self-determination theory) and social/esteem needs (as in quality of work life literature). In addition, it is possible that satisfaction of some needs contributes to satisfaction of other needs in specific situations, and that distinct needs from alternative theories overlap to some extent. For example, competence needs satisfaction may contribute to growth needs satisfaction when competence is being sought for a pay raise or career advancement, whereas autonomy needs satisfaction may contribute to security needs satisfaction when the employee has power to make decisions that avoid losses. Because of this, I argue that the framework and results from this thesis emphasize which needs satisfaction variables are more likely to promote growth and to provide security, without excluding the possibility that these may shift in some circumstances.

In the field of work motivation, scholars would do well to consider people’s regulatory focus when studying needs satisfaction. This could distinguish the effects of the environment from the effects of regulatory focus on psychological needs satisfaction at work, for example. In addition, when the environment is shared, differences in workers psychological needs satisfaction within an organization may arise due to differences in regulatory focus. I suggest that, when psychological needs satisfaction is being measured for management purposes in an organization, employees’ work regulatory focus should also be accounted for. By doing this, managers can develop interventions that not only create a more
supportive environment, but also that stimulate desirable levels of regulatory focus, which will contribute to increasing psychological needs satisfaction at work.

In summary, the main contribution of this research is providing evidence that regulatory focus and self-determination work together when it comes to work motivation. Specifically, work promotion focus and autonomy needs satisfaction are related and can together improve engagement, job satisfaction, burnout, and turnover intentions, whereas work prevention focus and competence needs satisfaction are related and can together improve engagement and burnout. In addition, distinctive job crafting behavior associated with promotion focus (i.e., increasing challenging job demands) and prevention focus (i.e., decreasing hindering job demands) can have opposite effects on psychological needs satisfaction and work outcomes, which should receive greater attention from scholars when studying psychological needs satisfaction in the work domain and from managers when aiming to encourage beneficial work behaviors and discourage detrimental ones.

Of importance, this work indicates that two distinct theories of work motivation—regulatory focus and self-determination—may be complementary, not separated from each other. This allows a more comprehensive understanding and integrated view of how motivation works, how the psychological factors that influence motivation interact and together predict behavior.

**Practical Implications**

The relationships between regulatory focus and needs satisfaction have different implications for work outcomes. Specifically, promotion focus showed almost universally beneficial direct and indirect relationships with work outcomes, which was not the case for prevention focus.

Work promotion focus was associated with (a) growth needs satisfaction, (b) autonomy needs satisfaction, and (c) job crafting to increase challenging job demands—all of
which were associated with better work outcomes. In contrast, prevention focus was negatively associated with growth needs satisfaction, and positively associated with job crafting to decrease hindrances at work—which ironically harms competence needs satisfaction and work outcomes. However, prevention focus was also associated with greater competence needs satisfaction, which in turn was associated with good work outcomes. Therefore, differences in job crafting behavior and needs satisfaction between promotion and prevention focus is part of the reason they have different impacts on work outcomes.

These findings point to recommendations about interventions to enhance motivation and work outcomes by considering regulatory focus, needs satisfaction and job crafting behavior. We can take two approaches: (1) to assess employees work regulatory focus and provide customized support according to their needs and orientations, and (2) to prime regulatory focus aiming for a “sweet spot” to best enhance people’s work experiences and needs satisfaction at work.

In this vein, one example of customized support for people high in prevention focus could be providing a strong sense of security, making available the resources necessary for them to develop competence (e.g., training and courses), and encouraging their autonomy since they are not likely to do it on their own. However, it is important to keep in mind that levels of regulatory focus are not set in stone; continuous assessment and support is necessary since people’s needs and goals change over time and across circumstances. In another example, people low in promotion focus and high in prevention focus could be encouraged to job craft to increase challenging job demands—for example, by being presented with the benefits of doing so and having their security needs assured.

The second approach is about using interventions to manipulate levels of regulatory focus at work. There are optimal levels of promotion and prevention focus in all aspects of life and at any given moment. At work, strategies to prime promotion and prevention focus
can be used to improve employees’ well-being, needs satisfaction and work outcomes congruently with organizational goals.

It is certainly important to continue to support security needs for people high in prevention focus and growth needs for people high in promotion focus. However, our results suggest that they tend to do this anyway through their own behaviors (e.g., job crafting in the case of promotion focus). Therefore, organizations could think about how to help people high in prevention focus engage in more targeted job crafting to support the needs they want or lack. In the same way, help people high in promotion focus access the needs that they don’t seem to do naturally.

These interventions can be done using a variety of methods. For example, transformational leadership and asking people to list their professional hopes and aspirations can raise promotion focus levels. Similarly, framing messages or instructions with a prevention-focused language that emphasizes vigilance and obligations can raise prevention focus levels. In addition, some types of jobs are inheritably more promotion- or prevention-focused, such as sales versus legal. In this case, the organization can apply targeted priming techniques to find a balance in the combination of regulatory focus so that the work is efficient and needs satisfaction enhanced.

Of course, such interventions raise ethical concerns. It is crucial to respect individual differences and emotions when leading people and applying these types of interventions. For example, priming regulatory focus should be smooth and enjoyable, inspirational and not mandatory. Otherwise, it may cause misfit and lead to psychological distress (e.g., anxiety). Strategies to prime either promotion or prevention focus in people should always aim to enhance people’s well-being, motivation, and work outcomes as a consequence.

As the workplace changes around people, it is probably best to give them the skills to agentically chart their own occupational journey rather than being directed, overtly or covertly, by management. Among other things, as jobs are becoming less centralized and
more fluid, people might not have a direct manager or leader who can provide such direction. Therefore, it is an ongoing challenge for organizations and employees to manage these transitions. Resources such as online training, appropriate language in task descriptions, information, and strategic tools can be ways of empowering people to manage their own motivation and needs satisfaction.

**Limitations and Future Directions**

Of course, this research has a number of limitations. For example, relationships may be inflated due to common method bias, which is a recurrent limitation in data from self-reports. To address this issue, I took steps to minimize the impact of common-method bias on results (see limitations sections in Chapters 1 and 2). Moreover, given that all data in each study were collected at one time, there is no way to tease apart the possible temporal ordering among the regulatory foci and needs satisfaction. Thus, the cross-sectional nature of the current data precludes inferences about causality, which is the major limitation of this thesis. Accordingly, any thesis language that suggests causality in the process is purely based on theory, and the causal order of regulatory focus preceding needs satisfaction awaits testing with appropriate methodology. The next logical step would be to conduct longitudinal studies that measure regulatory focus and needs satisfaction at multiple times. This would allow cross-lagged analyses to examine whether initial regulatory focus has stronger relations with subsequent change in need satisfaction or initial need satisfaction has stronger relations with subsequent change in regulatory focus. Then, experimental studies could manipulate the variables and test the direction of relationships. This can provide future theoretical contributions that consolidate this expansion of the concept of regulatory focus as motivational orientations that serve survival needs to motivational orientations that also serve security and growth-related psychological needs in the work domain.
Future research could investigate the impact of interventions that induce promotion and prevention focus on people’s levels of perceived needs satisfaction and in turn work outcomes. In this vein, it would be interesting to investigate how regulatory focus and needs satisfaction act together on other work outcome variables such as performance and citizenship behavior. Although it is difficult to control all the variables that interfere with the relationships between regulatory focus and work outcomes, future studies could expand our findings by trying to replicate the associations found between regulatory focus on work outcomes via needs satisfaction controlling for the most well established antecedents of regulatory focus and needs satisfaction, such as personality traits and goal orientations.

Another promising avenue for future research is uncovering how regulatory focus at work affects how people perceive and make use of psychological resources and opportunities available in the environment to achieve specific work goals. For example, Kanfer et al. (2017) suggest more research on associations between self-regulation and resources depletion, such as what could be the effects of self-regulatory resources demands on attention and cognition. Further possibilities are that regulatory focus moderates relationships between environmental factors and needs satisfaction, and that environmental factors mediate relationships between regulatory focus and needs satisfaction. Overall, I encourage researchers to include environmental factors in future research designs, and thus deepen the investigations on how individual and contextual factors act together in motivational dynamics in order to further understand work motivation and develop the best strategies to enhance employees’ quality of work life, well-being and work outcomes.
Conclusion

As modern work is becoming increasingly self-managed, dynamic and mobile, individual motivation becomes even more critical for professional success. Thus, it is important to understand the individual factors that influence motivation and how they work together. This knowledge can be used for developing interventions to support the strengths and counteract any detrimental effect that these factors may have on work motivation. Through an advanced understanding of motivation, employee-centered interventions might prime optimal levels of regulatory focus at work, support and enhance needs satisfaction in targeted ways according to individual orientations, encourage beneficial job crafting behaviors, and discourage harmful ones. These types of interventions have the potential to improve people’s quality of work life, needs satisfaction, performance, and thus employees’ and organizations’ success.

This research takes a step further in explaining work motivation by showing that regulatory focus and needs satisfaction are related when it comes to security and growth needs, working together to predict work outcomes. Therefore, people can make informed decisions about using promotion- and prevention-focused strategies to achieve their goals and satisfy their basic psychological needs, which will likely enhance their motivation, well-being, and work outcomes.
References


# Appendices

## Appendix A: Supplementary materials for Chapters 2 and 3

### A1. Detailed Results for Table 4 (Chapter 2)

Table A 1. *Hierarchical multiple regressions of work regulatory focus on needs importance in Study 1—full results*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Security</th>
<th>Social</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>.11</td>
<td>.45***</td>
<td>.55***</td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>.44***</td>
<td>.11</td>
<td>.25***</td>
</tr>
<tr>
<td>Step 2 (controlling for other needs importance)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>-.12</td>
<td>.09</td>
<td>.35***</td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>.37***</td>
<td>-.17*</td>
<td>.20**</td>
</tr>
<tr>
<td>Security needs importance</td>
<td>-</td>
<td>.23**</td>
<td>.08</td>
</tr>
<tr>
<td>Social needs importance</td>
<td>.32**</td>
<td>-</td>
<td>.42**</td>
</tr>
<tr>
<td>Growth needs importance</td>
<td>.15</td>
<td>.61***</td>
<td>-</td>
</tr>
<tr>
<td>Step 3 (controlling for needs satisfaction)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>-.02</td>
<td>.09</td>
<td>.28***</td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>.36***</td>
<td>-.17*</td>
<td>.19**</td>
</tr>
<tr>
<td>Security needs importance</td>
<td>-</td>
<td>.21**</td>
<td>.10</td>
</tr>
<tr>
<td>Social needs importance</td>
<td>.28**</td>
<td>-</td>
<td>.42**</td>
</tr>
<tr>
<td>Growth needs importance</td>
<td>.19</td>
<td>.61***</td>
<td>-</td>
</tr>
<tr>
<td>Security needs satisfaction</td>
<td>.10</td>
<td>.08</td>
<td>-.04</td>
</tr>
<tr>
<td>Social needs satisfaction</td>
<td>.07</td>
<td>.11</td>
<td>-.01</td>
</tr>
<tr>
<td>Growth needs satisfaction focus</td>
<td>-.30**</td>
<td>-.12</td>
<td>.15</td>
</tr>
</tbody>
</table>

Note. Step 1 entered work regulatory focus; Step 2 entered the alternative needs importance scales; Step 3 entered the needs satisfaction scales. *p < .05, **p < .01, ***p < .001.*
Table A.2. Hierarchical multiple regressions of work regulatory focus on needs satisfaction in Study 1—full results

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Security</th>
<th>Social</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>( R^2 = .27^{***} )</td>
<td>( R^2 = .26^{***} )</td>
<td>( R^2 = .42^{***} )</td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>(.39^{***} )</td>
<td>(.45^{***} )</td>
<td>(.60^{***} )</td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>(.20^{*} )</td>
<td>(.10 )</td>
<td>(.10 )</td>
</tr>
<tr>
<td>Step 2 (controlling for other needs satisfaction)</td>
<td>( R^2_{\Delta} = .30^{***} )</td>
<td>( R^2_{\Delta} = .39^{***} )</td>
<td>( R^2_{\Delta} = .25^{***} )</td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>(.03 )</td>
<td>&lt;.01</td>
<td>(.33^{***} )</td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>(.13^{*} )</td>
<td>-.03</td>
<td>(.01 )</td>
</tr>
<tr>
<td>Security needs satisfaction</td>
<td>-</td>
<td>(.40^{**} )</td>
<td>(.19^{**} )</td>
</tr>
<tr>
<td>Social needs satisfaction</td>
<td>(.48^{***} )</td>
<td>-</td>
<td>(.45^{***} )</td>
</tr>
<tr>
<td>Growth needs satisfaction</td>
<td>(.25^{**} )</td>
<td>(.49^{**} )</td>
<td>-</td>
</tr>
<tr>
<td>Step 3 (controlling for needs importance)</td>
<td>( R^2_{\Delta} = .01 )</td>
<td>( R^2_{\Delta} = .01 )</td>
<td>( R^2_{\Delta} = .02^{*} )</td>
</tr>
<tr>
<td>Work promotion focus</td>
<td>(.01 )</td>
<td>-.03</td>
<td>(.30^{***} )</td>
</tr>
<tr>
<td>Work prevention focus</td>
<td>(.11 )</td>
<td>-.05</td>
<td>(.05 )</td>
</tr>
<tr>
<td>Security needs satisfaction</td>
<td>-</td>
<td>(.38^{***} )</td>
<td>(.20^{**} )</td>
</tr>
<tr>
<td>Social needs satisfaction</td>
<td>(.45^{***} )</td>
<td>-</td>
<td>(.44^{***} )</td>
</tr>
<tr>
<td>Growth needs satisfaction</td>
<td>(.28^{**} )</td>
<td>(.51^{***} )</td>
<td>-</td>
</tr>
<tr>
<td>Security needs importance</td>
<td>(.07 )</td>
<td>(.04 )</td>
<td>(-.15^{**} )</td>
</tr>
<tr>
<td>Social needs importance</td>
<td>(.07 )</td>
<td>(.08 )</td>
<td>(-.08 )</td>
</tr>
<tr>
<td>Growth needs importance</td>
<td>-.05</td>
<td>-.02</td>
<td>.14</td>
</tr>
</tbody>
</table>

Note. Step 1 entered work regulatory focus; Step 2 entered the alternative needs satisfaction scales; Step 3 entered the needs importance scales. \(^* p < .05, ^{**} p < .01, ^{***} p < .001 \).
### A3 Detailed results for Table 16 (Chapter 3)

**Table A 3. Hierarchical multiple regression of work regulatory focus on job crafting dimensions in Study 4 – full results**

| Predictor                  | Job crafting behavior |  |  |  |
|----------------------------|-----------------------|-----------------------|
|                            | Job demands           | Job resources         |
|                            | Increasing challenges | Decreasing hindrances | Increasing structural | Increasing social |
| Step 1                     |                       |                       |                       |
| Work promotion focus       | .37***                | .05**                 | .39***                 | .16***          |
| Work prevention focus      | .09                   | .15*                  | .23***                 | .04             |
| Step 2                     |                       |                       |                       |
| Work promotion focus       | .26***                | .10                   | .29***                 | .14*            |
| Increasing challenging job demands | -.06                 | .42***                | .44***                 |
| Decreasing hindering job demands | .03                  | -.12**                | .17**                  |
| Increasing structural job resources | .39***               | -.22**                | -                      |
| Increasing social job resources | .28***               | .22**                 | -.03                   |

*Note.* Step 1 entered work regulatory focus; Step 2 entered the alternate job crafting dimensions (i.e., controlling for decreasing hindering job demands, increasing structural job resources, and increasing structural job demands when assessing increasing challenging job demands as the outcome variable—the full results are featured in supplementary materials). Standardized coefficients depicted. *p < .05, **p < .01, ***p < .001.
Appendix B: Complete list of measures

B1. The Work Regulatory Focus Scale


Instructions: Here are a number of statements that may or may not describe you at work. Please indicate, using the scale below, the extent to which you agree or disagree with each of the following statements: 1) strongly disagree, 2) disagree, 3) neither agree nor disagree, 4) agree, 5) strongly agree.

<table>
<thead>
<tr>
<th>Work Regulatory Focus Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I concentrate on completing my work tasks correctly to increase my job security.</td>
</tr>
<tr>
<td>2. At work I focus my attention on completing my assigned responsibilities.</td>
</tr>
<tr>
<td>3. Fulfiling my work duties is very important for me.</td>
</tr>
<tr>
<td>4. At work, I strive to live up to the responsibilities and duties given to me by others.</td>
</tr>
<tr>
<td>5. At work, I am often focused on accomplishing tasks that will support my need for security.</td>
</tr>
<tr>
<td>6. I do everything I can to avoid loss at work.</td>
</tr>
<tr>
<td>7. Job security is an important factor for me in any job search.</td>
</tr>
<tr>
<td>8. I focus my attention on avoiding failure at work.</td>
</tr>
<tr>
<td>9. I am very careful to avoid exposing myself to potential losses at work.</td>
</tr>
<tr>
<td>10. I take chances at work to maximize my goals for advancement.</td>
</tr>
<tr>
<td>11. I tend to take risks at work in order to achieve success.</td>
</tr>
<tr>
<td>12. If I had an opportunity to participate on a high-risk, high-reward project I would definitely take it.</td>
</tr>
<tr>
<td>13. If my job did not allow for advancement, I would likely find a new one.</td>
</tr>
<tr>
<td>14. A chance to grow is an important factor for me when looking for a job.</td>
</tr>
<tr>
<td>15. I focus on accomplishing job tasks that will further my advancement.</td>
</tr>
<tr>
<td>16. I spend a great deal of time envisioning how to fulfill my aspirations.</td>
</tr>
<tr>
<td>17. My work priorities are impacted by a clear picture of what I aspire to be.</td>
</tr>
<tr>
<td>18. At work, I am motivated by my hopes and aspirations.</td>
</tr>
</tbody>
</table>
B2. The QWL Needs Satisfaction scale


Instructions: Here are a number of statements that may or may not describe your work experiences at the organization that you are currently working for. For example, is it true that you feel physically safe at work? Please indicate, using the scale below, how accurate each of the following statements is for you: 1) very untrue, 2) untrue, 3) somewhat untrue, 4) neutral, 5) somewhat true, 6) true, 7) very true.

<table>
<thead>
<tr>
<th>QWL Needs Satisfaction scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel physically safe at work.</td>
</tr>
<tr>
<td>2. My job provides good health benefits.</td>
</tr>
<tr>
<td>3. I do my best to stay healthy and fit.</td>
</tr>
<tr>
<td>4. I am satisfied with what I’m getting paid for my work.</td>
</tr>
<tr>
<td>5. I feel that my job at this organization is secure for life.</td>
</tr>
<tr>
<td>6. My job does well for my family.</td>
</tr>
<tr>
<td>7. I have good friends at work.</td>
</tr>
<tr>
<td>8. I have enough time away from work to enjoy other things in life.</td>
</tr>
<tr>
<td>9. I feel appreciated at work at the organization.</td>
</tr>
<tr>
<td>10. People at the organization and/or within my profession respect me as a professional and an expert in my field of work.</td>
</tr>
<tr>
<td>11. I feel that my job allows me to realize my full potential.</td>
</tr>
<tr>
<td>12. I feel that I am realizing my potential as an expert in my line of work.</td>
</tr>
<tr>
<td>13. I feel that I’m always learning new things that help do my job better.</td>
</tr>
<tr>
<td>14. This job allows me to sharpen my professional skills.</td>
</tr>
<tr>
<td>15. There is a lot of creativity involved in my job.</td>
</tr>
<tr>
<td>16. My job helps me develop my creativity outside of work.</td>
</tr>
</tbody>
</table>
**B3. The QWL Needs Importance scale**

Instructions: Individuals are likely to value some aspects of work differently. For example, public recognition can be very important for one person but not as important for another.

Please indicate, using the scale below, the extent to which each work feature is important TO YOU: 1) not important at all, 2) not very important, 3) neutral, 4) important, 5) very important.

<table>
<thead>
<tr>
<th>QWL Needs Importance scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Protection from ill health and injury at work is</td>
</tr>
<tr>
<td>2. Protection from ill health and injury outside work is</td>
</tr>
<tr>
<td>3. Enhancement of good health is</td>
</tr>
<tr>
<td>4. Pay is</td>
</tr>
<tr>
<td>5. Job security is</td>
</tr>
<tr>
<td>6. Other family needs (e.g., childcare) are</td>
</tr>
<tr>
<td>7. Collegiality at work is</td>
</tr>
<tr>
<td>8. Leisure time off work is</td>
</tr>
<tr>
<td>9. Recognition/appreciation of work within the organization is</td>
</tr>
<tr>
<td>10. Recognition/appreciation of work outside the organization is</td>
</tr>
<tr>
<td>11. Realization of my potential within the organization is</td>
</tr>
<tr>
<td>12. Realization of my potential outside the organization is</td>
</tr>
<tr>
<td>13. Learning to enhance job skills is</td>
</tr>
<tr>
<td>14. Learning to enhance professional skills is</td>
</tr>
<tr>
<td>15. Creativity at work is</td>
</tr>
<tr>
<td>16. Personal creativity and general aesthetics is</td>
</tr>
</tbody>
</table>
B4. Basic Psychological Needs Satisfaction and Frustration Scale


Instructions: The following statements concern your feelings about your job during the PAST 4 WEEKS. Please indicate the extent to which you agree or disagree with each of the following statements.is for you: 1) strongly disagree, 2) disagree, 3) neither agree nor disagree, 4) agree, 5) strongly agree.

<table>
<thead>
<tr>
<th>Basic Psychological Needs Satisfaction and Frustration Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. At work, I feel a sense of choice and freedom in the things I undertake.</td>
</tr>
<tr>
<td>2. I feel excluded from the group I want to belong to at work.</td>
</tr>
<tr>
<td>3. I feel confident that I can do things well on my job.</td>
</tr>
<tr>
<td>4. I feel that the people I care about at work also care about me.</td>
</tr>
<tr>
<td>5. Most of the things I do on my job feel like &quot;I have to&quot;.</td>
</tr>
<tr>
<td>6. When I am at work, I have serious doubts about whether I can do things well.</td>
</tr>
<tr>
<td>7. I feel that my decisions on my job reflect what I really want.</td>
</tr>
<tr>
<td>8. I feel like people who are important to me at work are cold and distant towards me.</td>
</tr>
<tr>
<td>9. At work, I feel capable at what I do.</td>
</tr>
<tr>
<td>10. I feel forced to do many things on my job I wouldn't choose to do.</td>
</tr>
<tr>
<td>11. I feel disappointed with my performance in my job.</td>
</tr>
<tr>
<td>12. I feel connected with people who care for me at work, and for whom I care at work.</td>
</tr>
<tr>
<td>13. I feel my choices on my job express who I really am.</td>
</tr>
<tr>
<td>14. When I am at work, I feel competent to achieve my goals</td>
</tr>
<tr>
<td>15. I feel pressured to do too many things on my job.</td>
</tr>
<tr>
<td>16. At work, I feel close and connected with other people who are important to me.</td>
</tr>
<tr>
<td>17. I feel insecure about my abilities on my job.</td>
</tr>
<tr>
<td>18. My daily activities at work feel like a chain of obligations.</td>
</tr>
<tr>
<td>19. I feel I have been doing what really interests me in my job.</td>
</tr>
<tr>
<td>20. I have the impression that people I spend time with at work dislike me.</td>
</tr>
<tr>
<td>21. In my job, I feel I can successfully complete difficult tasks.</td>
</tr>
<tr>
<td>22. I feel the relationships I have at work are just superficial.</td>
</tr>
<tr>
<td>23. When I am working, I feel like a failure because of the mistakes I make.</td>
</tr>
<tr>
<td>24. I experience a warm feeling with the people I spend time with at work.</td>
</tr>
</tbody>
</table>
B.5. The Utrecht Work Engagement Scale


Instructions: The following statements may or may not describe how you feel at work. Please indicate how often you feel this way: 1) never, 2) rarely, 3) sometimes, 4) often, 5) very often.

<table>
<thead>
<tr>
<th>Utrecht Work Engagement Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. At my work, I feel bursting with energy.</td>
</tr>
<tr>
<td>2. I find the work that I do full of meaning and purpose.</td>
</tr>
<tr>
<td>3. Time flies when I'm working.</td>
</tr>
<tr>
<td>4. At my job, I feel strong and vigorous.</td>
</tr>
<tr>
<td>5. I am enthusiastic about my job.</td>
</tr>
<tr>
<td>6. When I'm working, I forget everything else around me.</td>
</tr>
<tr>
<td>7. My job inspires me.</td>
</tr>
<tr>
<td>8. When I get up in the morning, I feel like going to work.</td>
</tr>
<tr>
<td>9. I feel happy when I am working intensely.</td>
</tr>
<tr>
<td>10. I am proud on the work that I do.</td>
</tr>
<tr>
<td>11. I am immersed in my work.</td>
</tr>
<tr>
<td>12. I can continue working for very long periods at a time.</td>
</tr>
<tr>
<td>13. To me, my job is challenging.</td>
</tr>
<tr>
<td>14. I get carried away when I'm working.</td>
</tr>
<tr>
<td>15. At my job, I am very resilient, mentally.</td>
</tr>
<tr>
<td>16. It is difficult to detach myself from my job.</td>
</tr>
<tr>
<td>17. At my work I always persevere, even when things do not go well.</td>
</tr>
</tbody>
</table>
B6. The Brief Job Satisfaction Measure II


Instructions: Here are a number of statements that may or may not describe how you feel about your job. Please indicate, using the scale below, the extent to which you agree or disagree with each of the following statements: 1) strongly disagree, 2) disagree, 3) neither agree nor disagree, 4) agree, 5) strongly agree

---

**Brief Job Satisfaction Measure II**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel fairly satisfied with my present job.</td>
<td></td>
</tr>
<tr>
<td>Most days I am enthusiastic about my work.</td>
<td></td>
</tr>
<tr>
<td>Each day of work seems like it will never end.*</td>
<td></td>
</tr>
<tr>
<td>I find real enjoyment in my work.</td>
<td></td>
</tr>
<tr>
<td>I consider my job rather unpleasant.*</td>
<td></td>
</tr>
</tbody>
</table>

*Note:* *Reverse-coded items.

B7. Turnover Intentions


Instructions: Considering your current job, please indicate, using the scale below, the extent to which you agree or disagree with the following statements: 1) strongly disagree, 2) disagree, 3) neither agree nor disagree, 4) agree, 5) strongly agree.

---

**Turnover Intentions Items**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am thinking about leaving the organization.</td>
<td></td>
</tr>
<tr>
<td>I am planning to look for a new job.</td>
<td></td>
</tr>
<tr>
<td>I intend to ask people about new job opportunities.</td>
<td></td>
</tr>
<tr>
<td>I don’t plan to be in the organization much longer.</td>
<td></td>
</tr>
</tbody>
</table>
B8. Oldenburg Burnout Inventory


Instructions: The following statements may or may not describe how you feel at work. Please indicate how often you feel this way: 1) strongly disagree, 2) disagree, 3) neither agree nor disagree, 4) agree, 5) strongly agree.

<table>
<thead>
<tr>
<th>Oldenburg Burnout Inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.  I always find new and interesting aspects in my work.*</td>
</tr>
<tr>
<td>2.  There are days when I feel tired before I arrive at work.</td>
</tr>
<tr>
<td>3.  It happens more and more often that I talk about my work in a negative way.</td>
</tr>
<tr>
<td>4.  After work, I tend to need more time than in the past in order to relax and feel better.</td>
</tr>
<tr>
<td>5.  I can tolerate the pressure of my work very well.*</td>
</tr>
<tr>
<td>6.  Lately, I tend to think less at work and do my job almost mechanically.</td>
</tr>
<tr>
<td>7.  I find my work to be a positive challenge.*</td>
</tr>
<tr>
<td>8.  During my work, I often feel emotionally drained.</td>
</tr>
<tr>
<td>9.  Over time, one can become disconnected from this type of work.</td>
</tr>
<tr>
<td>10.  After working, I have enough energy for my leisure activities.*</td>
</tr>
<tr>
<td>11.  Sometimes I feel sickened by my work tasks.</td>
</tr>
<tr>
<td>12.  After my work, I usually feel worn out and weary.</td>
</tr>
<tr>
<td>13.  This is the only type of work that I can imagine myself doing.*</td>
</tr>
<tr>
<td>14.  Usually, I can manage the amount of my work well.*</td>
</tr>
<tr>
<td>15.  I feel more and more engaged in my work.*</td>
</tr>
<tr>
<td>16.  When I work, I usually feel energized.*</td>
</tr>
</tbody>
</table>

*Note:* Reverse-coded items.
B9. The Job Crafting Scale


doi:10.1016/j.jvb.2011.05.009

Instructions: Considering your current job, please indicate, using the scale below, the extent to which you agree or disagree with the following statements: 1) never, 2) occasionally, 3) sometimes, 4) often, 5) very often.

<table>
<thead>
<tr>
<th>Job Crafting Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I try to develop my capabilities.</td>
</tr>
<tr>
<td>2. I try to develop myself professionally.</td>
</tr>
<tr>
<td>3. I try to learn new things at work.</td>
</tr>
<tr>
<td>4. I make sure that I use my capacities to the fullest.</td>
</tr>
<tr>
<td>5. I decide on my own how I do things.</td>
</tr>
<tr>
<td>6. I make sure that my work is mentally less intense.</td>
</tr>
<tr>
<td>7. I try to ensure that my work is emotionally less intense.</td>
</tr>
<tr>
<td>8. I manage my work so that I try to minimize contact with people whose problems affect me emotionally.</td>
</tr>
<tr>
<td>9. I organize my work so as to minimize contact with people whose expectations are unrealistic.</td>
</tr>
<tr>
<td>10. I try to ensure that I do not have to make many difficult decisions at work.</td>
</tr>
<tr>
<td>11. I organize my work in such a way to make sure that I do not have to concentrate for too long a period at once.</td>
</tr>
<tr>
<td>12. I ask my supervisor to coach me.</td>
</tr>
<tr>
<td>13. I ask whether my supervisor is satisfied with my work.</td>
</tr>
<tr>
<td>15. I ask others for feedback on my job performance.</td>
</tr>
<tr>
<td>16. I ask colleagues for advice.</td>
</tr>
<tr>
<td>17. When an interesting project comes along, I offer myself proactively as project co-worker.</td>
</tr>
<tr>
<td>18. If there are new developments, I am one of the first to learn about them and try them out.</td>
</tr>
<tr>
<td>19. When there is not much to do at work, I see it as a chance to start new projects.</td>
</tr>
<tr>
<td>20. I regularly take on extra tasks even though I do not receive extra salary for them.</td>
</tr>
<tr>
<td>21. I try to make my work more challenging by examining the underlying relationships between aspects of my job.</td>
</tr>
</tbody>
</table>
Appendix C: Analyses’ syntaxes for Chapters 2 and 3

C1. Syntaxes for Chapter 2, Studies 1 and 2.

**********CHAPTER 2 - SYNTAXES**********

**********QUALITY OF WORK LIFE NEEDS**********

**********STUDY 1 - SCALE CREATION**********

*****WORK REGULATORY FOCUS*****

***Work Prevention Focus***

RELIABILITY
/VARIABLES=W1 W2 W3 W4 W5 W6 W7 W8 W9
/SCALE(‘Work Prevention Focus’) ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE WPREV=MEAN(W1,W2,W3,W4,W5,W6,W7,W8,W9).
VARIABLE LABELS WPREV ‘Work Prevention Focus’.
EXECUTE.

***Work Promotion Focus***

RELIABILITY
/VARIABLES=W10 W11 W13 W14 W15 W16 W17 W18
/SCALE(‘Work Promotion Focus’) ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

VARIABLE LABELS WPROM ‘Work Promotion Focus’.
EXECUTE.

**********QUALITY OF WORK LIFE-RELATED NEEDS**********

***SECURITY, SOCIAL, AND GROWTH NEEDS SATISFACTION***

RELIABILITY
/VARIABLES=NS1 NS2 NS3 NS4 NS5 NS6
/SCALE(‘Security Needs Satisfaction’) ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE SECUNS=MEAN(NS1,NS2,NS3,NS4,NS5,NS6).
VARIABLE LABELS  SECUNS 'Security Needs Satisfaction'.
EXECUTE.

RELIABILITY
/VARIABLES=NS7 NS8 NS9 NS10
/SCALE('Social Needs Satisfaction') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE SNS=MEAN(NS7,NS8,NS9,NS10).
VARIABLE LABELS  SNS 'Social Needs Satisfaction'.
EXECUTE.

RELIABILITY
/VARIABLES=NS11 NS12 NS13 NS14 NS15 NS16
/SCALE('Growth Needs Satisfaction') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE GROWNS=MEAN(NS11,NS12,NS13,NS14,NS15,NS16).
VARIABLE LABELS  GROWNS 'Growth Needs Satisfaction'.
EXECUTE.

***SECURITY, SOCIAL, AND GROWTH NEEDS IMPORTANCE***

RELIABILITY
/VARIABLES=NI1 NI2 NI3 NI4 NI5 NI6
/SCALE('Security Needs Importance') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE SECUNI=MEAN(NI1,NI2,NI3,NI4,NI5,NI6).
VARIABLE LABELS SECUNI 'Security Needs Importance'.
EXECUTE.

RELIABILITY
/VARIABLES=NI7 NI8 NI9 NI10
/SCALE('Social Needs Importance') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE SNI=MEAN(NI7,NI8,NI9,NI10).
VARIABLE LABELS  SNI 'Social Needs Importance'.
EXECUTE.

RELIABILITY
/VARIABLES=NI11 NI12 NI13 NI14 NI15 NI16
/SCALE('Growth Needs Importance') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE GROUNI=MEAN(NI11,NI12,NI13,NI14,NI15,NI16).
VARIABLE LABELS  GROUNI 'Growth Needs Importance'.
EXECUTE.

**********STUDY 1 - ANALYSES**********

*****DEMOGRAPHICS & CORRELATIONS*****
frequencies D_empstatus.
frequencies D_gender.
descriptives D_education.
frequencies D_education.
frequencies D_marital.
descriptives D_age.
frequencies D_age.
frequencies D_income.
frequencies D_industry.
frequencies D_jobposition.

***************Means, SDs, and Correlations (Table 3)***************
descriptives WPREV WPROM SECUNS SNS GROWNS SECUNI SNI GROUNI.

CORRELATIONS
/VARIABLES=WPREV WPROM SECUNS SNS GROWNS SECUNI SNI GROUNI
/PRINT=TWOTAIL NOSIG
/STATISTICS DESCRIPTIVES
/MISSING=PAIRWISE.

**********REGRESSION ANALYSES**********

***Needs Importance (Table 4)***

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/Criteria=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT SECUNI
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER SNI GROUNI
/METHOD=ENTER SECUNS SNS GROWNS.
REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT SNI
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER SECUNI GROWNI
/METHOD=ENTER SECUNS SNS GROWNS.

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT GROWNI
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER SECUNI SNI
/METHOD=ENTER SECUNS SNS GROWNS.

***Needs Satisfaction (Table 5)***

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT SECUNS
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER SNS GROWNS
/METHOD=ENTER SECUNI SNI GROWNI.

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT SNS
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER SECUNS GROWNS
/METHOD=ENTER SECUNI SNI GROWNI.

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT GROWNS
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER SECUNS SNS
REGULATORY FOCUS AND NEEDS SATISFACTION

/METHOD=ENTER SECUNI SNI GROWNI.

**********STUDY 2 - SCALE CREATION**********

*****WORK REGULATORY FOCUS*****

***Work Prevention Focus***

RELIABILITY
/VARIABLES=W1 W2 W3 W4 W5 W6 W7 W8 W9
/SCALE('Work Prevention Focus') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE WPREV=MEAN(W1,W2,W3,W4,W5,W6,W7,W8,W9).
VARIABLE LABELS WPREV 'Work Prevention Focus'.
EXECUTE.

***Work Promotion Focus***

RELIABILITY
/VARIABLES=W10 W11 W12 W13 W14 W15 W16 W17 W18
/SCALE('Work Promotion Focus') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

VARIABLE LABELS WPROM 'Work Promotion Focus'.
EXECUTE.

*****QUALITY OF WORK LIFE-RELATED NEEDS*****

***SECURITY, SOCIAL, AND GROWTH NEEDS SATISFACTION***

RELIABILITY
/VARIABLES=NS1 NS2 NS3 NS4 NS5 NS6
/SCALE('Security Needs Satisfaction') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE SECUNS=MEAN(NS1,NS2,NS3,NS4,NS5,NS6).
VARIABLE LABELS SECUNS 'Security Needs Satisfaction'.
EXECUTE.

RELIABILITY
/VARIABLES=NS7 NS8 NS9 NS10
/SCALE('Social Needs Satisfaction') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

 COMPUTE SNS=MEAN(NS7,NS8,NS9,NS10).
 VARIABLE LABELS SNS 'Social Needs Satisfaction'.
 EXECUTE.

 RELIABILITY
 /VARIABLES=NS11 NS12 NS13 NS14 NS15 NS16
 /SCALE('Growth Needs Satisfaction') ALL
 /MODEL=ALPHA
 /STATISTICS=DESCRIPTIVE SCALE
 /SUMMARY=TOTAL.

 COMPUTE GROWNS=MEAN(NS11,NS12,NS13,NS14,NS15,NS16).
 VARIABLE LABELS GROWNS 'Growth Needs Satisfaction'.
 EXECUTE.

 **********WORK OUTCOMES**********

 ***Engagement***

 RELIABILITY
 /VARIABLES=EN1 EN2 EN3 EN4 EN5 EN6 EN7 EN8 EN9 EN10 EN11 EN12
 EN13 EN14 EN15 EN16 EN17
 /SCALE('Engagement') ALL
 /MODEL=ALPHA
 /STATISTICS=DESCRIPTIVE SCALE
 /SUMMARY=TOTAL.

 COMPUTE ENGAG=MEAN(EN1,EN2,EN3,EN4,EN5,EN6,EN7,EN8,EN9,EN10,EN11,EN12,
 EN13,EN14,EN15,EN16,EN17).
 VARIABLE LABELS ENGAG 'Engagement'.
 EXECUTE.

 ***Job Satisfaction***

 RELIABILITY
 /VARIABLES=J1 J2 J3 J4 J5
 /SCALE('Job Satisfaction') ALL
 /MODEL=ALPHA
 /STATISTICS=DESCRIPTIVE SCALE
 /SUMMARY=TOTAL.

 COMPUTE JOBSAT=MEAN(J1,J2,J3,J4,J5).
 VARIABLE LABELS JOBSAT 'Job Satisfaction'.
 EXECUTE.
***Burnout***

RELIABILITY
/VARIABLES=DB1 DB2 DB3 DB4 DB5 DB6 DB7 DB8 DB9 DB10 DB11 DB12 DB13 DB14 DB15 DB16
/SCALE('Burnout') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE
BURNOUT=MEAN(DB1, DB2, DB3, DB4, DB5, DB6, DB7, DB8, DB9, DB10, DB11, DB12, DB13, DB14, DB15, DB16).
VARIABLE LABELS BURNOUT 'Burnout'.
EXECUTE.

***Turnover Intentions***

RELIABILITY
/VARIABLES=T1, T2, T3, T4
/SCALE('Turnover Intentions') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE TURNOVER=MEAN(T1, T2, T3, T4).
VARIABLE LABELS TURNOVER 'Turnover Intentions'.
EXECUTE.

**********STUDY 2 - ANALYSES**********

*****DEMOGRAPHICS & CORRELATIONS*****

frequencies D_empstatus.
frequencies D_gender.
descriptives D_education.
frequencies D_education.
frequencies D_marital.
descriptives D_age.
frequencies D_age.
frequencies D_income.
frequencies D_industry.
frequencies D_jobposition.

*****Means, SDs, and Correlations (Table 6)*****

descriptives WPREV WPROM CPREV SECUNS SNS GROWNS ENGAG JOBSAT BURNOUT TURNOVER.

CORRELATIONS
/VARIABLES=WPREV WPROM SECUNS SNS GROWNS ENGAG JOBSAT BURNOUT TURNOVER
/PRINT=TWOTAIL NOSIG
/STATISTICS DESCRIPTIVES
/MISSING=PAIRWISE.

**********REGRESSION ANALYSES**********

***Needs Satisfaction (Table 7)***

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/Criteria=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT SECUNS
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER SNS GROWNS.

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/Criteria=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT SNS
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER SECUNS GROWNS.

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/Criteria=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT GROWNS
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER SECUNS SNS.

***Work outcomes (Table 8)***

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/Criteria=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT ENGAG
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER SECUNS SNS GROWNS.

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/Criteria=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT JOBSAT
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER SECUNS SNS GROWNS.

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/Criteria=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT BURNOUT
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER SECUNS SNS GROWNS.

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/Criteria=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT TURNOVER
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER SECUNS SNS GROWNS.

********CHAPTER 3 - SYNTAXES**********

********** SELF-DETERMINATION NEEDS **********

**********STUDY 3 - SCALE CREATION**********

*****WORK REGULATORY FOCUS*****

***Work Prevention Focus***

RELIABILITY
/VARIABLES=W1 W2 W3 W4 W5 W6 W7 W8 W9
/SCALE('Work Prevention Focus') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE WPREV=MEAN(W1,W2,W3,W4,W5,W6,W7,W8,W9).
VARIABLE LABELS WPREV 'Work Prevention Focus'.
EXECUTE.

***Work Promotion Focus***

RELIABILITY
/VARIABLES=W10 W11 W12 W13 W14 W15 W16 W17 W18
/SCALE('Work Promotion Focus') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

VARIABLE LABELS WPROM 'Work Promotion Focus'.
EXECUTE.

**********BASIC PSYCHOLOGICAL NEEDS SATISFACTION**********

RELIABILITY
/VARIABLES=PNS1 PNS7 PNS13 PNS19
/SCALE('Autonomy Needs Satisfaction') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE AUTSAT=MEAN(PNS1,PNS7,PNS13,PNS19).
VARIABLE LABELS AUTSAT 'Autonomy Needs Satisfaction'.
EXECUTE.

RELIABILITY
/VARIABLES=PNS4 PNS12 PNS16 PNS24
/SCALE('Relatedness Needs Satisfaction') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE RELSAT=MEAN(PNS4,PNS12,PNS16,PNS24).
VARIABLE LABELS  RELSAT 'Relatedness Needs Satisfaction'.
EXECUTE.

RELIABILITY
/VARIABLES=PNS3 PNS9 PNS14 PNS21
/SCALE('Competence Needs Satisfaction') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE COMSAT=MEAN(PNS3,PNS9,PNS14,PNS21).
VARIABLE LABELS  COMSAT 'Competence Needs Satisfaction'.
EXECUTE.

**********WORK OUTCOMES**********

***Engagement***

RELIABILITY
/VARIABLES=EN1 EN4 EN5 EN7 EN8 EN9 EN10 EN11 EN14
/SCALE('Engagement') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE ENGAG=MEAN(EN1,EN4,EN5,EN7,EN8,EN9,EN10,EN11,EN14).
VARIABLE LABELS  ENGAG 'Engagement'.
EXECUTE.

***Job Satisfaction***

RELIABILITY
/VARIABLES=J1 J2 J3 J4 J5
/SCALE('Job Satisfaction') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE JOBSAT=MEAN(J1,J2,J3,J4,J5).
VARIABLE LABELS  JOBSAT 'Job Satisfaction'.
EXECUTE.

***Burnout***
RELIABILITY
/VARIABLES=DB1 DB2 DB3 DB4 DB5 DB6 DB7 DB8 DB9 DB10 DB11 DB12 DB13 DB14 DB15 DB16
/SCALE('Burnout') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE BURNOUT=MEAN(DB1, DB2, DB3, DB4, DB5, DB6, DB7, DB8, DB9, DB10, DB11, DB12, DB13, DB14, DB15, DB16).
VARIABLE LABELS BURNOUT 'Burnout'.
EXECUTE.

***Turnover Intentions***

RELIABILITY
/VARIABLES=T1, T2, T3, T4
/SCALE('Turnover Intentions') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE TURNOVER=MEAN(T1, T2, T3, T4).
VARIABLE LABELS TURNOVER 'Turnover Intentions'.
EXECUTE.

***********STUDY 3 - ANALYSES***********

**************DEMOGRAPHICS & CORRELATIONS**************

frequencies D_empstatus.
frequencies D_gender.
descriptives D_education.
frequencies D_marital.
descriptives D_age.
frequencies D_age.
frequencies D_income.
frequencies D_industry.
frequencies D_jobposition.

*****Means, SDs, and Correlations (Table 11)*****

descriptives WPREV WPROM AUTSAT RELSAT COMSAT ENGAG JOBSAT BURNOUT TURNOVER.

CORRELATIONS
/VARIABLES=WPREV WPROM AUTSAT RELSAT COMSAT ENGAG JOBSAT BURNOUT TURNOVER
"PRINT=TWOTAIL NOSIG" "STATISTICS DESCRIPTIVES" "MISSING=PAIRWISE.

**********REGRESSION ANALYSES**********

***Basic Psychological Needs Satisfaction (Table 12)***

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10) NOORIGIN
/DEPENDENT AUTSAT
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER RELSAT COMSAT.

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10) NOORIGIN
/DEPENDENT RELSAT
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER AUTSAT COMSAT.

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10) NOORIGIN
/DEPENDENT COMSAT
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER AUTSAT RELSAT.

**********Work outcomes (Table 13)**********

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10) NOORIGIN
/DEPENDENT ENGAG
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER AUTSAT RELSAT COMSAT.

REGRESSION
/MISSING LISTWISE
REGULATORY FOCUS AND NEEDS SATISFACTION

/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT JOBSAT
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER AUTSAT RELSAT COMSAT.

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT BURNOUT
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER AUTSAT RELSAT COMSAT.

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT TURNOVER
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER AUTSAT RELSAT COMSAT.

**********STUDY 4 - SCALE CREATION**********

*****WORK REGULATORY FOCUS*****

***Work Prevention Focus***

RELIABILITY
/VARIABLES=W1 W2 W3 W4 W5 W6 W7 W8 W9
/SCALE('Work Prevention Focus') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE WPREV=MEAN(W1,W2,W3,W4,W5,W6,W7,W8,W9).
VARIABLE LABELS WPREV 'Work Prevention Focus'.
EXECUTE.

***Work Promotion Focus***

RELIABILITY
/VARIABLES=W10 W11 W12 W13 W14 W15 W16 W17 W18
/SCALE('Work Promotion Focus') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.
VARIABLE LABELS WPROM 'Work Promotion Focus'.
EXECUTE.

**********BASIC PSYCHOLOGICAL NEEDS SATISFACTION**********

RELIABILITY
/VARIABLES=PNS1 PNS7 PNS13 PNS19
/SCALE('Autonomy Needs Satisfaction') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE AUTSAT=MEAN(PNS1,PNS7,PNS13,PNS19).
VARIABLE LABELS AUTSAT 'Autonomy Needs Satisfaction'.
EXECUTE.

RELIABILITY
/VARIABLES=PNS4 PNS12 PNS16 PNS24
/SCALE('Relatedness Needs Satisfaction') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE RELSAT=MEAN(PNS4,PNS12,PNS16,PNS24).
VARIABLE LABELS RELSAT 'Relatedness Needs Satisfaction'.
EXECUTE.

RELIABILITY
/VARIABLES=PNS3 PNS9 PNS14 PNS21
/SCALE('Competence Needs Satisfaction') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE COMSAT=MEAN(PNS3,PNS9,PNS14,PNS21).
VARIABLE LABELS COMSAT 'Competence Needs Satisfaction'.
EXECUTE.

**********WORK OUTCOMES**********

***Engagement***

RELIABILITY
/VARIABLES=EN1 EN2 EN3 EN4 EN5 EN6 EN7 EN8 EN9 EN10 EN11 EN12
EN13 EN14 EN15 EN16 EN17
/SCALE('Engagement') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE
ENGAG=MEAN(EN1,EN2,EN3,EN4,EN5,EN6,EN7,EN8,EN9,EN10,EN11,EN12,EN13,EN14,EN15,EN16,EN17).
VARIABLE LABELS ENGAG 'Engagement'.
EXECUTE.

***Job Satisfaction***

RELIABILITY
/VARIABLES=J1 J2 J3 J4 J5
/SCALE('Job Satisfaction') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE JOBSAT=MEAN(J1,J2,J3,J4,J5).
VARIABLE LABELS JOBSAT 'Job Satisfaction'.
EXECUTE.

***Burnout***

RELIABILITY
/VARIABLES=DB1 DB2 DB3 DB4 DB5 DB6 DB7 DB8 DB9 DB10 DB11 DB12 DB13 DB14 DB15 DB16
/SCALE('Burnout') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE BURNOUT=MEAN(DB1, DB2, DB3, DB4, DB5, DB6, DB7, DB8, DB9, DB10, DB11, DB12, DB13, DB14, DB15, DB16).
VARIABLE LABELS BURNOUT 'Burnout'.
EXECUTE.

***Turnover Intentions***

RELIABILITY
/VARIABLES=T1,T2,T3,T4
/SCALE('Turnover Intentions') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE TURNOVER=MEAN(T1,T2,T3,T4).
VARIABLE LABELS TURNOVER 'Turnover Intentions'.
EXECUTE.
**********JOB CRAFTING**********

***Job crafting dimensions***

RELIABILITY
/VARIABLES=JC17 JC18 JC19 JC20 JC21
/SCALE('Increasing Challenging Job Demands') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE ICJD=MEAN(JC17,JC18,JC19,JC20,JC21).
VARIABLE LABELS ICJD 'Increasing Challenging Job Demands'.
EXECUTE.

RELIABILITY
/VARIABLES=JC6 JC7 JC8 JC9 JC10 JC11
/SCALE('Decreasing Hindering Job Demands') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE DHJD=MEAN(JC6,JC7,JC8,JC9,JC10,JC11).
VARIABLE LABELS DHJD 'Decreasing Hindering Job Demands'.
EXECUTE.

RELIABILITY
/VARIABLES=JC1 JC2 JC3 JC4 JC5
/SCALE('Increasing Structural Job Resources') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE ITJR=MEAN(JC1,JC2,JC3,JC4,JC5).
VARIABLE LABELS ITJR 'Increasing Structural Job Resources'.
EXECUTE.

RELIABILITY
/VARIABLES=JC12 JC13 JC14 JC15 JC16
/SCALE('Increasing Social Job Resources') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE
/SUMMARY=TOTAL.

COMPUTE ISJR=MEAN(JC12,JC13,JC14,JC15,JC16).
VARIABLE LABELS ISJR 'Increasing Social Job Resources'.
EXECUTE.

**********STUDY 4 - ANALYSES**********
DEMOGRAPHICS & CORRELATIONS

frequencies D_empstatus.
frequencies D_gender.
descriptives D_education.
frequencies D_marital.
descriptives D_age.
frequencies D_income.
frequencies D_industry.
frequencies D_jobposition.

MEANS, SDs, and Correlations (Table 15)

descriptives WPREV WPROM AUTSAT RELSAT COMSAT ENGAG JOBSAT BURNOUT TURNOVER ICJD DHJD ITJR ISJR.

CORRELATIONS
/VARIABLES=WPREV WPROM AUTSAT RELSAT COMSAT ENGAG JOBSAT BURNOUT TURNOVER ICJD DHJD ITJR ISJR
/PRINT=TWOTAIL NOSIG
/STATISTICS DESCRIPTIVES
/MISSING=PAIRWISE.

REGRESSION ANALYSES

*Focal job crafting dimensions - Increasing Challenging Job Demands and Decreasing Hindering Job Demands (Table 16)*

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT ICJD
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER DHJD ITJR ISJR.

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT DHJD
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER ICJD ITJR ISJR.

*Alternative Job Crafting dimensions*
REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT ITJR
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER ICJD DHJD ISJR.

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT ISJR
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER ICJD DHJD ITJR.

**********Psychological Needs Satisfaction (Table 17)**********

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT AUTSAT
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER RELSAT COMSAT
/METHOD=ENTER ICJD DHJD.

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT RELSAT
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER AUTSAT COMSAT
/METHOD=ENTER ICJD DHJD.

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT COMSAT
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER AUTSAT RELSAT
/METHOD=ENTER ICJD DHJD.
**********Work outcomes (Table 18)**********

![](https://example.com/screenshot)

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/Criteria=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT ENGAG
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER ICJD DHJD
/METHOD=ENTER AUTSAT RELSAT COMSAT.

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/Criteria=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT JOBSAT
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER ICJD DHJD
/METHOD=ENTER AUTSAT RELSAT COMSAT.

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/Criteria=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT BURNOUT
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER ICJD DHJD
/METHOD=ENTER AUTSAT RELSAT COMSAT.

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/Criteria=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT TURNOVER
/METHOD=ENTER WPROM WPREV
/METHOD=ENTER ICJD DHJD
/METHOD=ENTER AUTSAT RELSAT COMSAT.